

**THE POLITICAL ONTOLOGY OF SEEDS: SEED SOVEREIGNTY STRUGGLES IN
AN INDIGENOUS RESGUARDO IN COLOMBIA**

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ABSTRACT

Laura María Gutiérrez Escobar: The Political Ontology of Seeds: Seed Sovereignty Struggles in an Indigenous *Resguardo* in Colombia
(Under the direction of Arturo Escobar)

This dissertation examines seed conflicts in Colombia due to the expansion of the Corporate Seed Regime, or the corporate-led governance and political economy of seeds premised upon the commodification of seeds via genetic engineering and intellectual property rights on plant material, in the context of the Free Trade Agreement with the US. To analyze seed conflicts in Colombia, I propose a multi-pronged approach that weaves together the political economy, the political ecology, and the political ontology of seed-human relationships.

As other communities and social movements in Colombia –and across Latin America–, seed savers from the Network of Free Seeds are increasingly associating neo-extractivist projects, particularly the expansion of GM corporate agriculture, to death and destruction, while defining their movement as the defense of life. Drawing from this conceptualization of ‘life’ vs ‘dead seed systems,’ I argue that seed conflicts are ontological conflicts, or conflicts over what seeds are, and, by extent, over the defense of the diversity of seed-human worlds enacted through agriculture and food practices.

To investigate the ontological dimension of seed conflicts, I analyze conceptualizations of seeds as a commons and sentient, related beings among Emberá-Chamí indigenous communities in the District of Riosucio, in the Colombian coffee-growing zone. I examine why and how the conservation of ‘traditional’ seeds and anti-GM activism in Riosucio’s indigenous communities underpin their struggles for territory, identity, food sovereignty, and self-

governance. Specifically, I look at three seed sovereignty initiatives in Riosucio: seed saving networks, the Community Seed House, and Transgenic-Free Territories. I contend that these initiatives evidence relational seed ontologies based on 1) multispecies figured worlds where identity-making processes become embodied in –and through– non-human beings, such as seeds, who shape indigeneity in Riosucio; and 2) place-based ways of inhabiting the territory, or *modelos propios*, particularly a Community Seed Economy that fosters multispecies practices of care, commons, and alternative markets for seeds.

To Alicia, who fills my life with joy and represents the seed of hope.

To my parents, whose life-long political commitments to social justice have always inspired and nurtured my academic endeavours and life journey.

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LIST OF ABBREVIATIONS

ANUC:	Asociación Nacional de Usuarios Campesinos (National Farmers Association)
CAN:	Comunidad Andina de Naciones (Andean Nations Community)
CGIAR:	Consultative Group for International Agricultural Research
DANE:	Departamento Administrativo Nacional de Estadísticas (National Statistical Administrative Department)
FAO:	Food and Agriculture Organization
FTA:	Free Trade Agreement
Fedecafé:	Federación Nacional de Cafeteros de Colombia (Colombian Coffee Growers' Association)
GM:	Genetically Modified
GMOs:	Genetically Modified Organisms
GR:	Green Revolution
ICA:	Instituto Colombiano Agropecuario (Colombian Agriculture Institute)
INVIMA:	Instituto Nacional de Vigilancia de Medicamentos y Alimentos (National Institute of Health Drugs and Food Vigilance).
NGO:	Non-Governmental Organization
ISAAA:	International Service for the Acquisition of Agri-biotech Applications
ITPGRFA:	International Treaty on Plant Genetic Resources for Food and Agriculture
ILO:	International Labor Organization
ReSa:	Red de Seguridad Alimentaria (Food Security Network)
R&D:	Research and Development
NFS:	Red de Semillas Libres (Network of Free Seeds)
TNC:	Transnational Companies
TRIPS:	Trade Related Intellectual Property Rights Agreement
UN:	United Nations

UPOV	International Union for the Protection of New Varieties of Plants
US:	United States of America
WIPO:	World Intellectual Property Organization
WTO:	World Trade Organization
ZIDRES:	Economic and Social Rural Development Interest Zones.

WEIGHTS AND MEASUREMENTS

Land Area

Cuadra = 6.400 m² = 1.5 acres

Hectare = 10.000m² = 2.5 acres.

Weight

Panela

Atado: two 500 gr *panelas* = 1 kilo = 2.2 pounds.

Paca: 24 *atados* = 13 kilos = 28.6 pounds.

Coffee

Arroba: 25 pounds

Carga: 125 kilos = 275.5 pounds

Bag: 60 kgs = 132 pounds

CHAPTER 1: INTRODUCTION: RELATIONAL SEED WORLDS AND STRUGGLES IN COLOMBIA

1. Seeds of Struggle in Colombia

For each seed that is seized, we will make them sprout and bloom again, multiply, spread, and walk freely with farmers in the fields of Colombia.

Network of Free Seeds' Manifesto on Seeds (2013)

Documentary 970, by Colombian filmmaker Victoria Solano, is a moving testimony of the intensity of recent conflicts over the use and property of seeds in Colombia¹. It takes place in the town of Campoalegre, in the southeastern Department of Huila. Farmers from Campoalegre produce some of the highest quality rice in the country. The documentary shows original footage of a raid where local police, the anti-riot squad (*Esmad*), and plant health inspection authorities from the *Instituto Colombiano Agropecuario* (Ica) seize rice sacks from local farmers who try, unsuccessfully, to resist². Following scenes show workers at the municipal landfill in Neiva – Huila's capital city– unloading the seized rice sacks from a truck to a ditch while an excavator buries them with dirt. This footage is combined with excerpts from a meeting in Cartagena where presidents Juan Manuel Santos and Barack Obama praise the recent signing of the Free Trade Agreement (FTA) between Colombia and the United States in 2012.

Documentary 970 suggests that seed conflicts in Campoalegre, and across the country, arose out of the implementation of Ica's Resolution 970 which 'harmonizes' domestic seed

¹ Online free streaming with English subtitles at: <https://www.youtube.com/watch?v=TkQ8U2kHAbI>

² Colombian Agricultural and Livestock Institute. Ica is a branch of the Ministry of Agriculture and Rural Development.

legislation with international regulations set by International Union for the Protection of New Varieties of Plants (UPOV) Convention of 1991 (hereafter UPOV91) as a requirement of the US-Colombia FTA.³ This harmonization meant the implementation of patent-like breeders rights that forbid seed saving of legally protected seeds and the requirement that farmers can only grow certified seed (Gutiérrez Escobar and Fitting, 2016).

Figure 1: Destruction of Rice Seeds in Colombia



Source: <https://www.youtube.com/watch?v=TkQ8U2kHAbI>

The destruction of large amounts of the best quality rice in a country with one of the highest rates of hunger and child undernutrition in Latin America caused public indignation. The Documentary went viral in the internet; there were op-ed newspaper pieces and radio and TV programs on the topic for several weeks. More importantly, its release coincided with a National Agricultural Strike which paralyzed the country from August 19th to September 12th, 2013. The strike was promoted by the two largest agrarian confederations in Colombia: *Dignidad*

³ The UPOV Convention was adopted in Paris in 1961 and it was revised in 1972, 1978 and 1991 (UPOV webpage <http://www.upov.int/portal/index.html.en>) consulted July 19, 2016.

Agropecuaria and *Cumbre Agraria, Etnica y Popular*. Due to the documentary and seed saving networks and activists associated with the Colombian Network of Free Seeds (NFS), strike leaders included the repelling of Resolution 970 in their list of demands.

My dissertation fieldwork in Colombia in 2013 coincided with these fascinating seed conflicts and larger peasant mobilizations. Such social upheaval deeply shaped my analysis both theoretical and politically.

Seed conflicts in Colombia have escalated in the last years, particularly since the US-Colombia FTA went into effect in 2012, due to (1) the promotion –both through imports and cultivation– of GM crops, especially corn, destined for commodity markets as raw material for agrofuels and animal feed, and (2) claims that plants and their genetic material are increasingly subject to intellectual property rights that restrain their free use and circulation.

Colombia is one of 19 countries in the world growing more than 50,000 hectares of transgenic crops (ISAAA, 2014: 5). In 2014, GM crops, mainly maize and cotton, were grown on over 100,000 hectares. Among seed savers and activists, concerns point to the strong connection between GM seeds and the expansion of corporate agriculture and seed enclosure under IPRs, particularly in the context of the US-Colombia FTA. This trade agreement, which became effective in 2012, required Colombia to join the UPOV91, a system that restricts farmers' rights to use the seeds they grow. UPOV91 does this by recognizing the property interest of breeders, increasingly corporations, in hybrid and GM seeds and in seeds considered “essentially derived” from the protected varieties. Breeder's rights are provided under UPOV when a variety is new, distinct, uniform, and stable. Protections under UPOV91 extend to seeds that might in their natural state share the characteristics of the engineered seeds and even to varieties involving no

creative process but that were “discovered” and had not been previously registered anywhere as intellectual property (Grupo Semillas, 2011; Gutiérrez Escobar and Fitting, 2015).

This dissertation examines seed conflicts in Colombia in the context of the expansion of agricultural biotechnology and intellectual property rights (IPRs) on plant material associated with the US-Colombia FTA. Two main questions guided the dissertation:

1. How do seed conflicts contribute to understanding the relation between agricultural globalization, particularly biotechnology and IPRs, and indigenous peasant economies, identities, and resistance in Colombia?
2. In what specific ways do grassroots projects for seed sovereignty contribute to different theoretical and political approaches to non-human worlds, the provision of collective goods, and the construction of diverse food economies and agricultural knowledges?

2. Seeds of Sovereignty, Identity, and Resistance

2.1. Seeds of Identity

“Our seeds identify us at the cultural level, like other traditions, such as the fine *vueltaio* hat; they identify us as *zenú* indigenous people. This is why we strengthen every day the conservation of our seeds, and the knowledges to prepare them, because they are unique. Let’s talk about *cariaco* maize that calms thirst. The *criollo* or savanna *chocolate* (cocoa) drink is prepared exclusively with *cariaco* maize. If we lose that variety, we lose all of the knowledge about the elaboration and consumption of *criollo* chocolate” (Pedro, 2013).

This is the testimony of Pedro, a *zenú* indigenous seed saver from the San Andrés de Sotavento community located in the northern Caribbean savannas of Colombia. Pedro spoke at a round table during a meeting of the Network of Free Seeds (NFS) in Bogotá in October 2013. Pedro’s testimony speaks to the strong connection between native and creole seeds –particularly maize–, and indigenous identities, community-making, and local knowledge systems.

Despite maize's crucial importance, the Colombian government approved the import and cultivation of transgenic or genetically modified (GM) varieties, which are currently grown nearby zones of high biodiversity, as seen below.

Seed savers, such as Pedro and others affiliated with the NFS, are usually small-scale farmers from peasant, indigenous and afro-descendant communities –but also ‘neo-peasants’ and urban dwellers or displaced people living in the cities–. Neo-peasants are mostly urban young or elderly people who have decided to move to the countryside to farm, many looking for reconnecting to ‘nature and the earth’ or to their family’s rural roots. They are, however, a minority in the NFS comprising no more than 20% of total membership. Seed savers are then farmers who have a particularly strong interest in, and love for, conserving and developing different seed varieties for several reasons including better nutrition, soil conservation, ritualistic uses, autonomy from the seed industry, etc. In other words, seed savers have developed deep relationships with seeds that transcend narrow economic calculations on profit and have built relational worlds out of such relations and interdependences (see chapter 6).

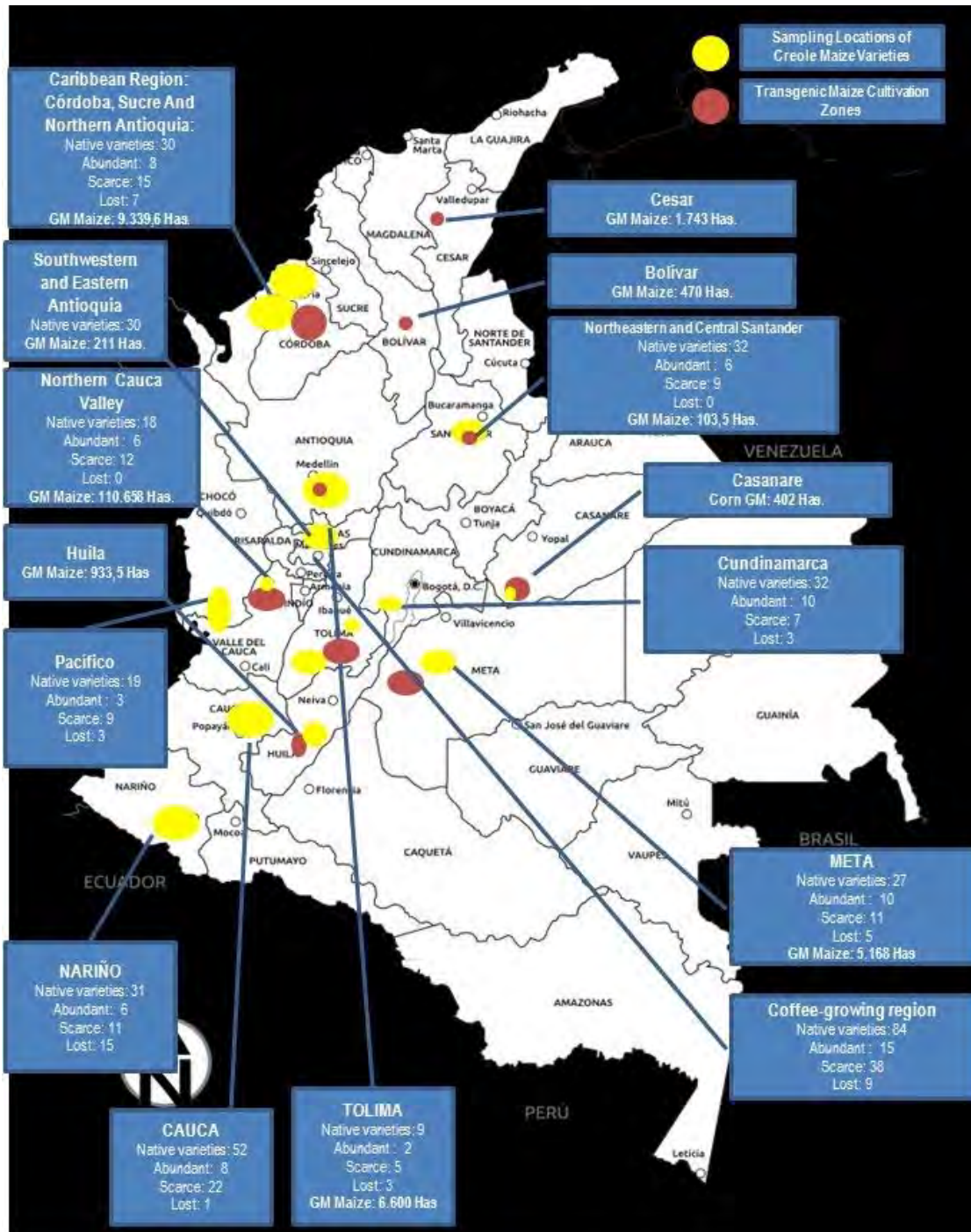
Colombian seed savers refer to *semillas nativas*, *tradicionales* or *criollas* in contrast to “modern” or “improved” varieties. In this dissertation, I use the term *criollas* or ‘creole’ because as Fitting, Wattnem, and myself (in press) explained:

“In Spanish, *criollo/criolla* refers to both landraces and creolized varieties, the latter of which are the outcome of an intentional or accidental mix of landraces with scientifically improved varieties. We use the Spanish term “*criollo/a*” –rather than native or traditional – because seed savers often use it, and it captures the fluid, active nature of seed varietal development.”

Seed savers defend native and creole seeds because, unlike GM seeds, they believe them to be well adapted to local conditions, promote agro-ecological farming and ‘traditional’ agricultural knowledges, guarantee food sovereignty and political autonomy, and contribute to the political mobilization of re-signified identities –such as ‘peasant’ or ‘indigenous’. To defend

native and creole seeds, seed savers promote seed conservation and development on their fields and gardens and/or at community seed houses, as well as the collective owning and sharing of seeds regulated by social and cultural conventions or seed commons.

Figure 2: Map of Creole Maize Diversity vs. GM Crops in Colombia 2010



Source: Translated from NFS, 2015: 96

2.2. *Seeds of Resistance: Transgenic-Free Territories*

With the impending approval of GM maize in Colombia, in 2005 the San Andrés de Sotavento *Resguardo*, located in the northern Departments of Córdoba and Sucre, declared itself as a ‘Transgenic-Free Territory’ (TFT). The *Zenús* have been supported by the Seed of Identity Campaign that promotes the conservation and exchange of *criollo* seed in Colombia. The Campaign started in 2002 by the Caribbean Agroecological Network (*Red Agroecológica del Caribe* or Recar), SwissAid, and the Colombian NGO Grupo Semillas (Fitting, 2013: 14).

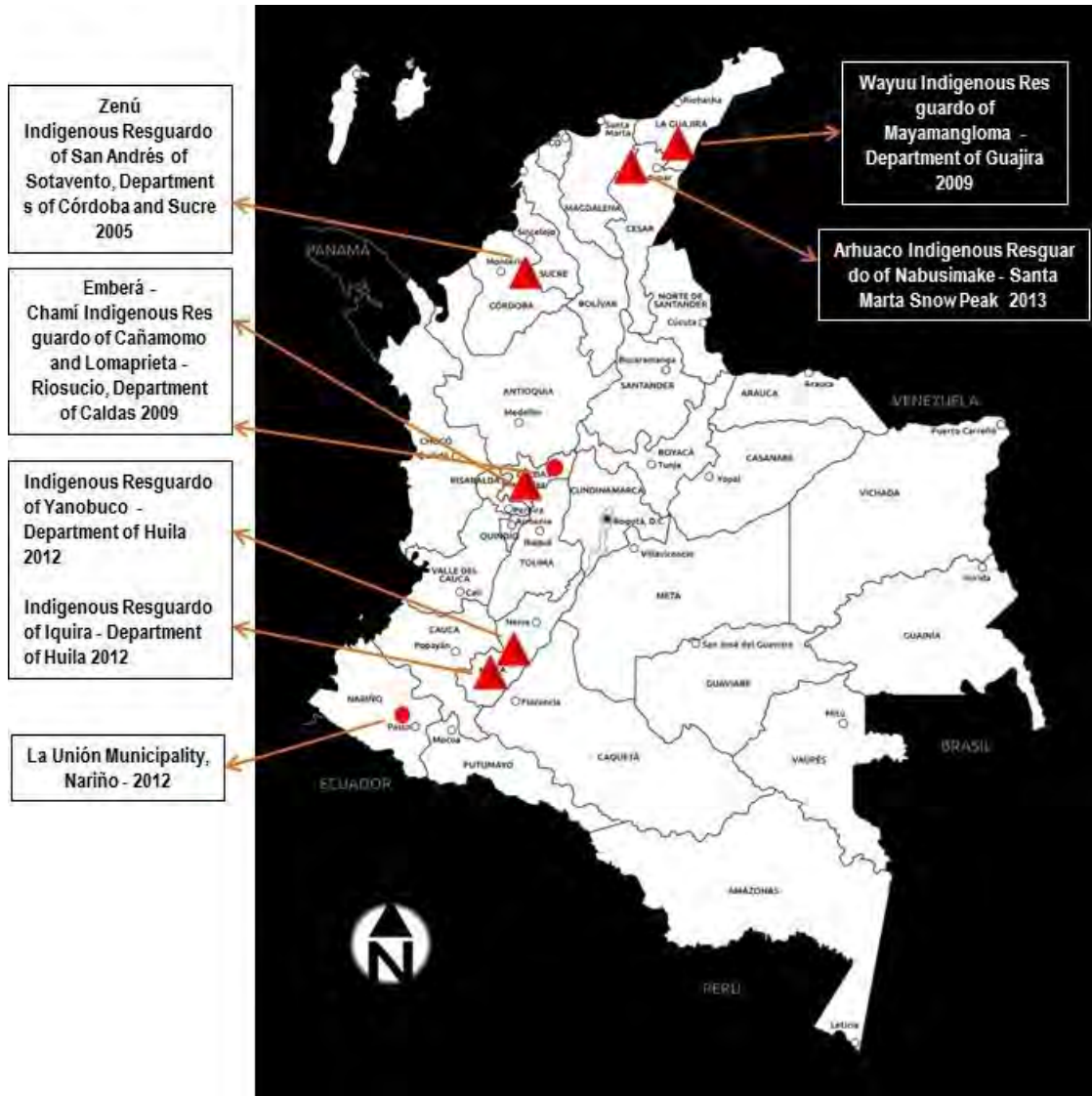
In their declaration, the *Zenú* highlight that Colombia is a center of diversity for maize as well as the cultural and socio-economic importance –the pillar of food sovereignty– of this crop for their communities and other indigenous groups in the country. They also reject the import and cultivation of GM maize, particularly as a result of the Free Trade Agreement with the US, the largest producer in the world, due to the threat of genetic contamination of *criollo* varieties and the negative impacts on domestic maize production and food sovereignty at large.

The *Zenu*’s declaration of a transgenic-free territory had two important consequences. First, it forced the government to acknowledge the decision of Zenús’ authorities to ban GM maize in their territories; a decision that was likely shared by other indigenous groups in the country. As a result, when ICA approved the ‘controlled’ cultivation of GM corn in Colombia in 2007, it forbade it within indigenous *resguardos* and set a 300-meter minimum distance from any *resguardo* (Fitting, 2013: 15). Pedro recalled this process at the 2013 NFS’ meeting in Bogotá:

Our territory is also nearby a zone that is heavily cultivated in GM maize and cotton such as in the towns of Cereté, Chima, and Ciénaga de Oro that border with our *resguardo*. This is why we declared ourselves as Transgenic-Free Territory. Being TFT does not protect us enough but we gained that GM maize seeds are not cultivated within 300 meters of our indigenous territories, not only in the Caribbean but also around the country” (Pedro, 2013)

Second, it set an example for other indigenous communities in the country. In 2006, SwissAid, Grupo Semillas and Recar decided to expand the Seed of Identity Campaign to a national level and started working with other indigenous communities, such as Cañamomo and Lomapieta, to declare their territories as Transgenic-Free (Fitting, 2013: 15)

Figure 3: Map of Transgenic-Free Territories and Municipalities in Colombia 2014



Source: Translated from NFS, 2015: 62

Six *resguardos* in Colombia –out of close to one hundred—have declared themselves TFT: 1) San Andrés de Sotavento in Córdoba and Sucre, 2) Nabusimake in the Santa Marta Snow Peak, 3) Mayamangloma in Guajira, 4) Yanobuco and 5) Iquira –both in Huila, and 6)

Cañamomo and Lomaprieta in Riosucio, Caldas. In addition, there are two transgenic-free municipalities: Riosucio, and La Unión in the Department of Nariño.

La Unión is the only transgenic free peasant municipality in the country. This is so because non-indigenous communities and municipalities do not have the constitutional rights to self-determination and thus have weaker legal instruments, such as ‘popular consultation’ (*consulta popular*) to declare themselves as Transgenic-Free Territories.

3. Caring for and Walking the Seed Freely in Riosucio’s *Resguardos*

My dissertation research focuses on seed savers networks in the autonomous Emberá-Chamí indigenous territories –called *resguardos* in Spanish- in the district of Riosucio, Department of Caldas, in Midwestern Colombia. Some of the networks are associated with the NFS and others with the *Asociación de Productores Indígenas y Campesinos* (Asproinca), a local grassroots agroecological organization of indigenous and peasant farmers.

Riosucio’s *resguardos* are an interesting case study because their seed savers networks are some of the most important and largest in the country. In addition, in 2009, the indigenous people from Cañamomo and Lomaprieta, a name that refers to a single *resguardo*, declared their community a “Transgenic-Free Territory” to protect agrobiodiversity and prevent the entry of GM crops and food, particularly maize. They also created a *Red de Guardianes de Semillas* (Seed Savers Network) and built a *Casa Comunitaria de Semillas* (Community Seed House). Like the larger NFS, these organizations emerged in response to the processes of seed enclosure through IPRs and biotechnology.

These initiatives intend to autonomously control the kinds of seeds used as well as the ways they are owned, cultivated, and circulated in their territories, or what is known as seed sovereignty (Kloppenburg, 2010). I argue that seed sovereignty initiatives in Riosucio have become politicized in the context of the struggle for indigenous territory, identity, and self-

governance. This is so because creole and GM seeds have come to differently embed the indigenous collective self, struggles, and racialized forms of oppression among the Emberá-Chamí people of Riosucio who have lost their language and other identity markers that are demanded from the State and non-indigenous Colombian society.

Figure 4: Map of Riosucio District



Mapa de Colombia tomado de: <http://tinyurl.com/q72twzx>
 Mapa de las subregiones de Caldas tomado de: <http://tinyurl.com/pjsqyql>

Map of Colombia: tinyurl.com/q72twzx. Consulted on October 8, 2016
 Map of Caldas: tinyurl.com/pjsqyql. Consulted on October 8, 2016

4. Seed Matters and Matters of Theory

4.1. Poisoned Chicha: Life and Death in Seed Systems/Worlds

In June 2013, I visited the *pijao* indigenous community of the Natagaima *resguardo* to attend a workshop on the importance of seed conservation. The workshop was organized by the local agroecological school with the support of the environmental NGO Grupo Semillas. The school aims to recover and readapt the ‘traditional’ agricultural practices and knowledges of *pijao* indigenous people in this region whose territories and ways of subsistence have been deteriorated and enclosed by industrial agriculture, particularly of rice, but also maize.

One night, our hosts invited me and members of Grupo Semillas to their favorite *chicheria*. *Chicherias* are locales that make and sell *chicha*, the fermented maize beverage consumed by indigenous people in Colombia and across Latin America. At the *chicheria*, we were terrified to see how *chicha* –one of the most sacred and ancestral symbols of indigenous worlds– was sold in used glyphosate containers. When we insinuated the dangers of drinking *chicha* from such containers, our hosts reassured us that it was completely safe because the containers had been ‘triple-rinsed’. I sat there trying to drink as little as possible of this literally poisoned *chicha* without insulting our hosts, while frightened we would end up intoxicated at the hospital.

To analyze seed conflicts in Colombia, I propose a multi-pronged approach that weaves together the political economy, the political ecology, and the political ontology of seed production and distribution, in an integrated fashion.

4.2. Seed Political Economies

The expansion of GM maize in Natagaima, Riosucio, Campoalegre, and other communities in Colombia, has brought a new round of enclosures, not only of land, but also of seeds. Rather than commons or public goods, seeds are increasingly conceived, produced, and managed as human-made –that is, scientifically redesigned– commodities available for private property. The enclosure of seeds, as one of the few means of production that remained largely under the control of farmers, is the result of the increased corporatization of global agri-food systems under neoliberalism. Following Friedmann and McMichael (1989) and McMichael (2009)– I refer to a ‘Corporate Seed Regime’, or a complex set of structures, norms and practices of seed governance and political economy, at play in Colombia. Its main institutions and practices include IPRs, biotechnology, the corporatization of plant science research, biosafety protocols, seed contracts and certification, seed banks, and bioprospecting.

The commodification and enclosure of seed commons –and life itself– is sustained by a form of (bio)hegemony or the “acceptance of a ‘natural’ order of capitalist relations of agrarian production” that takes for granted the commodification of life (Valdivia, 2010; Newell, 2009). Regarding agricultural biotechnology, such ‘natural order’ is based on a double reductionism – both genetic and economic– that furthers “the extension of the commodity realm to the molecular level” (McAfee, 2003: 209) In this way, seeds become a collection of genes that can be precisely and safely decoded, manipulated, moved across different species, and switched on and off to “devise super crops that will bring about the end of hunger” (McAfee, 2003: 205). In turn these “new commodity fictions” cannot only be privately owned, but also “quantified, priced and traded” in global stock markets (Sullivan, 2010: 114-116)

One dimension of seed conflicts in Colombia is then related to the struggle to maintain seed sovereignty or the autonomous control of communities over seed reproduction and development. Among seed saving networks in Colombia, there is the defense of seeds as commons which is not necessarily antithetical, but rather, redefines markets (Colloredo and Antrosio, 2009). There are efforts to create alternative markets in order to exchange seeds through barter and reciprocity, but also to set fair prices for seeds. These initiatives are framed within initiatives towards what Gibson-Graham (2008) called a ‘community economy’ that includes, from my perspective, not only human, but multispecies practices of care and affects (Bellacasa, forthcoming; Bird Rose, 2012).

4.3. Seed Political Ecologies

While glyphosate and GMOs, for instance, clearly have political and economic dimensions, they have environmental impacts and costs, and they foster ecological conflicts. When I later talked about the ‘poisoned chicha’ incident with the activists from Grupo Semillas, they explained that since the expansion of glyphosate-resistant GM maize a few years ago, the

use of this agro-toxic increased so rapidly that containers piled up on fields and roads across the region. Unable to dispose of all of them, *resguardo* farmers started using the glyphosate containers to store other things. Tragically, their size was very suitable to sell *chicha*. *Chicheria* owners then began to use them as they were locally abundant and available for free.

The local perception that these containers are safe to reuse has been fed by decades of official discourse on the innocuousness of glyphosate both for humans and the environment. This agrochemical is widely used in the country not only for agriculture, but for the aerial fumigations of coca fields under the *Plan Colombia* –a set of policies ranging from military to ‘free’ trade-based development and aid– implemented as part of the US-backed ‘War on Drugs.’ Despite increasing evidence –both scientific and from affected communities– on the perturbing effects of glyphosate on human health and ecosystems, Colombian health and environmental authorities continue to endorse the use of glyphosate⁴. The *triple lavado* (triple-rinsed) is promoted as one of the ‘best practices’ for environmental and health protection in agriculture in relation to agrochemicals. According to this risk-management narrative, agro-chemicals easily dilute in water. Farmers then need only to rinse these containers with clean water at least three times to safely dispose of them.⁵

Another important ecological dimension of seed conflicts is the issue of the genetic contamination of creole varieties. Colombia is one of the most biodiverse countries in the world

⁴ Forced by the WHO reclassification of glyphosate as “probably carcinogenic to humans” in 2015, the Colombian government halted the use of glyphosate in aerial fumigations, but did not forbid its use for on-the-ground fumigation of coca fields and for agriculture.

⁵ On my fieldtrip to Salta, northern Argentina, in October of 2014, I heard similar testimonies from wichi indigenous people on the terrible environmental and health consequences of millions of piled-up glyphosate-leaking plastic containers as GM soy cultivation has expanded to this region. Communities and activists have denounced this problem across the millions of hectares of GM soy cultivated in the southern cone countries. The issue of containers’ disposal worsens the already critical situation of communities who suffer from glyphosate aerial fumigation of their houses, schools, hospitals, and fields that have become literally enclosed by GM soy.

and is considered a center of maize diversity holding a large variety of maize –both native and landraces–, particularly in indigenous and afro-descendent communities. The cultivation and import of GM maize has caused controversy because of the danger of genetic contamination of creole varieties. The defense of creole seeds then highlights the ecological and bio-centric dimension of seed sovereignty as seed diversity –and (agro)biodiversity in general– is crucial for maintaining ‘traditional’ forms of agriculture –such as the ‘coffee forest’– in combination with agroecology and other paradigms that seek to disrupt the dependence on chemical inputs and monocropping.

4.4. Seed Political Ontologies

Social movements in Colombia –and across Latin America- are increasingly associating neo-extractivist projects to death and destruction and, consequently, defining their mobilizations as the defense of life. For instance, the Process of Black Communities (*Proceso de Comunidades Negras*) in the Colombian Pacific coast refers to the large-scale oil palm plantations as the ‘Green Monster’ that destroys their territories, and thus, the possibility of life itself (Escobar, n.d. and 2008) Similarly, one of the main slogans of the anti-mega-mining movement is “NO to mega-mining; YES to life.”

As I now recall the ‘poisoned chicha’ ethnographic moment, I realize how powerfully – and tragically- it illustrates what NFS seed savers call the ‘dead seed system.’ Poisoned chicha illustrates how seed conflicts in Colombia cannot be fully understood only in terms of resistance of small-scale farmers against seed grabbing by biotechnology corporations. Rather, seed conflicts are also ontological conflicts. That is the struggle of indigenous seed savers for seed sovereignty is a struggle to defend the worlds they co-create and inhabit together with other beings through agriculture, and particularly seed practices, from the globalization of the world of corporate agrobiotechnology. In other words, seed conflicts in Colombia are a struggle to defend

what seed savers call ‘live seed systems’ (the worlds they co-create in relations to seeds) against the advance of what they refer to as the ‘dead seed system/world’ that arrogates itself the right to become the one and only.

Death and destruction within the agrobiotechnology complex is crystallized in the incrementation of the pesticide treadmill as well as the aggressive search for genetic seed’s sterility through genetic engineering and increasingly restrictive IPRs as a form of legal sterilization. Sterility and genetic homogeneity, as means of necropower to eliminate what are considered undesirable bodies and ‘inferior’ races, is not new. Campaigns to forcefully sterilize women of color as a weapon of ethnic cleansing and genocide has been used in countries such as Peru against indigenous women under the Fujimori dictatorship, in the US against black and indigenous women, and in Nazi Germany against Jew, gipsy, and other ‘non-Arian’ women, to name a few.

Such eugenics-based mentality of improving the human ‘race’ by eliminating or controlling the reproduction of inferior ‘races’, has also pervade plant science since at least the Green Revolution; what Christophe Bonneuil and Frédéric Thomas (2010) call phyto-eugenics. So much so that, taxonomically, seeds are divided into categories called ‘races’ and the application of genetics in plant science is known as phytogenic ‘improvement.’ In other words, modern plant science is conceived as the ‘genetic improvement’ of races in order to benefit capital accumulation through a form of biological patenting.

The dead seed system/world then includes ontological and epistemological propositions about what seeds are that underlie seeds’ governance and property regimes. Such propositions emerge from a dualist modern ontology that conceptualizes seeds –and particularly creole and native varieties from the global south– as part of the (Nature) Other. These so-called ‘natural’

and ‘inferior’ seeds are to be ‘improved’ using genetic manipulation and, once manipulated, considered a human ‘invention’ that can be enclosed through IPRs for capital accumulation. In Colombia and across the global south, GM seeds are imposed through FTAs and state and corporate-backed development institutions and programs for the advancement of ‘backward’ forms of peasant agriculture and in hunger-eradication efforts. In other words, rendering invisible and inferior native and creole seeds – and the associated labor and knowledges of small-scale farmers– is part of the coloniality of nature (Alimonda, 2010)

In contrast, live seed systems/worlds are based on relational ontologies where seeds and humans are not ontologically separated but exist within networks of relations through which they bring themselves into being (Escobar, 2016; Muller, 2014a; Demeulenaere, 2014) In fact, seeds have become crucial for redefining what it means to be ‘indigenous’ in Riosucio; seed-human relationships are increasingly shaping identities or configuring multispecies figured worlds (Holland *et al*, 1998) Due to seeds’ ability to endlessly reproduce life – both their own through germination and of other beings as food–, seeds are the quintessential representation of the interconnections and dependencies between human and non-human beings. As the fox says to the Little Prince in Antoine de Saint-Exupéry’s story, domestication is about ‘establishing ties.’

Emberá-Chamí indigenous people, and particularly women, in Riosucio consider seeds sacred and willful beings with whom they establish strong –even kinship– relations. Maize is particularly telling because of its history of domestication. Indigenous people from Mexico talk about maize and themselves and their ancestors co-domesticating each other: maize cannot grow without humans de-kernelling the cob and sowing the grains and indigenous people cannot live and prosper without maize (Casifop, Coa and Grain, 2012). Similarly, the Emberá are literally “people of maize.” Maize is an element in their ritual meals; in their *minga*, the community work

force that dates back centuries; and in the inauguration of their governors (Grupo Semillas and CSI, 2011: 9-11).

In addition, seed-savers Networks, Transgenic-Free Territories, Community Seed Houses and other seed sovereignty initiatives in Colombia make visible communities' claims on seeds not just as communal resources but as beings endowed with agency and rights. For instance, seed savers' anti-GM activism is centered in demanding that seed development cannot violate their life cycles through the control of fertility and evolution. That is, the genetic modification of seeds constitutes a violation of seeds' rights if looked at through the lens of recent struggles for nature's rights by indigenous people in Bolivia and Ecuador (Bravo, 2014b)

To end this section, I want to clarify that I conceptualize 'live' vs. 'dead' seed worlds as analytical terms that do not entail clear boundaries. If you follow seeds, you can observe seed trajectories are never linear but rather intersect constantly. For instance, creole seeds may participate in the world of the corporate seed system whenever they are patented by corporations or become commodities for international high-end niche markets, such as the case of quinoa in South America. In turn, peasant communities may plant GM seeds and become part of the corporate seed system although in a disadvantaged position. Some plant scientists in Colombia have condemned IPRs and propose forms of open source genetics that may include 'generic' GM seeds (see chapter 2).

At the same time, although there is an attempt at ontological displacement, GM seed worlds never fully take over creole and other seed worlds. For instance, communities may devise communitarian strategies to "heal" GM contaminated creole maize –as seed savers say in Mexico– and control the entrance of GMOs in their territories and other strategies to recuperate

their seed sovereignty. To be sure, there are constant ontological frictions (Tsing, 2005) at the encounters between creole and GM seed worlds.

5. On Doing the Ethnography of Seeds

I undertook fieldwork from February 2013 to September 2014 with two grassroots organizations –Asproinca and the Network of Free Seeds (NFS). While Asproinca is a local organization, the NFS is a network of seed savers’ networks, environmental and human rights NGOs, agroecological organizations, and academics working on issues related to food and seed sovereignty. My fieldwork was complemented by interviews with biotechnologists and academics and continuous analyses of the press, internet sources, and social media. I used pseudonyms for all of my informants in order to protect their identities, except for Germán Vélez, director of the NGO *Grupo Semillas* and a renowned public figure, who gave me permission to use his real name. As such, my fieldwork was multi-sited and involved a variety of research and ethnographic methodologies⁶.

5.1. NFS and Asproinca

Most of my research with the NFS took place in Bogotá, and in Riosucio whenever possible, carrying out participant observation at meetings, conferences, public hearings at Congress, and other events. At the NFS, I worked most closely with the Colombian NGO *Grupo Semillas*⁷.

⁶ Unless otherwise noted, all translations from the Spanish are by the author.

⁷ I helped organize and participated in a meeting of the Network for a Transgenic-Free Latin America (Bogotá, May 23-27, 2013) and the three NFS’ national meetings held during my fieldwork (Bogotá, October 2-3, 2013 and September 05, 2014) I participated in NFS’ regional meetings such the SwissAid Seeds of Identity Campaign Workshop on Seed Houses in Pereira, Department of Risaralda (November 6, 2013); a local Seed Savers Meeting in *La Mandrágora* Farm at the Cañamomo and Lomaprieta *resguardo* (Mayo 3, 2014); and the Ecovida Conference organized by the University of Caldas at Manizales’ Botanical Gardens which is an NFS member (August 22, 2014)

I also attended two NFS-sponsored fieldtrips: the first one, in June 2013, to know Grupo Semillas' agroecological school in the indigenous Pijao community in the Natagaima *resguardo*, Department of Tolima; the second, the following year in March, to assist the recording of a video on the impacts of GM maize among those Pijao indigenous communities, and small and medium-scale rural entrepreneurs from nearby town of El Espinal.

The bulk of my fieldwork was carried out with Asproinca, a grassroots agroecological organization that is formed by Andean peasant and Emberá-Chamí communities located in the districts of Riosucio and Supía. The Emberá-Chamí indigenous population live in four indigenous territories or *resguardos* in Riosucio, each with an autonomous government called *Cabildo*; peasant communities are located in Supía and are not entitled to political or territorial autonomy⁸.

During September and October 2013, I led four workshops with Asproinca families in Riosucio and Supía where I showed 970 Documentary. The workshops allowed me to discuss the importance of on-farm seed saving and exchanging and the impact of transgenic crops and IPRs on small-scale agriculture.

While in Riosucio, I also carried out fieldwork with the seed savers' network supported by the Cañamomo and Lomapieta *cabildo*, the municipal administration whose mayor is a local indigenous leader, and the NFS. Some seed savers from the *cabildo*'s networks also belong to Asproinca.

I used different methodologies according to my research objectives. To understand the local agricultural models and ethno-ecology that inform seed practices, I carried out semi-

⁸The 1991 Constitution recognized Colombia as a multicultural nation and granted ethnic-based rights to minorities. Accordingly, indigenous people gained the right to self-government but not mixed-descendant people, such as peasants. *Resguardos* are colonial-based indigenous autonomous territories (see Chapter 2)

structured interviews with Asproinca seed savers to make ‘seed matrixes’ of mostly beans and maize varieties, recording their agronomic knowledge and symbolic use (Salas and Tillmann, 2010: 72; Nazarea, 1995: 113-116). In informal conversations, interviews, workshops, meetings and seed fairs organized by NFS and Asproinca I enquired about how seed practices relate to ideas about nature, diet, health, identity, political autonomy, resistance, and spirituality. In addition, I used, with limitations, a ‘learning by working’ approach (Gonzales, 2001) to conduct participant observation of seed practices in Asproinca’s farms, where I worked in planting and saving maize seeds.

To better understand how peasants in the coffee-growing zone are accommodating to and/or resisting seed commodification, I did in-depth interviews with Asproinca seed savers. Interviews focused on how Green Revolution and GM technologies, IPRs, environmental changes, and government programs have impacted seed sovereignty and diversity. I also carried out participant observation in meetings, protests and seed fairs organized or attended by the NFS and Asproinca to investigate how peasant seed practices become articulated with grassroots political organization. I sought to understand to what extent seeds function as a ‘commons’; how seed practices are regulated by reciprocity, market transactions, and means of social control; and how seeds acquire agronomic and cultural meanings as they are performed in daily work (Richards, 1989).

Interviews with seed savers from Asproinca also enquired about current changing patterns in the use of seeds; perceptions on the increase in availability or scarceness of local seed varieties and the implications for food production; and variations in how much they produce for the market and for self-consumption.

5.2. Press Review and Semi-Structured Interviews

The press review focused on reporting and opinion pieces about GMOs, IPRs, and seed-related controversies during the 2013 National Agricultural Strike. I conducted semi-structured interviews with biotechnologists, agronomists, and scholars working on peasant economies in Manizales, as well as government officials. Lastly, I interviewed a couple of representatives of domestic and transnational seed companies. These interviews aimed to understand the different reasons and interests behind those who promoted biotechnology and IPRs on plant material in order to contrast them to seed savers’.

5.3. The 2013 Coffee and Agrarian Strikes

I should emphasize that my fieldwork coincided with an intense period of activity and mobilization concerning seeds and peasant politics more broadly, some of which I will discuss below and throughout the dissertation.

Asproinca supports the coffee-farmers’ grassroots organization *Dignidad Cafetera Nacional* (National Coffee Dignity) that in turn forms –along with *Dignidades* from other rural production sectors such as cacao, rice, dairy, and potatoes– the agrarian confederation *Dignidad Agropecuaria Colombiana* (Colombian Agrarian and Livestock Dignity). For this reason, I participated in *Dignidad Cafetera*’s meetings, held in Riosucio and Manizales. Likewise, I joined Asproinca’s members in protesting during the National Coffee-Cacao Strike that took place from February 25 to March 8th, 2013. We went to the nearest concentration point in Irra, a small settling (*corregimiento*) in the border between the Departments of Caldas and Risaralda, by the *Panamericana* highway. Fortunately, in Irra, unlike other protest sites, there were no

confrontations with the anti-riot police, so I had the time and tranquility to carry out participant observation and interviews with Asproinca and other local coffee farmers⁹.

This strike was the largest rural demonstration in more than a decade in the country –with more than 100.000 mostly coffee, but also cacao, farmers protesting for eleven days- and set the stage for the creation of *Dignidad Agropecuaria Colombiana*¹⁰. Below-production-costs international prices for coffee detonated the strike, after more than six months of failed negotiations with the government, rallies and marches¹¹. The demands were: stable and remunerative internal prices for coffee, government control of the prices and quality of agricultural inputs, the prohibition of mega-mining in coffee-growing zones, an end to coffee imports, and the bailout of bank debts associated with coffee production. The strike obtained a government subsidy for coffee producers called *Protección al ingreso cafetero* (PIC) of around \$USD 50 (145.000 pesos) per *carga* of coffee and set up negotiating spaces with the government to discuss the other demands.

I did not attend the National Agricultural Strike that took place a few months later (August 2013) because coffee-farmers in Caldas, including those in Riosucio, did not really participate. Strikes are emotionally and financially exhausting for small-scale farmers who often suffer from police brutality and/or imprisonment and have to leave their farms partly unattended for several days or weeks. Thus, Asproinca farmers had no capacity to join a second strike that same year. In addition, they had gained some of their demands at the previous strike.

⁹ As a result, I wrote a two-part chronicle titled *Crónica del paro cafetero en Irra* published in the virtual news outlet *La Silla Vacía*.

¹⁰ For more information see: *Interview to Oscar Gutiérrez* in [Nacla](#).

¹¹ For instance, the protest rally in Manizales in August 27th, 2012 where 20,000 producers from all over the country gathered, and the mass sit-in in Bogotá during the opening of the National Coffee Congress in November 28th.

Nonetheless, I closely followed the development of this Agrarian Strike in the press and social media; particularly in regards to the demands related to seed issues as further explained below.

6. Considerations on Engaged Scholarship and Collaborative Research

My fieldwork was guided by the principles of engaged scholarship and inter-epistemic dialogue. I sought to design my research methodologies in ways that incorporated and visibilized grassroots organizations' 'situated' knowledge, that is place-based knowledge generated through peoples' own experiences, struggles, and living and working conditions (Haraway, 1988). As Casas-Cortés *et al* (2008) importantly point out, as scholars we not only have the ethical imperative to contribute to the well-being of the communities we work with, but also, the necessity of engaging with "[...] emergent theories of social change and cultural critique that movements develop and enact" (Casas-Cortés *et al*, 2008: 29). For instance, I learnt about 'live seed systems,' as a theoretical and political concept, from the Colombian seed savers and activists I worked with.

Beyond considerations on activist academia and situated knowledge, lies the question about the nature of collaborative research. This discussion has experienced a boom in Colombia and Latin America in the last decade. With roots in the now classic debates on "participatory action research" and "Pedagogy of the Oppressed" of the decades of the 70s and 80s, recent proposals contain a number of new elements. They are oriented towards the production of knowledge within a decolonial episteme such as the volumes coordinated by Xochitl Leyva

Solano in San Cristobal de las Casas¹² or the work with communities in resistance coordinated by Patricia Botero in Colombia,¹³ among others.

Some of the features of these works are: a) they are designed and built from the epistemic space of communities in resistance groups and movements; b) they are the product of deep collective and autonomous forms of work and knowledges otherwise; that is they are based on subaltern categories of thought and grounded in experience, though in dialogue with academia; c) they circulate among subaltern political spaces, even if they may also circulate in academia; d) its fundamental objective is to contribute to the struggle for the re / creation of worlds from the categories and experiences of actors in struggle and resistance.

I also endorse Hale's (2008) 'positioned objectivity' or a reclaimed objectivity that lays bare the anthropologist's intersubjectivity and positionality in the field and how those affect the research and analysis¹⁴. As Hale importantly points out, greater objectivity can be achieved by a "(...) deepened awareness of the ethical-political context of research" (Hale, 11) and of the power differentials between the activist scholar and the community one works with. Engaged scholarship, however, does not mean that I agreed with and supported everything these organizations did. It means that I viewed my fieldwork and writing process as a collaborative journey with seed savers and activists who were dialogical and political partners I learnt from

¹² Xochitl Leyva y colaboradores, *Prácticas otras de conocimiento(s): Entre crisis, entre guerras*. Cooperativa Editorial Retos, San Cristóbal de las Casas. *Resistencias*.

¹³ *Relatos del sentipensamiento que caminan la palabra: Colectivos, movimientos sociales y comunidades en resistencia desde Colombia*. Universidad de Manizales, 2015

¹⁴Hale defines 'positioned objectivity' as "research that is predicated on alignment with a group of organized people in struggle and on collaborative relations of knowledge production with members of that group [which] has the potential to yield privileged insight, analysis, and theoretical innovations that otherwise will be impossible to achieve" (20).

and with –as well as disagreed with and taught to– rather than ‘objects’ of study with no agency and epistemological worth.

Let me give some examples of what these considerations on engaged and collaborative research meant for my project. To end my fieldwork with Asproinca, I attended their annual Seed Fair held on July 7, 2014. There I presented a *cartilla* to Asproinca members that summed up research results. This *cartilla* or popular education publication is titled *La conservación de las semillas como patrimonio de los pueblos. El Caso de Asproinca en Colombia* and included in this dissertation as an appendix¹⁵. In the first section, the *cartilla* explains what transgenic crops and IPRs are and analyzes their impacts on food and seed sovereignty in small-scale communities in Colombia, and particularly, in the Department of Caldas where Riosucio is located. The second section describes Asproinca’s agroecological proposal and organizational principles. This section focuses on the importance of Asproinca’s creole seed conservation programs and struggle against the entrance of GM and IPR-protected seeds to guarantee food and seed sovereignty, political autonomy, identities, and their own agricultural models in their territories.

The *cartilla* was an effort in collaborative research and inter-epistemic dialogue. First, Asproinca’s board approved my proposal to publish the *cartilla*. In a meeting with *promotores* and Asproinca’s advisor, Alicia, we discussed the *cartilla*’s contents. Then Fernando, a *promotor*, took me on a tour to several Asproinca farms in San Lorenzo *resguardo*. After I wrote each section, I sat down with the *promotores* and Alicia to read it out loud and make corrections as necessary. They also reviewed the entire draft before it went to the press. I did an electronic version and printed 300 copies under a copyleft license so that the *cartilla* can be fully

¹⁵ Seed Conservation as Peoples’ Patrimony. The Case of Asproinca in Colombia

reproduced without legal barriers. Asproinca kept 200 copies to distribute among the members and use it for training workshops. The other copies were distributed between peasant and indigenous leaders who belong to *Dignidad Agropecuaria* as well as to some NFS activists and my doctoral committee.

I also collaborated with the Colombian chapter of the Food and Information Action Network (FIAN), an international organization that works on documenting States' violations to the Human Right to Food and Nutrition and helping affected communities to bring cases before the UN's Committee on Economic, Social and Cultural Rights and the Human Rights InterAmerican System. I worked on bringing forward farmers' and peoples' seed sovereignty as an important dimension of the Right to Food and Nutrition; as a result I wrote an article in collaboration with German Velez, from Grupo Semillas, and other seed activists in Latin America for the *Right to Food and Nutrition Watch 2016* (Gutierrez *et al*, 2016) The publication was presented at the FAO Headquarters in Rome in October 2016 to, one hand, denounce how biodiversity, and seeds in particular, are under threat as a result of the increasing corporate capture and the states' neglect. On the other, the article presented several initiatives on seed sovereignty across the region.

Finally, I collaborated with *Dignidad Agropecuaria Colombiana* in 2014 on various fronts. After the National Agricultural Strike, peasant leaders and the government carried out long negotiations. However, the national government systematically refused to negotiate measures to protect the domestic market in ways that would contravene current Free Trade Agreements. The government further warned agricultural leaders that if they wanted to change the economic model, they would have to defeat the government in the elections first. Faced with

this situation, *Dignidad Agropecuaria Colombiana* decided to accept the challenge to defeat the government by promoting a Referendum for National Agriculture¹⁶.

Amendments to the Constitutional articles related to agriculture are intended to: 1) protect and promote domestic agricultural production and labor, as well as biodiversity and traditional knowledge, in frames of sustainability and gender equality; 2) unilaterally renegotiate or terminate current FTAs to protect food sovereignty and security; and 3) through the enactment of a Law on Family Farming, guarantee peasant, indigenous and Afro-descendant communities the rights to a decent life, to social development based on their own economic models and to conserve and manage the biodiversity and associated knowledges found in their territories¹⁷. I was part of the Referendum's Academic Committee serving as an advisor on issues related to the protection of agrobiodiversity and associated traditional knowledges as well as legislation on IPRs on plants.

Last but not least, I presented preliminary research results at several academic conferences and published articles and book chapters, both in Colombia and abroad. I did a month of research in October, 2014 on GM soy cultivation and its consequences upon Wichi indigenous people in the province of Salta in northern Argentina, invited by the *Centro de Estudios y Promoción de la Investigación en Historia y Antropología* (CEPIHA) at the Universidad Nacional de Salta. The expansion of GM soy cultivation into what is considered Argentina's agricultural frontier in the northern indigenous territories is the model praised –and sought after– by the Colombian government to develop the *Altiplanura* or the large flatland territories near the border with Venezuela. The *Altiplanura* –also known as the *llanos orientales*–,

¹⁶ See: <http://referendoporelagro.com/>

¹⁷ By voting the Referendum, the Colombian people will decide on whether or not to reform the Constitutional articles that refer to agricultural production directly (arts. 64, 65 and 66) and indirectly (art.100).

are similarly considered the last agricultural frontier in the country, an ‘empty’ territory awaiting development and progress. This vision of the *altillanura* prevails in government and corporate circles, even though there are numerous indigenous communities, *colono* communities and *llaneros* or ranchers, all of them with their own ways of inhabiting their territories; in addition to some of the largest national parks in Colombia. In this context, I sought to witness first-hand the impacts of soy expansion on indigenous people and the environment –as well as the forms of resistance and adaptation– in northern Argentina to better understand the model to be implemented in Colombia. I shared these experiences with my collaborators in Colombia.

7. Mapping the Dissertation

This dissertation is divided into five chapters. Chapter 2 analyzes the implementation of what I call a ‘Corporate Seed Regime’ or the complex governance and political economy of seed, characterized by developments in property regimes, plant science research, biosafety regulations, and the development apparatus of food aid and security that disproportionately benefits biotechnology companies. Drawing from political ecology and economy, debates on the commons, and studies on commodification, I look at how the agrobiotechnology establishment has attempted to enclose or wear down (Nonini, 2007) seed commons through IPRs and genetic manipulation. I focus on how this corporate seed regime was largely implemented in Colombia through changes in legislation on IPRs and on seed certification systems to adapt to the UPOV 1991 as mandated by the US-Colombia FTA as a form of biohegemony (Newell, 2009)

On the other hand, I analyze how the Network of Free Seeds challenges the constitutionality of UPOV 1991-based seed laws and the discourse about *criollo* varieties as resources to be ‘discovered’, ‘invented’, and commodified by corporations and western-based science. I contend that the *Red de Semillas Libres* challenges such consent on local seed.

Chapter 3 starts with an ethnographic description of Riosucio's *resguardos* and what it means to be indigenous in 21st century Colombia. I then situate current struggles over food and seed sovereignty in Riosucio in the context of historical struggles and forms of adaptation of indigenous peoples against the encroachment of their territories and rights to self-government by different cycles of colonization, particularly the *Antioqueño* colonization. This chapters aims to better situate the expansion of a Green Revolution model of coffee monocropping and, more recently, genetically modified (GM) maize, and their impacts on indigenous agricultural and seed worlds (Chapter 4).

Chapter 4 explains the partial destruction of indigenous people-*criollo* seed worlds in Riosucio, particularly, the coffee forest model. I look at how this polycropping model, that involves a variety of *criollo* seeds and place-based agricultural knowledges and practices, in Riosucio is weakened due to the introduction of coffee monocropping, technological packages, and sun-grown hybrid coffee varieties by Fedecafé. Following Tsing (2005), I argue that Fedecafé's model of coffee production and governmentality, and particularly seed development, constitutes an example of 'friction' or the ways in which an 'engaged universal' such as the 'Green Revolution' becomes applied and modified in particular contexts. Nonetheless, I show how Fedecafé provides an institutional framework that, particularly in times of neoliberal 'free' market policies, still provides important protections in terms of income and social investment to vulnerable small-scale coffee farmers. More importantly, Fedecafé's seeds are a public good and, as such, are not enclosed by IPRs but freely distributed to farmers.

In Chapter 5, I analyze three seed sovereignty initiatives in Riosucio: seed saving networks, the Community Seed House and the Transgenic-Free Territory Declaration. I argue that these initiatives constitute a community seed economy based on commons (Gibson-Graham,

2006; Bollier, 2014). I show how seed commons are based on the autonomous control of seed which is neither antithetical to the market nor to western science. Rather, seed savers strive to build alternative markets based on fair prices and to engage in inter-epistemic dialogue in regards to seed development, conservation, and certification. I also analyze the tensions between Colombian seed savers' initiatives in seed commons and the biolinux proposal put forward by plant scientists and academics in the US.

Finally, in Chapter 6, I investigate Asproinca's grassroots agroecological proposal, focusing on their 'live seed systems'. I argue that live seed systems/worlds are not just the conservation of creole seeds. Rather they are the reconstitution of a communal inter-species world that embeds a post-dualist or relational ontology. I analyze how Asproinca's seed systems rethink 'nature' and multispecies practices of care.

8. Seedling in the Field

Growing up in a middle-class, urban-based family in Bogotá, I was not socialized into the world of peasant farming. However, as a child I was socialized in coffee-growing peasant politics. I grew up in a family of well-known activist intellectuals that belong to the MOIR, a left-wing political party¹⁸. My parents moved to the town of Chinchiná, in the Department of Caldas, in 1978 to carry out political work based on civil resistance among the coffee *jornaleros*.¹⁹ I lived there until the age of five, when I moved to Bogotá with my mother, but I came back every year to spend school's vacations with my father and other relatives who lived in Manizales, developing a lasting connection to this region²⁰.

¹⁸ MOIR is the Spanish acronym for "Revolutionary Independent Labor Movement". It was formed in 1970 out of the student movement.

¹⁹ The MOIR has never supported violent struggle or the guerrilla.

²⁰ Manizales is the capital city of the Department of Caldas.

I grew up during the wake of the neoliberal reforms of the 1990s that dismantled the already precarious state institutions and policies that supported agriculture, and fostered massive food imports as part of the ‘free trade’ model, negatively affecting domestic food production. The crisis was felt strongly in the coffee-growing zone due not only to domestic neoliberal reforms, but also to the end of the International Coffee Agreement in 1989²¹. In this context of crisis emerged a growers’ organization (*organización gremial*) called *Unidad Cafetera Nacional* (UCN) as an effort to unite both small and large-scale coffee producers in demanding solutions to the crisis from the government. As the economic crisis extended to other sectors, UCN grew into *Salvación Agropecuaria Nacional* (SAN) that became especially strong among rice and *panela* producers. My family actively participated in both UNC and SAN, and my father and uncle were amongst their most important leaders.

Taking into account my academic and personal background, I claim no ‘scientific’, ‘detached’ objectivity in this dissertation. Rather, as I already suggested, I embraced engaged scholarship as I became deeply involved, both politically and epistemologically, with the NFS, Asproinca, and Dignidad Agropecuaria during my doctoral studies.

That said, I should stress that I strived to approach my interviews with Colombian biotechnologists and Fedecafé’s staff open-mindedly and respectfully. In this dissertation, I sought to explain their political as well as epistemological/scientific positions and struggles in all of their complexities and nuances, rather than portraying them as ‘puppets’ of multinational corporations or local elites; they are certainly not. In fact, scientists in Colombian universities are increasingly losing their academic freedom and being subjected to corporations’ research and

²¹ This was an agreement among coffee-producing countries to regulate production levels among them to maintain high international coffee prices.

economic agendas. Although I critique the expanding genetic and economic reductionism in their scientific practice, I found that many of these scientists and agricultural extensionists are concerned about protecting the country's biodiversity, providing solutions to hunger and malnutrition, improving life conditions for small-scale farmers, and critical of IPRs on plant material.

Furthermore, I want to clarify that I am not against genetic research; it is certainly important to understand how organisms' genomes shape life and evolution in this planet. However, I believe scientific studies in genetics and seed development need to be decoupled from corporate greed, western supremacy, and human's suicidal quest for ultimate power and control over nature or what Bird Rose (2012) calls species-narcissism (138) Nature has fragile limits, rights, and unlimited creativity and agency that always surpass humans' control and plans. Thus, if we want to survive as a specie in this planet and allow other forms of life to thrive with us, we better not disrupt and rearrange genomes, particularly for corporate profit. Seeds and other forms of life were developed over millions of years of evolution under processes and networks we know insufficiently; it is arrogant and irresponsible to pretend to undue or control evolutionary processes in the span of years or decades.

To be sure, one thing is to study genomes; another very different is to experiment with all of us –and other organisms– by releasing millions of genetically modified organisms (GMOs) into the environment and food chains without knowing what the long-term consequences of such modifications will be in human and non-human bodies and subsequent generations. We may well find out about upsetting consequences in less than 100 years, when the first generation fed on GMOs approach the end of their lives.²² And there is no way back; once GMOs are released into

²² In fact, scientists, doctors, and activists around the world are already finding worrisome consequences of cultivating and consuming GMOs. For further information, see the studies by Seralini, Gilles *et al* (2014) and

the environment, we have no control over them and no way to bring them back into the laboratory.

We need to find alternative approaches to agriculture that are not premised on seeing plants and other organisms that inhabit our fields and gardens as commodities and ‘things’ that are either our rightless servants to be manipulated and exploited at will, or our enemies to be exterminated. We have a better chance for survival and living with dignity if we consider nature a wise partner and ally to work and learn with –rather than against– in enhancing life for all beings in the planet. Technologies in seed development –and agriculture at large– should then be oriented to mimic and build upon –rather than destroy or ignore– inter and intra-species’ relations and ‘solutions’ already present in ecosystems and in the incredible diversity of human-seed worlds. This dissertation is an engaged quest for understanding and visibilizing the possibilities and challenges of such alternatives put forward by seed savers in Colombia.

Pusztai, Arpad (1996). Also, see reports by the Union of Concerned Scientists in the United States; the *Red de Médicos de Pueblos Fumigados* (Doctor’s Network of Fumigated Peoples) in Argentina; Latin American scientists such as Andrés Carrasco, Silvia Ribeiro, Pablo Galeano, or Elizabeth Bravo; and by the coalition for a GM-Free India.

CHAPTER 2: THE CORPORATE SEED REGIME: BIOHEGEMONY AND CONTESTATION IN COLOMBIA²³

1. Introduction: Planting GM Maize, Harvesting Bioservitude

In March 2014, I joined a group of activists from the Colombian Network of Free Seeds (NSF) –mostly affiliated with the NGO *Grupo Semillas*– on a fieldtrip to document the impacts of transgenic or genetically modified (GM) maize in the Mid-Eastern Department of Tolima. This fieldtrip took place a year after the visit I recalled in the introduction to this dissertation. In this second fieldtrip, besides the *pijao* indigenous community of the Natagaima *resguardo*, we also visited the small and medium-scale rural entrepreneurs –hereby farmers– from the nearby district of El Espinal²⁴. These farmers had reached out to Grupo Semillas to denounce the utter failure of GM maize in the region.

The Espinal district is located in a fertile inter-Andean valley, crossed by the Magdalena River, and supplies a large part of the domestic rice market. However, rice production is currently undergoing a crisis as FTAs and free-trade policies in agriculture, particularly imports, have strongly impacted domestic production. Dozens of small towns as well as thousands of day laborers and workers of the several mills and packaging plants depend on rice production in this area. Thus, the economic crisis has expanded quickly along the rice value chain affecting tens of

²³This chapter draws from a joint paper with Elizabeth Fitting for the 2015 LASA Congress (Gutiérrez Escobar, Laura and Elizabeth Fitting, 2015), which was later revised and published in the *Journal for Agrarian Change* (Gutiérrez Escobar, Laura and Elizabeth Fitting, 2016)

²⁴I call them ‘farmers’ to contrast them to ‘peasants.’ These farmers own more land and their production is more mechanized and market-oriented than that of peasants, but less than large rural entrepreneurs. They are somewhat the equivalent to small-scale family farmers in the US.

thousands of people. In this context, GM crops –first cotton and then maize– were promoted by the government as the new ‘miracle’ crops that will save farmers and a region on the brink of bankruptcy.

In 2008, farmers in El Espinal began planting GM corn. During the first few years, productivity increased from four or five tons to seven or eight tons per hectare which, combined with high market prices for maize, compensated for the greater cost of GM seeds.²⁵ Nonetheless in 2013, trouble started, particularly with Pioneer’s GM corn that combines both herbicide tolerance to glyphosate and insect resistance. In Colombia, one of the main insects that feeds from maize is the *cogollero* (*Spodoptera sp*), a kind of *Lepidoptera*. *Cogollero* quickly developed resistance to the toxin that is genetically engineered into maize. GM seeds are developed for commercial agriculture in the global north, and, thus, they are not adapted to the environments and practices of tropical agriculture. As a result, Pioneer’s GM maize did not control, as advertised, this particular kind of *Lepidoptera* insect that is prevalent in the country. Furthermore, after a few years, Pioneer’s GM seed neither control local weeds as they became resistant to the extensive use of glyphosate. According to Sergio (2014), one local farmer: “We are paying for a technology but there is no technology [in the Pioneer GM seed]. We are applying herbicides four to five times, when a conventional [maize] requires only three.”

Farmers took us to their fields so we could see first-hand their dried, wilted maize plants and ears with incomplete kernel rows (see Figures 5 and 6).

To make matters worse, maize prices dropped due to the increase of imports as the US-Colombia FTA went into effect in 2012. As a result, a new crisis expanded across farmers and the region, as Sergio (2014) recalled:

²⁵Around \$300 *pesos* the bag (USD10c), twice the price of hybrid varieties.

“There are around 8,000 hectares of GM maize in El Espinal; we calculate the losses between 2.5 and three million *pesos* per hectare which means around 24.000 million *pesos* for a zone that has already been hit hard due to the previous failure of rice and GM cotton crops”²⁶.

During our fieldtrip, farmers denounced that initially Pioneer did not take responsibility for their losses. The company argued that GM maize crops failed because of winter and inadequate agronomical management by farmers. Farmers argued that they did follow the companies’ guidelines and that non-GM maize was not affected by climatic conditions. Ica –the Minister of Agriculture branch in charge of plant safety and inspection– aligned with Pioneer against the farmers, as Esteban (2014), a local farmer and agronomist, complained with visible anger:

“ICA must be the regulatory body. But here it is rather the public prosecutor [*fiscalía*]: ICA’s current mission is to attack the farmer, to attack the agronomist. But it should be the other way around, it should safeguard farmers’ interests.”

After months of struggle, Pioneer finally agreed to compensation. However, the company refused to compensate farmers monetarily for their losses, offering instead compensation in seed. Given the harvest failure, farmers could not afford to buy seeds and they did not have enough non-GM seed reserves to plant. That way, farmers in El Espinal became tied to Pioneer’s seed – and the technological package that comes with it – for the following harvests, against their will.

The situation of El Espinal farmers is a telling example of what Vandana Shiva (2001) calls ‘bioservitude,’ a situation of extreme dependence –resemblant of servitude– on biotechnology companies to be able to farm. The prefix ‘bio’ indicates that such dependency is increasingly exercised by these companies through the monopolic control over the reproduction of life, and particularly of seeds.

²⁶ Three million *pesos* is roughly equivalent to USD\$1.000 and 24.000 million *pesos* is around USD\$800.000

Figure 5: Damaged GM Corn Field –El Espinal, Tolima



Photo credit: Germán Gutiérrez

Figure 6: GM corn cobs –El Espinal, Tolima



Photo credit: Germán Gutiérrez

How can we make sense of these situations? Studies on ‘food regimes’, ‘biohegemony’ and the ‘commons’ have analyzed the consequences of the expansion of agrobiotechnology on rural communities worldwide. Since the 1980s, research on the commons have gained prominence in connection with what David Harvey (2005) has called ‘accumulation by

dispossession’ or a renewed process of capital accumulation by which corporations and political elites, mostly from the global north, have privatized and commoditized not only the usual ‘commons’ such as land –much like the ‘enclosure’ movement in 18th century England, as described by Marx (1990 [1867]) and Polanyi (1944, [2001])– but also knowledge and life itself (Shiva, 2001). As a result, accumulation by dispossession is currently sustained not only by the global land grab, but also by the commodification of other commons like seeds, previously excluded or marginally integrated to capital, through the expansion of Intellectual Property Rights (IPRs) to living organisms and the developing of new technologies such as genetic manipulation (ETC Group, 2008; Scharper and Cunningham, 2007).

Anthropologist Donald Nonini (2007) explains the current enclosure of the commons as the ‘wear-down’ of workers’ bodies, natural resources, rural and urban spaces, and human creativity especially of poor people and racialized minorities (Nonini, 2007). This wearing down of seed commons is at the root of seed conflicts in Colombia in the context of the corporatization of agriculture and food.

In addition to debates on the commons, studies on food regimes –the policies, norms, institutions, and trade relations related to food and agriculture between unequal nations– have been particularly fruitful to analyze the political economy of food under neoliberal globalization (Friedmann and McMichael, 1989; McMichael, 2009). Otero and Pechlaner (2008) speak of a ‘neoliberal food regime’ characterized by the rise of genetic engineering as the main technology for capitalist agriculture and by changes in regulation which accommodate this technology, at the national and supra-national levels²⁷ (Gutiérrez Escobar and Fitting, 2016). Drawing on Otero and Pechlaner, Elizabeth Fitting (2011) coined the term ‘neoliberal corn regime’ to explain the

²⁷ Pechlaner and Otero use the term ‘neoliberal’ rather than ‘corporate.’

impacts of the neoliberal food regime on maize producers and consumers in México after NAFTA.

Based on research in the Bolivian highlands, geographer Gabriela Valdivia (2010) has analyzed struggles over agrarian hegemony in the Bolivian lowlands in the context of Evo Morales' policies to end land inequality. As she explains, in Latin America sociocultural structures foster the wide "acceptance of the 'natural' order (or hegemony) of capitalist relations of agrarian production" (68). Agrarian hegemony is then upheld –not without setbacks and negotiation– as society consents to the 'natural' and inevitable existence of a rural order based on

"distinct, unequal agrarian classes (such as *terratenientes* or landowners, *colonos* or agricultural laborers, and *campesinos* or peasants) and [...] to the exploitation and dispossession of some (laborers and peasants) for the benefits of those with greater access to political and economic resources (landowners)" (68).

Valdivia identifies formal institutions (private property laws and top-down governance) and informal relations of production (paternalism or patron-client relations) as examples of the sociocultural structures that shape agrarian hegemony in Latin America. According to her, in Bolivia rural elites in Santa Cruz defended agrarian hegemony against state-led reforms that sought to end inequality in the lowlands, based on noneconomic explanations of why some become successful capitalists while others remain poor. These explanations include technical and apolitical arguments –such as hard work and organization associated to lowland's capitalist culture vs the laziness of highland indigenous culture– that help naturalize the economic success of agrarian elites by obscuring the relations of exploitation, dispossession and racism associated with such success, what Valdivia calls 'partial amnesia' (77).

Last, but not least, based on his work on Argentina, Peter Newell (2009) coined the term 'bio-hegemony' to explain the particular forms hegemony takes in the context of the accelerated expansion of agrobiotechnology, particularly GM soy. Newell argues that agribusiness and

biotech interests had broad based consent in the country because of the economic importance of export-led agribusiness and the extensive participation of biotech corporations in trade and biosafety regulatory decisions (48). Newell defines biohegemony as the “successful projection of particular interests as general interests such as that the benefits and value of agricultural biotechnology acquire the status of common sense and go largely unquestioned” (38)

Biohegemony refers to biotechnology corporations’ three forms of power that sustain a consent on the benefits of agrobiotechnology: material or their control over GMOs trade and IPRs-related royalties; institutional or their capacity to influence national and international policymaking on GMOs and IPRs; and discursive or their ability to gather public support for GMOs while disqualifying dissident voices.

In this chapter, I analyze why and how farming communities in Colombia became subjected to bioservitude through the use of IPRs-protected GM seeds. In other words, I ask why did these communities lose their control over the use, breeding, forms of exchange, and types of seeds or what Kloppenburg (2010) refers to as ‘seed sovereignty’? Bringing these theoretical frameworks together, I argue that these communities, and the country, lost their seed sovereignty due to the implementation of what I call a ‘corporate seed regime.’ This seed regime refers to the complex discourse, governance and political economy of seed, characterized by specific pro-corporate developments in property and contract law, plant science research, biosafety and risk-management, quality certification standards, bioprospecting, and the development apparatus of food aid and security. These pro-corporate modifications in seed-based markets, scientific research, intellectual property, and development programs were largely implemented in Colombia through the US-Colombia FTA.

I focus on how changes in legislation on IPRs and on seed certification systems, as mandated by the US-Colombia FTA, benefit biotechnology corporations or what Newell calls ‘institutional power’ as a form of biohegemony. I look briefly at how pro-biotech think-tanks exerts influence on judges that results in favorable legislation for the expansion of GM crops. The introduction of GMOs as well as IPRs on plants in Colombia and across Latin America requires us to investigate how sociocultural relations, in their imbrication with the non-human world –specifically seed-human relations– shape agrarian hegemony and struggles over it. As I argued in a joint article with Elizabeth Fitting (2016), I find the concept of biohegemony useful because the prefix ‘bio’ foregrounds how, at this moment in the development of capitalism and the corporate food regime, what often goes unquestioned is the commodification and usurpation of biological ‘resources,’ or life itself, in this case seeds.

On the other hand, in that article we contended that the *Red de Semillas Libres* challenges such consent on local seed varieties (or landraces and creolized varieties, called *criollos* in Spanish) as raw material and a resource, to be ‘discovered’, ‘invented’, and commodified by industry and western-based science. In this way, I not only apply Newell’s concept of biohegemony to the Colombian case, but I also extend the concept (Gutiérrez Escobar and Fitting, 2016).

Similar to discussions of seed and IPRs elsewhere, the biotech industry and some government officials in Colombia describe local seed (*criollos*) in a way that distances such seed from the human labor involved in its creation and maintenance, as a raw material for science and industry. ICA’s General Director, for example, contrasts “native, natural seed” to scientifically improved and certified seed (Beltrán 2013).

As discussed below, organizations within the NFS have taken legal action to contest the

government's framing of seed as potential material for IPRs. The NFS challenges the constitutionality of seed laws, often using the legal argument that there has been no previous consultation with indigenous and afro-Colombian communities required under Article 6 of the Indigenous and Tribal Peoples Convention 169 of the International Labor Organization (ILO). It considers legal demands as a strategy that complements, but does not replace, civil disobedience against seed laws. In other words, legal demands only render fruitful in the context of social mobilization and collective actions to defend and recover creole seeds (Gutiérrez Escobar and Fitting, 2016).

This chapter is divided into two main sections. In the first half, I start by illustrating how the corporate seed regime exacerbates the process of seed commodification embedded in capitalist agriculture and its development apparatus, particularly the Green Revolution. I go on to explain how biotechnology corporations attempt to enclose seed commons through biological, legal, and contractual forms of sterilizing seeds. Seed sterilization compels both farmers and public breeding institutions to depend upon biotechnology companies in so far as they cannot independently save, conserve, and develop new varieties of seeds.

In the second part, I analyze how a corporate seed regime takes place and operates in specific forms by looking at the Colombian case. I provide a broad view of the import and cultivation of GM varieties in Colombia to illustrate how biotechnology corporations maintain an oligopoly of seed development and markets. I then focus on the expansion of IPRs on plant material to explain how changes in seed legislation in the context of the US-Colombia FTA, increase the material power of biotechnology corporations. I briefly show how the NFS's legal demands contest biohegemony in Colombia. These legal actions started in 2005, before the NFS was created, with a petition by Grupo Semillas before the State Council (*Consejo de Estado*) to

nullify (*Acción de Nulidad*) Decree 4525 of 2005. This Decree approves the Cartagena Protocol on Biosafety or the international norms for the approval of genetically modified organisms. In 2008, Grupo Semillas and SwissAid filed two new lawsuits (*demandas*) before the State Council to revoke approval for the cultivation of two varieties of transgenic corn. However, the State Council has not ruled any of these to date. In this chapter, I focus on the NFS's legal demands against the reform to the Criminal Code, Law 1518, and Ica's Resolution 970 (See Appendix 2).

2. The Industrialization of Agriculture and the Wearing Down of Seed Commons

2.1. From Land to Seed Enclosures

Over the last century, in a process akin to primitive accumulation, farming has been converted from a largely self-sufficient production process to one in which farmers have to purchase most of their means of agricultural production (land, chemical-inputs, fuel, etc.) which have become commodified. This 'one-size-fits-all' model of rationalized, industrialized agriculture on a large scale expanded first in the global north and then as part of the "Green Revolution" in development programs for the global south (Fitting, 2011: 91-2). It is characterized by the use of industrially produced off-farm capital-intensive inputs, mechanization, monocropping, and high-yielding hybrid seeds. Industrial agriculture is not necessarily more productive, but is more efficient in terms of control: it makes rural spaces legible to the state in an effort to govern or control them more efficiently. In fact, James Scott (1988) refers to this type of agriculture as 'high modernist' (in: Fitting, 2011: 91-2). It privileges experts in the laboratory and government offices over farmers, and western scientific knowledge over '*métis*' or practical knowledge, which it, for the most part, disdains.

In contrast to land and inputs such as pesticides and fertilizers, the commodification of seed has proved more challenging because of its socio-natural characteristics. On the one hand, during 10.000 years of agriculture, seeds have been a commons. Farmers' seed saving and

exchanging practices have been central to food production and to the creation of an immense diversity of crops. In fact, agrobiodiversity and cultural diversity are intrinsically linked. On the other, seeds' autonomous reproduction constitutes a "natural barrier to commodification" (Kloppenburg, 2004: 10). In his classic study (2004), Jack Kloppenburg argues that: "Like the Phoenix of myth, the seed reemerges from the ashes of the production process in which it is consumed" (10). The seed thus possesses a dual character as both a means of production and as a product of consumption –the grain. This dual character induces a virtuous circle in which farmers' seed saving from harvest reproduces a necessary part of their means of production for the next growing cycle.

Faced with this obstacle, agribusiness have pursued three complementary ways to commodify seeds: 1) the corporatization of agriculture via vertical and horizontal integration that has resulted in a few multinational companies controlling the food chain from seed to table; 2) a techno-scientific solution that involved hybridization during the Green Revolution and currently genetic engineering; and 3) a legal solution by expanding intellectual property rights to plants, their parts, and their genetic information (Kloppenburg, 2004 and 2010). As a consequence of commodification, there has been a progressive 'wearing down' (Nonini, 2007) of seed commons.

The wearing down of seed commons implies the reduction -rather than expansion- of seed diversity. This threatens seeds' capacity to adapt to environmental and man-made changing conditions and, thus, jeopardizes the possibility of agriculture and human survival. The erosion of seed diversity takes place in two ways: 1) The reduction of varieties of one crop (i.e. less varieties of maize seeds); and 2) the reduction of types of seeds (landraces, local or farmers' varieties, wild relatives, hybrids), especially when this reduction implies the increase of a type of seed that is genetically homogenous at the expense of others more diverse (i.e. the expansion of

GM seeds vs. all other types of seeds). As agrobiodiversity and cultural diversity are interdependent, the wearing down of seed commons means the destruction of the multiplicity of human-seed worlds.

2.2. The Seed Journey: From Commons, to Public Goods, to Full-Range Commodity

Seed commodification began in the early twentieth century with the rediscovery of Mendel's theories on genetic inheritance and its application to plant breeding that led to the development of hybrid seeds, particularly corn in the 1930s. Hybrid seeds increase productivity, at least for an initial period of time, but lose the special characteristics bred into them as well as their vigor –or plants' capacity to achieve their full growth potential– in subsequent generations. With hybrid seeds, farmers then became compelled to renew their seed stock after each harvest, opening the gate for the commodification of the seed. Although, a private seed commercial sector began to appear attracted by the new profit possibilities of hybrid seeds, seed development and distribution was still largely under the monopoly of the state in the US and Europe.

In his influential study, Jack Kloppenburg (2004) demonstrates how the history of plant breeding in the US is the struggle of private breeders to overcome their two most formidable competitors: farmers, who can reproduce their own seed, and public breeders. According to Kloppenburg, the private seed sector deployed three strategies to defeat its competitors. First, the promotion of hybridization over other seed development technologies. Second, the progressive control over public plant breeding so that it was oriented towards basic plant research rather than the development of new varieties. And third, the push for intellectual property rights on plant material. After extensive political and economic pressure from private breeders, IPRs were first granted in the Plant Patent Act of 1930 for novel varieties of asexually reproducing plants (fruit species and ornamentals), and more importantly in 1970 with the Plant Variety Protection Act for plants that reproduce sexually (i.e. by seed) (Kloppenburg, 2004: 11-12).

Nonetheless, the private seed industry could not claim full victory as breeder's rights were a less restrictive form of IPRs than patents. Historically, intellectual property rights and, particularly, patents were granted exclusively to recognize and foster human invention; thus, their application to living beings, and 'nature' in general, was *de facto* excluded. As a result, farmers could freely save and exchange a seed variety protected under breeders' rights and other breeders also enjoyed free access to such germplasm for further seed development. In other words, breeder's rights were restricted by what are known as the 'farmer's privilege' and 'research exemption.'

In the global south, a similar process of seed enclosure took place with the Green Revolution that put in place powerful 'formal' seed systems that progressively displaced 'traditional' forms of seed breeding and provisioning (ACB, 2012; Altieri, 2001). Seeds started to become commodities that were standardized, produced in laboratories, and sold across regional and national borders. Even though the Green Revolution discouraged farmers from using local varieties in order to adopt 'improved' seeds, for the most part Agricultural Research Centers were public, not-profit-oriented and lacked interest, legal frameworks and technological mechanisms to claim Intellectual Property Rights (IPRs) over seeds (Glover, 2010; Grain 2010).

Farmers could then continue to produce their own seed varieties by saving, exchanging and breeding landraces, wild relatives, and hybrid seeds. For example, Philippine farmers developed the redIR36 variety by mixing local varieties that were red—a color traditionally associated with better quality and greater satisfaction as a meal—with hybrid IR36 developed at the International Rice Research Institute (Salazar and Louwaars, 2006: 1517). Thus, industrial seeds were conceived as 'public goods' rather than as mere commodities which allowed, to a certain point, communities to protect their seed commons.

Seed enclosure accelerated with 1) the corporatization of food systems, and 2) the legal and scientific developments in the 1980s and 1990s that allowed genetic modifications across species and the granting of Intellectual Property Rights (IPRs) over genetically modified organisms (GMOs).

The corporatization of agriculture involved vertical integration when agro-chemical companies started buying up small and medium commercial seed companies worldwide, turning into biotechnology corporations. The GM seeds business became highly profitable because biotechnology corporations controlled the seed-agrochemical package for a handful of crops which were widely used as raw materials for the food, feed and agro-fuels industries worldwide: cotton, maize, soybean and canola. In this way, biotechnology companies could profit from both selling the GM seed and the associated chemical package.

Figure 7: World's Top Ten Seed and Chemical Companies Compared

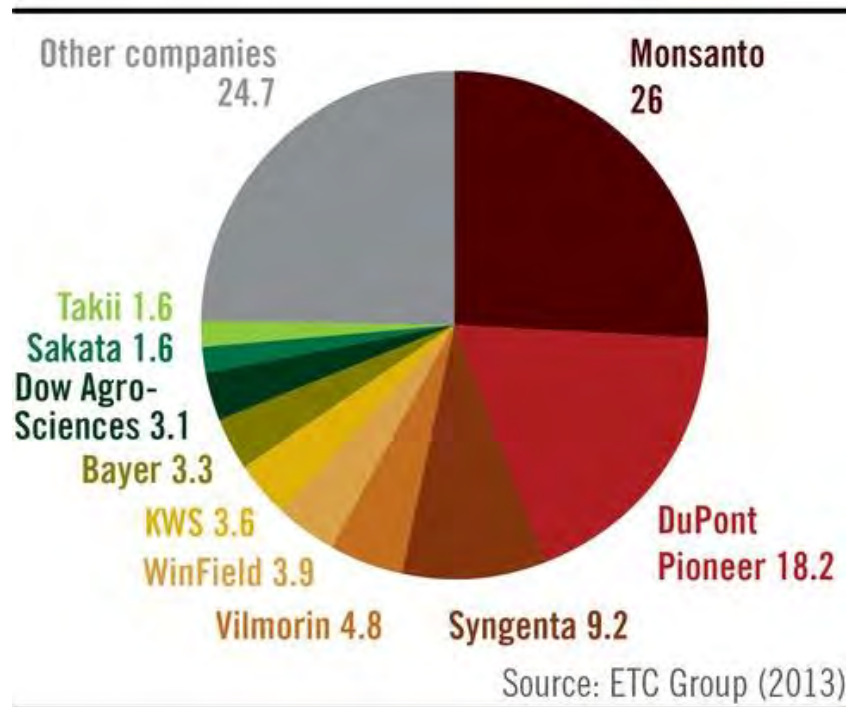
World's Top 10 Seed Companies			World's Top 10 Chemical Companies		
Source: ETC Group (reporting currencies converted to US\$ using historical exchange rates)			Source: Chemical & Engineering News		
Company (Headquarters)	Seed Sales 2009 (US\$ million)	Market Share	Company (Headquarters)	2009 Chemical sales (US\$ million)	% Share of Total Global Sales
1. Monsanto (USA)	7,297	27%	1. BASF (Germany)	54,817	7.8%
2. DuPont (Pioneer) (USA)	4,641	17%	2. Dow Chemical (USA)	44,875	6.4%
3. Syngenta (Switzerland)	2,564	9%	3. Sinopec (China)	31,312	4.4%
4. Groupe Limagrain (France)	1,252	5%	4. Ineos Group (England)	28,600	4.1%
5. Land O' Lakes/Winfield Solutions (USA)	1,100	4%	5. ExxonMobil (USA)	26,847	3.8%
6. KWS AG (Germany)	997	4%	6. DuPont (USA)	25,960	3.7%
7. Bayer CropScience (Germany)	700	3%	7. Formosa Plastics Group (Taiwan)	25,437	3.6%
8. Dow AgroSciences (USA)	635	2%	8. Royal Dutch/Shell (Netherlands)	24,437	3.5%
9. Sakata (Japan)	491	2%	9. SABIC (Saudi Arabia)	23,096	3.3%
10. DLF-Trifolium A/S (Denmark)	385	1%	10. Total (France)	20,521	2.9%
Total Top 10	20,062	64%	Total Sales of Top 10 Companies	305,902	
			2009 Top 50 Global Sales	697,000	43.5%

Monsanto's Round Up Ready seeds are the prime example of how a major chemical and pharmaceutical company profitably transitioned to a biotechnology company, as Dominic

Glover's research (2010) has shown. Monsanto's patent for its 'cash-cow' product Round-up Ready –its brand for commercializing glyphosate herbicide- expired in 2000. At the same time, the company was jeopardizing its financial sustainability by vastly depending on petro-based chemical products, given increasing international prices for oil and mounting critiques from the global environmental movement. The company then developed two kinds of GM seeds: insect resistant so that it entered the market of 'bio-pesticides' and promoted itself as an environmentally friendly company, and Round Up Ready seeds which were dependent upon glyphosate. Monsanto patented the inventions and, in one stroke, collected royalties from both the GM seed and the use of Round-up Ready, expanding the patent life of its herbicide via a biotechnological invention (Glover, 2010)

By the mid-2000s, ten corporations, mostly pesticide and herbicide producers, control half of the global seed market, and of those only three companies, Monsanto, Dupont and Syngenta, have close to 50% of market share (Grain, 2010). Notwithstanding concerns on possibly breaking anti-trust regulations, biotechnology companies are currently negotiating new mergers: Dupont absorbing Dow; ChemChina interested in Syngenta; and Bayer and Basf bidding for Monsanto. If the mergers are allowed, only three mega-corporations will control more than 60% of worldwide pesticides sales and more than 55% of seed sales. Furthermore, these three mega-corporations may in turn be acquired by more powerful agricultural machinery companies, such as Deere & Co., which are looking to control all the agricultural inputs from the seeds and agrochemicals, to the machinery and insurances (RALLT, 2016). Seed –and its genetic information– has fully entered the capital circuit becoming part of the assets of biotechnology companies to be traded in stock markets like any other commodity.

Figure 8: Seed Market Concentration



In the following section, I explain in more detail how seeds have become the carriers of hegemonic forms of power (Muller, 2014b) by looking at the three forms of sterilization pursued by the biotechnology complex (Rodríguez Cervantes, 2014: 59):

1. Biotechnological sterilization through hybrids and, especially, GMOs
2. Legal sterilization through IPRs and norms of certification and quality of seeds
3. Contractual sterilization through private contracts between corporations and farmers

2.3. Biotechnological Sterilization

As hybrids, GM seeds also lose the characteristics that were engineered into them as well as their vigor. However, the aim of biotechnology companies is to completely destroy or control the reproductive capacities and life cycles of plants. Biotechnology companies have developed – but not been able to commercialize so far – seeds that are genetically modified to be infertile or to only produce viable seed if under the influence of specific chemicals. These ‘biological containment’ technologies are called Gene Use Restriction Technologies (GURTs) and

Recoverable Block of Function, what the ETC Group has named ‘Terminator’ and ‘Zombie’ seeds. Besides the corporate control of seed reproduction, the danger with these technologies is that transgenic sterility threatens biodiversity and agriculture due to the possibility of breeding (by cross-pollination or by farmers) with non-GM varieties that would become infertile too.

For these reasons, the UN has placed a moratorium on ‘Terminator’ technologies. The development of Zombie seeds is an attempt by biotechnology companies to bypass such moratorium. These last kinds of seeds are mainly promoted by the EU ‘Trainscontainer Project’ aiming to enhance biosafety or the control of genetic contamination of non-GM varieties through gene flow. This project then intends to prove that ‘co-existence’ between GM crops and non-GM crops is possible as well as to promote the acceptance of GM crops and food among reluctant European consumers (ETC Group, 2007).

2.4. Legal Seed Sterilization

As we explained above, in regards to industrial seed development, although patents were forbidden, ‘breeders rights’, a less restrictive form of intellectual property, was allowed. This situation was about to change dramatically in 1980 with the (in)famous US Supreme Court sentence in *Diamond vs Chakrabarty*. This sentence granted the first patent in the history of humanity on a living being to microbiologist Ananda Chakrabarty on behalf of General Electric Co., for his development of a bacteria that was genetically modified to be able to dissolve petroleum and, thus, was potentially marketable to oil companies and governments to remediate oil spills. The Supreme Court granted the patent on the basis that genetic modification qualified as ‘human invention’ because genetically modified organisms cannot be found in nature (Shiva, 2001).

Biotechnology corporations in the US took advantages of these developments in property law. They began investing in the development of GM seeds that could be potentially patented–

along with their genetic information, biological processes, and technological advances in genetic modification— so to erode both farmer’s privilege to save and exchange seed and the ‘research exemption’ that allows other breeders –now seen as ‘competitors’– to develop new varieties of GM seeds. This way, biotechnology corporations attempted to break down seeds’ biological barrier to commodification and millenarian practices that maintained seed as a commons through the combination of techno-scientific and legal means.

Seed registration and certification systems are complementary to IPRs regime in promoting the corporate enclosure of seed. On the one hand, although seed registration systems are intended to guarantee seed quality and prevent the spread of plagues and sickness, they have increasingly become a mechanism that allows each seed to become traceable to the owner of IPRs attached to it (Muller, 2014a). Traceability then is an attempt to enforce a monopoly over seeds by using genetic testing to identify “each seed delivered at the elevator or crushing plant to determine the holder of the IPR over each grain shipped, collect royalties, and impose penalties on farmers whose grain shipments contain patented varieties that they have not previously declared” (Muller, 2014a: 9).

On the other, seed certification systems are generally viewed as the result of ‘technical’ and ‘apolitical’ regulations to uphold and protect the quality and phytosanitary standards of seed. However, seed certification systems impose quality and sanitary standards that benefit industrial seeds over landraces and heirloom seeds. In seed certification, genetically homogeneous seed that best serves the needs of industrial agriculture is deemed safe, desirable, and acceptable. Conversely, seed bred and exchanged by and among farmers is described as a potential threat to phytosanitation and national food security. In other words, seed certification systems increasingly criminalize farmers’ breeding, saving and exchanging practices because they often

involve non-certified on-farm seeds. Seeds standards are then an expression of biohegemony to manufacture consent, so that the benefits of industrial seeds, in contrast to farmers' seeds, becomes naturalized and readily accepted (Fitting, Gutiérrez Escobar and Tammen, in press).

2.5. Contractual Sterilization

Because of the vertiginous vertical integration of the food system, biotechnology companies control a large chunk of the value chain for GM commodity crops such as soy and maize. As a result, when farmers buy GM seeds, they are obliged to sign a contract which makes them widely dependent on biotechnology companies. Farmers become tied not only to the seed, but to the entire technological package –for instance, specific brands of herbicides such as Monsanto's Round Up Ready for glyphosate. Farmers become obliged to pay a 'technological fee' to use GM seeds, which is another way biotechnology companies charge royalties for the seed. The contract also stipulates stringent intellectual property rights (IPRs) so that farmers cannot reuse, exchange, or sell GM seeds without the breeders' permission, that is the biotechnology company. Violations to IPRs are penalized with fines and jail sentences. By signing the contract, the farmer must also sell the harvest to specific traders who have, in turn, partnered with biotechnology companies. To tighten the control on farmers, insurance companies and financial institutions are increasingly conditioning agricultural credit and crop insurance to the use of GM seeds (Glover, 2010).

3. The Corporate Seed Regime in Colombia

3.1. The Colombian GM Seed Landscape

Colombia is currently one of 19 countries in the world growing more than 50,000 hectares of transgenic crops (ISAAA 2014, p. 5). The country cultivates primarily GM cotton and maize and flowers for export in greenhouses. The blue carnation was the first GMO approved in Colombia in 2000 owned by the International Flowers Developments. The following

year it was cultivated in greenhouses for export. In 2010, the same company obtained approval for the greenhouse cultivation of GM blue roses for export.

The second crop to be approved for commercial production was cotton in 2003. Transgenic corn was approved for semi-commercial/controlled cultivation in 2007 and for human and animal consumption in 2006²⁸. Soybeans were approved for commercial cultivation in late 2010, but it has not been cultivated so far. In 2013, there were 75.095 ha of GM maize, 26.913 of cotton, and 12 ha of blue carnations (Agrobio; see Figure 9).

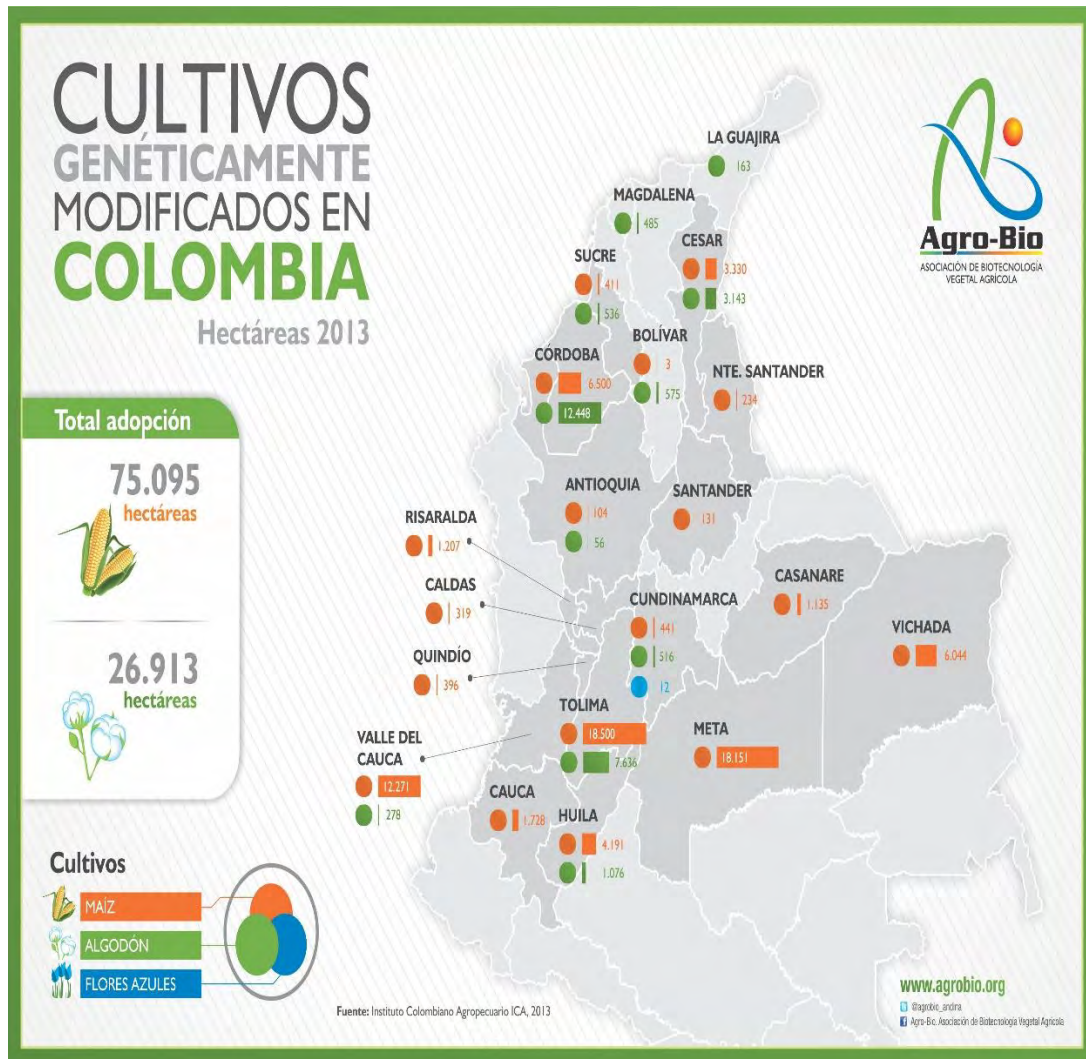
As for human and animal consumption, apart from GM maize and cotton, the Colombian government has approved wheat in 2004 for food; Flax or Linseed in 2007 for feed; and rice (2008) and sugar beet (2010) for feed and food. GM wheat, rice and sugar beet have not been approved for cultivation.

Unfortunately, GM imports of food products, both raw and processed, are not labeled and thus cannot be exactly accounted for and compared to non-GM imports. Taken into account these difficulties, we take the case of maize to provide an approximate estimation. We import maize mainly from the US and Argentina. Of the total 3.5 million tons of yellow maize consumed domestically, we imported around 30% in 2013 and 56% in 2014 from the US; a country which grows almost 100% GM varieties (Barberi, 2015: 104). US maize also enters the country via imports from other countries that are basically re-sellers and from US-based and transnational companies such as Cargill. Although maize production in Argentina is not predominantly GM –as in soybeans that is almost 100% GM–, the country still grows a large

²⁸ Maize, unlike cotton, was approved for ‘controlled’ cultivation as a biosafety measure to protect creole maize varieties from genetic contamination.

proportion²⁹. Furthermore, Colombian domestic production of GM corn has grown exponentially in the last decade adding to the percentage of GM corn that is commercialized and consumed in Colombia.

Figure 9: GM crops in Colombia 2013



Source: Agrobio on data from ICA, 2013.

Colombia stands out for approving some GM varieties of crops that have been rejected in most GM producing countries. For instance, wheat (MON71800-3) has only been approved for

²⁹ In 2013, of the 24.4 million hectares of GM crops sown in Argentina, 20.8 million hectares corresponded to soybean and 3.2 million hectares to maize (ISAAA, 2014, Biotech facts and trends Argentina).

cultivation, besides Colombia, in the US, Australia and New Zealand; and rice (LibertyLink601) only in the US and Colombia (ISAAA GM Approval Database). GM wheat and rice have been rejected by most producing countries because the European Union, Japan, South Korea, and Taiwan, among other countries, have banned the import of GM varieties due to consumer resistance. Colombia is also one of the few countries in the world that has authorized imports of Monsanto's GM Roundup Ready sugar beet (for food in 2005 and feed in 2010).

The country is also distinctive in that there are no GM soy crops -the GM crop most cultivated in South America and one of the three main GM crops worldwide- although Roundup Ready soy MON 04032-6 has been authorized for commercial cultivation since 2010. This is probably so because GM soybean has only been approved for commercial cultivation in the Orinoquía region considered the last agrarian frontier in the country with four out of seven million hectares considered apt for agriculture³⁰. Since Alvaro Uribe's administration, the Colombian government has been keen on promoting the Orinoquía, following the Brazilian model of the *Cerrado* and the expansion of GM soy in northern Argentina, for large-scale corporate agriculture that includes GM soybean for export, taking advantage of the agrofuels boom in the international markets³¹.

However, for large -scale corporate GM soybean agricultural projects to prosper in the Orinoquía, a region historically abandoned by the state, it requires multimillionaire investments on infrastructure (roads, ports and large-scale grain storage facilities are almost non-existent);

³⁰ ICA's Resolution 2404 of 2009 approved the import of GM soybean seeds for biosafety studies and agronomical tests in the agro-ecological zones of the Humid and Dry Caribbean, Cauca River Valley, Upper Magdalena, and Orinoquía. However, GM soybean has only been approved for cultivation in the Orinoquía region (Chaparro, 2013: 85).

³¹For a summary of domestic and transnational companies developing agri-bussines projects in the Orinoquía and the rest of the country, see: Salinas Abdalá, 2011: 28-30.

soil improvement (its soils are characterized by high acidity); and favorable political climate to legalize corporate usurpation (or “land grabbing”) of state-owned agrarian reform and indigenous lands, as well as protected national parks, located in this territory (Oxfam, 2013)³². Although there was large opposition to land grabbing in the Orinoquía, the Senate approved the latest attempt to allow for the accumulation and privatization of state-owned lands as well as to promote agribusiness –a law called ZIDRES– on December 16, 2015.³³

3.2. GM Crops and Oligopoly Seed Markets in Colombia

Colombia has approved 75 varieties (called ‘events’) of GM agricultural crops, modified for three basic characteristics, as elsewhere in the world (see Table 1):

1) Insect resistance (IR) by inserting different Cry 1, 2 and 3 genes from a bacterium called *Bacillus thuringiensis* (*Bt*) that codifies for a toxin that affects certain species of Lepidopterans and Coleopterans. These insect resistant GM crops are commonly known as Bt varieties referring to the bacteria name. Bt crops are then genetically modified to produce the toxin through their own metabolism so that so-called target insects die when they feed from the crop; a technology advertised as a form of more efficient pesticide control.

2) Herbicide tolerance (HT) to certain agrotoxics for weed control. Fields grown with herbicide tolerant GM crops can be widely fumigated with such agrotoxics, killing the targeted weeds –and along the way, a wide variety of organisms– but leaving the crops unharmed. In Colombia, HT crops are tolerant to the powerful wide-range herbicides Glyphosate, Glufosinate,

³² There are 46 *resguardos*, or legally recognized indigenous communities, that encompass close to four million hectares in the Orinoquía.

³³ Zidres is the Spanish acronym for Economic and Social Rural Development Interest Zones or agro-industrial projects that will be promoted in the Orinoquía and other ‘underdeveloped’ regions in Colombia. The limits on land accumulation will not apply in Zidres.

2,4-D, Dicamba and Sulfonylurea.³⁴ The iconic HT seed is Monsanto's Round Up Ready named after the company's commercial name for glyphosate. Glyphosate kills plants by blocking a specific enzyme, called EPSPS that is important to synthesize aromatic amino acids and vitamins vital for plants. In the case of GM crops resistant to glyphosate, the genetic modification works by inserting into the crop a soil bacterium gene that produces a glyphosate-tolerant EPSPS enzyme. This way glyphosate cannot block the EPSPS enzyme, leaving the GM crop unharmed. As certain species of weeds have become resistant to these herbicides, due to their intensive application in the fields, new varieties of HT crops combine resistance to more than one herbicide.

3) 'Stacked' that combine both IR and HT to obtain both pest and weed control. Other characteristics such as modified product quality –which increases or decreases the plant's production of certain amino acids such oil fatty acid, lysine, or mannose used in the industrial processing of food– and drought stress tolerance constitute only seven events in total, though usually combined with HT and/or IR characteristics (see Appendix 1).

As seen in Table 1, the top six biotechnology companies –Monsanto, Syngenta, Dow Agrosiences, Dupont, BASF, and Bayer– control the GM seed market in Colombia. The only non-corporate owner of GM technology for agricultural crops cultivated and/or imported in the country is the University of Saskatchewan for linseed³⁵. There are no GM crop varieties, currently grown that are owned by public or private Colombian companies or research institutes.

³⁴ Some of these herbicides were used as biological weapons in 20th century wars, as many of these chemical companies were initially linked to the industrial military complex and then expanded towards the industrial agricultural complex. For instance, 2,4-D is the active component of the infamous Agent Orange that was used widely in the Vietnam war and continues to cause cancer and genetic malformations among the local population. In Colombia, the only approved GM seeds tolerant to Sulfonylurea are soybean and linseed.

³⁵ If we take into account flowers, we also have International Flower Developments for carnations and roses.

Table 1: GM Crops in Colombia

GM Crop	Characteristics	Company	Use
Maize (46 events)	HT, IR, stacked (HT+IR), modified product quality, and drought resistance	Monsanto, Syngenta, Dow Agrosciences, Dupont, and Bayer	Food, feed and controlled cultivation
Cotton (13 events)	HT, IR, and stacked (HT+IR)	Monsanto and Bayer	Food, feed, and cultivation
Soy (11 events)	HT, IR, stacked (HT+IR), and modified product quality	Monsanto, Dupont, Bayer, and BASF.	Cultivation
Sugar beet (1 event)	HT	Monsanto	Food and feed
Wheat (1 event)	HT	Monsanto	Food and feed
Rice (2 events)	HT	Bayer Cropscience	Food and feed
Flax/Linseed (1 event)	HT	University of Saskatchewan	Feed
Total: 75 events	HT, IR, stacked (HT+IR), modified product quality, and drought resistance	6 corporations: Monsanto, Syngenta, Dow Agrosciences, Dupont, Bayer and BASF + University of Saskatchewan	Food, feed, and cultivation

Source: my own from data in Appendix 1.

Monsanto, for instance, monopolizes the cotton seed market –and associated technological package- in Colombia. In fact, in the department of Córdoba, Monsanto controls 80% of such market (Vélez, 2014). So even though GM seeds and technological packages are much more expensive (around three times the price); farmers in the main cotton-growing regions, such as Córdoba, Sucre and Tolima, have little choice in terms of seeds³⁶. In these regions is difficult to buy seeds other than Monsanto’s Bt cotton because the company even withdrew the non-GM cotton variety Delta Opal 90, to force farmers to buy its GM varieties. Then when Bt cotton failed because it did not control the main local plague called *Picudo* (*Anthonomus grandis*), Monsanto announced its withdrawal from the cottonseed business and currently farmers have difficulties finding seeds to grow (Esteban 2014; Vélez, 2014: 104). The situation of GM corn is similar as explained in the introduction to this chapter.

Colombia, until the application of the ‘free trade’ model in the 1990s, developed a seed sector for staple crops based at the Colombian Institute of Agriculture (ICA by its Spanish acronym) that carried out plant research, and breeding and phyto-sanitary controls. However, the agrarian crisis that followed after the implementation of free trade policies and FTAs, contributed greatly to weaken the domestic, both public and private, seed sector strengthening the oligopoly of foreign corporations. As Carlos (2013), a representative of the seed sector, clearly explained:

“There were many [seed] companies [in Colombia], most of them do not exist anymore because some bought out others, still others disappeared because the crops disappeared. Colombia had an important seed production of barley, wheat, soybean, but today these crops have almost disappeared; in the case of soybean, for instance, there are less than 30 thousand hectares cultivated today. Then seed companies face

³⁶ For 2008 -2009, while a 25-kg bag of conventional cotton (Delta Opal) cost \$339.800 pesos (USD \$126); GM seed DP164BGil - RR Flex cost \$945.000 (USD \$352) and DP455BGxRR: \$ 801.200 pesos (USD \$298) (Grupo Semillas, 2009).

the same conditions than an economy's productive cycle: the agricultural sector determines the existence or not of seed companies in the market”

On the other hand, foreign biotechnology companies also control the agrochemicals market in Colombia. Agrobiotechnology is a second Green Revolution that continues the model of ‘improved’ varieties dependent upon an input intensive technological package where biotechnology companies obtain profits from both products: seeds and agrochemicals.

In Colombia, GM crops, both cultivated and imported for food and feed, amount to 75 events.³⁷ However, of those approved for cultivation, only 17 GM varieties have been commercialized: six for cotton and eleven for maize (see Tables 2 and 3)

Table 2: GM Cotton Seeds Cultivated in Colombia (2012)

Crop/technology	Characteristics	Company	Agroecological zone
Bt Cotton (Bolgard)	IR	Monsanto	Caribbean, Orinoquía, Upper Magdalena Valley, Cauca Valley
Cotton (RR)	HT	Monsanto	
Cotton (Bolgard + RR)	IR + HT	Monsanto	
Cotton (Bolgard II + RR)	IR + HT	Monsanto	
Cotton RR Readyflex (MON 88913)	HT	Monsanto	
Cotton Liberty Link 25 (ACS-GH001-3)	HT	Bayer Cropscience	Magdalena Valley

IR: Insect Resistance; HT: Herbicide Tolerance; Source: Agrobio, 2013. In: Vélez, 2014: 97

Table 3: GM Maize Seeds Cultivated in Colombia (2012)

Crop/technology	Characteristics	Company
Maize Yieldgard	IR	Monsanto
Maize Herculex I	IR	Dupont de Colombia
Maize Yieldgard RR	IR + HT	Monsanto
Maize RR	HT	Monsanto
Maize Herculex x RR	IR + HT	Dupont de Colombia
Maize Yieldgard	IR	Dupont de Colombia
Maize Herculex x RR	IR + HT	Dow AgroScience
Maize BT 11	IR	Syngenta
Maize NK-603	HT	Dupont de Colombia
Maize GA 21	HT	Syngenta
Maize Bt 11 x GA21	IR + HT	Syngenta

Source: Agrobio 2013 In: Vélez, 2014: 98

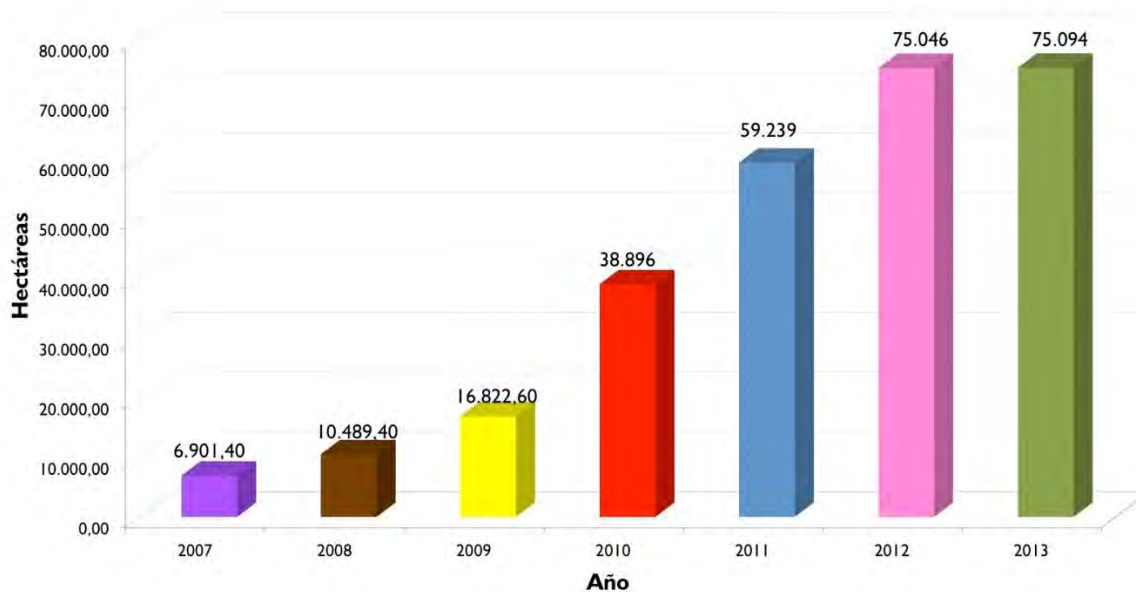
³⁷See Annex 1 for more detailed information.

As Tables 2 and 3 illustrate, the majority of GM crops cultivated in Colombia are herbicide tolerant (HT): only one variety of GM cotton was not HT out of seven; and four varieties of GM maize out of 11.

3.3. *The Failure of GM Maize and Cotton in Colombia*

Colombia is not a major GM crop producer in comparison to the US, Canada or the Southern Cone countries. For instance, in 2014, the US grew 73.1 million hectares, Brazil 42.2 million and Argentina, 24.3 million (Clive, 2014: 4). In 2010, there were 47 million hectares of GM soybean cultivated in the southern cone countries, which is equivalent to more than 30% of the total arable lands of the region (Catácora Vargas *et al*, 2012: 6). However, GM crops acreage in Colombia, as elsewhere, increased exponentially until the crisis of 2012 that halted corn production and reduced cotton one.³⁸

Figure 10: GM maize acreage growth 2007-2013



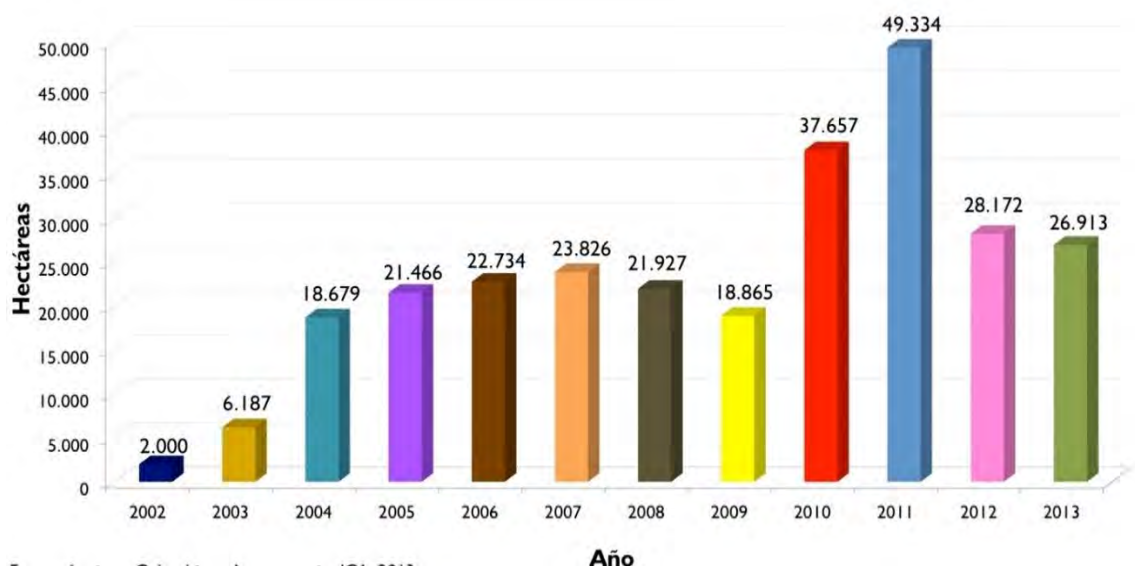
Source: Agrobio, <http://www.agrobio.org/transgenicos-en-el-mundo-colombia-region-andina/>

³⁸For instance, Argentina approved the cultivation of GM soy in 1996. A year later, GM soy already accounted for 24% of domestic total soy production. In 2000, it accounted for 87% y since 2004 to more than 94% (Catácora Vargas *et al*, 2012: 29).

GM maize acreage was first cultivated in Colombia in 2007. In 2011, there were 59,000 ha of GM maize and by 2013 it had grown to 75.095 ha; however, the 2012 crisis halted such growth (Agrobio; see Figure 10).

Unlike maize, the cotton crisis led to a reduction of GM crop cultivation: while in 2011, there were 49,000 of cotton, by 2013 it dropped to 26.913 (see Figure 11)

Figure 11: GM cotton acreage growth 2002-2013



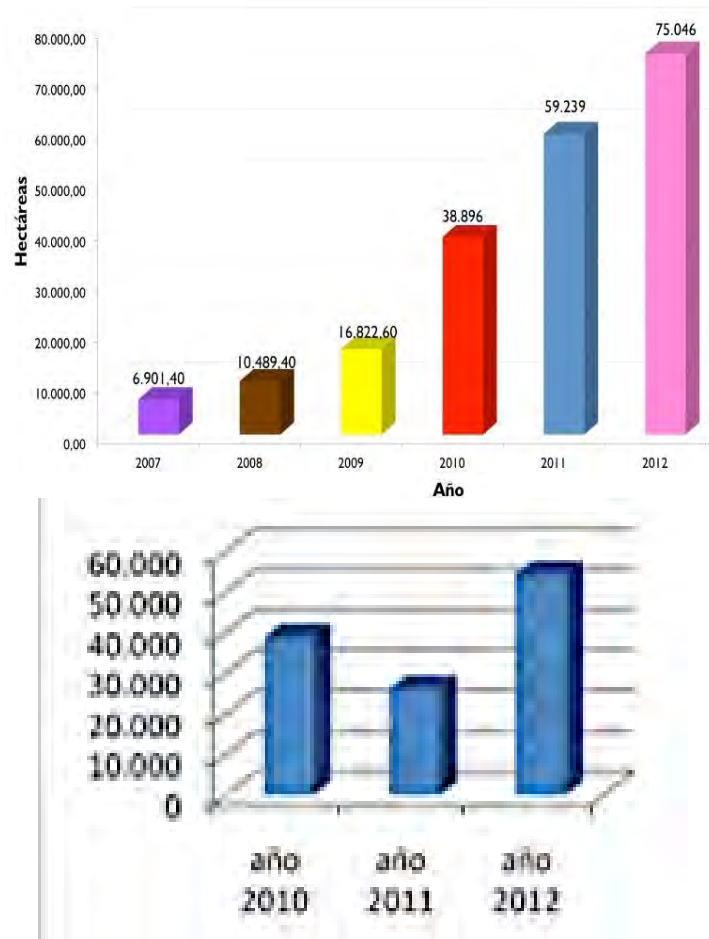
Source: Agrobio <http://www.agrobio.org/transgenicos-en-el-mundo-colombia-region-andina/>

Nonetheless, according to the Network of Free Seeds, it is probable that there is a larger acreage of GM crops in Colombia than reported by ICA and pro-GM research centers such as Agrobio. Possible reasons are that they may want to inflate the numbers and/or because ICA does not have the capacity to regulate GM seed cultivation.

Grupo Semillas and the Corporación Custodios de Semillas made an independent study on GM maize cultivation in Colombia based on data from ICA. Even though ICA is obliged to publicly disclose data on GM crops, these NGOs had to file Rights of Petition (*derecho de petición*) in 2009 and 2010 to obtain ICA's georeferenced information on GM cultivation. Their

results on the evolution of GM maize cultivation between 2010-2012 differed from Ica's, as seen below (Figure 12):

Figure 12: Cultivation area of GM maize according to Agrobio (above) and Grupo Semillas-CCS (below)



Source: Grupo Semillas and CCS

4. Institutional Power: The Colombian IPRs System under the US-Colombia FTA

The corporate governance and political economy of agrobiotechnology is achieved through the re-regulation (Roff, 2008) of intellectual property rights (IPRs), seed certification, and food and seed markets under the neoliberal framework of investor protections and free trade. In Colombia, this re-regulation was pushed forward through the economic, legal, phyto-sanitary,

and environmental provisions on GMOs and the changes to IPRs regime as mandated in the US-Colombia Free Trade Agreement (FTA).

The US-Colombia FTA was negotiated, signed and approved by the Colombian Congress (2007) and the Constitutional Court (2008) during Alvaro Uribe's administration (2002-2010). The treaty was signed on November 22, 2006 by the US Trade Representative, John Veroneau, and Colombian Minister of Trade, Jorge Humberto Botero. However, it did not go into effect until May 15, 2012, during Juan Manuel Santos' first administration (2010-2014), after it was approved by the US Congress in October 12, 2011.

Alvaro Uribe's government, and the two administrations of Juan Manuel Santos, promoted foreign investment in agriculture, as in all other economic sectors, by guaranteeing not only favorable economic and legal conditions or what is known as 'investment trust' (*confianza inversionista*), especially in the Free Trade Agreements signed with the US and Europe. For the biotechnology industry, *Confianza inversionista* included strengthening clear, pro-business legislation on property rights on plant material, the implementation of biosafety systems and new seed certification standards, and opposing GM labeling for considering it a 'barrier to trade.'

4.1. A TRIPs-Plus Agreement: "Harmonizing" IPRs Legislation in Colombia

As it has become a norm for US-promoted FTAs, Colombia committed to signing an extended version of the WTO's Trade Related Intellectual Property Rights (TRIPs), or what has been termed a 'TRIP-Plus Agreement' (Sell: 2009: 194)³⁹. Wider IPRs for plants benefit transnational companies, such as Monsanto and Syngenta, that own the majority of patents and breeder's rights for commercial seeds, both hybrids and GM.

³⁹ All other FTAs signed between Latin American countries and the US include the requisite to adhere to UPOV91. Accordingly, Dominican Republic adhered in 2007, Costa Rica in 2009, Peru in 2011, and Panama in 2012 (Góngora-Mera and Motta, 2014: 406)

The US-Colombia FTA's states that both countries ratify their 'rights and obligations' under the WTO's Sanitary and Phytosanitary Agreement (SPS)⁴⁰ and the TRIPS Agreement under the auspices of the World Intellectual Property Organization (WIPO).⁴¹ Specifically regarding IPRs for plants, the FTA says that "Each Party shall ratify or accede to the following agreements by [...] date of entry into force of this Agreement: (c) the *International Convention for the Protection of New Varieties of Plants* (1991) (UPOV Convention)"⁴².

Colombia became obliged to adhere to the Convention in its most recent version of 1991. In return, the US government promised Colombia preferential access for certain products to its markets. This is in stark contrast with Argentina and other countries in the Southern Cone that are large GMOs producers but had not signed FTAs with the US or the EU.⁴³

Law 1518 of 2012 approved Colombia's adherence to UPOV1991, right before the FTA came into effect on May 15th of that year. This adherence reversed Colombia's adherence to UPOV in its version of 1978 as mandated by Decision 391 of the Andean Community to which Colombia belongs (Arciniegas Muñoz, 2013: 6). Law 1518 maintains breeder's rights rather than patents as the IPRs system for plants. However, both kinds of IPRs are very similar because

⁴⁰ Chapter Six Sanitary and Phytosanitary Measures, Article 6.2, paragraph 1

⁴¹ Chapter Sixteen Intellectual Property Rights, Article 16.1., paragraph 6

⁴² Chapter Sixteen Intellectual Property Rights, Article 16.1., paragraph 2 (c)

⁴³ Thus, the US and European governments and corporations have been unable to impose as stringent IPRs on plants in such countries. In fact, none of those countries have signed UPOV91, so farmers are legally able to save seeds and sell or exchange them to other farmers informally as White Bag Seeds (*Semillas de Bolsa Blanca*). Given the expansion of Monsanto's RR soybean cultivation in the Southern Cone, there is a large informal White Bag market for these seeds across countries in this region, which has represented a significant loss of revenue for seed royalties for Monsanto and consequently an economic benefit for farmers, especially small-scale ones. However, Argentina is about to approve a new seed law that will impede farmers to resave seed. So, after almost 20 years of cultivating GM crops –RR soybean was the first GM crop approved in the country in 1996–, it seems that corporations such as Monsanto had finally been able to impose UPOV91-like legislation to charge royalties.

breeder's rights in Law 1518, following UPOV91, restrict farmers' rights to freely use, save and commercialize certified seeds (Grupo Semillas, 2014).

When Law 1518 of 2012 approved Colombia's adherence to UPOV91, the NFS collected 7.000 signatures and solicited the Constitutional Court to consider the law unenforceable on several grounds. Such grounds included its restriction of farmers' rights to freely use, save, and commercialize certified seeds and that it was enacted without previous consultation with indigenous and Afro-Colombian communities. In December 2012, the NFS had a landmark victory. The Constitutional Court declared Law 1518 unconstitutional for not having previously consulted indigenous and Afro-Colombian communities. The Court's summary of its decision also recognizes that IPRs on plant material under UPOV91 might affect the biodiversity, culture, and ecosystems of such communities.⁴⁴

Despite the Constitutional Court's decision, the Colombian government has been adjusting its IPRs regime to comply to UPOV91, through legislation such as Law 1032 of 2006 and ICA's Resolution 970 of 2010⁴⁵. Furthermore, the Colombian government has reiteratively insisted that these changes in legislation had nothing to do with the US-Colombia FTA. For instance, Teresita Beltrán, ICA's general manager, has argued that Resolution 970 has no connection to the FTA and that Colombia has been legislating on certified seeds since 1970 according to normative and scientific developments.⁴⁶ The Minister of Commerce, Sergio Díaz-Granados, while admitting that the FTA compelled Colombia to adhere to UPOV91, insisted that

⁴⁴ "A su juicio, la imposición de restricciones propias de una patente sobre nuevas variedades vegetales como la que consagra la UPOV 91, podría estar limitando el desarrollo natural de la biodiversidad producto de las condiciones étnicas, culturales, y ecosistemas propios en donde habitan dichos pueblos" (Constitutional Court, 2012).

⁴⁵ The US-Colombia FTA was signed by Ministers of Commerce in November 2006 but did not go into effect until May 2012, after Congress from both countries approved it.

⁴⁶ Quoted in "Lecturas de la 970" in *El Espectador*, August 31, 2013.

“saying that Colombia modified or added more responsibilities than it previously had regarding crops and seeds is not true. Colombia, regardless of the FTA with the US, has been part of the UPOV Convention since the 1980s” (Díaz-Granados, 2013).

To be sure, there were major differences between the US and the Colombian IPRs and Sanitary and Phytosanitary systems at the time both countries started negotiating the FTA in mid-2004. Colombia was signatory of the ILO 169 Convention on indigenous and tribal peoples, the UPOV 1978, the Convention on Biodiversity and its Cartagena Protocol, and the Andean Community Decision 391 on Common Regime on Access to Genetic Resources, and had signed but not ratified the UN International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), commonly called the Seed Treaty. The US, in contrast, was not a member of any of these International Agreements but the UPOV, although in its 1991 version and, like Colombia, has signed but not ratified the Seed Treaty.

In concrete terms, these differences meant that the US allowed for the patenting of living organisms, including plants and their parts, such as seeds, and of a wide range of genetic engineering methods and products. In contrast, Colombia not only forbade patenting of living organisms and allowed a much more limited patenting in the field of biotechnology, but also upheld the right to previous consultation, guaranteed farmers’ rights to use, save and exchange seed and committed to the fair and equal distribution of benefits derived from the use of genetic resources⁴⁷.

By compelling Colombia to adhere to UPOV91 in the US-Colombia FTA, the US was seeking to “harmonize” IPRs protections on plants and biotechnology based on its own

⁴⁷ However, in 2013, the US Supreme Court dictated that DNA is a product of nature and thus cannot be patented (Góngora-Mera and Motta, 2014: 400)

standards. Germán Vélez (2013b), from the environmental NGO Grupo Semillas, explains that from the beginning, the US made clear that the FTA chapter on intellectual property was non-negotiable as the northern power will not abide by CAN's or any other multilateral agreement's legislation on the matter:

“We [at *Grupo Semillas*] believe there was a strong pressure to modify the Colombian IP regime to adequate it to US standards. All that new legislation, such as [Resolution] 970 or the modification to article 306 from the Penal Code, were not implemented because someone at ICA came up with those; they were made in the middle of the FTA negotiations”

As Vélez (2013b) succinctly put it: “At the end, Colombia gave up everything [in the FTA negotiations]. By adhering to UPOV91, the US-Colombia FTA is a TRIPs-plus agreement that contravenes all international agreements Colombia was a member of: The Cartagena Protocol, the Seed Treaty, and CAN's decisions.

In sections 4.2 and 4.3, we compare UPOV in its version of 1978 and 1991 to better understand how the ‘harmonization’ of US and Colombian property regimes on plant material meant the erosion of farmers’ privilege and the research exemption, as well as the further legalization of biopiracy.

Eco-feminist activist from India, Vandana Shiva (2001) refers to biopiracy as:

“the use of intellectual property systems to legitimize the exclusive ownership and control over biological resources and biological products and processes, that have been used over centuries in non-industrialized cultures” (49).

Biopiracy is not a potential threat of the IPRs system, but rather a reality; not an aberration but intrinsic to it. There has been many instances of biopiracy, among the best well-known are: the patenting of ICRISAT chickpea and lentil varieties in Australia; the appropriation of the Indian descriptor ‘Basmati’ for rice by the Texas company RiceTec; the patenting of a Mexican bean landrace by an American breeder; the patent holding by US company W.R. Grace,

over neem, a biological pesticide native to – and traditionally used in– India, from 1985 until 2010 where the European patent office struck down such right (Kloppenborg, 2004: 341; Shiva, 2001: 52-61). In Colombia, the International Plant Medicine Corporation gained in 1986 a patent over *yagé* (*Banisteriopsis caapi*), a sacred, hallucinogenic and curative plant for indigenous people in the Amazon. The Indigenous Peoples Organizations of the Amazon Basin (COICA by its Spanish acronym) and the Center for International Environmental Law (CIEL by its Spanish acronym) filed a lawsuit against the patent at the US Patent and Trademark Office and won in 1999⁴⁸.

Maize offers one of the clearest cases of biopiracy as it is a crop that originated and was domesticated by Mesoamerican people in what is today Mexico, before the Spanish conquest. Colombia is a center of diversity for maize and has been a hub of agronomical research since the 1940s. Colombian agronomists from the Universidad Nacional at Medellín created a variety of maize called ETO that is specially adapted to the temperate climates and the soil conditions of the coffee-growing zone and that has been used in other countries in Africa and Asia to promote food security⁴⁹. ETO maize was part of the larger World Gene Bank managed by the Colombian Institute of Agriculture (ICA) that had 6,400 seed varieties, both native and ‘improved’. However, a US university has claimed a patent over ETO maize, after introducing minor modifications to its genetic information, forcing Colombian maize producers to pay royalties for using a seed that was developed through public funding and based on the knowledges and practices of local farmers over centuries (Pérez Zapata, 2009: 23-25).

⁴⁸ El Tiempo, “Se revocó la patente del yagé” November 6, 1999 In: <http://www.eltiempo.com/archivo/documento/MAM-944876> Consulted in July 7, 2015.

⁴⁹ ETO stands for Estación Tulio Ospina, which was the name of the research center at the Universidad Nacional at Medellín where Colombian agronomists, led by Eduardo Chavarriaga Misas, created this maize variety.

4.2. UPOV 78 vs. 91: The Expansion of IPRs for Plant Material

The ‘harmonization’ of the Colombian property regime on plants to the US regime happened via the adoption of UPOV91 which differs significantly from the 1978 version to which the country belonged before signing the FTA with the US. There are four main differences in terms of IPRs for plant material between both versions of the UPOV Convention:

First, UPOV 1991 leaves to each country’s discretion –as a facultative exemption– to whether or not to 1) grant the farmers’ privilege to freely save, use, exchange, and commercialize certified seeds, and to 2) exempt public institutions and plant breeders from paying royalties for the use of protected plant varieties for basic research or the development of new varieties. In contrast, under the UPOV1978 countries are legally bound to recognize farmer’s privilege and the research exemption⁵⁰ (Sell, 2009; Góngora-Mera and Motta, 2014: 405).

Second, article 27 of UPOV 1978, allows nations to forbid the patenting of living beings, including plants but not microorganisms. If patents on plants are prohibited, UPOV 1978, requires a *sui generis* system of IPRs for plants. Colombia, unlike the US, forbids the patenting of plants, and adheres to CAN decision 486 as its *sui generis* system. Under CAN Decision, art. 15, living beings or their parts even those that can be isolated (including genes, germplasm, proteins, enzymes, etc.) and natural biological processes are not consider inventions and thus cannot be patented (Lamprea Bermudez and Salazar López, 2013: 17). In other words, in Colombia, plants and their parts, such as genes or proteins, can *only* be patented if they are genetically modified but not in their natural state, even if isolated. Biological control methods or plants’ reproductive methods cannot be patented (Lamprea Bermudez and Salazar López, 2013:

⁵⁰ Articles 27.2 and 27.3.

17-18). In contrast, in the United States, all processes involved in the genetic engineering of plants can be patented.

Accordingly, the US-Colombia FTA states that "Each Party shall make patents available for any invention, whether a product or process, in all fields of technology"⁵¹ and adds that:

"Nothing in this Chapter shall be construed to prevent a Party from excluding inventions from patentability as set out in Articles 27.2 and 27.3 of the TRIPS Agreement. Notwithstanding the foregoing, a Party that does not provide patent protection for plants by the date of entry into force of this Agreement shall undertake all reasonable efforts to make such patent protection available consistent with paragraph 1"⁵²

Peru petitioned the CAN to modify Decision 486 to make it non-binding in order to comply with its FTA with the United States; Colombia supported this petition for the same reasons.

Third, while UPOV 78 (article 27) enables countries to exclude plants from being patented due to social and environmental reasons,⁵³ UPOV 91 allows for patenting and breeder's rights and puts forward the economic interests of patent and breeder's rights holders.

Accordingly, in the US-Colombia FTA, exceptions to patenting can be granted in so far as:

"such exceptions do not unreasonably conflict with a normal exploitation of the patent and do not unreasonably prejudice the legitimate interests of the patent owner, taking account of the legitimate interests of third parties".

The text does not define what constitutes an "unreasonable conflict" or "prejudice" to patent holders' rights nor does it take into consideration social and environmental concerns.⁵⁴

⁵¹ Article 16.9, paragraph 1.

⁵² Paragraph 2, emphasis added.

⁵³ Reasons such as protecting public order or morality, health, and life of people and animals, and in order to preserve plants, or to avoid serious damage to the environment.

⁵⁴ Chapter Sixteen on Intellectual Property Rights, Article 16.1.3

Fourth, UPOV91 increases the period of protection for breeder's rights from 15 to 20 years (Góngora-Mera and Motta, 2014: 404).

In sum, the US-Colombia FTA undermines the state responsibility to guarantee farmers' rights to freely use, save, and exchange seeds and to grant research exceptions on patenting living organisms (Góngora-Mera and Motta, 2014: 412). It accomplished those by circumventing both UPOV78 patentability exclusions and CAN's prohibition on patenting living organisms.

4.3. Adopting UPOV 91: Legalizing Biopiracy in Colombia

The UPOV system indirectly promotes biopiracy and restricts farmers' privilege by granting intellectual property rights only to seed varieties that are "homogenous, stable, and distinct". These parameters benefit seed companies because landraces are characterized by their heterogeneity and genetic variation as a result of the constant breeding work done by farmers' agricultural practices (Grupo Semillas, 2011: 90-1). However, the UPOV 91, in contrast to its 1978 version, contains provisions that more clearly allow for biopiracy, as explained below.

4.3.1. Promoting Biopiracy: Discovery and Essentially Derived Varieties

UPOV91 promotes biopiracy in two main ways:

1) It grants protections for "essentially derived varieties" or those similar to protected seed varieties. Given that GM and hybrid seeds are developed based on traditional varieties, it becomes easy for biotechnology companies to claim rights over a larger variety of seeds, and

2) UPOV91, unlike the 1978 version, explicitly defines "breeder" as "the person or legal entity that has created or discovered and developed a new variety"⁵⁵ And adds "novelty" as a

⁵⁵ UPOV91 Chapter 1, article 1, paragraph iv in: <http://www.jus.uio.no/english/services/library/treaties/10/10-01/protection-plants-convention.xml>

specific criteria to be satisfied in order to claim IPRs.⁵⁶ This means that UPOV91 allows breeder's rights for native and creolized plant varieties that have not been modified by modern scientific techniques; in other words, IPRs not only recognize human invention –their *raison d'être*– but include human “discoveries”.

Therefore, a company could claim IPRs over any traditional variety by simply registering as its discovery. This would impede anyone, including farmers that have grown it over centuries, to use and commercialize such variety or products that contain it, unless they pay royalties (Gutiérrez Escobar, 2014; Grupo Semillas, 2011). As the NFS argues, “that a variety has been in peasants' hands for generations is irrelevant for UPOV91 [in terms of property rights]” (NFS, 2015). UPOV91 more clearly defines property rights based solely on market criteria –whether or not the variety has been sold– and on modern scientific breeding methods while ignoring the labor and knowledge of peasant communities in developing new varieties.

Accordingly, the US-Colombia FTA says that in relation to patent granting “a Party may treat the terms ‘inventive step’ and ‘capable of industrial application’ as being synonymous with the terms ‘non-obvious’ and ‘useful’, respectively.”⁵⁷ This grants a wider interpretation of what can be considered an invention in the field of biotechnology (Góngora-Mera and Motta, 2014: 400)

4.3.2. Not Preventing Biopiracy: The ‘Understandings Regarding Biodiversity and Traditional Knowledge

Following the Convention on Biological Diversity (CBD)’s Bonn Voluntary Guidelines to protect biodiversity and communities’ traditional knowledges and practices, CAN requires

⁵⁶ “The variety shall be deemed to be new if, at the date of filing [...] has not been sold or otherwise disposed of to others, by or with the consent of the breeder, for purposes of exploitation of the variety” UPOV91, Chapter 3, article 6, paragraph i.

⁵⁷ Article 16.9, paragraph 1.

companies and individuals to sign an access contract or disclosure of origin of Andean genetic resources, its products or domesticated species when applying for IPRs (patents or breeder's rights) for a new variety or biotechnology invention⁵⁸. This is in order to guarantee a fair distribution of benefits to local communities and Andean nations (Nemogá Soto, 2009: 42)⁵⁹. Article 53 allows for limitations on patents when biotechnology inventions are used for scientific research and education (Lamprea Bermudez and Salazar Lopez, 2013: 28).

While negotiating the FTAs with the US, Colombia –along with Peru– presented a Biodiversity Proposal based on CAN legislation.⁶⁰ The proposal required: 1) previously informed knowledge of the country of origin of biological resources and local communities as a novel requisite to grant patents in the field of biotechnology under TRIPs; 2) explicit legislation on access terms to genetic resources and traditional knowledges with payments or cooperation on the conservation and development of such resources; 3) that the US will recognize as a priority the protection of the environment and biodiversity, the production and exportation of environmental goods and services, and technological transfer; and 4) to maintain CAN's normativity on this issue (Decision 391) unmodified.

The US replied to the CAN's proposal through a letter to TRIP's Council stating that it supports benefit-sharing and the conservation of biodiversity, but not new requirements on patentability, particularly the 'disclosure of origin'. Rather the US proposed market mechanisms –such as regular contracts- and data basis outside TRIPs for considering them more efficient to prevent biopiracy and distributing benefits (Gómez Lee, 2010: 51-2)

⁵⁸ See CAN Decision 486, article 3.

⁵⁹ CAN Decision 486, unlike Bonn Guidelines, is a binding legal instrument for Andean nation members.

⁶⁰ Venezuela withdrew from CAN in 2006. Bolivia and Ecuador are CAN's member but have not signed FTAs with the US.

After long negotiations between both countries, the US-Colombia FTA states in an appendix on “Understandings Regarding Biodiversity and Traditional Knowledge” that both countries recognize the economic, cultural, and social importance of traditional knowledge and biodiversity. However, it does not recognize Colombia’s sovereignty over biological resources contravening CAN’s decision 391 and the CBD guidelines⁶¹. These “Understandings” also recognize the importance of obtaining informed consent from the “appropriate authority” prior to accessing genetic resources and benefit sharing from the use of such resources through “contracts that reflect mutually agreed terms between users and providers”. The ‘appropriate authority’ is the Colombian government which has caused critiques from indigenous and black communities in Colombia in regards to their right to ‘previous consultation’ as mandated by the ILO’s Convention 169. Rather than a disclosure of origin, the only requisites for patentability of inventions based on traditional knowledge or genetic resources is an “opportunity to cite in writing, prior art that may have a bearing on patentability”.

Thus, the US-Colombia FTA does not recognize the Andean Community Common Regime on Access to Genetic Resources (defined by Decision 391) as the normative basis to legislate on issues regarding informed consent and benefit-sharing on the use of traditional knowledge and biodiversity. Rather than adopting all of the detailed Andean regulations, the “Understandings” leave these issues to be resolved by private contracts and do not define important terms. For instance, Decision 391, unlike the “Understandings” defines that genetic resources belong to countries that possess such resources in “*in situ* conditions, including those which, having been in *in situ* conditions, are now in *ex situ* conditions.”⁶² In other words, it

⁶¹ US-Colombia FTA, Annex 3, Nov, 22, 2006.

⁶² CAN’s Decision 391, article 1, Title 1.

recognizes Andean countries' sovereignty over their genetic resources even if such resources have been plundered as European countries and the US have historically done through scientific expeditions.

These absences open the door for “biopiracy” and make it difficult for Colombian public institutions to claim legitimate research exemptions (Nemogá Soto, 2009: 42-45)⁶³. Moreover, the FTA's “most favored nation treatment” clause may hinder public policy that aims to favor Colombian public institutions in accessing the country's genetic resources over US ones.

5. Sowing Seed Conflicts: Implementing UPOV91 in Colombian Legislation

According to FTA's chapter ‘On the Enforcement of Intellectual Property Rights’, both countries shall have judicial procedures to enforce IPRs by ordering infringers to pay to the right holder to compensate for damages and, at the right's holder's request, to destroy pirated goods.⁶⁴

Starting in 2002, under the government of Alvaro Uribe, the Colombian Congress started to adjust domestic legislation to FTA requirements on Intellectual Property Rights (IPRs) and phyto-sanitary controls before the agreement went into effect. As a result, a series of laws, resolutions and decrees were passed and incorporated in our legislation to allow both the judicial branch and ICA –a Ministry of Agriculture's branch in charge of plant safety and inspection:

Law 1032 of 2006 modifies article 306 of the Criminal Code to include breeder's rights and establishes fines between USD \$7,000 and \$400,000⁶⁵ and four to eight years of prison for

⁶³ Specifically, the US-Colombia FTA's Side Letter on Biodiversity and Traditional Knowledge

⁶⁴ Chapter Sixteen Intellectual Property Rights, Article 16.11, paragraph 6 and 7

⁶⁵ 26 to 1.500 minimum legal wages. Legal wage in Colombia is 720.000 pesos which is equivalent to approximately USD\$270

anyone who usurps breeder's rights for legally protected varieties or for those "essentially derived", as UPOV91 requests.⁶⁶

The NFS filed an 'action of unconstitutionality' against the reform to the Criminal Code's article 306 on the Usurpation of Industrial Property Rights and Plant Breeders' Rights before the Colombian Constitutional Court. The Court endorsed the constitutionality of article 306. However, it granted the NFS one of the crucial points on its legal demand. The NFS argued that the one of the reasons why article 306 should be unconstitutional was because it penalized anyone who infringes breeders' rights not only of those legally protected varieties but also those varieties that are "similar to the point of confusion to a right legally protected". Given that protected varieties are derived from *criollo* varieties, the NFS argued that this clause or expression opens the possibility to criminalize seeds that have been long developed by –and cared for– indigenous, afro-descendant, and peasant communities. Accordingly, the Constitutional Court ruled to remove such clause or expression from article 306 and similar legislation because it infringes the *principio de taxatividad* (the principle of legal certainty or *lex certa* principle). This means that it is not possible to define the degree of similarity between legally protected varieties and those similar that is to be penalized.

Law 1564 of 2012 grants ICA jurisdictional functions –based on art. 116 of Colombian Constitution- concerning the violation of breeder's rights; in other words, the faculty to act as a judicial entity bringing the administrative sanctions, such as fines, stipulated in the Criminal Code for the violation of breeder's rights (Góngora-Mera and Motta, 2014: 421). ICA also

⁶⁶ The original Article 306 reads: "on the usurpation of patents and trademarks". The modified version reads: "on industrial property rights and breeder's rights"

becomes obliged to inform judicial authorities of violations to breeder's rights for the application of prison sentences and other penal sanctions.

Decree 2687 of 2002 increases breeder right's protection period to 25 years as UPOV91 indicates (art. 1)⁶⁷

Finally, ICA's Resolution 970 requires that all seeds in Colombia are registered and certified in the institution Crop Information System for reasons of quality, productivity, and plant disease management and prevention, following WTO's Sanitary and Phytosanitary Agreement. On the one hand, this resolution requires that small-scale farmers who want to use their own seeds, to register and certify them at ICA's offices. This is an expensive and time-consuming process that many cannot afford. On the other, Resolution 970 effectively grants patent-like protections to plant breeders by stating that farmers can only save and reuse certified seeds once, in fields up to five hectares, and for self-consumption only; and they cannot exchange or sell certified seeds without the breeder's permission (Grupo Semillas, 2011).

As Wattnem (2016, 13) succinctly explains:

Article 15 [of resolution 970] details what a farmer has to do if he or she is interested in saving seed from his or her harvest. It says that the farmer must: (1) prior to doing so, obtain ICA's authorization, indicating where he or she intends to replant that seed; (2) manage five hectares or less, depending on the species; (3) not exceed the planting density established for each species; (4) demonstrate that he or she has used certified or selected seed to begin with and that plant breeder's rights restrictions are no longer valid for the relevant germplasm; (5) the plot must be at least 1000 meters away from the next farmer growing the same species; and (6) use it personally and not share it with other under any terms. The farmer can only save seed once but not sell it, and the possibility to do so is not valid for fruits, ornamental plants, forestry species, or genetically modified seeds. Additional restrictions may apply [...]

⁶⁷ "El término de duración de la protección, será de veinticinco (25) años, para el caso de las vides, árboles forestales, árboles frutales incluidos sus portainjertos y de veinte (20) años para las demás especies, contados a partir de la fecha de su otorgamiento".

Under Resolution 970, ICA, between 2010 and 2012, has ordered the confiscation of close to five thousand tons of seeds, mainly rice, but also maize, beans, wheat, and grasses, among others, in the departments of Huila, Tolima, Casanare, Boyacá, Córdoba, Valle del Cauca, and César. ICA ordered to destroy about half of the seed seized (47%) (ICA, 2013; Grupo Semillas, 2014: 49).

5.1. Seeds' IPRs and Certification: The Road to Bioservitude

The seizing and destruction of non-certified and IPRs protected seed became a public controversy after the [documentary 9.70](#) that criticizes ICA's resolution by the same name. As I recalled in the introduction to this dissertation, the documentary denounces how the ESMAD (anti-riot police unit) seized 62 tons of rice (packed in 1.592 sacks) that belonged to 20 local farmers of the town of Campoalegre, department of Huila, and threw them in a landfill. This as a result that ICA declared the rice was non-certified and illegally saved seed that posed phytosanitary and health risks for the rice sector and consumers. Each sack costs approximately USD\$40, so local rice farmers lost about USD\$ 63.700. The ICA also brought charges against the local merchants that dry the rice (*secadores de arroz*) so that farmers can save it as seed for the next growing cycle.

In the documentary, farmers denounced that ICA's rice seizing was a strategy to benefit rice seed companies that commercialize certified varieties at higher prices. For instance, in 2013 a 50-kilo sack costed \$150.000 Colombian *pesos* (around USD\$75) while the non-certified (*padi*) variety costed roughly half of it (75.000 Colombian *pesos*). The documentary caused public indignation and went viral with over 10,000 visitors in the first two days it appeared on the web (Ruíz Navarro, 2015).⁶⁸

⁶⁸ See the introduction to this dissertation.

Soon after the documentary was released, a National Agrarian Strike took place from August 19 to September 12, 2013. Agrarian strike leaders included the repeal of Resolution 970 on its own list of demands forwarded during negotiations with the government. The Network of Free Seeds (NFS) released a list of demands to the government that called for public policies to promote and protect IPR-free seeds under farmers' control, and the derogation of all IPR legislation, including Resolution 9.70, and the government's strict control over the quality and safety of GM seeds produced by transnational corporations (Grupo Semillas, 2011). NFS also submitted a 'writ of *tutela*' –a constitutional case to protect fundamental rights– to the Constitutional Court about the resolution arguing that it had not previously consulted indigenous and afro-Colombian communities⁶⁹. Following the considerable public attention given to Resolution 9.70 by NFS campaigns, the documentary, and the Agrarian Strike, the government 'suspended' it for two years in order to rewrite it.

In September 2015, ICA released Resolution 3168 to replace 970. According to ICA's general manager, Teresita Beltrán, the new version clarifies that the resolution only applies to certified seed, not "native, natural seed;" eliminates the term 'illegal seed' and the Crop Information System where seeds needed to be registered (in Franco García, 2013). This would mean that farmers can freely save and commercialize native, but not certified, seed.

However, the NFS argues that Resolution 3168 is similar to its predecessor in at least two crucial ways: it mandates that all seed used in the country must be certified seed (indirectly making creole and native seed illegal) and it maintains the restrictions on saving and

⁶⁹ The writ of *tutela* "enables any person whose fundamental rights are being threatened or violated to request that a judge with territorial jurisdiction protect that person's fundamental rights. Citizens may file the claims informally without an attorney. The judge is legally bound to give priority attention to the request over any other business. Furthermore, every single *tutela* can be potentially reviewed by the [Constitutional] Court, which will select those that it considers necessary to correct or pertinent for the development of its own case law (Eslava, 2009: 204)

commercializing certified seed thus helping to ensure market control and IPRs for seed companies (Gutiérrez Escobar and Fitting, 2016). In other words, the Resolution 3168 continues to indirectly criminalize the use and commercialization of creole varieties by “keeping them ‘imprisoned’ in farmers’ plots” (NFS, 2015).

In May 27, 2016, *Dignidad Agropecuaria* –one of the agrarian coalitions that led the 2013 Strike– presented before the National Electoral Council, a legal petition for a Popular Referendum for National Agriculture to constitutionally protect domestic agricultural producers against the impacts of ‘free’ trade policies and FTAs. The Referendum includes the repeal of all UPOV91-based legislation. If approved by the Colombian Senate, the elections to vote the Referendum will take place in the Spring of 2018.

Seed laws, such as Resolution 970, then integrate IPRs and certification systems to compel the exclusive development, use and commercialization of industrial seeds while effectively criminalizing creole seeds.

Biotechnology companies insist that only certified improved seeds, particularly GM varieties, can, on one hand, guarantee high yields and sustainable farming methods that can feed a growing population with limited resources in the context of climate change; and on the other, prepare Colombia to effectively compete in a globalized economy and within the framework of FTAs. For instance, Melisa (2014), a spoke person for seed companies, emphasized the environmental benefits of GM crops in terms of a reduced use of agrochemicals for pest and weed control as well as less soil erosion and loss of microorganisms due to low tillage.

In a press release, Acosemillas (2013) argues that all seed used in Colombia should be registered, and it goes so far as to portray uncertified seed as “illegal” and a phytosanitary risk

that diminishes crop productivity, affects *campesinos*' incomes, and the food security of all Colombians. Carlos (2013), a representative from a seed company, argued that:

“the truth is that [reusing seed] is not an adequate practice in terms of the country's competitiveness in the context of the different trade agreements that we have signed with other countries [...] Only those crops that use duly certified seed with high genetic potential can have the chance to be sustainable in the long term.”

Juan Manuel Monroy, Acosemillas' Director, wrote on a press release, issued in the context of 2013 Agrarian strike, that: “illegal seeds, besides sanitary risks, generate poverty for the agricultural and livestock sector because they decrease crops' productivity, affect peasants' pockets and the food security of Colombian people” (Acosemillas, August 2013).

These UPOV91-based seed laws benefit multinational companies because farmers become further compelled to use certified, rather than creole, seeds which are by default companies' seeds, both hybrids and/or GMOs. This way, farmers become increasingly dependent on biotechnology companies' products to live off farming, from obtaining seeds to commercializing them as produce.

To be sure, there are no large markets in Colombia for non-certified native or creole varieties nor does the food industry and retailers use or commercialize these kinds. The use of creole varieties is further reduced because public and private food security as well as agricultural development projects require the use of certified seeds (see Chapter 4 for a case study in Riosucio)

Furthermore, farmers also become tied not only to producing but also to consuming GM food, as beneficiaries of food aid programs. In fact, international food aid and corporate philanthropy are mechanisms to force vulnerable countries and communities to accept certified GM seeds, especially in cases of humanitarian and agricultural crises. As such, these programs have become an unregulated kind of market for introducing GM seeds and food products by

bypassing GMOs' banning, in countries such as Bolivia and Ecuador, and domestic biosafety system in Colombia and other nations where they have been approved. Biotechnology corporations profit from these unregulated markets in the Global South given that they are increasingly unable to sell GM crops in the European Union, Japan, and in other countries with GMOs moratorium (Bravo, 2014a).

In Colombia, there are three clear examples of how farmers become tied to certified GM seeds in agricultural development programs. First, Finagro the entity in charge of facilitating the financial access in rural areas offers through the program "*Desarrollo Rural con Equidad*" (Rural Development with Equity) special credit lines with subsidies on the interest rates. However, Finagro requires the use of certified seeds to participate in such projects, particularly related with the cultivation of maize, rice, soybeans, sorghum, and cotton (Arciniegas Muñoz, 2013: 28)

Second, the central government's *Plan Maíz-País* (Corn-Country Plan) promotes food security by encouraging farmers to produce corn for self-consumption and the market alongside their main commercial crops, such as coffee. The program also seeks to commercialize corn through public-private associations with the pork and poultry industry and the animal feed industry (Fenalce, 2011: 5). However, farmers who want to obtain benefits from *Plan Maíz País* are required to use certified corn seed, either GM or hybrid. This harms the local maize economy and poses a threat due to the genetic contamination of *criollo* varieties.

Third, ICA is attempting to put in place official certification systems for native and creolized seeds. Under the banner of the UN's declaration of 2014 as the International Year of Family Farming, the Ministry of Agriculture created the Program on Family Farming that includes a section on native seeds. The objective is to support local processes of quality seed

development for small-scale producers' associations through training and technology transfer. The stated goal is to help farmers be more competitive and certify their creole seeds. But, the NFS argues that the program encourages communities to adopt the IPRs system promoted by the WTO, creating a division between legal certified and illegal non-certified creole seed (NFS, 2015: 46-7).

In terms of food aid, NGOs and government institutions seem to be using GM maize and soybean from the US and Argentina that is increasingly available in the market at lower prices than non-GM domestic varieties due to the US-Colombia FTA⁷⁰. According to a study carried out in 2002 by the organization Colombian Consumers (COCO), GM soy was used in the National Food and Nutrition Plan implemented by the Colombian Institute for Family Welfare (ICBF by its Spanish acronym) in rural and urban daycare centers and schools⁷¹. This Plan includes the distribution of *Bienestarina*, a food supplement for children which formula includes imported GM soy bought or acquired through food aid donations from the US (Vélez, 2002: 62)⁷². However, parents are not aware their children are consuming GM soy because labeling is not required in Colombia. This constitutes not only a violation to consumer's rights, but also the use of GM food to feed the most vulnerable group of society –that of children from low-income families –even though there is not a scientific consensus on their innocuousness and safety⁷³.

⁷⁰ The concern over the introduction of GM corn as grain for consumption, food processing or feed is also related to its perceived negatives effects on human and animals' health.

⁷¹This study was part of the project "Monitoring Food Aid National Programs in Ecuador, Colombia, Bolivia, and Peru." (Vélez, 2002)

⁷² The test was performed with Real Time Quantitative PCR analysis. The result was that 90% of the soy used in *Bienestarina* was Monsanto's Roundup Ready soy (Vélez, 2002: 63).

⁷³ There is a large body of critical scientific work on GMOs. For instance, studies carried out by scientists at the Union of Concerned Scientists in the US or associated with the Network for a Latin America Free of Transgenics. The Coalition for a GM-Free India published in 2013, a 189 page-long compilation of worldwide scientific references with abstracts on the adverse impacts of transgenic crops/foods.

The Colombian government has been keen on denying corporations' material and institutional powers based, on IPRs, certification systems and contracts, especially after the wide controversy caused by Documentary 970 and the 2013 agrarian strike.

When I interviewed Milena (2014), a government official in Manizales, Department of Caldas, she emphasized that ICA must control all of the commercialization, cultivation, and transport of seeds in the country due to phyto-sanitary issues independently of any trade agreements; she asserted that Resolution 9.70 was not released to comply with the US-Colombia FTA. Milena (2014) added that ICA is an "impartial regulatory institution that cannot make exceptions for indigenous or peasants in terms of seed registration." According to her, this is so because farmers can harm a third party by selling seed that is not of good quality or has illnesses and this is a problem of sanity for the country: "a pound, a kilo or a ton of [ill] seed does the same harm in terms of plagues; quantity does not matter."

Teresita Beltrán, ICA's general manager, challenged in an interview for *El Espectador* Newspaper "anyone who can tell which article of the [US-Colombia] FTA says that ICA must use foreign certified seeds (Beltrán, 2013). Beltran goes on to clarify that 85% of commercial certified seed in Colombia is produced by domestic companies. In the case of rice, domestic seed production reaches 100%; Fedearroz accounting for 50% of it.

Likewise, Luis Humberto Martínez, who replaced Beltrán at ICA, said in a public hearing at Congress' Lower House on the issue of agricultural crisis and food sovereignty, that Resolution 9.70 is not related to the FTA with the US since ICA has been in charge of seed quality control in the country for 37 years⁷⁴. Martínez also pointed out that in the debate around

⁷⁴ Public Hearing at the Lower House (*Cámara de Representantes*) "*Cuando alimentar al país es un delito*" convened by Representatives Alba Luz Pinilla y Wilson Arias from the left opposition party *Polo Democrático Alternativo* in Bogotá on October 7, 2013.

resolution 9.70, there is misinformation in relation to the issue of IPRs. He argued that in Colombia, Cenicaña and Fedearroz hold the majority of breeders' rights (over their sugar cane and rice varieties) and thus such protections do not favor multinational corporations. He added that 89% of seeds protected by breeders' rights in the country correspond to ornamental species such as roses, carnations, and chrysanthemums (Intervention, October 7, 2013).

However, Germán Vélez, director of the environmental NGO Grupo Semillas, in that public hearing argued that ICA has seized potato, maize, beans, vegetable, and other kinds of seeds which shows that breeders' rights cover many more species than just rice and sugar cane. Vélez added that even though most certified seeds in Colombia are produced domestically, Colombian companies have to pay royalties to transnational companies that own breeder's rights on those seeds. Furthermore, Colombian seeds companies are often subsidiaries of transnational corporations: i.e. COACOL -a domestic company- is really Monsanto's subsidiary in Colombia (Vélez, 2013a).

5.2. Pro-GMOs Legislation

As a last example of institutional power, this section looks at how biotechnology corporations have tried to influence Colombian judges to legislative in favor of GMOs. We focus on a seminar given by Agrobio to train Colombian judges about IPRs in relation to plant biotechnology. Agro-bio is a member of CropLife, which is the main global agroindustry lobby that represents more than 90 companies (Arciniegas Muñoz, 2013: 39)

This seminar was part of the Rodrigo Lara Bonilla Judiciary School's 'Program on judicial training' run by the High Judiciary Council (*Consejo Superior de la Judicatura*) The program's memories are a "reference tool that magistrates and judges can turn to have a true and scientifically rigorous source at the moment to address cases related to modern agricultural biotechnology, GMOs and biosafety" (Agrobio and CSJ, 2012, :25, my emphasis).

The publication consists of ‘thematic units’, each with their own objectives, a self-evaluation section, bibliography, and ‘pedagogical activities’. One unit is on ‘myths and realities on GMOs’, concerning human and animal health, the environment, and socio-economic impacts. What Agrobio does in this section is to take critiques (calling them ‘myths’) to GMOs one by one and debunking them. For instance, on socio-economic impacts:

Myth 1: GM crops only benefit TNCs

Reality: Even though it is true that TNCs benefit, they are not the only ones. Several economic studies have proved that farmers in both industrialized and developing countries have gained the largest part of financial benefits from GM crops because they have to use less chemicals and due to the higher yields (Agrobio and CSJ, 2012: 96).

In another unit, Agrobio strongly argues about how overregulation and biosafety go against free trade because they may be used as a “veiled form of commercial protectionism” (Agrobio and CSJ, 2012). They suggest that the costs generated by overregulation must be taken into account when evaluating biosafety measures and that the country is behind in the use of biotechnology because of “excessive regulations and paperwork, that limit timely adoption and fast access to technologies (Agrobio and CJ:192). They put the example of the Argentine legal demand against the EU’s moratorium on GMOs to emphasize the importance of ‘sound science’ and how the WTO’s agreements take precedence over Cartagena’s Protocol. At the end of this chapter, judges are asked to analyze if the Cartagena Protocol could hinder or stop commerce between WTO’s member countries.

In the final section, Agrobio asks judges to analyze and rule three hypothetical cases on GMOs.

Case 1: an agricultural producers' association files a "public interest suit" (*acción popular*) demanding the derogation of current domestic legislation on GMOs biosafety to protect their common interests because they believe such legislation violates their right to free and timely access to agricultural technology due to the long and complex risk evaluation and authorization processes for GMOs.

Case 2: In 2008, the Misak indigenous people, using their Misak indigenous law (*Derecho Mayor* or *Ley Misak*), ruled their territory as Transgenic-Free. Accordingly, the ICA forbade growing GMOs in indigenous *resguardos*. The hypothetical case is about a Misak indigenous farmer who hears about the success of GM maize in the department of Tolima and decides to grow it in his land. However, the seed provider refuses to sell him GM seed saying it's illegal because of ICA biosafety regulations. The indigenous farmer then decides to file an *acción popular* against ICA's prohibition saying that it violates his rights to choose and sow what crops he wishes to and benefit from them.

Case 3: A 'Lawyers Collective' (*colectivo de abogados*) files an *acción popular* against ICA's and Invima's authorization to grow and import GM soybean because 1) safety evaluations on human and animals' health have not been done; 2) safety evaluations are confidential; and 3) there is no specific legislation to regulate the use, commercialization, consumption and labeling of GM products. The Lawyers Collective demands:

- To repeal GM soybeans authorizations.
- To declare a moratorium on GMOs until we have a comprehensive national biosafety law.
- To investigate ICA's and Invima's staff who approved GM soybean.
- Mandatory labeling for GMOs.

First, Agrobio designs the seminar to prove to judges that GMOs are beneficial and safe by providing ‘objective’ information and ‘sound science’. Of course, the counterpart (i.e. Grupo Semillas, indigenous communities, José Alvear Restrepo Lawyers Collective) is not invited to participate; rather Agrobio speaks for them (i.e., the memories include the Zenus’ declaration as a Transgenic Free Territory and a page explaining what Grupo Semillas does). Then, Agrobio seeks to win over judges and have them back up their own political agenda: modifying biosafety regulations (i.e. ICA’s prohibition to grow GM crops in *resguardos*) and repealing anti-GMOs legislation (i.e., transgenic-free territories) as well as rule against legal demands that have been brought –or could be brought in the future– by Grupo Semillas, the José Alvear Restrepo Lawyers Collective, indigenous communities, such as GMOs moratorium, mandatory labeling, repeal GM authorizations, among others.

This is an example of how corporations use institutional power to lobby Colombian judges to rule in ways that benefit them while weaken anti-GMO activism and legal demands and victories of the NFS and *Dignidad Agropecuaria*.

6. Conclusion: Seeds of Hegemony in Colombia

Conflicts over seeds have intensified and acquired novel dimensions and meanings in the last 30 years due to the development of biotechnology using recombinant DNA and the extension of intellectual property rights to living beings which has led to the increased monopolization and commodification of seeds. These processes are inscribed in a more general process of accumulation by dispossession where communities are disposed, not only of their usual commons like land, but also of others previously untapped (or not commodified to such a large extent), such as seeds and linked agricultural knowledges.

Following Donna Haraway, Brigit Muller writes that “seeds as human companions are indeed also the carriers of instrumental rationality” (2014a: 6). Under the Corporate Seed Regime, GM seeds embed forms of biological, legal, and contractual sterilization that force farmers to depend upon biotechnology companies to cultivate and commercialize their produce. We briefly looked at two examples of such bioservitude, illustrative of how Colombian farmers who become dependent on IPRs protected and certified GM seeds lose their seed sovereignty. First, the case of El Espinal farmers tied to Pioneer’s seed and agrochemical packages, despite previous failure. Second, the case of rice farmers in Campoalegre who were penalized for infringing breeder’s rights and certification requirements through seed-saving.

The provisions for foreign investment –or investment-trust policies– of the US-Colombia FTA are largely responsible for the expansion of patent-like IPRs on plants and of pro-GM crops legislation in Colombia. In the FTA, Colombia committed to signing a “TRIP-Plus” agreement or an agreement that goes beyond the WTO’s minimal requirements on IPRs on plant material. In concrete, signing a TRIP-Plus Agreement meant the obligation to adhere to UPOV Convention in its 1991 version which grants the most extensive IPRs on plant material. We argued that the FTA was in large part the result of biotechnologies’ corporations ‘institutional power’ –as a form of biohegemony– that allows them to influence policymaking on IPRs and GMOs on their behalf. As Van Dooren (2008) importantly points out, IPRs on plants recognize the scientific knowledge and labor in the western tradition as genuinely inventive while rendering the labor and knowledge of indigenous and peasant communities invisible, as “nature’s raw material”. IPRs are granted to ‘improved’ and certified seeds, like GM varieties, because they involve modern scientific techniques.

Starting in 2005, a series of legislative pieces –such as ICA’s Resolution 970 of 2010 – were approved to adjust Colombian legislation to UPOV91’s requirements on IPRs and phytosanitary and quality controls; what is called the process of legal ‘harmonization’. In reality, this ‘harmonization’ is a euphemism for globally expanding the US IPRs regime and certification system through FTAs. Legislation like ICA’s Resolution 970, grant patent-like protections to plant breeders by stating that farmers can only save and reuse certified seeds once, in fields up to five hectares, and for self-consumption only; and they cannot exchange or sell certified seeds without the breeder’s permission which is penalized with fines and prison. UPOV91-based legislation in Colombia also promotes biopiracy by extending IPRs protection to the ‘discovery’ of new plant varieties and to ‘essentially derived varieties’ and by negating the disclosure of origin of genetic resources as a requisite for patents. By granting IPRs to ‘discovered’ varieties and ‘essentially derived varieties’ (Grupo Semillas, 2011).

Such ‘harmonization’ benefit biotechnology companies in three main ways. First, these companies own the majority of patents and breeder’s rights for GM seeds and their genetic information. Second, seed certification is based on standards that only companies’ seeds can meet. This criminalizes the use of creole seeds in regular markets as well as in agricultural developments and food aid and security programs and further allows biotechnology companies to monopolize such markets. From NGOs and state institutions to farmers, these seed laws compel them to grow, buy or distribute certified seeds.

In sum, there is no reciprocity in the US-Colombia FTA. While the agreement imposes on Colombia the adherence to UPOV91; the US is not obliged to sign international agreements such as the CBD. Therefore, the US fiercely protects its IPRS regime while effectively refusing to recognize Colombia’s sovereignty over its biological resources, farmer’s rights to freely

reproduce seeds, and communities' right to benefit-sharing and protection of traditional knowledge. This bilateral agreement then reflects the deep inequalities engrained in the global property right and trade system under the auspices of the WTO: northern 'diversity-poor' countries, like the US, and biotechnology corporations using trade agreements and IPRs to secure unrestricted and expanded access to seed markets and biological resources from mega-diverse countries from the global south, such as Colombia, thus obtaining a maximum profit return on seed development and commercialization.

This chapters suggests it is important to situate the adoption of legal and regulatory frameworks for plant genetic resources in particular contexts of negotiation and resistance. Despite difficulties, the Network of Free Seeds is contesting biohegemony in significant ways. Although an increasingly homogenized international legal framework for biological resources treats certain seeds as inventions and thus available for protection under IPRs, the NFS and *Dignidad Agropecuaria* are shifting public debate around seed through their activism and legal demands (Gutiérrez Escobar and Fitting, 2016).

Before concluding this chapter, we would like to clarify where we stand in relation to multilateral treaties on biodiversity. As Fitting and I (2016) argued, the fact that the US-Colombia FTA does not comply with international and regional treaties, such as the CBD and Andean Community legislation, does not mean that I believe adherence to such treaties constitute an adequate and fair system to protect biodiversity and linked knowledges produced by local communities and scientific institutions in Colombia and other countries of the global south. All of these treaties allow for the patenting of microorganisms –in compliance with TRIPs- and contain ambiguous language in regards to the protection of farmers' rights and against biopiracy. As Kloppenburg (2004) succinctly explains:

“What resulted was the emergence of a wide range of bilateral, market-oriented arrangements, while the multilateral FAO undertaking was relegated to jurisdiction over a narrow range of materials. Although so-called ‘Farmers’ Rights’ were recognized, they remain rhetorical constructs, and peasant farmers and indigenous peoples have been subjected to a new round of appropriationist initiatives” (336).

On the other hand, the UN Seed Treaty (ITPGRFA) that recognizes the historic contribution of peasants to agrobiodiversity, establishes a system to facilitate access to plant germplasm and guarantee that users share benefits obtained from the use of germplasm in plant breeding or biotechnology with the communities and countries where such genetic resources are native to. Specifically, the Seed Treaty talks about farmers’ rights to freely save, use and exchange seeds, but not in compulsory terms. Rather, the Seed Treaty only provides guidelines for nations to ‘voluntarily’ incorporate such rights into their domestic legislation. As a result, most countries recognize farmers’ rights in paper, but never enforce them in practice.

The Seed Treaty states that IPRs cannot be granted to biological material in the “state that it is received” at its germplasm bank. Therefore, companies may be able to patent GM seeds – and other organisms– by claiming that by genetically modifying seeds, they have altered the “original state” in which they were received, and thus the prohibition would no longer stand (Kloppenburg, 2004)

In sum, all of these treaties are framed within the modern capitalist regime that holds the commodification and exploitation of nature and the primacy of monopolized techno-scientific knowledge as the basis for “progress” and “development”.

In the following chapters, I examine how and why seed savers in Colombia, and particularly in the district of Riosucio, pursue seed sovereignty because they see defending

criollo seeds as the defense of the worlds created from their relationship to seeds. These seed worlds are not reduced to agronomical knowledges and practices; rather, they are a complex web of bio-social relations. This is why seed savers' struggles for seed sovereignty and against GMOs and IPRs are not only a resistance to corporate agriculture, but also the defense of a way of life shared with nonhumans such as seeds: political autonomy and self-determination, identities and cosmovisions, food sovereignty, and resistance to (neo)colonialism and the commodification of life.

CHAPTER 3: INDIGENOUS STRUGGLES FOR TERRITORY AND SELF-DETERMINATION IN RIOSUCIO'S *RESGUARDOS*

“In the beginning, indigenous *resguardos* owned a big area but after 100 years of *antioqueño* colonization, we started losing the land. The *antioqueño colono* (settler) came with the *notario* (notary) and the *escritura* (land deed) to where the indigenous communities were settled and said: ‘this territory is mine’. He brought cattle, made a fence, and appropriated the territory; communities were then forced to migrate somewhere else” (Rosa).

1. Riosucio: A Devil’s Town

One morning I was having breakfast at a *cafetería* (coffee shop) in Riosucio, when Oscar came in and sat next to me. Oscar is an indigenous young man from the Cañamomo and Lomapieta *resguardo* who worked at my hotel as a plumber. He was enthusiastic of outdoor and extreme sports so he was also a guide for the numerous adventure tours offered by the hotel: rock climbing, trekking, rafting, and canyoneering. We had crossed each other a couple of times in the hotel lobby and he was aware I was doing research on *criollo* seeds and the anti-GMOs activism in the *resguardos*.

At the *cafetería*, he asked about my research. As he was listening to my account, he noticed I had Nancy Appelbaum’s book on the history of Riosucio⁷⁵. To my surprise, he picked up the book from the table and said it was a good book. I agreed and said I wanted to know more about Riosucio’s history. He suggested I read original sources, particularly nineteenth century traveler’s accounts such as the French engineer Jean Boussingault, as well as contemporaneous local intellectuals like Otto Morales Benitez, Julián Bueno, and Alvaro Gärtner. I was taken

⁷⁵ At the time, I had the Spanish version of Appelbaum’s book.

aback. He explained he started studying anthropology –probably on one of the *resguardos*' fellowships for indigenous students– at the University of Caldas in Manizales, but he grew disappointed of academia's lack of political compromise towards indigenous causes.

Furthermore, he told me he did not have the writing skills necessary to succeed in academia and professors were not willing to accommodate to that. So, he dropped out and came back to Riosucio, but kept studying local history on his own while working at the hotel for a living. His experience is common among indigenous and peasant students who are bright and passionate about learning but whose schooling was not good enough for learning basic writing skills, especially when coming from a much more oral-based indigenous peasant culture.

My encounter with Oscar that morning is telling of the fascinating relationship Riosucio's residents have with their history. For a small town, there is an incredibly vibrant local cultural and intellectual scene. Riosucio district is strongly pluricultural with mostly self-identified *mestizo* residents in the town; Emberá-Chamí indigenous communities in the four surrounding *resguardos*; the nearby black community of Guamal⁷⁶, descendants of the slaves brought to work the gold mines during colonial times; and a small 'white' elite, the descendants of German and British entrepreneurs who came in the nineteenth century to exploit the gold mines (Gärtner, 2005).

The town has some nationally renowned academics who come from Riosucio's most prominent families, such as Otto Morales Benítez and Alvaro Gärtner, but also a strong tradition of local 'organic' intellectuals who are *mestizo*, indigenous and black. These, for the most part, self-made historians give conferences, publish in local printing houses and raise funds to travel to the colonial archives in the cities of Popayán and Bogotá. Their interest in history is motivated

⁷⁶ Guamal belongs to the district of Supía, but it borders with the Cañamomo and Lomaprieta *resguardo*.

by their acknowledgment of Riosucio's particular cultural heritage, being a strongly indigenous and black zone in a region considered the offspring of 'white' settlers who migrated from the Department of Antioquia. Their historical and archival research is also motivated by the indigenous claims to territory or *resguardo* and autonomous self-governance bodies or *cabildos*. Both *resguardos* and *cabildos* are colonial institutions and, as such, the Colombian government more easily recognizes them to indigenous groups that can provide the original colonial documents.

Riosucio's pluricultural composition is reflected on the many festivities, particularly the *Carnaval del Diablo* (Devil's Carnival). According to Riosucio's residents, the Devil's Carnival originated in early nineteenth century when their town was created out of the union of the communities of Quiebralomo and La Montaña. The Carnival integrated the Quiebralomo's colonial celebration of the Three Wise Men, that involved both Spaniard and African traditions of the slaves, with La Montaña's indigenous rituals to earth –symbolized in *guarapo*, a fermented sugar cane beverage drunk out of gourds– and to the sun –represented in the jaguar-like features of the Carnival's Devil.

Like many carnivals, the *Carnaval del Diablo* sets an extraordinary time where dominant social and moral conventions and power relationships cease to operate; a mythical, primordial time where the *status quo* is challenged and subverted (González Colonia, 2005: 19). The Carnival's main figure, the Devil, is not a Catholic Devil, but rather a syncretic figure. The Devil represents an ambivalent figure that inspires joyfulness, excesses, and the subversion of social taboos. According to Morales Benítez:

“Our 'Devil' is not a 'devil' created for humanity to suffer, endure, writhed in shame [...] On the contrary, this 'Carnival's Devil' is joyful. He is full of human prank. His attitude is to

awaken asleep pleasure appetites, but not to create hatred, resentment, envy, small-mindedness and meanness among men”⁷⁷ (2004: 36)

Figure 13: Mural at Hotel Real in Riosucio



Photo credit: my own

The Carnival itself takes place in January, every two years; it starts on the first Friday and goes on until the next Wednesday. However, the previous July, the Carnival’s *Junta* (council) inaugurates the Republic of the Devil, which marks the initial preparations. The *matachines* participate once a month, from July to December, in a ‘*Decreto*’ (Decree) which are complex and highly lyrical parodies of the local, national, and international politicians, social leaders, communitarian traditions and beliefs, the clergy, celebrities, etc.

The start of the Carnival in January is marked by the Devil’s entrance, a colorful procession that carries a five-meter tall figure of the Devil around the town and places it in the

⁷⁷ “Nuestro ‘Diablo’ no es un ‘diablo’ ideado para que la humanidad sufra, padezca, se contorsione de vergüenza [...] Al contrario este ‘Diablo del Carnaval’ es gozoso. Está lleno de picardía humana. Su actitud es para despertar dormidas apetencias de contento, pero no para crear despropósitos de odio, rencor, envidia, pequeñez y ruindad entre los hombres”

Plaza de la Candelaria. During the Carnival, each neighborhood, family or friend groups prepares *cuadrillas*, or theatrical sort of processions, with songs and costumes, that are also characterized by parody.

The *cuadrillas* and *decretos* constitute a privileged space for ordinary town dwellers and indigenous people from the *resguardos* to make fun of themselves and of the powerful, to critique the town's corruption scandals, ridicule those who suffered from or practiced infidelity, make a stand against racism or mock indigenous identity, etc. When talking to one of the *matachines*, he stressed how this was a truly democratic tradition where anyone could participate, as long as they were cunning and skilled at political and social satire. He told me, for instance, that one of the most beloved *matachines* was illiterate and worked as a *cargador de café* at the local Coffee Cooperative⁷⁸. So, he would compose and memorize his parodies to then tell them to someone who would write them down to be published as a *decreto*. The Carnival is also a celebration of traditional meals and beverages, particularly *guarapo* which the Devil invites everyone to drink out of a *calabazo* (gourd), as seen in the mural above. There are also maize and beans-based meals such *arepas*, *mazamorra*, *cuchuco*, *hogato*, or *chiquichoques*. *Arepas* are one of the most consumed maize-based food not only in Riosucio but also across the country. They are made of maize dough and rounded shaped, although there are several kinds according to the region. In Riosucio, and across the coffee-growing region, there are thin, white maize *arepas*; most often heated in the stove and consumed with butter, salt, and cheese.

Towards the end of the Carnival, the Devil is taken to *Plaza de San Sebastián*, in the middle of a joyful multitude. Then comes the reading of his testament and the burial of his

⁷⁸ *Cargadores de café* are workers who unload the coffee sacks brought by farmers in jeeps to the cooperative. After coffee is weighted and selected according to quality and kind (i.e., organic, fair trade, regular, etc.), *cargadores* upload the selected sacks on trucks to be taken to the ports for export.

gourd, from where he drinks *guarapo* and *chicha*⁷⁹. Finally, the Devil figure is burnt down in the middle of a joyful multitude, which marks the end of the Devil's Republic until the next Carnival starts.

The devil figure is so strong in Riosucio that he is even present during Holy Week celebrations. I was surprised to see the usual Virgin's procession around town side by side with the image of the Carnival's devil, something that would have been unthinkable anywhere else in the country, but that was accepted by the clergy and the parishioners in Riosucio.

This chapter contains three main sections. First, a general description of the *resguardos*' socio-economic and ecological characteristics as mainly an indigenous zone located in the Chocó bio-geographic region, plus a *sui-generis* founding history and layout of the town of Riosucio. Second, I analyze the historical struggles over indigenous territories focusing on the creation of *resguardos* and *cabildos* and the complex dynamics of resistance and adaptation by a variety of actors, both indigenous and non-indigenous, to dismantle them since the nineteenth century in order to appropriate the land and resources as well as erase or subjugate indigenous worlds. On one hand, I focus on the Antioqueño colonization and its impact over land tenure in the *resguardos*. On the other, I briefly look at the indigenous movement in Riosucio for land reform, autonomy, and self-government since the 1960s. Third, I examine current diversified subsistence strategies –or pluriactivity– from agriculture to mining and migration in the *resguardos*. I provide a short ethnographic account of a particular farm in Cañamomo and Lomaprieta *resguardo*.

⁷⁹ In Riosucio, unlike other Andean communities, *chicha* does not refer to the fermented maize beverage, but to an herb-based drink. Specifically, *chicha* is made from two local plants: *limoncillo* and *santamaría*.

By analyzing the historical forms of colonization and the resistance and adaptation on the part of indigenous people in Riosucio, this chapters aims to provide a background to better situate and understand the expansion of a Green Revolution model of coffee monocropping and, more recently, genetically modified (GM) maize, and their impacts on indigenous agricultural and seed worlds (Chapter 4). In fact, many indigenous leaders and seed savers see both coffee monocropping and GM maize as the continuation of a history of colonization based on the introduction of different models of agriculture and non-creole seeds, both hybrids and GM.

2. An Andean Indigenous District in the Chocó Bio-Geographic Region

2.1. The Riosucio District

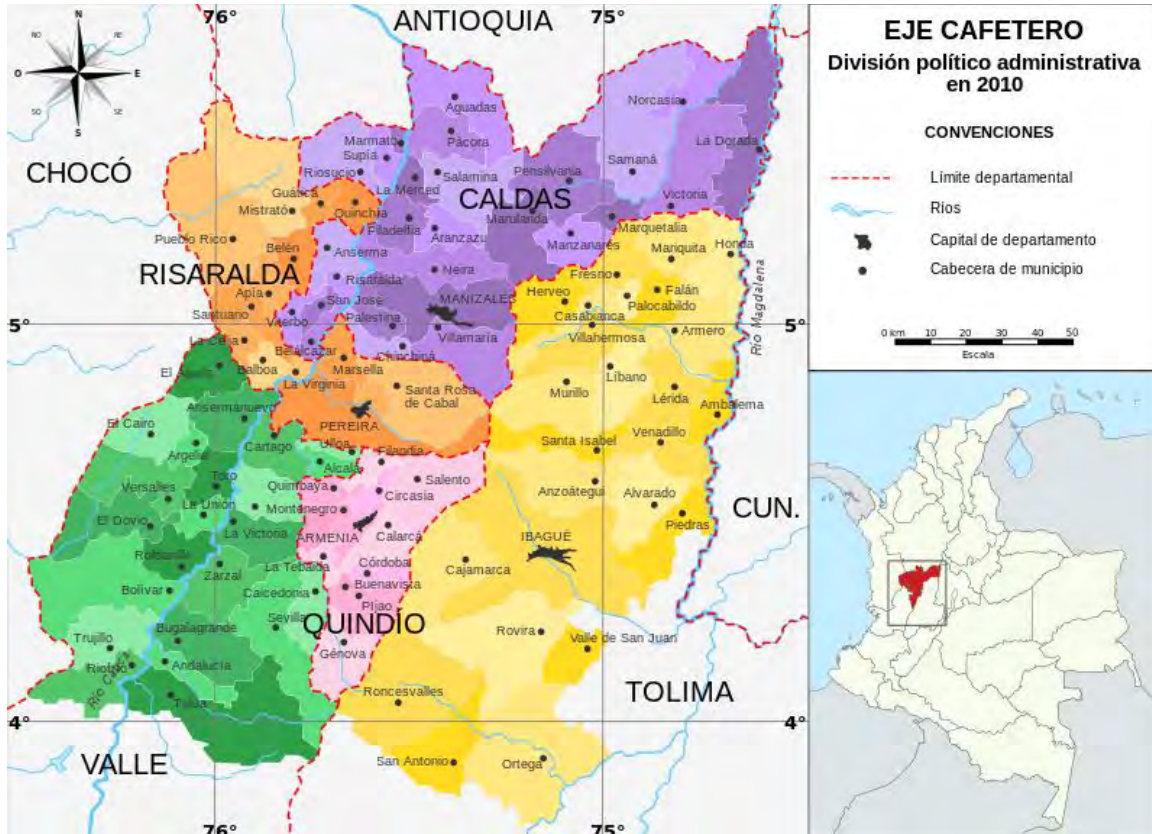
The Riosucio District is located on the eastern slopes of the Andes' Western Mountain Range at about 6,905 feet in the Department of Caldas, in the coffee growing region. This region is situated in mid-West Colombia and encompasses three small Departments –Caldas, Risaralda, and Quindío– plus northern Valle del Cauca and eastern Tolima. The coffee-growing region extends through the West and Central Mountain ranges of the Colombian Andes and the Cauca River that runs in between them⁸⁰.

The town of Riosucio is the seat (*cabecera*) of a district (*municipio*) of the same name that extends westward up to the mountain ridges and eastward down to the Cauca River. According to the 2011 census, the district's population is 57,935 people: 17,482 residing in the town and 40,453 in the rural area (quoted in Municipio de Riosucio, 2015: 2) The district of Riosucio has four autonomous Emberá-Chamí indigenous territories or *Resguardos* that date

⁸⁰ In Colombia, the Andes divides up into three Mountain Ranges: Western, Central and Eastern. The Cauca River runs in between the Western and Central while the Magdalena River runs in between the Central and Eastern Mountain Ranges.

back to the Spaniard colonial regime: Nuestra Señora Candelaria de La Montaña (refer hereafter as La Montaña), Cañamomo and Lomaprieta, San Lorenzo, and Escopetera and Pirza⁸¹.

Figure 14: The Coffee-Growing Zone



According to the 2011 Census, the *resguardos*' population is around 52,000 people, which represents 80% of Riosucio's district's total population (quoted in Municipio de Riosucio, 2015). The *resguardos*, as all other rural areas in the country, are in turn administratively subdivided in *veredas*. However, the indigenous people call them *comunidades* (communities) because this name conveys their ideal for a communitarian ethos and challenges the

⁸¹Cañamomo and Lomaprieta is a name that refers to a single *resguardo*. Same with Escopetera and Pirza. Escopetera and Pirsá is not strictly a *resguardo*—as it was not founded by the Spanish crown, but by indigenous families from Cañamomo and Lomaprieta. Thus, the Colombian government recognizes it as an indigenous *parcialidad*—an administrative category of a lower range than a *resguardo*.

administrative powers of the Colombian government over their territory. The urban area, nearby the town of Riosucio, is subdivided in two *corregimientos*: Bonafont and San Lorenzo (different from the *resguardo* by the same name).

Figure 15: The District of Riosucio

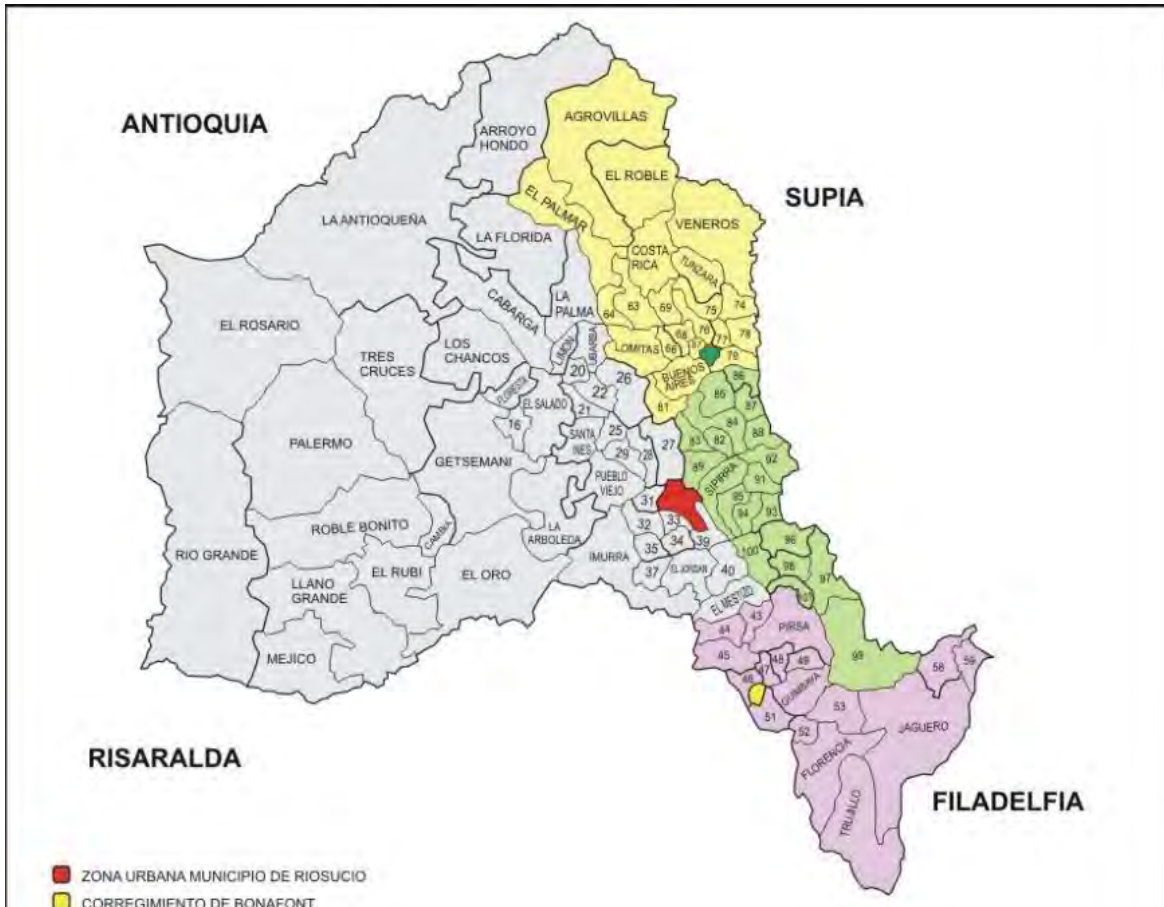


Source: Appelbaum, 2003: 3

La Montaña is the largest and most populated *resguardo*, representing around half of Riosucio district. Most of its territory is located in the highlands with a population of 17.533 people (29.7% of total population). Due to its location, the main economic activity is cattle ranching and, more recently, industrial tree plantations in around 2.000 hectares. Most tree plantations are owned by Smurfit *Cartón de Colombia*, a subsidiary of Smurfit Kappa Group, a paper-based packing multinational corporation. For the local indigenous communities, these

plantations constitute the expression of corporate land grabbing and resource extraction in their territories. There is also the commercial cultivation of fruit trees and blackberries (Agrosolidaria, 2008: 5; Plan de Desarrollo Municipal: 2).

Figure 16: Riosucio's Resguardos



Grey: La Montaña; Yellow: San Lorenzo; Green: Cañamomo and Lomaprieta; Purple: Escopetera and Pirsá

Red: Town of Riosucio; Yellow square: Bonafont Corregimiento; Green square: San Lorenzo corregimiento

Source: Riosucio, Plan de gestion de Riesgo, 2012: 20

The *resguardo* of Cañamomo and Lomaprieta extends across 4.826 hectares in two districts, Riosucio and Supía, and its population is 14.740. In fact, some of the *resguardos*' communities are very close to the town of Riosucio, such as La Iberia, Quiebralomo, Sipirra and Tumbabarreto. These communities are known for their *guaraperías* –commercial establishments

that sell *guarapo*, the indigenous fermented sugar-cane beverage and its distilled form called *chirrinchi*. The main productive sector is coffee in the higher lands and sugar cane for *panela* production in the lower lands, near the Cauca River. Artisanal gold drift mining and in riverbeds constitute important means of subsistence. Indigenous families also engage in the commercial cultivation of citrus fruits, cocoa, plantain, and fish farming for local and regional markets (Agrosolidaria, 2008: 2; Plan de Desarrollo Municipal: 2)

The *resguardo* of San Lorenzo is mainly agricultural, based on coffee and sugar cane to produce unrefined artisanal cane sweet or *panela*. San Lorenzo spans across 7,300 hectares (18,000 acres) and has a population of 11,618 people. People in Riosucio consider this *resguardo* as the most indigenous one; the *resguardo* who has most widely conserved indigenous traditions and cosmovisions. Lastly, Escopetera and Pirsá holds lands in the districts of Quinchía (Department of Risaralda) and Riosucio, and its economy is also mainly based on coffee and *panela* production. It is the smallest *resguardo* covering 5.000 hectares (12,355 acres) and a population of 8,300 people (Municipio de Riosucio, 2015: 2; Plan de Desarrollo Municipal: 2).

2.2. The Bosque de Niebla

Due to its geographical location, the district of Riosucio has three sub-ecosystems corresponding to three micro-climates, called *pisos térmicos* in Spanish: cold, temperate, and hot. The cold highlands reach a maximum altitude of 10,800 ft., and a temperature ranging from around 50°F at day to 32°F at night, and at times, below freezing. The temperate midlands, where the town of Riosucio is located, with a medium temperature of 68°F and in between 4,600 -5,900 ft., which is ideal for coffee production. The hot lowlands by the Cauca River standing in between 2,600-4200 ft., are characterized by its high temperatures that can easily reach 90°F, which are most adequate for growing sugar cane for *panela*.

Figure 17: San Lorenzo Resguardo's Main Settling (Centro Poblado)



Photo credit: Ana Bahena

Riosucio's ecosystem is categorized as a *Bosque de niebla* (cloud or fog forest), typical of the coffee-growing region, characterized by frequent low-level fog cover. It was not unusual during my stay in Riosucio to see the fog slowly coming in and staying for hours or even until nightfall or the next day; producing an enchanted, ghost-like touch to the surroundings. A couple of times, the fog was so thick that I could not see the trees across the street from my hotel room's window.

Another environmental characteristic of Riosucio is its heavy rainfall, of around 100.6 inches per year, due to its location in the Chocó bio-geographical region, which extends from the Darién region in Panama to northern Peru. The Chocó region is one of the most biodiverse in the world with one of the highest rainfall levels and characterized by a dense tropical rainforest and

an extensive network of rivers and streams, bordering the Pacific Coast. Mostly black communities inhabit this region, although there are also indigenous communities, such as the Emberá. Ironically, given its rich diversity, both cultural and biological –or perhaps due to those–, this region has been historically marginalized.

During my fieldwork, there were several tropical storms with heavy rainfall, winds, and lightning that were beautiful to watch if one was lucky enough to be indoors, but hard and scary to endure if out in the fields. On one occasion, I had arranged a visit to one of Asproinca's *Comités Ambientales* (Environmental Committees), in a community called Lomitas, to see their ecological projects, particularly on water management⁸². However, the day before there was a storm so strong that my visit became a trip to evaluate the harm. The trails were almost impassable because heavy trees had fallen all over which forced us to go around through the forest, becoming a full eight-hour long walking trip. It was a tiresome and disheartened journey as the storm had strongly damaged the reforestation and water conservation projects where they planted native trees, especially by the streams' basins.

2.3. The Two Plazas and the Founding of Riosucio

Most towns in Colombia have a colonial layout of a central *plaza* (square) from where the town spreads out following a symmetrical grid. The central plaza holds the main power institutions: the Catholic Church, the mayor's office, banks and businesses, and the houses of prominent families. However, Riosucio is the only town in Colombia who does not follow such layout. Instead, Riosucio has two *plazas* of equal importance, each with its own church: an upper plaza, called San Sebastián, and a lower one, called De La Candelaria. This layout is intimately linked with Riosucio's history.

⁸² Asproinca is the grassroots organization I worked with in Riosucio. See Chapter 6.

Figure 18: Lower Plaza de la Candelaria and the Ingrumá Mountain Behind



Photo credit: my own

There are many versions about the origins of the two *plazas*. The following version is based on what I was told during fieldwork and on Nancy Appelbaum's *Muddied Waters* (2003).

There were two enemy towns in early nineteenth century: La Montaña, the largest indigenous community in this area, ruled by a Republican priest, Father José Bonifacio Bonafont. West of La Montaña was Quiebralomo, a *criollo* (Spanish descendants) settlement

nearby the gold mines worked by African slaves. Father Bonafont convinced Father José Ramón Bueno, from Quiebralomo, to unite the two communities in order to put an end to their acrimonious disputes over land near the Ingrumá Mountain. On August 7th 1819, the two priests founded the new town at a site known as Riosucio (Dirty River).⁸³ However, the unification of La Montaña and Quiebralomo did not end the conflict between the two communities. Father Bonifacio then order to build another *plaza* in Riosucio so that each community had their own *plaza* and church: he assigned the western higher *plaza* to the Spaniard-descendants mine-owners from Quiebralomo and the eastern lower *plaza* to the indigenous people from La Montaña. A fence divided them until the 1840s, when the Colombian President of the time ordered to destroy it. However, young people had long sneaked across the fence at night to meet lovers from the other side, which often led to pregnancies and marriage. As a result, a new mixed-race *mestizo* community emerged, the ‘*Riosuceño*’ race. Despite the supposed integration between the two communities, the town kept its two *plazas* (Appelbaum, 2003: 5).

During the nineteenth and twentieth century, the upper-lower dichotomy took on new racial and political meanings. Due to the *antioqueño* colonization –that brought what was seen as hard-working ‘white’ *colonos* (settlers) from Antioquia – the western upper *plaza* became the ‘*plaza* of the whites’ while the lower *plaza* remained the ‘*plaza* of the Indians’. During the *violencia* (civil war) between liberals and conservatives from 1948 to 1958, the upper *plaza* and the highlands above it became a stronghold for the Conservative Party, while the lower *plaza* and the lands stretching from it down to the Cauca River, were dominated by the Liberal Party (Appelbaum, 2003: 6).

⁸³ Spaniard Conqueror Juan de Vadillo named the place Riosucio (dirty river) because he arrived after a storm and the waters of the Imurrá River were muddy. The town’s authorities try to change its name several times, but the new names did not stick; people continued to call it Riosucio.

Riosucio's founding date is highly significant because it coincides with the famous Battle of Boyacá where Simón Bolívar's forces won their first decisive battle over the Spaniards during the War of Independence. According to historian Alvaro Gärtner, there is no historical record to back up such date, but Riosucio's dwellers hold to it nonetheless (quoted in Appelbaum, 2003: 168). As a result, as Appelbaum writes, Riosucio has become a national metaphor for the ideal of the *mestizo* Colombia:

“The significant founding date and the story about young lovers of different races coming together to form a town, has led some nationally prominent, liberal intellectuals to describe Riosucio as a microcosm of the *mestizo* nation. Riosucio, derided by other inhabitants of the Coffee Region as a regional anomaly [because of its indigenous and black population], redeems itself as a national metaphor” (6)

Against the effort of local elites to redeem Riosucio as a national metaphor of *mestizaje*, the rural communities claim their indigeneity and identify themselves as Emberá-Chamí people, which speak to their connection to the Chocó region inhabited by other Emberá groups. Although anthropological sources do not confirm their identity claim, there are cultural connections between Riosucio's indigenous inhabitants and the Emberá. For instance, the traditional music in Riosucio is called *chirimías*. It is played with drums, cane-made flutes, and maracas, which songs describe Emberá's society and culture.

Furthermore, identity is socially constructed rather than a fixed, ahistorical essence. Therefore, the identification of indigenous people from Riosucio as Emberá-Chamí is linked to their political struggle and the affirmation of difference from the mainstream regional identity and Colombian society at large.

Riosucio's *resguardos*, as many others in the Colombian Andes, are complex and dynamic societies. Their indigenous identity is –and has historically been– constantly culturally and politically negotiated, contested, and defended both internally and towards the non-indigenous society. Emberá-Chamí people in Riosucio have lost some of the markers of

indigeneity, like language, religion, and dress, that set them apart from the regional *paisa* identity. There are efforts on the part of indigenous authorities to, for instance, introduce schooling in Emberá language and traditional medicine in the health system. However, their indigeneity is most often construed in a multiplicity of practices, discourses and places connected to their 1) history of colonization and struggles for land, territory, and self-government; 2) diversified agro-food systems, ethnobotanical knowledges, and culinary traditions, such as the vast diversity of creole seeds or their *chirrinchi* and *guarapo* beverages; 3) collective land tenure and forms of work called *convites* or *minga*.

3. Histories of Colonization in Riosucio

3.1. The Colonial Origins of Resguardos

Before the Spanish Conquest, the Umbra people inhabited a territory that expanded throughout the Risaralda Valley and part of the Cauca Valley, as well as the surrounding highlands of the Western Mountain Range. Their political organization was in *cacicazgos* or a political and socio-economic autonomous formation that joins several communities under the control of a chief or *cacique*. Archaeological evidence presents a rich mythology and pottery and goldsmith traditions. The Umbra territories encompassed several towns of the current Departments of Risaralda and Caldas, including Riosucio. Umbra groups populated today's Riosucio such as the Pirsá, Ipá and Zopía (Escobar Gutiérrez, 1976). The main archaeological remain in Riosucio are burials and rock painting in some of the several surrounding peaks which are sacred for the indigenous communities. Lately, these paintings have become an important touristic attraction.

With the Spaniard conquest and the defeat of the Inca Empire, most of South America became part of the Viceroyalty of Peru, which was divided in Governorships. As Spaniard Sebastián de Belalcázar conquered the south of today's Colombia –where today's Riosucio is

located– the new Governorship of Popayán, founded in 1536, was added to the Viceroyalty of Peru. However, in 1717, the Spanish Crown, as part of the Bourbon reforms, created the Viceroyalty of New Granada –which included today’s Ecuador, Colombia, Panamá, Venezuela, northern Peru, and northwest Brazil– and, thus, ruled over the Governorship of Popayán.

With the Spaniard conquest and colonization, there was an intense destruction and reorganization of indigenous societies of the Americas. Faced with the dramatic indigenous depopulation, due to sickness and military conquest, the Spaniard authorities decided to group different indigenous groups together in a process called *reducciones de indios*, and settled them in designated territories named *resguardos*. Accordingly, sometimes *resguardos* corresponded to *parcialidades* or intimate indigenous kin-groups; other times, they involved different *parcialidades*, depending on the extent of the process of *reducción*. To be sure, the Spanish forces, led by Belalcázar, decimated the Umbras and indigenous groups from other places were brought to the region as part of the *reducciones* policy (Escobar Gutiérrez, 1976). The *reducciones* created internal conflicts whenever the Spaniards grouped together communities that had been enemies in the past but also forged new alliances and solidarities among those to resist and survive domination.

The *resguardos* were theoretically indivisible and unalienable so to provide the basis both for the community’s subsistence as well as its tribute payments (Appelbaum, 2003: 21) Although *resguardos* had their own ruler, the *cacique*, and ruling body called *Cabildos*, and were under the direct Crown’s jurisdiction, they had to provide labor and tribute not only to the Crown but also to the *encomenderos*. The *encomienda* was the main colonial institution where the Spanish crown granted a Spaniard, in reward for its services, a community of Indians who had to provide labor –called *mita*– for large agricultural estates or *haciendas* and for the mining districts, called

Reales de Minas, as well as tribute in the form of agricultural produce, precious metals, clothing, etc. In ‘return’, the *encomenderos*, by royal order, had to look after Indians’ catholic instruction under the numerous religious communities that settled in America. *Cabildos* were in charge of organizing labor and tribute for the Crown and the *encomenderos*. When not leading outward rebellions, indigenous authorities both complied with and tried to protect their people from the most outrageous abuses from the *encomenderos*. They often send long petitions to the Crown, detailing the abuses of *encomenderos* and requesting justice.

The Spanish crown started bringing slaves from Africa, initially to repopulate the Caribbean islands which indigenous population had been completely decimated after a decade of violent conquest. As the Spanish crown conquered continental territories, the slaves were brought in to supply for labor, especially in the mines and sugar-cane plantations.

During colonial times, there were three *resguardos* in Riosucio: Cañamomo and Lomaprieta, La Montaña, and San Lorenzo and two *reales de minas*: San Sebastián de Quiebralomo and La Montaña⁸⁴. Guamal, nowadays twenty minutes by bus from Riosucio, was a freed-slave community since way before slavery was abolished in 1851. According to oral history, in 1736, a married couple of slave masters in their testament freed their slaves and left them the land to settle a community, which the freed-slaves named Guamal. Due to its proximity to Cañamomo and Lomaprieta, Guamal became part of this *resguardo*. However, when autonomous rights were granted to Afro-Colombians in 1993, this black community fought to be recognized as a ‘collective black territory’, which was granted in 2012.

⁸⁴ During the war of Independence against Spain, the recently formed Republican government of the Great Colombia sold the gold mines located in Riosucio (Quiebralomo) and nearby Marmato to British and German companies to finance the *Campaña Libertadora* (Freedom Campaign). This brought about the migration of British and Germans engineers and entrepreneurs to the region, some of which stayed and became part of the local elite (Gärtner, 2005).

King Charles V created Riosucio's colonial La Montaña *resguardo* in 1538. In 1627, indigenous *sonson* groups from the Arma province were resettled to create the San Lorenzo *resguardo*. Spaniard *Oidor* Lesmes de Espinoza and Sarabia gave indigenous communities the colonial *resguardo* titles of San Lorenzo and La Montaña in March 1627. On the other hand, the colonial government founded the *Real de minas* in the Quiebralomo mines in 1627 and created the Cañamomo and Lomaprieta *resguardo* for the adjacent Pirsas and Umbras communities in an unknown date. It seems that the original titles for this last *resguardo* were lost. At indigenous request, in November 1722, the Anserma's major, following the orders of vicerojal Jorge Villalonga, gave new *resguardo* titles to the Cañamomo and Lomaprieta community. The current *resguardo* of Escopetera and Pirsas originated in the settlement of Bonafont founded in the 19th century by indigenous migrants from La Montaña on a land bought by five indigenous men from that community a century before. In the 20th century, the settlement grew with massive migration from Antioquia (Escobar Gutierrez, 1976; Caicedo, 2013)

3.2. Riosucio and the Gran Cauca: An Invisibilized History

In August 17, 2013, I attended a conference titled "Cauca's influence in the construction of Caldas' culture" as part of the 29th *Encuentro de la Palabra*, one of the most important cultural and intellectual events in Riosucio. The idea for this conference emerged a year before at the inauguration of the newly renovated Cuesta Theatre, a beautiful republican theatre in Riosucio. One of the speakers, from the central government, commented in his speech that the Theatre represented the great accomplishments of the *antioqueño* colonization of Riosucio since the mid-19th century. At the Q&A session, Alvaro Gärtner, a respected local historian, stood up and clarified to the audience that the Theatre spoke to the mining affluence during Cauca's rule over Riosucio, rather than the *antioqueño* colonization. Talking to local black historian José Luis Caicedo, he remembered the incident as an example of the dominant view of *antioqueño*

colonization as the only source of progress and cultural heritage in Caldas, and in general in the coffee-growing region, and the invisibilization of Cauca's historical and cultural influence. To visibilize and acknowledge Cauca's importance to local history, the town's intellectuals decided to organize this conference I attended to.

During colonial times, today's district of Riosucio belonged to a regional entity that was created named the Governorship of Popayán, which covered an extensive territory that included the Pacific Coast and southern provinces of today's Colombia, northern Ecuador, and northeastern Brazil. After Independence from Spain, this region became known as Cauca and had different political and administrative status, such as Sovereign State and Department, according to the greater political configurations to which it belonged, from the Great Colombia to the current Republic of Colombia.

In 1886, when Colombia transitioned from a federal to a centralized form of government, the Great Cauca –as it was called- went from being the Sovereign State of Cauca (1863-1886) to become a Department, which meant it lost a great deal of its power and autonomy to the central government. As part of this process, since 1905, the Department of Cauca was dismembered and new Departments were created. One of such departments was Caldas –which included current Caldas, Risaralda and Quindío–, so it is known as the Old/Great Caldas. The district of Riosucio was annexed to it and has been part of Caldas ever since (Valencia Llano 1994). In 1966, Risaralda and Quindío became independent departments from Caldas. We refer to all three departments as one unified region, which is variously call the “Coffee Region” (*la región cafetera*), the “Coffee Zone” (*la zona cafetera*), the “Coffee Axis” (*el eje cafetero*), or “Old/Great Caldas” (*Viejo/Gran Caldas*) (See Appendix 3)

During the nineteenth century, Riosucio, as part of the Cauca region, experienced several waves of migrating miners, farmers, and ranchers that cleared the forests and settled among the scattered highland colonial towns, displacing and relocating indigenous peoples and previous settlers. However, as recalled in the Cuesta Theatre incident, these migratory waves, colonization processes, and, in general, the influence of Cauca on Riosucio's history has been invisibilized by the predominance of the *antioqueño* colonization on academia and popular culture.

3.3. The Antioqueño Colonization

The *antioqueño* colonization began at the end of the colonial era and continued throughout the first half of the twentieth century. Migrants from what is now central and eastern Antioquia settled in the Cauca region –to which Riosucio belonged– expanding agricultural production and developing commercial networks. Despite the several waves of migration from different regions, the coffee-growing zone is then generally described as only populated by people of *Antioqueño* heritage (Appelbaum, 2003: 11)

According to Historian Nancy Appelbaum (2003), the history of the coffee-growing zone is presented as two kinds of legends: a 'rosy' and a 'black' legend of *colonización*. The 'rosy' legend portrays the *colonización antioqueña* as a benign historical process that brought progress and civilization to previously savage, empty lands. On the other hand, there is a counter-narrative of *Antioqueño* colonization or 'black legend' that stresses that Cauca was not a 'virgin' territory awaiting the civilizing impulse of the Antioqueño axe. Rather the *antioqueño* colonization is conceived as a "process of 'colonization' in every sense of the word: the *Antioqueño* takeover of communities, local governments, commercial networks, and landholdings" (Appelbaum, 2003: 12)

Appelbaum argues that both the 'rosy' and 'black' legends of the *Antioqueño* migration attribute almost all agency to *antioqueños*, reaffirming stereotypes that cast them as inherently

more energetic and innovative than other Colombians. Thus, Appelbaum's study highlights the importance of Cauca's land speculators, politicians, and indigenous authorities, and thereby reconceptualizes the so-called *antioqueño* colonization as a "multilateral process of region formation" (14) She argues that Cauca's elites encouraged *antioqueño* migration to their territories in the hope to bring capitalist modernization by whitening its black, indigenous and mixed or *mestizo* population. In general, Latin American elites in the nineteenth century held this ideal of racial colonization by remaking their nations on the white image of supposedly superior and civilized Europe and the United States. However, while millions of northern immigrants were arriving in the Southern Cone countries, in Colombia, Cauca's elites had to set with *antioqueño* settlers, as only a few Europeans settled down. Since then, *antioqueños* are perceived in the country to be whiter, more industrious, and more inclined to participate in a commercial economy. On the other hand, indigenous authorities and black *caucanos* resisted certain aspects of this process while at the same time associated the 'white *antioqueño* race' with progress and, thus, promoted their settlement (Appelbaum, 2003: 14)

During the nineteenth century, the Liberal –and to a lesser extent Conservative– governments began dismantling the *resguardos* and *cabildos*. The new republican governments passed legislation that eliminated *resguardo*'s contribution (*tributos*), allowed the private property of land and its selling and transfer (*enajenación*) to non-indigenous peasants, and promoted indigenous peoples' resettlement (Appelbaum, 2003; Valencia Llano, 1994; Escobar Gutiérrez, 1976).

In what was known as the Great Caldas (Caldas, Risaralda, and Quindío) the disintegration of *resguardos* is linked to the *antioqueño* colonization. Since the end of the 18th century, miners, *hacienda* owners, peasants and settlers from Antioquia arrived in great numbers

in Riosucio, particularly to the white town of Quiebralomo and nearby Vega de Supía and Ansermaviejo. This migration led to white settlers' desire to obtain the adjacent *resguardo* lands through the colonial practice of *reducciones* (Valencia Llano, 1994: 339). To dismantle the *resguardos*, local civil and religious authorities usually argued that *resguardo* towns and lands were almost depopulated –and thus some towns could be moved and attached to others- freeing land for the needy population living in white towns founded or expanded by *antioqueño* settlers. Besides depopulation, local authorities usually argued that indigenous peoples had either agreed to resettlement or to receive the indigenous people that were to be resettled –and those who opposed resettlement policies were described as rebellious, criminal people-. Authorities also argued that *resguardo* lands were idle because indigenous were not apt to work them due to their laziness and constant drunkenness. Depopulation and the supposed incapacity of indigenous peoples to work the land and bring progress continue to be until today some of the main arguments to encroach *resguardo* lands (Valencia Llano, 1994: 338-44).

During the first half of the nineteenth century there were strong land conflicts between the white and indigenous towns as the story about Riosucio's foundation tells. However, it is from the 1850s that *resguardo* dismantling increases due to massive *antioqueño* migration and to liberal land policies that considered private property was the road to progress and liberation for indigenous peoples, rather than the colonial heritage of backward collective property. As a result, new towns were founded or refounded in the Riosucio district such as El Oro (in La Montaña), Jardín (in Antioquia which also took lands from La Montaña) and Anserma.

At the level of the central government, Law 44 of 1873 ordered to divide *resguardo* lands in order to adjudicate and legalize private property to each indigenous family to allegedly solve the conflicts between indigenous and *colonos* across the country. Following the law, Riosucio's

authorities, in October 8, 1874 divided the *resguardo* of Cañamomo and Lomaprieta in three: one third for the indigenous people, and two thirds for the Supía and Marmato districts. Supía and Marmato authorities then were freed to sell the lands among local miners, settlers and merchants, particularly the already richest and most influential. Others that benefited immensely from *resguardo*'s redistribution were the land surveyors (*agrimensor*) and administrators in charge, particularly Ramón Elías Palau. Palau, a lawyer and politician from a prominent family from Popayán, charged large sums of money to the *resguardos* to represent them in the redistribution process and to the indigenous families for measuring –and obtaining *escritura* or property title- for the lands that were to be adjudicated to them. Palau appropriated some of the best lands when the *resguardos* and the families were not able to pay him all of the fees for his legal services (Valencia Llano, 1994: 352-354).

To be sure, indigenous communities and leaders both collaborated and resisted the dismantling of *resguardos*. For instance, Appelbaum explains that leaders from the Resguardo of La Montaña petitioned in 1857 the Constituent Assembly for the dissolution of indigenous *resguardos* because land privatization may favor them personally as they had struck deals with Palau and other local politicians and entrepreneurs. However, the archival documents also show numerous instances when indigenous leaders, particularly from San Lorenzo, strongly defended their *resguardos*, mining rights, and control over religious institutions and their own forms of government or *Cabildos*. Even though the dissolution of Riosucio's *resguardos* was never fully completed, it did facilitate “the alienation of communal resources and contributed over the long term to the impoverishment of these communities, even as a relatively prosperous region emerged around them” (Appelbaum, 2003: 81).

Not all of the migrants from Antioquia can be described as white rich miners and *hacendados* who appropriated all *resguardo* and state-owned or *baldío* lands. In fact, many of them were poor peasants and *mazamorreros* (poor miners that extracted gold from rivers). Furthermore, the *colonización antioqueña* brought about land democratization to the extent that it struggled against the *Concesiones coloniales*, particularly the Aranzazu Concession in the Great Caldas (Valencia Llano, 1994: 28- 69)⁸⁵ What is certain is that all of those *antioqueño* settlers benefited, in greater or lesser extent, from the predominant racist structure that conceived indigenous and black people as inferior morally, politically and economically, and, in turn, idealized the *antioqueños* as a white superior race in all aspects and the most suitable for bringing progress and civilization to the region and the nation at large.

Since the mid-1950s, although the *antioqueño* colonization had mostly ended, the private appropriation of *resguardos*' lands continued in the Riosucio district due to the expansion of coffee production and continued unfavorable national legislation. Particularly, in 1940 Liberal President Eduardo Santos decreed the partition of indigenous communal lands in Colombia. As a result, in Riosucio, local elites achieved the dissolution of the San Lorenzo *resguardo* in the 1940s (Caicedo, 2013; Valencia Llano, 1994).

⁸⁵ The *concesiones* were lands ceded by the Spanish Crown to a subject (*súbdito*) in retribution for his/her services. King Charles IV granted in 1763 José María Aranzazu, a land *concesión* near nowadays town of Pácora in Caldas. However, Aranzazu's son, Juan de Dios, started a legal and political battle to convince the new Republican government that the *concesión* covered the lands between the rivers Cauca, Chinchiná, and Pácora (about a third of the current Department of Caldas) in order to take advantage of the rising land valorization due to the *colonización antioqueña*. This caused violent conflicts between Juan de Dios Aranzazu and the settlers over the property of lands in -and nearby- newly founded towns such as Neira, Manizales, and Salamina (Valencia Llano, 1994: 28- 69).

4. Indigenous Struggles and Adaptations to Colonization

4.1. Struggles to Recover Indigenous Lands and Political Autonomy

In the 1960s and 1970s emerged strong agrarian struggles to recover land through the National Association of Peasant Users (ANUC by its Spanish acronym) and the indigenous movement led by the Regional Associations of Cabildos, particularly the Cauca's chapter called CRIC in Spanish. Riosucio was not the exception. The *Cabildos* and the Regional Indigenous Council of Caldas (CRIDEC by its Spanish acronym) fought for land and self-determination. As a result, San Lorenzo *resguardo* –which had been dissolved in 1943– was officially recognized in July 29th, 2000, obtaining a collective land title from Incora, the institution in charge of land reform at the time. In 2003, the Incora recognized Escopetera and Pirsá as a *parcialidad*. Despite multiple attempts since colonial times, the Cañamomo and Lomapieta and La Montana *resguardos* were never dissolved, although they did lose lands to *caucano* and *antioqueño* settlers and the local elites (Caicedo, 2013). Riosucio's indigenous communities recovered *resguardo* land through legal means and land invasions. In an interview, Asproinca member Antonio (2014b), recalls that

“When I was little, the indigenous communities struggled for land recovery because, in my *resguardo* [Cañamomo and Lomapieta] the rich people, the *terratendientes*, had the best lands in the lowlands and exploited and displaced the *comuneros*. So, to recover those lands, our parents had to struggle, taking those lands by force, some of them died, others were wounded. I remember, I was very young and we had to stay alone in the house so that they could go to fight.”

The *resguardos* have recovered most of their lands, but the legal status of some of them is still unclear, particularly if recovered through land invasions. Furthermore, land encroachment continues to threaten the *resguardos*, due to authorizations for urban expansion and to foreign and domestic companies to extract resources, like timber and gold, or to build installations such as receiving antennas for cellular and internet communication.

4.2. Indigenous Struggle for Self-government amidst the Civil War

In 1991, a new constitution was drafted as a result of the Peace Process with the guerrilla group M-19 and the creation of a Constitutional Assembly. The 1991 Constitution brought the country in line with neoliberalism, both in the economic and cultural front. However, as a result of the struggle of several social movements that participated in the Constitutional Assembly, the model of “neoliberal multiculturalism” (Hale, 2002) had important nuances that represented real victories for ethnic-based groups, particularly the indigenous peoples. Unlike, black communities—who had to wait until 1993 to obtain their own differentiated rights-based legislation—indigenous people had the cultural and political capital to successfully press for the recognition of autonomy and self-determination in the new Constitution. As a result, the indigenous people in Riosucio, as elsewhere in the country, have since been struggling to materialize such rights.

The *Resguardos* have their own autonomous governance bodies called *Cabildos*. As elsewhere, the *cabildos* in Riosucio have fought for self-determination by claiming their right to legislate for intercultural systems of education, health, justice, and policing in the *resguardos* and the Riosucio district in general. They have strengthened the system of *justicia propia* and the unarmed *guardia indígena* to dispute the Colombian judicial and policing system. The *cabildos* have strived to integrate traditional medicine via the use of shamans, quacks and midwives within the health services provided at the local hospital and by the private health companies—called EPS. There are also two indigenous health centers called *Ingrumá Salud* and *Minga* (Municipio de Riosucio, 2015: 21)

However, the indigenous struggle for self-determination has not been easy in Riosucio because they do not conform to the hegemonic racialized identity markers: they have long been monolingual in Spanish, having lost their indigenous languages; they dress as any other coffee-growing *campesino*; and they have partially assumed regional identities, particularly as *paisas* or

people from *antioqueño* descendent. Referring to *resguardos*' claim to indigeneity, a fair-skinned merchant from Riosucio told me that "they have long ceased to be indigenous; now they are claiming their ancestry only because that represents privileges, particularly access to land". And she added with visible indignation and worrisome: "They are even claiming that the town of Riosucio belongs to them; we, as *mestizos*, have no rights anymore"; a widely-held view among the town's *mestizos* and elites.

Until the 2000s the district of Riosucio had a heavy guerrilla presence and high violence levels and thus was considered by the government as a '*zona roja*' (red zone) or a guerrilla-controlled area, the most important in the Department of Caldas. The designation of indigenous *riosuceños* as 'guerilla collaborators' promoted army and paramilitary violence in their *resguardos*. This violence in turn reinforced their historical economic and political marginalization and weakened the indigenous movement. In 1988, José Gilberto Motato, a self-identified indigenous candidate run for mayor of Riosucio directly challenging both the local Liberal and Conservative elites. Motato was assassinated during the campaign and his death, like the vast majority of political assassinations in Colombia, remains unpunished until today (Appelbaum, 2003: 182).

The two administrations of Alvaro Uribe in the first decade of the twenty-first century brought a renewed military confrontation with guerrilla groups and the appearance of paramilitary groups. In Riosucio, the conflict between these legal and illegal armed groups brought a new and deadly wave of violence. Two indigenous candidates for Riosucio's Mayor office were assassinated –María Fabiola Largo in 2002 and Gabriel Cartagena in 2003 – as well as many local indigenous leaders.

Fortunately, military confrontations with the guerrilla have diminished in the last years in Riosucio; however, its designation as a '*zona-roja*' still looms over the district. As a result, indigenous people are considered potential 'guerilla collaborators' by the armed forces and the dominant society at large. Whenever a middle or high-ranking official or politician from the regional or national level visited Riosucio, the streets were packed with special anti-guerrilla military forces. Once, while I was visiting a farm, my host told me to look up to the sky and signaled an aircraft I had not noticed. He explained those were anti-guerrilla '*aviones fantasma*' (ghost planes) which sent shivers down my spine. The *aviones fantasma* (Douglas AC-47 Spooky) fly quietly and are heavily equipped with a variety of weapons, including machine guns, and designed to provide areal military support to the troops on the ground. During my fieldwork, there were often military checkpoints on the road from Manizales to Riosucio.

I did fieldwork during exceptional times in Riosucio. Cañamomo and Lomapieta former governor, Abel Jaramillo, was finally elected as the first indigenous mayor in 2011, although running on the left-wing coalition *Polo Democrático Alternativo*. However, in 2013, the local political elites still tried to remove Jaramillo from office. They alleged that he was disqualified to run for mayor –and thus should be removed from office– because the year before the elections, he had unduly used his influence, as a *gobernador* (indigenous governor) of the *resguardo* of San Lorenzo, by processing contracts that favored the community, engaging in *clientelismo* (patronage system). I attended a rally on November 19th, 2013 that started as a march around town and congregated at Riosucio's *Plaza de la Candelaria* called by the *cabildos*, the *Polo Democrático*, and the CRIDEC to denounce what they saw as a political persecution based on local hegemonic interests to maintain structural racism that had marginalized indigenous peoples' ways of life, cosmovisions and rights to their territory. The legal demand did not

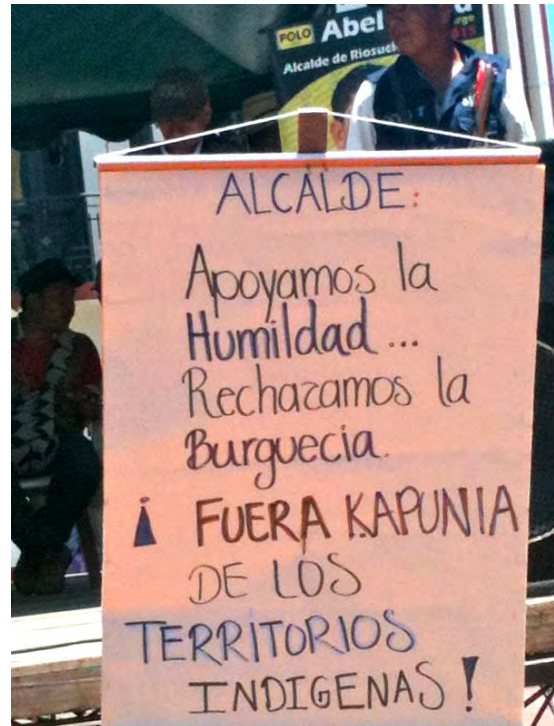
prosper because the judge assigned to the case determined Jaramillo was legally obliged to sign the contracts and thus he had not acted to benefit himself personally. Thus, Jaramillo remained major until the end of his mandate in 2015.

Figure 19: March in support of Major Jaramillo - upper Plaza de San Sebastián.



Photo credit: my own

Figure 20: Banner at the March



The banner reads: “Major: we support humbleness... we reject the bourgeoisie. Out with *Kapunia* from indigenous territories!”⁸⁶

5. Indigenous Worlds in Riosucio’s *Resguardos*

5.1. Land Tenure and Collective Labor Systems

The *resguardos* are characterized by extremely small landholding or *microfundio*. Farm’s average size is between 0.5 and two hectares (1.2 – 5 acres); around 40% of the families own less than a hectare of land and less than 20% own more than three hectares (7.4 acres) (Municipio de

⁸⁶ *Kapunia* is the Emberá word for non-indigenous ‘white’ people.

Riosucio, 2015: 57-8)⁸⁷. Thus 96% of *comuneros* reside – and live off– their own farm production and only 4% can afford to be absentee farmers. Because of farm size there is almost no land renting and the family does most labor, except at high production peaks, such as coffee’s recollection, where wage labor is hired. Families do informal hiring, no legal contract involved, and most of the laborers are part of the extended family or neighbors who need extra cash. ‘Wages’ are monetary and non-monetary as they usually include breakfast and lunch cook by the women.

In principle, land tenure in the *resguardos* is collective; a colonial requirement instituted by the Crown to ‘protect’ indigenous lands from the encroachment of non-indigenous people. In fact, their proper name was *tierras resguardadas*, which means ‘protected’ or ‘sheltered’ [indigenous] lands. Therefore, land legally belongs to the *resguardo* and no *comunero* (commoner or *resguardo*’s inhabitant) can sell or buy land without the *cabildo*’s permission. The *comuneros* then have their land in *adjudicación* from the *resguardo*, but they do own the *mejoras* or any work done on the land, being a house, sugar cane mill, artisanal coffee depulping plants, etc.

More than 90% of Riosucio’s indigenous people reside in their own farm, *adjudicación* being the most common form of land property (77%). However, around 20% of all *comuneros* have private land titles (*escritura pública*) for several reasons (Municipio de Riosucio, 2015: 57). For instance, *comuneros* may privately own their land as beneficiaries of the Incora land redistribution program that operated mainly from the 1960s to mid-1980s⁸⁸. The extent of private

⁸⁷ In Riosucio, 42.86% of the district’s properties (*predios*) are less than one hectare; 40.4% are between 1 and 3 hectares, and 16.54 % are larger than 3 hectares (Municipio de Riosucio, 2015: 58)

⁸⁸ Incora was the Colombian Institute for Agrarian Reform. Incora never really implemented land reform but rather specific, low-impact land redistributive programs. In 2003, Alvaro Uribe’s administration closed it down and created the Colombian Institute of Rural Development (Incoder by its Spanish acronym). Incora’s liquidation marked the

land property also depends on how successful have each *resguardo*'s inhabitants and leaders been at resisting land encroachment and negotiating for communal land rights with the state, non-indigenous landowners, and among *comuneros* themselves. For instance, Escopetera and Pirsá has not received official recognition as a *resguardo* but as a lower-range *parcialidad*, granted in 2003. Thus, it has been less able to recover communal land than the other *resguardos* which have much more autonomy and power *vis a vis* the Colombian government and the local elites (Agrosolidaria, 2008: 5).

The *resguardos* also own communal land where no *comunero* has established residency and that is used for collective pastures and food growing or for special *cabildo*'s projects, such as cultivation for supplying the food sovereignty programs. These communal holdings are mainly lands that were *recuperadas*: *resguardo* lands legally or forcefully (through land invasions) taken back from non-*comuneros*, particularly 'white' large landowners or *terratenientes*, but also *mestizo* peasants. Many non-indigenous landowners are descendants from fair-skinned or 'white' settlers from *Antioqueño* colonization.

Communal lands are often work in *convites* or *mingas*, collective forms of labor organized by the *cabildo*. *Convites* may also be called for by the *cabildo* or organized groups of families to work on communal undertakings such as repairing the paths or the aqueduct or carrying reforestation programs. Neighbors also organize *convites* to help each other out if labor is scarce for demanding agricultural times such as the coffee's harvest, for specific tasks like repairing the roof's house or making a fence, or just for helping out a family, which is particularly needy.

end of state-supported 'land-reform' oriented policy and the full instauration of neoliberal market-based land policies.

5.2. *Diversified Agricultural Production*

As many scholars have argued, indigenous and peasant small scale, agriculture-based societies are not isolated from the markets and the larger (globalized) society, reluctant to change, or non-monetized (Kay, 2008; Van der Ploeg, 2010). To be sure, Riosucio's *resguardos* constitute a mostly agrarian society which is characterized by a complex interplay between commercial and subsistence agriculture, the model of the Green Revolution and 'traditional' indigenous and settlers' practices and knowledges.

As we explained above, in Riosucio, as else in the country, the Colombian Coffee Growers' Federation (*Fedecafé*) and the *Panela* Growers' Federation (*Fedepanela*) encouraged small-scale indigenous and peasant farmers in Riosucio towards monocrop cultivation of either coffee or sugar cane for *panela* production. However, indigenous communities in Riosucio maintained a diversified model that combined production for both market and self-consumption to a greater extent than coffee-growing peasants in the region. As a result, many indigenous families in Riosucio's *resguardos* cultivate beans, plantain, cassava, *cidra* (chayote squash), fruit trees, and other crops besides coffee and sugar cane, mainly for self-consumption. Although if production is high, they might sell it directly –but usually through a few intermediaries– at Riosucio's *Plaza de Mercado* on Wednesdays and Saturdays or at local markets, particularly in the nearby towns of Supía, Caramanta, and Quinchía. It is common for families to maintain a vegetable and medicinal garden, tended specially by women and children. The main mean to transport products is by mules to the nearest road and then by jeep until either Riosucio or Supía, whatever town is closer to the farm. From there, trucks transport the produce to their final destination or to the ports to be exported.

Most families cultivate both coffee and sugar cane for the market, unless the climate is unfavorable. Only a few special varieties of coffee grow in the cold and hot climates; sugar cane

may grow in temperate climate, but hot temperatures are particularly suitable for this crop.

Panela production is mainly for local and regional markets in the coffee-growing region and Antioquia; coffee, on the contrary, is for international markets, particularly the US, the European Union, and Japan. There are some families that grow plantain, citric trees, blackberry, and tomato exclusively for the regional market, particularly for cities in the coffee growing zone and Medellín.

Families may also try new crops, promoted by the government or development agencies, for emerging or niche domestic and international markets. However, these ventures tend to be extremely risky for local farmers as institutional support is usually short-term and insufficient, and markets for these products tend to be volatile and difficult to take advantage of without large-scale capital investments and marketing. For instance, the Caldas' provincial government and Corpoica partnered to promote –as part of the Development Plan 2008-2011–, the cultivation of *higuerilla* in 6.000 hectares for the production of biodiesel and its byproducts. In Riosucio, Asproinca, the grassroots organization I worked with, rejected the project and advised members against growing *higuerilla* due to several reasons. First, farmers had no experience growing this crop; second, there were no *higuerilla*-processing factories to produce agrofuels and no market infrastructure; and third, because monocropping for agrofuels threatened food sovereignty, their agroecological productive systems, and agrobiodiversity (Gutiérrez, 2008: 23)

In the highlands, the main commercial activity is livestock with around 23.000 heads of livestock, both cattle and pigs. Livestock is commercialized in the local *feria ganadera* (livestock market/fair) that takes place the last Wednesday of every month supplied by local production and by cattle from the departments of Magdalena, Córdoba and César in the Atlantic Coast and pigs from the Department of Antioquia (Municipio de Riosucio, 2015: 58).

Figure 21: Making Panela at an Artisanal Mill (Trapiche)



Photo credit: my own

Figure 22: Traditional Mill (Trapiche)



Photo credit: my own

Figure 23: Loading Panela pacas on a Jeep to Riosucio



Photo credit: my ow

Figure 24: Farm in Cañamomo and Lomapieta Resguardo



Photo credit: Jaime Alves

Partly due to *microfundio*, lack of access to capital, and the mountainous terrain, the dominant form of agriculture and livestock production is small-scale and non-mechanized. For instance, coffee is hand-picked; the process of washing and depulping is also done manually or with artisanal machines. Coffee drying is done outside or in a *marquesina*, a sort of greenhouse.

Figure 25: Coffee Depulping Machine



Photo credit: Ana Bahena

Figure 26: Young Woman Drying the Coffee at the Marquesina



Photo credit: Ana Bahena

Figure 27: Woman Drying the Coffee



Photo credit: Ana Bahena

Figure 28: Enjoying the Day while the Coffee Dries



Photo credit: Ana Bahena

6. Pluriactivity: Petty Commerce, Mining, and Urban Wage Labor

Although their main mean of subsistence is small-scale agriculture, particularly coffee and sugar cane, Riosucio's indigenous people based their subsistence in a pluriactivity strategy (Van der Ploeg, 2010: 7-9), that includes petty non-food commerce, mining, and urban wage labor, that is the result of both economic marginalization and long-held subsistence activities.

Riosucio has a strong ancestral artisanal production, particularly in Portachuelo (Cañamomo and Lomaprieta), La Montaña and San Lorenzo. There is pottery, *cañabrava* (a kind of cane) basket and weave making, wood carving, and *fique* (*Furcraea sp*)–based handcrafts. However, this artisanal production is in crisis nowadays because the elders mainly practice it with low generational shift.

Artisanal mining has been practiced in Riosucio since precolonial times, particularly in the *comunidades* of Quiebralomo, La Montaña, San Lorenzo, and the *corregimiento* of Bonafont.

Mining is still practiced in an artisanal way to extract minerals, particularly gold drift mining and from riverbeds, as well as coal, clay, sand and other minerals for the construction industry. There was also salt exploitation in La Montaña and Bonafont and coal mining in a place called El Salado, in the La Montaña *resguardo* (Alcaldía de Riosucio; Municipio de Riosucio, 2015: 58). The majority (80%) of the 710 mining families are from Riosucio and are associated, such as the Small-Scale Indigenous Miners Association of Cañamomo and Lomaprieta, Asomicar, which developed their own labor code and is working on an Environmental Management Plan (*Plan de Manejo Ambiental*). Riosucio's miners usually sell the gold to intermediaries in Riosucio and Supía, who, in turn, sell it in Medellín. Thus, the district of Riosucio does not receive royalty payments from mining (Municipio de Riosucio, 2015: 59-60)

Artisanal mining in Riosucio –as in other nearby mining towns such as Marmato and in contrast to large-scale, corporate-controlled mining– is often times complementary to agriculture. First, artisanal miners use mercury and cyanide, as well as dynamite, which has caused local environmental and health damages. Still, artisanal mining has a much lower environmental impact in comparison, for instance, to open-pit mining which completely destroys the territory. Second, this complementarity originates in pre-Hispanic times when mining and agriculture developed and became important forms of subsistence in the region; thus, artisanal mining, as small-scale agriculture, is historically embedded, culturally important, and carried out based on 'traditional' knowledges and practices. As a result, in Riosucio, mining families usually complement their income by growing subsistence crops in their plots; and young people from the *resguardos* often work on the mines.

However, mining and agriculture also conflict at times. During my fieldwork, there was a severe coffee crisis because international prices plummeted while gold mining boomed due to a

cycle of high prices. As a result, an increasing number of young people left agriculture and moved to work in the more profitable mines, contributing to an already acute labor shortage due to the coffee crisis. Many seed-savers I talked to from the *resguardos*' seed networks and Asproinca complained about farms being left in the hands of older people, who were not able to maintain them properly anymore.

There was also a negative perception of mining as contributing to the youngest generations' eagerness for consumption goods and making money easily and fast. One older woman told me once, in a reproachful tone, that her boys had gone to the mines because they wanted smartphones and motorcycles that she could not afford. She was articulating a critique to capitalism' consumerism culture and, specifically, seemed to refer to the legacy of drug-cartels' ideal to become rich rapidly, which had Medellín –and its zone of influence in the coffee growing region- as one of its strongholds.

Youth migration to work in the cities has also contributed to labor shortage. However, remittances from family members who have moved to work in the mines or in the cities are an important source of monetary income in the *resguardos*. Most of the families I did fieldwork with in all four *resguardos* had someone in the family –usually their grown-up children– who had moved to Manizales, Pereira, Cali, and above all, Medellín, to work. Some had family abroad, particularly in the US and Spain. Women usually work as housemaids or waiters and men in construction jobs or as security guards. Many families have male children enrolled in the army as soldiers who may be sent to far away regions in the *Orinoquia* flat lands near the Venezuelan border or in the amazon region to combat the guerilla, neo-paramilitary groups and drug cartels.

Men have more mobility than women because women usually marry within the community and go to live at her husband's lands. For instance, María, an Asproinca senior member, has four children: two boys and two girls. The two boys left. One is a police officer in the Department of Meta (in the *Orinoquía* region); her other son lived six years in Cali and is now back living with her. She told me he might stay now that "he went to the cities and knew the craziness". The girls married and stayed. One of them had left her husband and was currently living with her five-year old son at Maria's house.

Young *riosuceños* see Medellín, more than any other city in the country including Bogotá, as a land of opportunity. Bogotá is far away (ten-hour bus ride) and although may offer economic opportunities, *riosuceños*, as many others in the country, perceive it as a cold, chaotic, dangerous, unwelcoming, and culturally different city. Whenever I said I was from Bogotá, people's most often comment was: "Oh, you are from the *nevera* (literally 'the fridge')", which is a reference to both its cold climate and to the coldness (uptightness) of its people. Medellín, on the contrary, attract them because of its proximity (three hours by bus); its perceived booming economy and high quality of life; its temperate, nice climate; and, perhaps, most importantly, its cultural connection as *paisa* people. People from the Department of Antioquia –which capital city is Medellín– and across the coffee-growing zone, consider themselves *paisas*⁸⁹.

However, Riosucio's indigenous people consider themselves *paisas* in conflicting ways. They do not easily fit the *paisa* identity because it has historically been constructed as a 'white' people identity (Appelbaum, 2003). Particularly the youth struggle to fit as *paisas*. For instance,

⁸⁹ Of course, the *paisa* identity is not homogenous. There are differences between people from Antioquia –which are considered the 'pure' *paisas*– and from the coffee-growing zone as well as from within this zone (among people from Caldas, Risaralda, and Quindío) For instance, a trained ear can notice the difference in accent and idioms among people from these Departments, although they all speak a '*paisa*' Spanish.

their slang and aesthetics, specially their hairstyle and ways of dressing, resemble the youth from Medellín. Most of them cheer for Atlético Nacional, Medellín's main soccer team and the most awarded in the country, rather than for less successful Once Caldas from Manizales. However, those who move to Medellín suffer from overt and daily forms of racism because of their indigenous features and rural upbringing. Thus, among the youth, there is always a struggle between two conflicting identities: as *paisas* and as indigenous which they differently mobilize and assume according to the circumstances and which are both a source of pride and discrimination.

7. Maria's Farm

Around 50% of the indigenous families in Riosucio have their fields scattered. This is partly due to the ancestral tradition of taking advantage of the different resources that are located in the various micro-climates of this mountainous region which Murra (1975) called the "Model of the Vertical Control of Multiple Ecological Tiers." This way, families can grow sugar cane in the lowlands and coffee in the midlands as well as have livestock and access wood resources in the highlands. In addition, families may have acquired lands through different means and periods of time, which contributes to their geographical dispersion.

María, an Asproinca senior member, owns several small fields. Thirty years ago, Maria and her husband bought a one-hectare field called La Guamera "with a lot of effort because at that time we had nothing, no one knew us and we had no credit". She also inherited Palogrande, another one-hectare field from her father who bought it with a credit from *Caja Agraria*. The house and its *solar*, Casablanca, where she lives is about $\frac{1}{4}$ of a *cuadra* (3,300 feet) and she bought it at credit. Finally, she had two-hectare continuous fields called La Rueda in the lowlands that belonged to her father and deceased husband and were recovered lands (*tierras recuperadas*). Both her father and husband were prominent leaders and *resguardo gobernadores*

who actively promoted land recovery. Her husband was killed because of this land struggle. When she became a widow, she had to sell one of the fields that were recovered because she had no one to help her work the land. All of these fields are in the same *resguardo* but non-continuous. On my first visit, she took me to know La Guamera which was about half an hour walk from the house; the other fields, however, were too far to visit on a single day.

Currently, María's fields are intended for different agricultural activities. In the one hectare she kept in La Rueda, she has livestock. In Palogrande, she has sugar cane and 200 coffee trees intercalated with cassava, plantain, *arracacha* (a kind of tuber), and fodder by the road because she used to have livestock in that field. There she usually grows beans and maize, but not at the time of my visit because the summer (dry season) had been too strong. Then, she had decided to grow maize and beans in La Guamera, which is located a little higher and the sun was less inclement.

In addition, she runs three petty businesses: livestock and feed commerce, non-food petty commerce, and *chirrinchi* production. María sells three pigs every four months and two cows every nine months to Riosucio's butcher shops. Thanks to Asproinca's training and micro-credit, María associated with five neighbors to currently produce one ton of feed for cattle every two months. The feed is made of soy, cattle and fish meal, *panela*, salt and other ingredients. They sell the feed in a store in Riosucio and to Asproinca's members. I found about her second business on a Saturday morning. María arranged to meet me at Riosucio's *Plaza de Mercado*; however, to my surprise, she did not sell food at the market, but footwear, anything from high heels to tennis shoes.

María continued the family tradition of producing *chirrinchi*, a distilled liquor made of sugar cane sweet. In fact, *chirrinchi* is distilled *guarapo*. According to María, *chirrinchi* is much

more profitable than *panela*. A *paca* (26 lbs) of *panela* sells for 38,000 pesos (USD\$13); if she makes *chirrinchi* instead, she obtains 60 bottles which she sells for 180,000 pesos (USD\$ 61)

When my aunt did fieldwork in Riosucio, she lived with a family who also produced *chirrinchi*. However, at the time, *chirrinchi* was banned by law and punished with fines and jail, because like *chicha*, ancestral beverages were considered unhealthy, morally degrading, and one of the sources of indigenous peoples' laziness and backwardness (see chapter 2, page 35). In addition, because *chirrinchi* is distilled, it has more potential health hazards if not prepared properly, particularly blindness. My aunt told me that when she asked the family to show her how to make *chirrinchi*, they took her through the fields in the middle of the night until they reached a hidden shed where they made it.

Nowadays, *chirrinchi* and *guarapo* production is not outright illegal anymore; however, producers have to comply with sanitary, tax, copyright, and other regulations. Complying with such regulations is expensive and involves time-consuming bureaucratic procedures that these small-scale, indigenous producers are often times unable to comply with; thus, their businesses are often in the brink of illegality. María told me that she is taking samples of her *chirrinchi* and *guarapo* to be analyzed at the University of Caldas in Manizales in order to obtain a sanitary permit from Invima –the institution in charge of food and drug safety. She does not need such permit to sell in the *resguardos*, but it is required in Riosucio, particularly during the Devil's Carnival.

Small establishments that sell these traditional indigenous beverages are called *guaraperías*. They bottle the *guarapo* and *chirrinchi* in reused plastic and glass containers, usually from Bavaria's beer company, local *aguardiente* companies, and soda companies like

Coca-Cola and Pepsi⁹⁰. Local authorities argue that reusing these bottles is a violation to trademark rights; *guarapería* owners say they are too poor to buy or make their own bottles and that their production is so tiny that it would never financially affect these multinational companies. Furthermore, there is a sense that the government's policies are unjust because they are not designed considering the financial constraints of small-scale production. In fact, the general feeling among *guaraperías*' owners were that the government objective was to use such regulations to get them out of the market so that indigenous beverages do not compete with industrialized alcohol and soda production in Riosucio. Furthermore, *guaraperías* are associated with indigeneity and, thus, Riosucio's communities see its persecution by the government as a form of what we would call ethnic cleansing. Whenever I visited *guaraperías* in the community of Sipirra (Cañamomo and Lomaprieta *resguardo*), there was an initial reluctance on the part of the owners to talk about their business. They were suspicious that I was coming from the government to check on the regulations and my visit may result in fines or closing their establishment down.

8. Conclusion

Riosucio is a fascinating town. Located in a region most recently colonized by so-called 'white' and 'industrious' *antioqueños*, Riosucio stands out due to its large indigenous –and nearby black and peasant populations– that has configured a pluricultural setting and a particular history seen, for instance, in its two *plazas* and events such as the Devil's Carnival. Riosucio's rich agrobiodiversity stems out from such cultural diversity as well as from its location in the Chocó bio-geographical region.

⁹⁰ Bavaria is the main Colombian beer company. However, it was bought by the South-African-based multinational SabMiller in 2005.

This chapter discussed how since the sixteenth century, indigenous people have both resisted and adapted to different colonial and republican-based forms of domination as well as to several waves of colonization connected to the gold mines and fertile ‘empty’ lands. In this process, indigenous’ ways of life and farming, their autonomy and their territories became threatened. Since the end of the nineteenth century, Riosucio’s economy increasingly depended on coffee production for the international markets. Riosucio indigenous people see the expansion of Green Revolution model of coffee monocropping promoted by Fedecafé as a form of colonization of their agricultural worlds embedded in the coffee-forest model. However, Fedecafé’s strong institutional capacity also brought benefits to indigenous farmers in Riosucio; benefits which are being erased by neoliberal reforms, starting in the 1990s, bringing about a deep crisis in the coffee sector.

High migration to urban centers, pluriactivity, connection to regional and international markets –although in a disadvantage position– make indigenous society in Riosucio very similar to the coffee-growing peasantry. However, the historical struggles for land and territory, self-determination and political autonomy, the collective land tenure and labor systems, and the degree to which they have maintained a diversified model of agriculture differ from the peasantry and speak to their indigeneity.

In Chapter 4, I analyze how Fedecafé’s imposition of a Green Revolution model of coffee production impacted the seed worlds built around the coffee-forest model and creole seed conservation as a commons.

CHAPTER 4: 'IMPROVING' SEEDS: FRICTIONS AND (MIS)ENCOUNTERS BETWEEN FEDECAFÉ'S AND INDIGENOUS SEED POLITICS AND WORLDS

1. The Coloniality of Nature: Forbidden Foods, Homogenous Seeds

1.1. *Good Coffee, Bad Colored Plantain*

According to oral narrative, *antioqueño* priest Father José Gonzalo Uribe brought the first coffee plants for cultivation in Riosucio around 1820. Like many other priests during the *colonización antioqueña*, Uribe was also a businessman, investing in land and commerce. As part of his religious mission, Uribe promoted a market-based economy and the cultivation of crops for the international markets, such as coffee, rather than the crops indigenous and black populations traditionally farmed in Riosucio for self-consumption and local/regional markets. People in Riosucio tells that Father Uribe promoted coffee cultivation by ordering parishioners to plant a specific number of coffee trees as penance for their sins. Historian Nancy Appelbaum provides the following testimony:

“He [father Uribe] told the indigenous people to dress. He said ‘I am going to bring you a store to sell you shirts and pants, plant Coffee, don’t plant guineo, plant other plantains that aren’t colored but rather good plantain’” (Appelbaum, 2003: 197-8).

The above testimony speaks to how *antioqueño* colonizers, like Father Uribe, considered the plants –or the creole varieties– that diverged from commercial ones as inferior, the same way indigenous and black populations and their models of agriculture were to capitalist agriculture. The reference to *guineo* is significant of the coloniality of power based upon the racialized classification of natures and societies. *Guineo* is a variety of plantain mostly grew for self-subsistence until today and it was first introduced by the slaves brought from western Africa, thus, its name.

1.2. *Good Beer, Bad Guarapo and Chirrinchi*

As in other sugar-cane growing parts of the country, indigenous communities in Riosucio district, traditionally drink *guarapo* and *chirrinchi*. *Guarapo* is an alcoholic beverage made from fermented sugar cane molasses; *chirrinchi* is its distilled form. As indigenous liquors, they are often despised by the self-identified *mestizo* and ‘white’ population living in the urban areas.

When my aunt did fieldwork in Riosucio in the 1970s, she lived with a family who produced *chirrinchi*. At the time, *chirrinchi* was banned by law and punished with fines and jail. As other ancestral beverages –such as fermented maize *chicha*–, *guarapo* and *chirrinchi* were considered unhealthy, morally degrading, and one of the sources of indigenous peoples’ laziness and backwardness. The prohibition was more strictly enforced on *chirrinchi* than *guarapo* because, as any other distilled liquor, *chirrinchi* does have potential health hazards if not prepared properly, particularly blindness. My aunt told me that to learn about *chirrinchi* production, she had to join her host family in sneaking across the fields in the middle of the night until they reached a hidden shed where they made it.

Nowadays, *chirrinchi* and *guarapo* production is not outright illegal anymore; however, the government uses sanitary, tax, copyright, and other regulations to discourage and persecute producers. Complying with such regulations is expensive and involves time-consuming bureaucratic procedures that these small-scale, indigenous producers and merchants are often times unable to comply with; thus, their businesses are frequently in the brink of illegality. For instance, María, an Asproinca farmer, made great efforts to save money to pay for an analysis of her *chirrinchi* and *guarapo* at the University of Caldas in Manizales. She needed the analysis to obtain a sanitary permit from Invima –the institution in charge of food and drug safety. She did not need such permit to sell in the *resguardos*, but it is required in Riosucio, particularly during the Devil’s Carnival.

Small, local establishments that sell these traditional beverages are called *guaraperías*. These establishments also need sanitary permits to sell *guarapo* and *chirrinchi*, which many of them lack. At *guaraperías*, *guarapo* and *chirrinchi* are sold in reused plastic and glass containers, usually from Bavaria's beer company, local *aguardiente* companies, and soda companies like Coca-Cola and Pepsi⁹¹. Local authorities argue that reusing these bottles is a violation to trademark rights. *Guarapería* owners I talked to complained they were too poor to buy or make their own bottles and that their production is so tiny that it would never financially affect these multinational companies. They felt that the government's policies are unjust because they are designed in ways that ignore the financial constraints of small-scale production and, thus, often end up leading to bankruptcy. This way, owners argued, these trademark and sanitary regulations are used to prevent traditional beverages from competing with industrialized alcohol and soda production in Riosucio. Furthermore, they, as others in Riosucio's indigenous communities, believe the government persecutes *guarapo* and *chirrinchi* because they are part of indigenous farming and culinary cultures; in other words, a project of racialized violence exercised through banning and persecuting certain foods.

1.3. Good Beans, Bad Revoltura

In Riosucio, Asproinca and the *cabildos* organize Seed Fairs or festive events where the communities come together to exchange creole seeds, celebrate local foods, and socialize with friends and neighbors (see chapter 5). The stands are beautifully looking and sense awakening; a collage of intense colors, shapes, smells and textures that celebrate the socio-natural diversity and creativity embedded in indigenous seed worlds.

⁹¹ Bavaria is the main Colombian beer company. However, it was bought by the South-African-based multinational SabMiller in 2005.

Figure 29: Stand at the Seed and Knowledges Fair



Photo credit: Ana Bahena

As someone used to buy in supermarkets, during my fieldwork I was always surprised to see how irregular and diverse creole fruits, vegetables, tubers, and roots are and to appreciate such diversity. At Asproinca's seed fairs, *cidras* (squash) came in such different tones of green, irregular forms and sizes, and covered by thorns, they would have never made it to a supermarket shell. It was similar with fruits that may be beaten here and there by animals; and tubers, which may be 'dirty' rather than the immaculate, aseptic standards of supermarkets. At indigenous seed fairs and fields in Riosucio, diversity, irregularity and heterogeneity prevail over the homogeneity, uniformity, and invariability characteristic of supermarkets and industrial agriculture.

The figures below (30 and 31), show *arracachas* –a kind of tuber– and amazon potatoes (*Dioscorea sp*) a special kind of potatoes because they are a vine which fruits do not grow underground –like a regular tuber– but aboveground similar to fruit trees. Some of these

arracachas and amazon potatoes are fat while others are thin, small or large, somewhat straight or curved; no *arracacha* or potato looks similar to one another.

Figure 30: Seed Saver Maria's arracacha



Photo credit: Ana Bahena

Figure 31: Seed Saver Mercedes' Amazon Potatoes



Photo credit: my own

Similarly, eggs came in different colors, including beautiful blues and pinks; their yoke was bright red and the flavor was so intense and different from industrially farmed eggs. Maize, and particularly, beans displayed an amazing variety of colors, sizes, and shapes.

Asproinca seed savers grow a “*revoltura*” or many varieties of beans with different shapes, colors, flavors, sizes, textures that invoke a different notion of sensibility, taste, beauty. Faced with this diversity, the staff at ICA –the agency in charge of plant quality inspection and certification– would have gone insane trying to classify them into rigid and stable categories in order to certify them.

Figure 32: Seed Saver Astrid’s revoltura beans



Photo credit: my own

In contrast with this incredible bean diversity at Asproinca's seed fairs and fields, supermarkets I visited in Riosucio and Manizales sold a few varieties, marketed as 'best quality' because of its larger size and bright colors.

For instance, a supermarket in Riosucio I visited regularly sold the most commercial kinds of certified beans: red and white *Cargamanto* from Riosucio, and *Bola roja* [Red Ball] and *Radical* from the town of Cajamarca in the Department of Tolima. Rafael (2014), the owners' son, told me local bean supply was not large and constant enough to meet the supermarket's demand. So, it was cheaper and more reliable to buy beans by the bulk from non-local intermediaries. Nonetheless, his family is from Riosucio and, as such, they feel ethically committed to support local producers as much as possible. Thus, the supermarket also sold some certified and creole beans from local producers at cheaper prices such as *Calima*, *Limoneño*, *Lima*, *Duba*, and *Uribe rosado* (Rafael 2014)

At a local supermarket in Manizales –Caldas' capital city–, the homogenizing market logics and the strict use of sanitarian standards and 'business management' constituted heavier barriers to local bean producers than at Rafael's supermarket⁹². I interviewed Angela and Sandra, two employees who are part of the supermarket's purchasing committee. According to Angela (2013), in the case of beans, the supermarket only sells certified beans that match consumer preferences: "clients look for good-sized beans, bigger rather than smaller, fleshy and of beautiful color." These standards reduce bean diversity to mostly two certified varieties: *Bola Roja* and *Cargamanto*. There are a few more certified varieties the supermarket sells at lower

⁹² The supermarkets' purchasing committee evaluates that new suppliers comply with mainly four kinds of requirements: 1) products that are from the exact kind of varieties the supermarket requires; 2) sanitary and quality standards set by the Invima and consumers' preferences; 3) transportation logistics; and 4) supply and demand variations (Angela and Sandra, 2013).

prices such as *Blanquillo*, white *Cargamanto* and *Calima*. When I asked her about all of the different varieties of beans –and corn– grown and consumed in Riosucio’s *resguardos*, Sandra (2013) replied: “you can’t find them in Manizales, not even in the market, we have a very different food culture from indigenous people.”

An important part of their job at the purchasing committee is to make sure suppliers are bringing the exact varieties of bean the supermarket requires. This is so because suppliers, particularly small-scale ones, may mix different bean varieties or *paliar*, considered a dishonest practice to reduce costs and increase profit. Distinguishing supermarket-approved, bean varieties from non-approved varieties requires a trained eye because they often look very similar (see Figures 33 and 34) Sandra (2013) explained to me that suppliers mix *Bola Roja* and red *Cargamanto*, with *Palicero* bean, which is “thin and long and doesn’t have the same taste and look.”

Figure 33: Bean varieties: *Cargamanto* (right) *Palicero* (left)



Photo credit: my own

They also mix *Radical* with *Radical San Gil*, which is smaller and tainted. *Palicero* and *Radical San Gil* are around 25% - 30% cheaper than *Cargamanto* and *Radical*. Thus, local

suppliers charge for their beans as if it they were not mixed, but ‘pure’ 100% *Cargamanto* or *Radical* to increase profit. When the Committee finds mixed or *paliado* beans, it either return or buy them at a lower price to “be able to offer it to the consumer at a good price in relation to its lower quality” (Sandra 2013).

Figure 34: Radical beans (top), Radical San Gil beans (bottom)



Photo credit: my own

The reduction to mainly two marketable certified varieties then not only makes it hard to commercialize other certified bean –let alone creole varieties– varieties in supermarkets, but also turns bean’s diversity into ‘shady’ market practices. This contrasts with Asproinca’s seed fairs where there is an appreciation of the manifold cultural, nutritional, and ecological advantages of agrobiodiversity; an appreciation for having a wide variety of creole beans or what they call ‘*revoltura*’.

Capitalist agriculture and food markets’ tendency towards homogenization, standardization, and concentration has negatively impacted the conservation of creole varieties in Colombia as in other part of the world. Sanitarian standards, manipulation of consumer preferences and food habits through marketing, the expansion of transnational food chains and retailers along with food imports and dumping, and the industrialization of food production that

imposes standardization and homogenization contribute to the marginalization of creole varieties in the fields and markets (Coomes *et al*, 2015; Fitting, 2011).

However, the three examples above illustrate that the marginalization of creole crop varieties and foods is also due to their association with peasant, and particularly indigenous, worlds.

The persecution and/or denigration of creole maize, and bean varieties, *guineo* plantain, *guarapo*, *chirrinchi* and other indigenous crops and foods –scornfully called Indian or poor people’s food/crops– originated in the Spanish colonial regime and remains, in modified forms, until today.

The coloniality of power –the process of hierarchically classifying human and non-human difference– in the Americas thus not only implied restructuring the cognitive structure, of what could be and could not be known, but also the subsistence systems defining what could and could not be planted and consumed (Escobar, n.d.; Alimonda, 2010). In this way, certain American plants and foods became outlawed and deemed symbols of savagery and non-civilized life. A well-known case is how Spaniard colonial authorities forbade indigenous people in New Spain to plant Amaranth –a gluten-free, highly nutritious cereal, similar to couscous and quinoa– because of its centrality in Mesoamerican cosmovisions and subsistence.

After independence, Simón Bolívar, outlawed the indigenous beverage of fermented maize –*chicha*– in 1820. During the 1930s, the Colombian government declared *chicha* unhygienic, unhealthy, stupefying and violence-prone, persecuting those who produced, commercialized and consumed it –redeploying long-held racist violence and ethnocentric views of the indigenous world– to benefit the nascent beer industry that was associated with civilized

European life⁹³. Prejudices against *chicha* –like *guarapo* and *chirrinchi*- continue until today, although nuanced by the increasing re-indigenization of the political and cultural in Riosucio and other indigenous zones in the country. Recently, town people in Riosucio, especially the youth, have begun to identify themselves as indigenous and the consumption of *guarapo* and *chirrinchi* has been important to this process.

The ‘coloniality of nature’ –as an integral part of coloniality– is then a crucial element to explain the destruction of seed-human worlds in Riosucio’s *resguardos*. Seeds are not only biological beings, but also the result of social practices and knowledges associated with human’s provisioning methods through agriculture and food gathering. Seeds-human relationships then continuously enact and constitute each other and bring forward knowledges and practices that, in turn, are in relation to other human and non-human beings present in the fields, kitchens, (super)markets, and other socio-natural spaces where seeds dwell. In other words, the complex and manifold seeds-human relationships constitute a multiplicity of worlds. I argue that, in contrast, the Industrial Seed Regime –based on the introduction of ‘improved’ and certified hybrid seeds, as one of cornerstones of industrial agriculture and the Green Revolution, has resulted into the imposition of a specific set of human-seeds relationships, a particular world, over the multiple worlds created around creole seeds. This process has only deepened with the introduction of GM seeds under the Corporate Seed Regime (see chapter 2). In short, GM and hybrid seeds are but another expression of the reduction of the pluriverse to the One-World World of modernity and capitalism or the “globalizing project of fitting many worlds into one” (Escobar, unpublished: 2).

⁹³ For instance, *chicha* was blamed for instigating the violence during the ‘*Bogotazo*’, a massive uprising, particularly in Bogotá but felt across the country, after the murder of presidential candidate Jorge E. Gaitán in 1948.

In this chapter, I focus on the impact of the Green Revolution model of coffee monocropping implemented by the Colombian National Coffee Growers' Federation (*Fedecafé*) on indigenous seed worlds in Riosucio. Even though coffee is a tropical plant; its center of domestication is in Ethiopia. In the context of the European colonial project, coffee arrived in the Americas as a plantation crop associated to the emerging global capitalist food markets becoming a commodity. Nonetheless, as explained further in the chapter, coffee was also reappropriated by indigenous and peasant populations that incorporated its cultivation as part of polycropping models, such as the 'coffee forest.'

I illustrate how the *Fedecafé* model reproduces the coloniality of nature by 1) promoting 'agriculture as business' by discouraging polycropping models, such as the coffee-forest where beans, maize, and squash are grown in association with coffee for local markets and self-consumption; and 2) imposing 'improved' sun-grown coffee varieties that displace creole shade-grown ones which are considered inferior in terms of productivity and pest-management.

However, *Fedecafé*'s coffee seed varieties are only partially commodified and conceived as public goods; these varieties are not as completely de-localized, placeless, homogenized, and enclosed by IPRs as GM seeds. Rather they stand mid-way in the spectrum of organicity-relationality/localization to artificiality/delocalization or in between what seed savers and activists in Riosucio call seed living systems based on commons, and dead living systems based on commodification and sterilization.

I argue that the implementation of the Green Revolution seed model by *Fedecafé* is a case of 'ontological friction' or the particular ways in which the Green Revolution as a 'universal' only comes to life at the "grip of worldly encounters" (Tsing, 2005: 1). In other words, *Fedecafé* seed development model is an 'engaged universal'; the result of implementing the Green

Revolution as a particular development project in ‘friction’ with the indigenous seed worlds of Riosucio’s *resguardos*. In other words, Fedecafé’s seed model in Riosucio may be conceived as a form of alternative modernity; its ‘alternative’ condition being the result of such ontological friction (Grossberg, 2010)

I first account for the loss of creole seeds in Riosucio. Second, I provide a short history of coffee production in Riosucio which began with the *antioqueño* colonization in the nineteenth century, and was reconfigured by indigenous people into a polycropping ‘coffee-forest’ model that included seed worlds based on diversity and human-seeds relationality (see chapter 6). Third, I analyze the Fedecafé’s Green Revolution model –introduced in the 1970s– characterized by sun-grown coffee monocropping and certain forms of rationality and management of coffee production. I look at how this model came into being in friction with indigenous seed worlds which it partially destroyed and displaced, continuing forms of the coloniality of nature. I explain the forms in which Asproinca indigenous farmers and seed savers in Riosucio resisted, adapted and adopted Fedecafé’s model. Lastly, I provide the particular perspective of Fedecafé’s plant scientists and agricultural extension workers to further understand how its model of coffee production became implemented and legitimized in particular ways in Riosucio.

2. The Erosion of Agrobiodiversity in the Coffee-Growing Zone

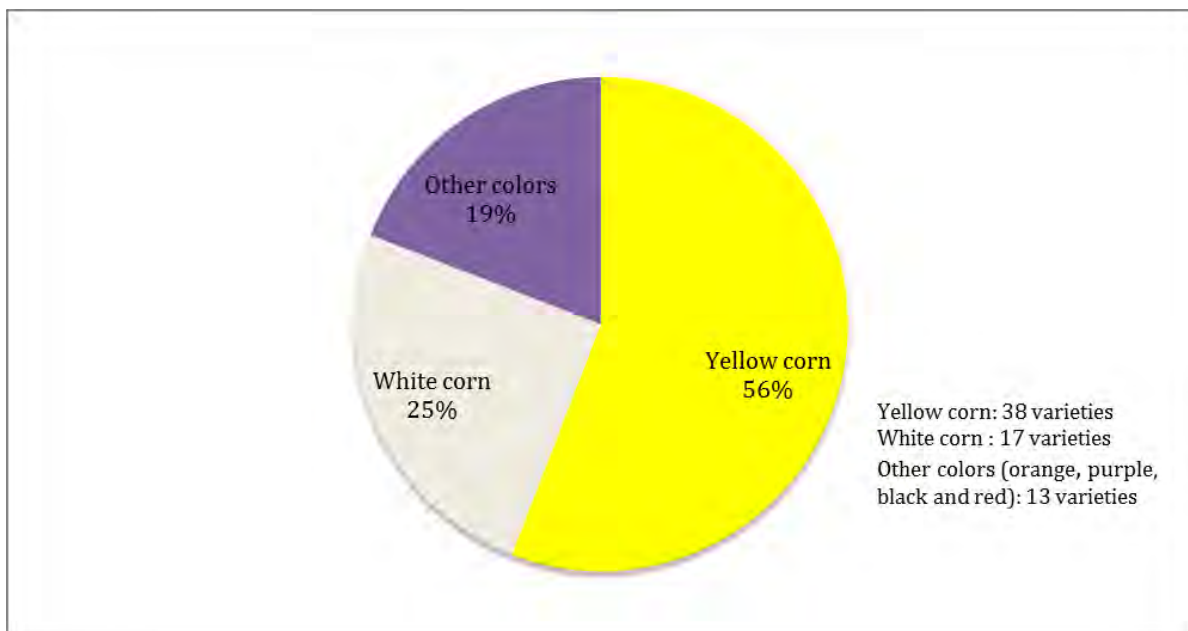
There are few studies on the loss of agrobiodiversity in the coffee-growing zone, and particularly in Riosucio. A grassroots diagnostic of creole maize led by the Seeds of Identity Campaign across Colombia offers an insight on the loss of maize diversity in the country.

According to the study, there are two primitive races, nine introduced races and twelve hybrid races that are native to Colombia. *Pollo* (chicken) maize is probably the most archaic race of Colombian maize, originated in *Teocintle* (*Zea perennis*), maize’s wild ancestor. *Pollo* maize is the ancestor of all floury maize. It produces between seven and twelve cobs per plant and its

size is around half of current maize varieties. In Colombia, it is only found in the Andes Eastern Range in the Department of Cundinamarca and Boyacá growing between 5,249 and 6,889 feet. *Pira* maize is the other primitive race native to Colombia from which all crystalline maize evolved. It is grown in the Andean Departments of Cundinamarca, Huila, Tolima, Nariño, and Cauca Valley between 1,312 and 6,561 feet (Campaña Semillas de Identidad and Grupo Semillas, 2011: 10)

For the coffee-growing zone, the Seeds of Identity Campaign partnered with seed savers from Asproinca –the agroecological organization I worked with during my fieldwork–, and the *resguardos*' seed saving networks to identify and systematize creole maize diversity in Riosucio. The diagnostic found five races (*Pira*, *Montaña*, *Capio*, *Amagaceño* and *Puya Grande*) and 87 varieties of corn present in Riosucio. Graphic 1 shows the most abundant varieties are yellow corn with 38 varieties, followed by white with 17 varieties, and other colors (orange, purple, black, and red) with 13 varieties.

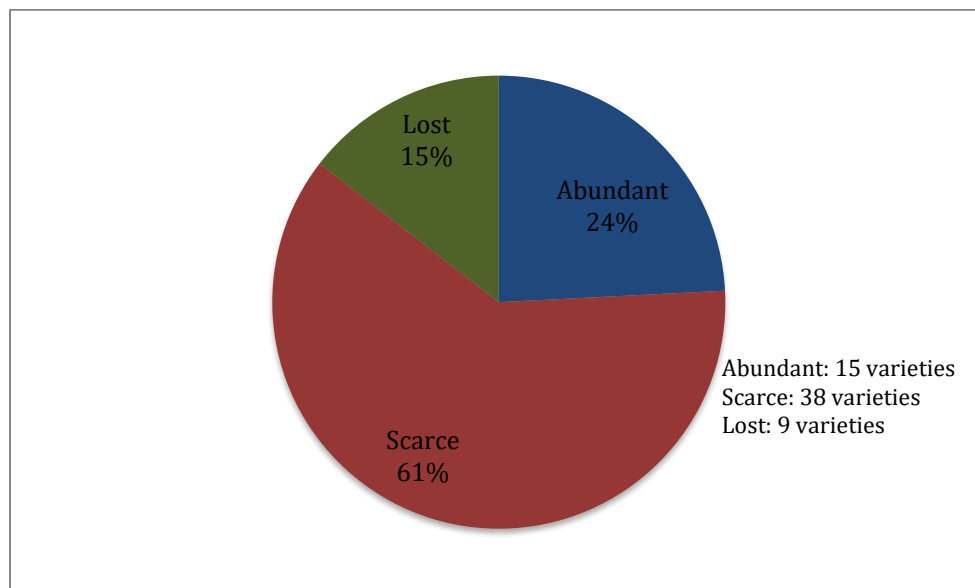
Figure 35: Colors of corn varieties in the coffee-growing zone



Source: Own elaboration based on data from Campaña Semillas de Identidad and Grupo Semillas. 2011.

Graphic 2 shows that only 24% of these traditional corn varieties are abundant in the coffee-growing zone, while the rest are in danger of disappearing. According to the diagnostic, some corn varieties that are scarce or lost are white and yellow *Cuba*, *Capio*, *Vela*, *Blanquillo*, white and yellow *Dorado*, white *Limeño*, *Chumillo*, *Seis-mesino*, *Puntilla*, *Curijara*, red *Diente de Caballo*, *Caturro*, *Mico Grande* and *Dedito*.

Figure 36: Abundance of traditional corn varieties in the coffee-growing zone



Source: Own elaboration based on data from Campaña Semillas de Identidad and Grupo Semillas. 2011.

3. A Brief History of Coffee in Riosucio

3.1. The Antioqueño Colonization and the Coffee Forest Model

Even though coffee was introduced with the *antioqueño* colonization in the nineteenth century, it was not until the early twentieth century that coffee expansion began in Riosucio and other *antioqueño* villages located in the Central and Western Andean ranges. By the end of the nineteenth century, *antioqueño* settlers had deforested extensive areas of the current coffee growing zone (Guhl, 2004: 126). According to Colombian geographer Andrés Guhl, these settlers cleared the forests to plant:

“Subsistence crops, maize for raising pigs, sugarcane for *aguardiente* and brown sugar [*panela*], and pasture for the mules and horses necessary to take these products to the mining regions where they were required” (Guhl, 2004: 126).

Thus, settlers’ economy was initially based on crops to secure subsistence and on commercial products other than coffee. This is so because in the nineteenth century, these frontier areas primarily supplied domestic mining areas. In contrast, coffee was an export crop mainly grown in large *haciendas* in the Departments of Santander, Cundinamarca, Tolima, Cauca, and the Santa Marta Snow Peak in the Caribbean coast. Coffee was also unsuitable as an initial cash crop for settlers because it would only start producing after five years (Guhl, 2004: 120)

Guhl argues that the coffee forest model “offered an environmentally friendly alternative very well suited to the sloping terrain of the Colombian Andes” (127) Due to large deforestation, *antioqueño* settlers soon undermined their wood and construction materials supplies and prompted erosion. Farmers growing crops in very steep slopes developed a slash-and-plant cycle that also increased erosion. Shade-grown coffee then “transformed the land from a mostly deforested agricultural landscape to a landscape that looked like a forest, even though it was a man-made forest with very few shade-tree species” (127). This model offered wood and food supplies and helped solved the erosion problem for smallholders in this region. Additionally, by the end of the nineteenth century, coffee *haciendas* elsewhere in the country were declining and smallholders in this zone became the main producers. Nonetheless, Guhl warns that even though shade-grown coffee was more environmentally sustainable than previous shifting cultivation, coffee production still exhausted soils as it is not “suited for [Andean slopes] agroecological conditions” (127)

Carmen (2013), an agronomy professor in Manizales, describes the coffee forest as characterized by its high biodiversity in comparison to modernized coffee agriculture. In this

forest-based model, coffee is cultivated under the shadow of native trees, such as Guayacanes, Guamos or Yarumos, and interspaced with plantain, corn, beans, and a variety of medicinal and aromatic plants that attract numerous species of birds, insects and other flora and fauna. This diversified coffee cultivation maintains soil fertility and prevents erosion, protects water sources, contributes to food sovereignty, and allows for the biological control of insects and weeds (Corrales, 2002). In fact, before the Green Revolution, peasants in Colombia, Mexico and other countries in Latin America, experimented with shade-grown coffee varieties to grow them in ways that mimic the structure of a forest (Gonzales, 2001: 218).

3.2. The Colombian Coffee Growers' Federation: A Sui Generis Developing Agency

In the early twentieth century, the Department of Caldas –where Riosucio is located– became Colombia's principal coffee producer. Its capital city, Manizales, prospered as a hub for coffee trade. In the first decades of the century, the Caldas government promoted the construction of two important means of transport for its coffee production. One was the *cable aéreo* that transported coffee from Manizales to the port of Mariquita in the Magdalena River and on to reach the Caribbean ports of Cartagena and Barranquilla to be exported. The other was the Caldas Railway that transported the grain from Manizales to a station near the town of Cartago by the Cauca River to continue on by boat to Buenaventura, the main port in the Pacific Coast.

In 1927, prominent coffee producers created the Colombian National Coffee Growers' Federation (Fedecafé by its Spanish acronym) to represent their interests and to promote the domestic coffee production and its export to international markets. Fedecafé prides itself to be a democratic institution with elected members to the Coffee Committees (at the Departmental and District level) who attend the Coffee Producers National Congress held every year to discuss the Federation's objectives and policies. In 1938, the National Congress created the National Coffee

Research Center (Cenicafé), located in Chinchiná, Caldas, to promote scientific investigations on new coffee varieties, solutions to pests, soil and climate problems, and novel production methods to improve productivity and quality. In 1959, the Extension Service is created to bring technical assistance and develop socio-economic and environmental programs with coffee producers around the country.

Another important institution is the National Coffee Fund, which is a mixed entity (formed both by Fedecafé and the Central Government) to administer the financial resources obtained from the Coffee Contribution, a tax that is paid by all coffee producers. The tax is charged as a fixed amount to every pound of Colombian coffee at the export port. The National Coffee Fund's main purpose is to regulate the internal market; the money from the Fund is spent to buy all of the coffee domestic harvest taken to Fedecafé Cooperatives or what is called the *garantía de compra* or 'purchasing guarantee'. As a result, all Colombian coffee producers know in advance that Fedecafé will buy all of their coffee harvest; a guarantee that no other farmer in the country enjoys. Even though coffee's domestic price is subjected to the fluctuation of prices in international markets; coffee farmers are less vulnerable to private intermediaries' and multinational companies' trading conditions and speculative practices. Alberto (2014), a staff at Fedecafé's Coffee Growers' Committee in Riosucio explained the importance of the purchasing guarantee for small-scale indigenous and peasant coffee farmers in the context of a monetized economy:

“Unfortunately, coffee is the only product that has the market secured. Here a coffee-grower leaves the farm with 10 or 20 arrobas of *panela* and takes them to town. Merchants pay him whatever sum they want or tell him ‘leave it here and I’ll pay you when I sell it.’ But it turns out he needs the money now to buy food and not go hungry. Coffee is very different. Coffee becomes money because he can sell it to the cooperative, no matter the condition: good, bad, dry, humid, dirty, whatever. So he can always bring food to the table.”

Historically, the Coffee Fund invested in three major enterprises: the *Flota Mercante GranColombiana* (Colombian Merchant Fleet), created in 1946, to reach new markets and reduce transportation costs for the export of Colombian coffee; the *Banco Cafetero* (Coffee Growers' Bank), established in 1954, to provide low interest credit initially to coffee producers and later to all sectors of the national economy becoming one of the largest bank in the country; and the *Compañía Agrícola de Seguros* (Agrarian Insurance Company), created in 1952, to offer affordable insurance to coffee producers in regards to production, warehousing, and transportation of the grain, as well as life and health insurance to its members. Fedecafé also owned a supermarket chain in the Department of Caldas called Mercaldas. There were 32 points of sale that worked as cooperatives. Although Mercaldas did not sell at subsidized prices, this cooperative network acted as a price regulator because it bought produce from most farmers in Caldas.

Fedecafé also constituted a major player in the Colombian economy during most of the twentieth century investing in a wide range of business from the airline company ACES to the national cycling teams. The Central government used the National Coffee Fund to finance major projects such as the rebuilding of the Justice Palace after it burnt down in November 1985 due to the military confrontation between the army and the guerrilla group M-19 that stormed into it.

Fedecafé functions as a sort of development agency. Using the resources from the National Coffee Fund, Fedecafé has invested heavily in the coffee-growing zone building rural and municipal schools, hospitals, roads, energy, water and sewage systems, etc. Through local Coffee Growers' Committees, Fedecafé provides agricultural extension services to producers with a 'social orientation,' as Alberto (2014) explained:

“Fedecafé’s mission is to guarantee coffee growers’ wellbeing through coffee production. Fedecafé’s extension services’ flagship program is to raise productivity to

enhance income and, thus, life quality. However, in Riosucio and Supía we cease to be agronomists and we become social workers. We not only advise them about the crop, but we also become social workers due to their type of agriculture based on *minifundio* and subsistence oriented; they grow coffee to get food on the table.”

In comparison to any other productive association in the country, Fedecafé has contributed the largest to improve life quality in Riosucio, as elsewhere in coffee-growing regions, particularly in terms of access to basic public services and school and health infrastructure. For example, 91% of the population has access to water and sewage system and 90% to electricity; illiteracy rate is 8.6%. Most of the rural schools and health centers in Riosucio district were partially or fully funded by the Coffee Fund. To be sure, access to health and education is, nonetheless, precarious. Only 51.9% has graduated from elementary school, 28.6% from high school and 4.2% from university (Dane, 2014, quoted in Municipio de Riosucio, 2015:11-12, 51).

4. Fedecafé’s Green Revolution Model as an ‘Engaged Universal’: Improved seeds, Heterogeneity, and Public Goods

4.1. Growing Coffee till the Kitchen’s Door

In Riosucio, as in the rest of the coffee-growing zone, Fedecafé promoted since the 1960s a Green Revolution model of sun-grown, input-dependent coffee mono-cropping that progressively replaced the ‘coffee-forest’ and other associated forms of diversified agriculture and culinary cultures (Guhl, 2004: 130-136). This model has been critiqued for posing serious threats to biodiversity, promoting erosion and water pollution, and making the soil and the farmer dependent on the agrochemical companies and on the coffee varieties developed by Fedecafé (Corrales, 2002).

In coffee production in Colombia, the Green Revolution model brought rationalization, commodification and a focus on productivity. Fedecafé introduced technological packages with chemical inputs such as fertilizers and pest control; sun-grown varieties; higher sowing area

densities; mono-cropping; and technical assistance. However, because of the mountainous terrain and the predominant small-scale production, Fedecafé could not introduce a highly capitalized and technified form of agriculture. As a result, Fedecafé developed technological adaptations for local conditions as well as biological inputs that helped low-income peasants to reduce production costs.

This Green Revolution model of coffee production profoundly transformed peasant and indigenous agriculture and seed worlds. Coffee mono-cropping displaced the growing not only of coffee *criollo* varieties, but also of other important crops, such as maize. Coffee specialization threatened food sovereignty and the local markets for staple crops. For instance, the historical production of corn in the coffee-growing zone plummeted and is not currently significant for the domestic market. In 2010, this region produced 36,555 tons of corn grown in 22,810 hectares, which only represented 2.19% of total domestic production. However, Fedecafé also brought prosperity to this region by guaranteeing a steady income for coffee growers and through social investment.

4.2. The Governmentality of Coffee Production

I once visited Don Luis, an Asproinca farmer, who lived in the Aguabonita community, in Escopetera and Pirsa *resguardo*, to learn more about coffee production. He showed me a Cenicafe's old manual he got from the one of the Coffee Committee's extension workers. The manual described in detail how to prepare the field and sow the coffee. The manual was an excellent example of the governmentality of nature by state and knowledge apparatuses or in other words, how nature is made object of expert knowledge, regulated, disciplined and planned. The rationalization of agriculture implies ordering and measuring plants and fields in ways that will improve productivity (Escobar, 1999, p.290; quoted in Bravo, 2014a).

Rather than the seemingly chaotic arrangement of different plants and other living beings and the plurality of their interrelations in the coffee forest model, Fedecafé's plantations follow strict planning and measurements. For instance, in the manual, there were two basic plantation systems: *cuadrado* and *tresbolillo*. In the *Cuadrado* system, the coffee trees are planted in parallel rows while in *tresbolillo*, they are planted in intercalated rows. The manual includes two tables with the exact number of trees to plant by hectare and the appropriate distance between each row and each coffee plant within one row for the two planting systems.

Figure 37: Fedecafé's Plantation Systems

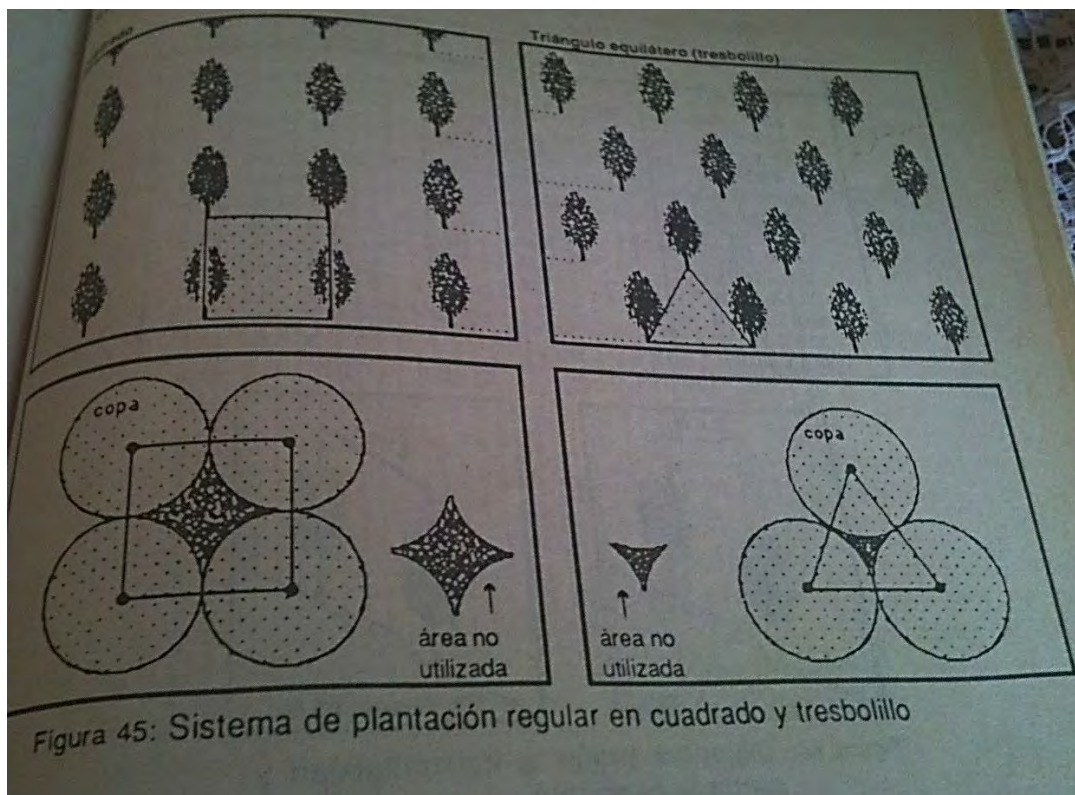


Photo credit: my own

The idea is to use the available area to its economically optimum, increasing the planting density and managing 'plant competition' for resources such as sunlight, water, soil nutrients, etc. Coffee plants, and nature in general, is then seen through the (neo)liberal lens, as constantly competing among each other and with other organisms in the field to survive with the limited

resources available. Agronomy and biological sciences become expert knowledges that govern and order life by classifying which organisms are valuable in terms of their profitability and which are not, and how ecosystem interactions –seen as competition for scarce resources- can be channeled towards increased productivity.

As with seeds, improvement in the fields is identified with uniformity and homogeneity while variation and diversity are looked down on; what Jack Harlan called a ‘pure line mentality’ (1972: 212, quoted in Nazarea, 2005: 9). In order to manage and commodify biodiversity in the fields, modernized coffee production relies heavily on agrotoxics, including fertilizers, pesticides and herbicides.

According to José (2014), the owner of an agricultural input store in Riosucio, Fedecafé’s recommends the use of chemical products in combination with some forms of biological control. recommendations are divided following the coffee’s production cycle. Fertilizers include industrial products such as DAP, urea, Triple 15 and Activa.⁹⁴ The most common organic fertilizer is *gallinaza* or hens’ dung, which is sold wholesale by the poultry industry.

In terms of pesticides, there is Alto 100, Derosal, Amistar Ztra, among others. They are used to control Brown Spot (*Cercospora* leaf spot), Antracnosis –colloquially called *muerte regresiva* or ‘die-back’– (*Phoma* sp), and similar fungus that attack coffee. Other pesticides include Bayleton, Atrim, Fentopen, and Vertimec used mainly against coffee rust (*Hemileia vastatrix*), red kind of spider, coffee berry borer (called *broca* in Spanish), and coffee leafminer (*Leucoptera coffeella* Guer-Mene). Fedecafé also recommends biological control against coffee

⁹⁴ All of these products are used during coffee’s growing phase based on a combination of nitrogen (n), phosphor (p) and potassium (k). For DAP the rating is 13(n)-46(p)-0 (k) and for urea is 46(n)-0(p)-0(k). Triple 15’s formula –and hence its name– is 15-15-15 and Activa’s 27-5-5.

berry borer by using *Bauveria basiana* and *trichoderma* fungus. Glyphosate is used during the whole production process to control weeds.

There are a few domestic companies that produce these agrochemicals and inputs, particularly for hen's dung and fungus for biological control such as Proficol el Carmen. Nonetheless, most of the agrottoxics are owned and distributed by the main global corporations. For instance, Syngenta owns Alto100 and Amistar Ztra; Bayleton and Derosal are Bayer's, and Monsanto controls the glyphosate market through its Roundup Ready Brand. However, corporations such as the Japanese ArystaLifeScience also sell glyphosate-based products like Glifocafé and Glifosol⁹⁵.

Figure 38: Glyphosate-based product for coffee production



Photo credit: my own.

⁹⁵ ArystaLifeScience was owned by Monsanto until 2004 under the name Monsanto-Moviagro.

4.3. Fedecafé's Seed: In between Diversity and Homogeneity

Cenicafé is Fedecafé's Research Center in charge, among other tasks, of seed development. Seed development at Cenicafé is an illustrative example of how the seed system worked before IPRs on plants and the development of GM seeds. Even though, increased productivity was the main goal of seed development policies, Cenicafé's seeds are not completely commoditized, homogenized, and input-dependent. They are the result of how the Green Revolution seed development paradigm becomes applied in specific ways that respond to local histories of domination and struggle as well as of scientific practice.

Cenicafé has mainly developed sun-grown coffee varieties which allow to increase planting density. In other words, if coffee does not need to grow under the shade of trees or other crops, then land can be entirely devoted to coffee production. According to César (2014), a plant scientist, due to photosynthesis, any shade-grown variety will have lower production; this is why Fedecafé favors the development of varieties that are apt for sun-grown. Shade-grown is only justified due to adverse environmental conditions (strong summers, heavy rainfall, or eroded soils) or when producers are seeking an overprice granted by biodiversity seals, such as Rainforest Alliance (César 2014).

In order to maintain cup quality and the reputation of Colombian coffee in international markets, Cenicafé has only developed Arabica varieties. Likewise, Fedecafé only allows growing Arabica varieties in the country, forbidding *robusta* varieties that are known by its lower quality. This way, all Colombian coffee is classified as 'soft coffee' which automatically has a quality overprice in international markets.

Cenicafé has worked on developing varieties resistant to coffee plagues, particularly the fungus *roya* (*Hemileia vastatrix*) and the coleopterous insect *broca* (*Hypothenemus hampei*). Importantly, all of Cenicafé's varieties have been developed under conventional breeding

methods and there are no GM varieties. The reason is, as I explain below, consumer resistance, particularly in Europe and Japan, to GMOs.

According to plant scientist César (2014), in Colombia, and Latin America in general, coffee production started with *Pajarito* (little bird) or *Típica* variety. He described this variety as a tall, shade-grown, with a long life span of 30 to 40 years, high cup quality, and big and beautiful grains. However, it was susceptible to *roya* and had a low planting density of 1,000 to 2,000 plants by hectare. In the 1930s, Cenicafé introduced *Borbón*, a variety brought from Africa. Even though *Borbón*'s grain was smaller, it had a higher productivity and was more resistant to growing under the sun than *Típica*. As a result, Colombia went from producing six million bags of coffee to ten million annually. Nonetheless, the real 'revolution in productivity' was achieved when Fedecafé brought *Caturra* variety from Brazil in the 1940s. Until the 1970s, *Caturra* was the main variety promoted by Fedecafé to implement its sun-grown model (César 2014).

Since the 1980s, *roya* fungus (coffee rust), first, and then *broca* (coffee borer beetle) reached Colombian plantations. Both organisms are native, like coffee, to Africa developing side by side and thus they live exclusively off coffee. Traditional coffee varieties –*típica*, *borbón*, and *caturra*- are classified as 'sensitive' to both *roya* and *broca* by Cenicafé.

Even before *roya* arrived in Colombia in 1983, Cenicafé started working on resistance by studying its coffee collection. According to Federico (2014), another plant scientist I interviewed, this research center has historically used free germplasm obtained through international exchange with other research centers and seed collections. That way, Cenicafé built an extensive coffee collection with more or less 1,500 kinds of coffee plants and related species from all over the world that constitute the base for the genetic improvement of Colombian

coffee. Cenicafé uses those free materials to develop new seed varieties that “incorporate characteristics that help us solve current and future problems” (Federico 2014).

Cenicafé developed in 1982, a *roya*-resistant variety, called *Colombia*, by crossing *Caturra* with the Timor Hybrid, a related specie native to the Timor Island. Cenicafé has developed two other *roya*-resistant, high productivity varieties: *Tabi* and *Castillo*. *Tabi* is designed to be shade-grown at high altitudes and is the result of crossing *típica*, *borbón*, and Timor’s Hybrid. *Castillo* –named after its developer, Cenicafé’s scientist Jaime Castillo– was released in 2005. This variety is designed to be 10%-15% more productive than *caturra* and there are several sub-varieties adapted to different micro-climates and regional productivity levels from the lowlands of the northern Caribbean savannas to the southern Andean highlands (Federico 2014).⁹⁶ Cenicafé is currently working on developing resistant varieties to the Coffee Berry Disease caused by a fungus that has not yet reached the country (Alvarado-Alvarado *et al*, 2005: 4-6)

Cenicafé’s varieties, unlike GM seeds and hybrids, do not lose their vigor and characteristics after the first generation, they are somewhat adapted to the different micro-climates of coffee-growing regions in Colombia, and they are not as genetically homogenous so to delay the appearance of resistance among targeted organisms. For instance, Castillo involves different genes resistant to *roya* from *caturra* and Timor’s hybrid, introduced by conventional – non-GM– breeding methods, to prevent the *roya* fungus to become resistant as easily. Cenicafé

⁹⁶There are six varieties that correspond to Fedecafé’s experimental sub-stations in the country: El Rosario (Venecia, Antioquia), Naranjal (Chinchiná, Caldas), Trinidad (Líbano, Tolima), Paraguaicito (Buena Vista Quindío), Pueblo Bello (César), Santa Bárbara (Sasaima, Cundinamarca), and Manuel Mejía (Tambo, Cauca). These Castillo coffee varieties were developed to adapt to ecosystems that range from 1.000 m.s.n.m (Pueblo Bello) to 1.700 m.s.n.m (Tambo, Cauca) and temperatures from 18 degrees (Tambo Cauca) to 21.6 degrees (Buena Vista, Quindío). These regional ecosystems in turn differ in rain level (from 2000 to 2600 mms per year) and sun light (from 1300 to 2300 hours per year) (Alvarado-Alvarado *et al*, 2005: 4)

has then historically applied genetic improvement to produce varieties better adapted regionally. However, because Fedecafé is increasingly making an incursion into the specialty coffee market, those regionally adapted varieties may become specialty varieties because “the more they are adapted to local conditions, the better they express their characteristics” and thus provide a superior coup quality (Federico 2014).

Despite all these characteristics that set Cenicafé’s varieties apart from conventional hybrid and GM seeds, they still respond to a Green Revolution model of coffee production. As a result, Cenicafé varieties are tied to the use of chemical inputs and the result of top-down scientific knowledges and practices. Furthermore, these varieties suffer from the pesticide treadmill because they are designed for monocropping systems where biological controls of organisms are weakened.

4.4. Fedecafé’s Seed: A Public Good

Fedecafé is not a for-profit seed or biotechnology company, but a gremial association that seeks to represent coffee producers. As such, its policies regarding intellectual property rights (IPRs) and seed distribution differ significantly from Monsanto, Syngenta or any other biotechnology company. Fedecafé grants free access to all coffee farmers to seed; and there are no IPRs restrictions to save, exchange or commercialize the seed within the country.

Fedecafé’s seed distribution policies work as follows. Cenicafé annually sends to all Departmental Committees a request on seed needs for their farmers. Based on that, the Center plans seed production in its farms or in approved farms to obtain whatever amount of seed it cannot produced by itself. Local Committees then distribute Cenicafé’s coffee varieties’ seeds freely or at subsidized prices by the National Coffee Fund to farmers around the country.

Therefore, as plant scientist Ernesto (2014), assured me: “Fedecafé’s seeds is a public good and to buy them you only have to show the coffee ID [*cédula cafetera*]⁹⁷” In addition, Fedecafé is responsible for seed quality and there is a complaint mechanism for coffee growers. The mechanism is based on a technical expertise committee to determine whether the seed did not germinate due to the seed itself or to farmer’s deficient management (Ernesto, 2014).

In sum, Fedecafé’s seeds are a public good because they are freely distributed and there are no IPRs restrictions on its use and reproduction inside the country. However, in the last decade, Fedecafé has applied for IPRs protection for its seeds under the figure of trademark and plant breeder rights. According to Ernesto (2014), this protection is “not to chase the farmer to prevent them from getting the seed. Cenicafé does not have a seed business like Monsanto and all those companies; what [Cenicafé] is interested is in protecting itself from foreign competitors.”

In fact, Fedecafé does not sell seed abroad, although its varieties are found in other countries through the black market. For instance, according to scientist Federico (2014), Brazilians have stolen Cenicafé’s coffee varieties and copied their technology, such as the depulping machine, to produce washed coffees, which provide a better coup quality. Other foreign competitors are Central American countries whose coffee growers currently endure serious problems with *roya* fungus as they have not developed resistant varieties⁹⁸. Fedecafé then fears that Colombia will lose its competitive advantage in the international market granted by

⁹⁷ The Coffee ID identifies you as a Colombian coffee producer. ID holders can participate in Fedecafé’s elections to the Municipal and Departmental Coffee Committees, sell their coffee at the cooperatives, obtain Fedecafé’s subsidies and credits, etc.

⁹⁸ Central American countries have developed *roya* resistant varieties from *catimor* coffee. For instance, Costa Rica developed CR95. However, this variety became rapidly susceptible to *roya* because it involved only one resistant gene (monoline) (Alvarado-Alvarado *et al*, 2005: 4-6)

roya resistant varieties and is seeking to restrict its use abroad by applying for IPRs (Federico 2014)⁹⁹ However, plant breeder's rights require that seed is not only novel, but also stable and homogenous which is challenging to prove for any Cenicafé varieties, and particularly for Castillo varieties because, as we explained, they are adapted to different productive regions, and thus heterogeneous.

I asked Ernesto about the consequences of Ica's Resolution 970 –that requires all seed to be certified and restricts farmers' rights to save and commercialize seed (see chapter 3)– on Fedecafé's seed production and distribution policies. He replied that Fedecafé was an autonomous body from Ica, although it does acknowledge its norms to produce high quality seed such as sanity, germination percentage, etc. (Ernesto, 2014). Thus, for the time being, there has not been implications for coffee farmers in terms of IPRs prohibitions for seed use.

5. The Coffee-Forest vs. Fedecafé's Model: The Partial Destruction of Food Worlds in Riosucio

5.1. "Going to the Fields was like Going to the Supermarket Today"

On a sunny morning, I was sitting down with Jorge, an Asproinca indigenous farmer from Cañamomo and Lomaprieta *resguardo*, at his house's outside corridor. We were chatting – in the context of an informal interview– about coffee growing when he was young. In the conversation, Jorge referred to the 'traditional' ways of growing coffee or what we have referred to as the 'coffee-forest'.

⁹⁹ Fedecafé already obtained breeder's rights for Colombia variety and trademark recognition for Castillo variety. It is also seeking plant breeder's rights for Castillo varieties.

Jorge (2013) recalled how his grandfather used to take him to the *sementera* with a large basket¹⁰⁰. They filled the basket with food gathered as they walked by the side of the road –such as fruits and herbs– and from the *sementera*:

“He would pull out an *arracacha* plant from the ground, two small yuccas (*yuquitas*), and told me: ‘take them to the basket’. He found ripped beans entangled in the coffee trees, as well as ripped and green bananas, *azafrán de huevo*, *mafafa*¹⁰¹. My grandfather planted the coffee leaving a four-meter wide *calle* to sow food, to sow *guineo* plantain, *bocadillo* banana, *arracacha*, yucca, *mafafa*, maize. There was never a lack of food at home. Going to the fields was like going to the supermarket today; there, we got most of the food we needed. Then we would bring the basket home to my grandmother”.

Jorge went on to explain how farming changed when in the 1970s, Fedecafé introduced the first sun-grown *caturra* variety and encouraged monocropping so that small-scale farmers would benefit the most from the coffee *bonanza* (boom) prompted by high international prices. He complained about how coffee monocropping brought different worldviews and values proper of a modern monetized economy.

“Today the *Federación* and the [Coffee] Committee are carrying out a campaign not to leave any empty space, not to grow food but coffee. Any empty space you see; you have to fill it with a coffee tree. I always remember the times I spent with my grandfather. Today people don’t remember how we cultivated before. Now it’s just ambition. To request credits to have large coffee plantations, to have coffee till the house’s entrance, and that’s not the idea”.

In the conversation, Jorge was articulating the defense of his grandparents’ worlds – which he has appropriated in his own ways– embedded in the ‘coffee forest’ model and threatened by the advance of Fedecafé’s Green Revolution model. Jorge was contrasting the ‘coffee forest’ as a way to inhabit –or dwell– in an alive territory shared with other beings vs. the modernist cosmovision that see the world as empty, inert space to be occupied and exploited for

¹⁰⁰ *Sementera* is a field for growing food for self-consumption, particularly beans and maize.

¹⁰¹ *Azafrán de huevo* is a condiment. *Mafafa* is a plant which leaves are fed to animals. People consume its tubers that are considered tasty and nutritious.

profit by humans (Ingold, 2011) Against the modernist conception of filling ‘empty’ spaces with profitable plants, Jorge viewed agriculture as a way of subsistence in a territory one belongs to and share with a diversity of non-humans.

Jorge’s defense of the coffee forest model and living seed systems is the result of indigenous ‘tradition’ –inherited from his family and ancestors– in combination with his participation in Asproinca, the grassroots agroecological organization I worked with in Riosucio.

To be sure, seed savers and indigenous leaders in Riosucio explicitly associate colonization processes with the displacement of their own forms of agriculture, seeds, knowledges, and food traditions. Rosa (2014) one of the most well-known seed savers in Riosucio explained in a Seed Fair organized by the Network of Free Seeds in Bogota:

“Our zone was quite colonized because we have the misfortune to have gold in our territory. That meant that and there was an extensive process of colonization of our culture, of our seeds; we lost our seeds in the territories.”

Juana (2013), part of Asproinca’s Board, associated coffee expansion to a form of *Reconquista* –or what we have identified as coloniality or the continuation of racialized forms of power– of indigenous territories, ways of life, and seeds:

“Coffee expansion was a *reconquista* that displaced our own agriculture, our own *chacras* [plots] in favor of coffee mono-cropping that destroyed the watersheds, the forest. With the coffee bonanza, people dedicated themselves to growing coffee only and forgot about the traditional medicine, seeds, and diet”

In fact, in Riosucio, creole foods and seeds are often racialized as an indigenous identity marker and labeled as ‘Indian food’ or, more generally, as ‘poor people’s food.’ This racialization in turn affects the recreation of culinary traditions across time and generations; an example of how indigenous seed worlds become threatened, as Lucia explained to me:

“We don’t know anymore how to prepare [creole varieties-based] food in a manner that is attractive to children. The ‘white feathered’ (*pluma blanca*) think it’s poor people’s food and that influences the youth against consuming it.”

‘Traditional’ knowledges and practices or *metis* for coffee farming –and farming in general, including cane– were partially replaced by technical expertise of Fedecafé’s extension programs. For instance, many Asproinca seed savers talked about the previous model of coffee sowing called ‘broom coffee’ (*café de escoba*) vs. Fedecafé’s model to illustrate this process.

“I remember that coffee beans dropped to the soil and germinated right on the spot because it was good soil. There was no need for *germinadores* (seed beds), plastic bags, pour this chemical and the other [on the soil], none of that; it was *café de escoba*. Same with cane. One cut the *colino*, the top part, removed the leaves and planted it as if you were planting cassava. Eighteen months later it was ready, at 24 months you were cutting the cane. Now you have to process it, to disinfect it, this and the other. You see, we have destroyed our own practices, they made us change them” (Antonio, 2014b).

Juan (2014), another Asproinca member, also stressed the change in agricultural models:

“When we grew coffee with no fertilizers, we did not do *semilleros* (seed beds): the coffee just grew in the fields and you only had to pull it out. In the winter time, you pulled the small coffee plant out the ground, then with the sharp end of a bar you made a hole and sow it there. Then the Coffee Committee came to the *vereda*, like 50 years ago, and it was a weird kind of sowing, like a hen’s leg”

This ‘weird kind of sowing’ refers to the novel techniques and practices that the Coffee-Growers Federation introduced for its sun-grown hybrid varieties through its extension services. Juan continued: “They taught us to trace [the field] and sow a plant here and another there; and pour these chemicals so that it will produce” referring to the *cuadrado* and *tresbolillo* plantation systems I explained before (Antonio, 2014b).

The progressive commodification of agriculture meant the substitution of on-farm for chemical inputs and the expansion of cash crops, particularly coffee, at the expense of subsistence and locally traded crops. As a consequence, farmers in Riosucio became more dependent on the market both for obtaining agricultural and livestock inputs and for food. In fact, seed savers in Riosucio often complained that Fedecafé’s extension programs often condition the granting of credit upon conversion to Cenicafé’s varieties, the use of agrochemicals, and the

removal of subsistence crops. Carmen (2013), the agronomist professor I referred to before, used to work at Fedecafé. She told me there was no credit for farmers who did not switch to coffee-monocropping. She summed up Fedecafé's model describing her boss: "trees were a hinder for him, he seemed to love *cemento*; he was more civil engineer than an agronomist."

In reference to Fedecafé's high-input model, Lucia (2014), a staff at an independent Organic Coffee Cooperative called Asprocafe, commented:

"The agricultural extension workers [*extensionistas*] who work for the *Federación* are evaluated by goals [*metas*]. So they don't care if they are causing harm to the producer; they only care about fulfilling the established goals. For instance, for *roya* control [this year], the goal was to deliver so many units of *Alto100*, so they went on and distributed it to everybody regardless of whether they were organic or conventional because that was the goal"¹⁰².

The transition from the coffee-forest to high-input monocropping implied the loss of food sovereignty and changes to food cultures. Asproinca's seed savers describe this process by referring to the loss of subsistence crops, the switch to a less nutritious diet, and, in general, the intrusion of capitalist market relations in all aspects of life from buying food in town to the need for credit to buy agro-chemicals that led to indebtedness. For instance, Antonio (2014b) described this process vividly:

"When I was a little boy, my father gave me and my brothers, one and half or two arrobas to sell at the market. And that was enough to buy plenty of food. It was good food because that agriculture provided all of the nutrients. You ate a *sancocho* [a traditional soup] back in those times with cassava, *arracacha*, potatoes, plantain and hen meat, and you had all of the energy. An agriculture that had no chemicals, then people lived longer; look at Don Javier who is ninety-something years. Back then, there was no credit for agriculture to my knowledge. I remember my dad made his first credit when I was 35 years old with the *Caja Agraria* to cultivate cane. But most of all, one worked with one's own money from the farm because you did not have to buy inputs, only a machete. The ideal for agriculture would be to diversify and have food security, not devoting ourselves to mono-cropping, but rather having one or two plots, diversify them and have everything. Have coffee, cane, cassava, plantain, home

¹⁰²*Alto100* is a wide-specter fungicide produced by Syngenta. It is the most widely used fungicide against *roya* in Colombia.

gardens; if you could not sell the coffee, you don't go to sleep on an empty stomach. A farm nearby here, the *agregado* has to buy food at the market, there is only cattle. The owners, if anything, would leave him a cow and there is only milk for him. That's a farm in mono-cropping. Coffee was very much about mono-cropping”

A common consequence of coffee-monocropping identified by seed savers from Asproinca and the *resguardos* was the ecological damage. Antonio referred to the harm to soil and water sources that produced land infertility: “They destroyed the soil because now if you don't use the chemical fertilizer it does not produce. Instead in that time, the organic residues from the trees fed the soil and did not need chemicals” (Antonio, 2014b). Many seed savers told me that soil and plants had become addicted to chemical inputs –like people become addicted to drugs– and, thus, needed a special treatment to cure such illness. The use of green manure and the restoration of ecological complementarities between plants and soil living beings –common in the coffee forest model– was necessary to heal them both. For instance, the growth of *guamo* trees in coffee fields to prevent erosion and improve fertility provided by fallen leaves.

Furthermore, coffee monocropping's ecological impact is seen as drastically modifying the landscape and the availability of non-agricultural food resources such as fishing. For instance, Antonio (2014b) told me:

“Can you imagine there are coffee plantations where you only see coffee? You can't get an orange tree, a *guamo* tree, a plantain plant. That model brought devastation, you had to grow until the ravine, so the water is gone. When we were little we used to bathe in the ravines, to get little fish like the *ñangara*, the *haloñero*, the *capitán*, and we ate them grilled or fried. All that is over, you can't find those little fish anymore.”

Finally, the model of Green Revolution coffee production stressed that traditional agriculture maintained them in poverty because it was not profitable as Antonio (2014b) recalled: “But then production models came and they were raising awareness among people that they were to remain poor if they continued growing food that way; but that was the excuse to introduce the technological package.”

Alicia (2013), adviser at Asproinca, referred to the unaccounted future consequences of a model of development based on intensive land exploitation to accumulate money for the material improvement of life: “coffee-growers ended up, at that time, with a lot of money to make beautiful houses and bathrooms, but with few natural resources available”

Nonetheless, Asproinca seed savers attributed the loss of food sovereignty and agrobiodiversity to two main other factors. First, the increase of population in the *resguardos* and consequent subdivision of land in *minifundios*, as their territory has been progressively enclosed. As population increases, the amount of land inherited by new generations becomes increasingly small and there is less and less space to grow under a diversified model, as Don Javier (2014) explained to me:

“My parents and grandparents cultivated a lot of *pancoger* (subsistence crops). They grew cassava, maize, *arracacha*, plantain, cane and so they were able to diversify because they had a large area, and to have animals. I remember there were not pig sheds; pigs were raised in a large field fenced with *guadua*, like sheep in a corral. But it’s not like that anymore, because there are a lot of people now. Now people grow only coffee or cane because there is no land to work and they are more inclined to crops that better provide for their subsistence (*cultivos que más les den el sustento*). When my father had enough land, he allocated an area for coffee, another for cane, another for maize, and then he started intercalating the fields. For example, where he grew coffee, there was cassava, fruit trees, banana, and *guineo* (a kind of plantain); there was a *revoltura* (mix) where coffee grew.”

Second, climate change has also affected ‘traditional’ agricultural knowledges and practices as the rainy and dry season do not correspond accurately with the agricultural calendar anymore:

“In the old days, there were winter times in October and November and now you can’t know. You can’t know neither when is going to rain nor when is going to be sunny. That affects agriculture a lot because we are used to those periods, you know. For example, to grow maize in the beginning of January and harvesting six months after. Now you don’t even know when to sow because if you get a terrible (*verraco*) summer and the maize can’t progress or a winter” (Antonio, 2014b).

5.2. Resisting and Adapting to Fedecafé's Model

Asproinca members, and in general small-scale coffee growers in the region, are very practical about their engagement with Fedecafé's model. To the extent possible, they adopt whichever Fedecafé's techniques and knowledges they consider useful and discard the others. In a conversation with Guillermo (2013), from Asproinca's Board, he explained his position towards Fedecafé's model of coffee production:

“It's like everything in life. In religion, there is good and bad people. There are people who don't like the Asproinca model, and others who like the Federacion model. I believe that you can learn certain things taught by the Federacion; what you don't like, you shouldn't apply it”

Guillermo (2013) highlighted the benefits provided by Fedecafé, particularly the purchasing guarantee and the low interest credit and subsidies to improve coffee-farming capacities from buying depulping machines to agrochemicals. However, he was keen on emphasizing that those benefits were hard-earned by coffee farmers themselves through paying the Coffee Tax Contribution, rather than ‘gifts’, in the sense of charity-oriented:

“They [at the cooperative] say that they give coffee farmers so many benefits. Yes, but it is not a gift; that's our money that the cooperative saves for us and then gives it back in the form of benefits. It's like if I have a worker and I told him that I am going to pay him 20.000 [*pesos*] daily, but I give him 18.000 and put away the 2.000 left. Then, in December I tell him: ‘here is all of this money for you’. But it is not a gift I give him; it is his savings. So the money has always been his.”

Guillermo (2013) identified ‘good’ from ‘bad’ Fedecafé's practices. When I asked him what he thought were the good practices, he replied:

I think the *manejo de barreras a curva nivel*. Fedecafé teaches and Asproinca does too. It is a technique applied so that trees can hold the topsoil so it doesn't roll down.

Even though, Guillermo (2013) complained about Fedecafé's seed saving and growing practices that destroyed the ‘*café de escoba*’ tradition, he recognized that nowadays seed

nurseries were necessary, particularly to comply with quality standards required by the Coffee Cooperative and private buying companies:

Also [coffee] seed nurseries are a Fedecafé's tradition. Seed nurseries are necessary to guarantee that you are going to sow a very good quality seed. You start selecting the best seed [grain] in the tree, the you take it to the seedbed and there are some *chapolas* [germinated seed] which are fertile and some that stay behind. Then you take the best of those [*chapolas*] to the bags and it's the same process: there are some which grow into healthy little trees and others which don't.

Coffee-growing farmers in Riosucio not only engage Fedecafé's model in a pragmatic way, but Asproinca's agroecological approach. For instance, they use both agrotoxics and biological control methods and organic fertilizers. This decision reflects a tension between increasing the workload with the use of organic inputs but decreasing dependency on the market, or buying chemical-based inputs but decreasing the work load. Lucía works at an independent association of 1483 small-scale coffee producers, of which 211 are organic, from Riosucio, Supía and Quinchía. Some Asproinca's members are also part of this association. Lucía (2014) emphasized the effort and time implied in producing organic inputs on-farm for coffee producers in this region, which led the association to look for commercial organic substitutes:

“In the 21st century, you can't tell a producer –who already has to carry a bag of coffee on his shoulders or walk half an hour or two hours to the fields– that, on top of that, he has to carry a bag filled with cow's dung up and down the hill. If you carry 50 kilos of compost up the hill, you can fertilize 50 coffee trees; but with a conventional organic product you can fertilize 500 trees. It's not like we discourage them from producing their own fertilizer in the farm, but we also give them options that are more efficient.”

On the other hand, not all indigenous farmers –particularly those who do not belong to the seed savers' network– are critical of Cenicafé's coffee varieties. They highlight their superiority over creole varieties in terms of higher yields and resistance to the roya fungus and coffee-borer beetle. Nevertheless, they agree with the seed savers that the performance of

Cenicafé's varieties depend on expensive inputs that they can ill afford in the current context of a poor economy and the plunging price of coffee in international markets.

In an interview with Asproinca associate Marcos (2014), he argued that:

“Before, to produce ten coffee *cargas* one needed a very large land. Nowadays with the Fedecarcion's technology one barely needs a garden; one can produce ten *cargas* out of no more than 1.000 coffee trees –provided that they are well maintained and raised (*bien tenidos, bien levantados con todas las de la ley*)”

However, Don Marcos did emphasize the indebtedness:

“Those of us who grow coffee are like a drunk man: one has to live indebted to be able to maintain the coffee field. The money we earn is to pay [wage laborers] and to eat; we can't afford to pay debts, so we are always in the same [indebtedness] state”

In terms of seeds, most seed savers I talked to complain about the state of dependence from Fedecafé's seeds and technological packages. For instance, Don Javier (2014) told me that:

“The Federation supplies its seeds and spreads them all over the country. It says you cannot sow seed from anywhere else. One is scared to plant coffee grains and have it [Fedecafé's cooperative] not buying it”

Don Javier is referring to the fact that Fedecafé prohibits coffee farmers to grow certain coffee varieties, such as *roya* resistant *Catimor* grown in Central America, because their cup quality is lower in comparison to Fedecafé's varieties.

Lucía (2014), from Asprocafé coffee cooperative in Riosucio, referred to the debate on creole vs. Cenicafé's improved seeds by saying “*Ni mucho que queme el santo, ni poco que no lo alumbre*” which refers to trying to “strike a happy medium”. And she continued:

“I agree with defending traditional seeds; and now they have better market and prices because they have become scarce. The problem is that they are susceptible to plagues, to *roya*, because it's not the same environment than when they were developed.”
(2014)

She explained that monocropping promotes a larger affectation by plagues because biological control is unavailable and ended with a warning: “I have seen many farmers go bankrupt by growing traditional varieties.”

Likewise, Don Luis (2014), Asproinca farmer from La Montaña *resguardo*, took a similar “strike a happy medium” approach between creole and certified cane varieties when evaluating their quality and performance in the fields:

“I don’t know the cane’s name, but it’s the new cane, *caña dura* (hard cane) people call it. It is better than traditional because it is very resistant to pests and very *rendidora*. Traditional cane is good for animal feed because it’s soft; *bestias* (mules) do not like the hard cane because their teeth got damaged. [Traditional cane varieties] are very prone to pests because they are soft; larvae eat the cane from inside. I have to try the new [cane variety] in a small field and see how it turns out. They say it is a better one. There are things you should not change and there are others that you should change; there are things that get better and others that get worse.”

Certified seeds may also be important for farmers to expand the diversity in their fields, particularly when creole varieties have been lost for the most part, by adapting, exchanging, and breeding them. However, this process of creolization is possible in so far as certified seeds can be freely saved and exchanged which is increasingly restricted by IPRs and seed quality and phytosanitary laws (see chapter 2).

6. Improving the Seed: Hegemonic Discourses in Riosucio

6.1. Explaining Indigenous Resistance to Modernization

“There was the older coffee growers’ mentality that you sow your coffee plantation and you had to do nothing, invest nothing and it produced. But coffee production has changed. On one hand, there is more coffee everywhere so plagues have also expanded. Before there was neither *roya* nor *broca*, they cultivated [the coffee] and it produced. But if I see my coffee plantation as a business, I have to invest on it. A lot of people believe that if *Cenicafé* offers an improved variety it’s because that’s so good it needs nothing. But no variety like that exists in the world. Given that it [Cenicafé’s variety] is genetically optimum, it needs an optimum environment for it to produce to its maximum along with the technological package and appropriate agricultural practices (Federico, 2014)”

In the above quote from plant scientist Federico clearly articulated a common ethnocentric discourse that explains indigenous coffee growers’ resistance to Fedecafé’s model of production. For Federico, indigenous people are unable or unwilling to conceive agriculture as ‘business,’ which requires the scientific management of nature and capitalist investment as well

as willingness to adapt to changing conditions, such as the appearance of new plagues like *roya* and *broca*, by using technological advancements and improved varieties.

In a similar vein, César (2014), another plant scientist I interviewed, argued for indigenous people inability to move forward from hunting-gathering to agriculture as a ‘business’:

“Men long ago transitioned from gatherer to farmer. Farming is an activity that needs time and effort to receive the reward. They [coffee growers] said ‘old varieties were left on the fields and then were ready for harvesting in August and September.’ That cannot be. We are long passed the gathering stage. We do not ask of them anything different from what they do with their traditional varieties: control the weeds, the *arriera* [a kind of ant], the plagues, and do your chores on time.”

Plant scientists I interviewed in Caldas attributed this ‘resistance to change’ not only to indigenous coffee-peasant growers, but to Colombian society at large which they described as ‘conservative by nature’ and, thus opposed to changes, including new technologies. For instance, plant scientist Federico (2014) illustrated this ‘conservative by nature’ attribute by pointing out that the Coffee Journal (*Revista Cafetera*) in the 1930s warned against the introduction of the Borbón variety because it was believed to harm the quality of Colombian coffee.

There was a common agreement among scientists that Fedecafé did not force farmers to plant a specific coffee variety. However, they pointed out that it was only logical that Fedecafé promoted and subsidized the adoption of improved Cenicafe varieties, rather than creole varieties, particularly in the current context of crisis. For instance, Ernesto (2014) pointed out that Cenicafe released the Colombia variety to deal with the 2007-2008 coffee crisis caused by the advance of *roya* and the Niña phenomenon. Therefore, it was only logical for Fedecafé to prioritize subsidies for farmers who use the new resistant variety to renovate their coffee fields. Otherwise, Fedecafé would have to increasingly finance chemical-based fertilizing and pest-

control and other unsustainable practices for farmers who were ‘reluctant to change’ and did not want to adopt the *roya*-resistant Colombia variety.

On the other hand, Alberto (2014) from Riosucio’s Coffee Committee, clarified that Fedecafé depended upon the Central government’s policies to grant credits and subsidies to its associates. Specifically, the Ministry of Agriculture established that credit is available only to coffee farmers who grow Colombia variety. Thus, Fedecafé can only use resources from Finagro and state-owned Banco Agrario to subsidize or grant credit to farmers growing Colombia variety¹⁰³.

This conception of indigenous farmers’ backwardness and reluctance to change implies the invisibility of the extensive and complex farming knowledges and practices associated with the coffee forest and the development and adaptation of *criollo* seeds. Such knowledges and practices have allowed indigenous communities in this region to feed themselves and subsist since before the Green Revolution until today:

“Let’s back up in time. 30 or 40 years ago our coffee-growers grew Arabica, they did not use fertilizer; they had very few agricultural practices. But 40 years ago, our soils were not washed away by tillage; they were almost virgin and highly fertile. Climate was regulated: you knew that January and February was summer, from March to mid-June was winter, until September it was summer and from there to December it was rainy. Now it’s not like that. We ourselves damaged the soil, the weather; every crop needs to adapt now. We didn’t have *roya* or *broca*; coffee grew free, lived happily. When *roya* and *broca* came, we had to adapt and change the varieties to be resistant and try to reduce costs for coffee farmers” (Alberto, 2014).

This interview with Alberto at Riosucio’s Coffee Committee was interesting because he added an extra layer of complexity to the local ideologies of race. Alberto identified himself as an indigenous and was proud of his heritage: “For me, to be indigenous is something huge, I am

¹⁰³The Fund for Financing the Agricultural and Livestock Sector (Finagro) administers public financial resources for this sector.

an Indian from Riosucio, even if people say I am a Devil's son."¹⁰⁴ Alberto was critical of the indigenous movement and authorities' attempt for cultural resistance. For him, this led to isolation from the dynamics of a globalized world, particularly for the youth who was trapped in a small town's world and denied the educational and labor opportunities for progress, as engineers, agronomists or doctors, in the outside world:

“They have these policies to enclose our people in a small world, but our world is globalized. I believe that our children have the right to know the world and do not shut themselves in this little town. Our children have to leave to seek their future; they deserve to get where the sky is the limit.”

He was caught in this tension between being proud of his indigenous identity and becoming like the ‘white’ people, successful in mainstream Colombian society. Alberto talked about two figures from Riosucio who had triumphed in Fedecafé and could serve as role models for the youth: the national manager in charge of the new coffee IDs –which function as a visa card from Bogotá's Bank– and Professor Yarumo, an iconic character of an agronomist extension worker who teaches coffee farmers through workshops, TV shows and radio programs. He concluded: “You see, the Indians from Riosucio, we can get very far, we need to realize that we can go places and become important people.”

6.2. Supporting Useful Biodiversity

Riosucio is the cradle of Colombian specialty coffees because of the micro-ecosystem conditions, in terms of weather, soils, temperature, and altitude above sea level, along with artisanal farming, which provides high-quality cup profile. The community of San Lorenzo produced the first Fedecafé's specialty coffee in Colombia called ‘*La Vereda*’. Fedecafé has

¹⁰⁴Reference to Riosucio Devil's Carnival (see Chapter 2).

developed since, several specialty coffees –exotic, regional, estate, organic, and select– as Fedecafé has increasingly entered those market niches¹⁰⁵. Currently, three international agencies buy specialty coffee in Riosucio and nearby towns such as Supía –be it fair trade, organic, etc.–: Nestlé’s Nespresso and AAA Sustainable Quality, Fairtrade International (FLO), and Rainforest Alliance certification. Specialty coffees are sold at the Fedecafé’s cooperatives and have an overprice in comparison to the Federation’s regular price: 50,000 extra pesos (USD \$25) for Nespresso; 20,000 (USD \$10) for La Vereda; and 10,000 (USD \$5) for FLO (Alberto, 2014).

Alberto (2014) told me that they do encourage coffee growers to be organic but in a profitable way: “All productive systems seek productivity, be it coffee, cane, *guamas*. I do not sow to see the plant grow but to have productivity”. For him, if farmers get an overprice for organic coffee then there is a profit incentive to renovate with ‘improved’ varieties, increase sowing density, and to combine market with on-farm organic fertilizers:

“Grow more [coffee] trees, if in a hectare you only have 1,000 plants you are losing land, production, money for your pockets. Rather, get rid of those 50-year-old plants and grow 3,000 new ones that will produce more and you can still have *guamos*, orange trees, plantains for shade.”

Likewise, César (2014) told me that:

“We are not against organic fertilizers. They in the [Riosucio’s] *resguardos* have supplies of organic matter because of their ecosystem, but you sacrifice productivity because the coffee is under the shadow. You have a very fertile soil, but you are not exploiting it. It’s like Colonel Aureliano Buendía who makes little gold fishes to then melt them and start all over again¹⁰⁶.”

¹⁰⁵ This way Fedecafé now get IPRs protection for its coffee –and an overprice in the international markets– through the Juan Valdez trademark that guarantees is a 100% Colombian Coffee and through organic, select, and geographical indications, particularly Appellation of Origin. The Appellation of Origin in Fedecafés coffees is divided into three categories: Exotic (from a specific place like the Resguardo of San Lorenzo in Riosucio), Regional (from a specific Colombian department) and Estate (from a specific farm).

¹⁰⁶This is a reference to Colonel Buendía, a character in Gabriel García Márquez’s novel *Hundred Years of Solitude*

Ernesto (2014) critiqued ecologists arguing that they do not understand the economy side of agriculture: “*Roya* devastated *caturre* fields; we support useful diversity” (my emphasis).

On the other hand, certified organic production –and other kinds of sustainable and fair-trade seals– also entail forms of dependency from international agencies such as the Rainforest Alliance. Fedecafé’s members are well aware of these pervasive inequalities in the coffee global market.

César (2014) stressed that the organic market is a niche market and thus only a handful of producers can participate. Accordingly, coffee production:

“Must be subsidized but for mass production, otherwise we disappear from the market. We already have low production and only growing organic will reduce production even further. We subsidize special cases for growers who want to sell organic coffee to let’s say a cooperative in Germany. But for Walmart, we need mass and stable production.”

He also criticized environmental seals like Rainforest Alliance because they have turned biodiversity protection into a “business for intermediaries” which is inherently unequal: “The companies keep paying producers 10 extra cents and they make 10 more dollars for that coffee with biodiversity seals”. Darío (2014), another scientist, also referred to how fair trade had turned into marketing: “Two magic words [fair trade] that open doors and wallets to fool people of good will. When have merchants not been heartless? Do you think that those got a heart overnight?”

There was a deep sense of injustice in the way resources are either exploited or conserved around the world by the imposition on ‘third world countries’ –not only the poorest but also those that contaminate and destroy nature the less– to conserve resources at the expense of their development, while first world countries continue to both develop and exhaust the already scarce resources. César (2014) explained this perspective passionately:

“If people in the developed countries want our farmers to diminish their productivity in order to protect the ecosystems, the migratory birds, oxygen availability in the Amazonia, etc. Well, they need to pay for it. Why is it that the poorest are those who sacrifice their productivity to conserve the *guamo* trees? Why should I keep producing at half of my potential to let the birds migrate? If there are people who is willing to pay more for shade-grown coffee –not the extra 10c [per pound] that they currently pay– but much more; then it’d be justified.”

And he explicit referred to Rafael Correa policy to make developed countries pay for protecting the Amazon rainforest: “Correa said: ‘who is going to pay us, the Ecuadorian people, to not exploit the Amazon, the world’s lung? And no one dug deep into their pockets. So why should poor Ecuadorians do it?’”

In these interviews Colombian scientists articulated a critical discourse in terms of the engrained inequalities of the global coffee market sustained upon the legacies of a colonial systems that extracts wealth from the global South to benefit the North. At the same time, however, they reproduced the coloniality of nature by conceiving nature and biodiversity as a resource for exploitation which underuse resulted in significant economic loss for the owners of such resource. In other words, they did not recognize any intrinsic value in nature; her value is realized only as a ‘resource’ that produces profit and capital accumulation (Shiva, 2001; Gudynas; 2010).

6.3. Debates on GMOs: Creating (In)valid Zones of Conflict

Plant scientists I interviewed in Caldas, display an articulated and complex discourse on the importance of agricultural biotechnology that feeds from the global discourse but also reflects the particular country’s context as one of the most biodiverse in the world. In this section, I briefly discuss scientific hegemonic discourses on why indigenous people in Riosucio oppose biotechnology, and specifically GM crops (see chapter 2).

Drawing on Antonio Gramsci’s (1971) work, Peter Newell (2009) argues that Hegemony’s ‘discursive power’ is not about eliminating dissent, but creating “valid zones of

conflict in public debate” (Newell 2009, 53). Such ‘valid zones’, which in turn create invalid zones, are buttressed by, and can help shape, both ‘material’ and ‘institutional power’ such as economic policies, trade agreements, intellectual property rights, and so on (41) and institutional arrangements, such as how regulatory bodies for GMOs work and who staffs them (47).

I focus on how (in)valid zones of conflict (Newell, 2009) are created through two discursive strategies: 1) the naturalization of GMOs as a zero-risk technology; and 2) the need for developing the country and guaranteeing food security and national sovereignty through the use and commodification of genetic resources. In addition, I discuss the debate on Intellectual Property Rights on plant material.

6.3.1. Naturalizing Biotechnology through Risk Management

Much like Valdivia describes for the Santa Cruz agrarian elite in Bolivia, these explanations include “technical and apolitical arguments” that help naturalize the genetic modification of plants as a zero –or manageable– risk technology. The confidence on the ability to manage ‘risk’ is the result of what McAfee (2003: 204) calls ‘disingenuous technological optimism’ or the belief that humans are able to control and manipulate nature in precise and secure ways. In this light, agricultural biotech is believed to allow for the precise control of life process at the genetic level, or ‘genohype’ (Fleising, 2001) the discourse of exaggerated claims and hyperbole attached to genetic engineering’s ability to solve humanity’s problems without negative consequences. There is also the professional desire of scientists to participate in cutting-edge science –that rewards them materially and symbolically– and makes it more difficult to evaluate the consequences of their research (Holmes and Graham, 2009).

These scientists talked about how new GM technologies have evolved greatly to guarantee safety. For instance, Darío (2014) mentioned that they do not use antibiotics as genetic

markers anymore, but genes that codify for sugars and, thus, are innocuous. He also highlighted that in coffee, unlike other food products, the grain is not consumed fresh but roasted. Therefore:

“That gives me certainty that even if the gene I introduce may produce something unusual, those proteins are going to be degraded by the heat used in the roasting process to make the drink”

They support the notion of ‘substantial equivalence’ –that is that GM seeds are as ‘natural’ as non-GM seeds– to avoid regulation on GMOs and to reassure they are safe; this way they neutralize critiques, normalize biotechnology, and invisibilize conflict. However, at the same time, pro GMO scientists stress the unnaturalness of GM seeds when they are filing for Intellectual Property Rights (IPRs) because patents/plant breeders’ rights can only be given to human inventions (see chapter 2).

In sum, the narrative on biosafety goes as to assert that there is scientific confidence that GM crops do not represent greater risks than those already present in conventional agriculture and that any new risk posed by GM crops could be identified, managed and prevented (i.e. refuges to avoid genetic contamination between GM and creole varieties).

One other discursive strategy was to defend biotechnology as a technology that is not bad *per se*; delinking it from corporate influence:

“That research is manipulated by corporations, that they aren’t independent is a problem inherent to science when it is linked to a commercial product. Like what happened with health studies on tobacco. That exists but is another issue” (César, 2014).

Darío (2014) compared anti-GM activism to the Luddite Movement in Britain where “19th century when British workers attacked the machines, not the capitalists. It’s not about attacking the technology.”

Another common discursive resource to create (in)valid zones of conflict among biotechnologists in Colombia is the appeal to the need for ‘sound science’ rather than ‘speculation and misinformation.’

In my interviews with Cenicafe’s plant scientists, there was an agreement that opposition to GMOs was the result of both misinformation by radical activists and lack of science’s diffusion, particularly in isolated indigenous society –such as Riosucio’s *resguardos*– which are reluctant to change. Thus, they saw their mission to educate coffee farmers on the advantages of developing GM coffee varieties to control *broca* and, thus, reduce the use of chemical pesticides and cut on production costs:

“At the beginning they were afraid of GMOs because media tells them that it’s playing God or that they are Frankenstein food. But when you explain to them in a colloquial manner how they are going to be benefited, then they start asking when we are gonna have the GM varieties ready” (Darío, 2014)

6.3.2. Biodiversity: The Green Gold and Path for Development

In Colombia, biotech benefits are inscribed in a discourse about how Colombia is a mega-diverse country and, as such, we need to take advantage of that diversity by developing our own biotechnology and protecting it with IPRs. Biotechnologists insist on how our biodiversity is kind of a ‘green gold’ that few nations in the world have, and yet we do not take advantage of it to develop the country and create solutions to hunger and the challenges of tropical agriculture. They talk about the danger of history repeating itself: biodiversity is another natural resource – like oil or gold– abundant in our territory that is also going to be looted by foreigners if we do not it exploit first.

On their analysis on how Colombian biotechnologists construct GMOs as ‘public goods’, Christina Holmes and Janice Graham (2009) say that scientists are eager to use biotech to provide varieties that serve the Colombian agricultural context (including both small and large

scale producers) by advancing research on neglected tropical crops and local Colombian varieties. Since private companies are not interested in developing GM varieties of tropical or peasant crops, that burden is left to the public sector in the developing countries. Colombian scientists will contribute to the development of the country by using our gene-rich ecosystems for economic gains in industrial agriculture (e.g. sugar cane in Cauca Valley) and for food security. Colombian scientists justify biotechnology under the banner of creating scientific 'public goods' or goods that stimulate national economies, improve food security and that are commonly owned. However, Holmes and Graham look at how these three objectives may be contradictory because stimulating the national economy does not necessarily mean creating a common resource that benefits citizens, and particularly poor rural producers and urban consumers. As they assert: "Biotechnology could provide some resources and prestige to Colombian scientists without providing the public goods they had hoped for.... Future benefits or contributions...from a technology cannot be assumed, but must be demonstrated" (Holmes and Graham, 2009: 34).

Colombian biotechnologists argue that we should reject the idea that expensive techs should not be used in resource-poor settings. On this issue, Farmer (2001) talking about medical care in Haiti says that demarcating appropriate technologies is equivalent to saying that some human beings are entitled to a different level of technology than others. Some Colombian scientists rather than accept the scientific dominance of temperate agricultural needs, are attempting to create a wider distribution of benefits from that technology applying to tropical crops and Colombian local varieties. Their position challenges, to some extent, the concentration of IPRs and current GMO market distribution in the hands of northern TNCs.

As Holmes and Graham write on the concerns of Colombian biotechnologists: “[If biotech] does not address the needs of peasants, does this mean that Colombian scientists should not work towards achieving such ends using biotechnology?” (34) In fact, for some Colombian biotechnologists, it is an irony that anti-GMO activists in Colombia end up benefiting the same corporations that they fight against (Monsanto, etc.) because the more our country is behind technologically; the more corporations can loot our biodiversity and benefit from it.

They stress that ‘one-size-fits all’ and ‘top-down’ approaches to biotechnology will not work; this is the reason why we need to develop our own biotechnology for our specific kind of agriculture and for our economic and social problems using participatory methodologies. For instance, they mentioned focusing research on tropical crops and on enhanced nutritional value that corporations are not interested in developing. Plant scientist, Santiago (2014) also argued:

“The Colombian problem is that we want to copy everything and we have not developed our own technology. We have land, we are a mega-diverse country, and we need to learn how to navigate within that biodiversity.”

Cenicafé’s plant scientists argued that genetic manipulation technologies should only be used when appropriate. For example, there were resistant genes to *roya* within Cenicafé’s coffee and related species collection; however, that is not the case for *broca*. Therefore, genetic engineering is justified to look for resistance in genes from other species in order to develop *broca*-resistant varieties given that conventional breeding is ruled out. However, Darío and other scientists interviewed complained about how Cenicafé was not free to develop GM coffee varieties because “GM crops continue to be a taboo in Europe”. Resistance in Europe was again linked to historical conservative approaches to new technologies, as César (2014) put it: “I believe that with GMOs happens the same as with other technologies: at the beginning people demonize them and only after some time, they change their mind about them”.

Disinformation and manipulation of European consumers also stood out as an explanation for resistance to GMOs:

“If we were to produce a GM [coffee] variety, we wouldn’t be able to commercialize it because the client is misinformed and manipulated so he doesn’t want it. Colombian coffee has prestige, so we please our clients; that’s why we don’t liberate GM varieties” (César, 2014).

For these scientists, as a result of European unjustified aversion to GMOs, countries like Colombia cannot advance scientifically developing high-end biotechnologies, but continue to be condemned to backwardness. Furthermore, they were highly critical of European and other ‘developed’ countries’ double standards towards GMOs. César (2014) explained that while European or Japanese governments and consumers accepted “biotechnology that favored them as consumers” particularly in medicine with GM vaccines such as those against cervix cancer, they would not accept GM coffee or other foods, “because they don’t get any benefits”.

Implicit in César’s critique was not only the harm to technological advance in the sciences in developing countries like Colombia, but also to poor coffee farmers. Developing countries then “don’t care if that GM coffee benefits the poor farmer that is trying to solve its *broca* problem and cut on costs by reducing the use of pesticide.”

Finally, these plant scientists condemned ‘orthodox’ or ‘radical’ anti-GMOs ecologists and anthropologists for “playing into the hands of chemical corporations”. According to César (2014), if coffee farmers grow traditional varieties susceptible to *broca*, rather than potential GM resistant varieties, they would have to use more chemicals to control this insect and thus chemical companies would profit. Likewise, if we condemn the development of GM technologies in countries like Colombia, we deepened our technological dependence on corporations such as Monsanto or Syngenta:

“We play into their hands if we condemn the technology. If I want to be independent [from corporations], first I have to develop the knowledge on genetic manipulation;

otherwise, I will always be dependent on them. One has to ask, to what extent radical ecologists and anthropologists play into the hands of corporations?”

6.4. Public Goods or Private Commodities?

The issue of Intellectual Property Rights (IPRs) was hotly debated among Cenicafé’s and university scientists. Those in favor of IPRs used the common argument that companies invest large sums of money and time in developing a GM variety, and thus, IPRs constitute a crucial financial incentive to continue to fund the research. Another common argument was that the restriction on seed-saving practices is a technical, not political, issue. For instance, in reference to the seizing and destruction of rice seeds exposed by Documentary 9.70, Santiago (2014), a biotechnologist and professor in Manizales tackled the problem in the same way:

“People say that the police, the state have no right to seize seed. But it’s not like the police is going to seize it for no reason, but because with transgenics, unlike with traditional varieties, it’s a problem to reuse the seed, it loses the characteristics that were engineered into it.”

Other plant scientists I interviewed were against IPRs, stressing the difference between different kinds of rights. For instance, César (2014) argued that copyrights in the printing and entertainment industry significantly differ from breeders’ rights and patents in agriculture and medicine. He argued that food and medicine constituted fundamental human and farmers’ rights and needs and could not enjoy the same degree of protection as those of copyrights that satisfied humanity’s pleasures and needs at an inferior level.

Other plant scientists pointed out the problem when translating foreign legislation without taking into account the specific Colombian context and agricultural traditions. For instance, Julián (2013), a plant scientist and professor in Manizales, explained to me that:

“The problem was wishing to translate a ‘gringo’ legislation without providing it with a valid sociological basis, unaware of the traditions, traditions that are not necessarily indigenous, but informal. [For instance,] if you want to grow peas or coriander you go to Fierro’s stand at the *plaza de Mercado* [in Manizales]. Fierro is a guy who buys seeds from other farmers and resells them. It’s foolish to pretend to regulate that

market, or to regulate that your mother or uncle can give you seed as a gift, or that you cannot cultivate however way you like (*como le dé la gana*)”

There was also an important discussion on the impact of IPRs on their own academic and research work. While they all agree that some level of IPRs protection is necessary, the extent of such protection is debated. Some biotechnologists I interviewed pointed out that even though IPRs are necessary to incentive invention, they have become a mechanism for TNCs and northern countries to appropriate our diversity and hinder research at universities and seed development centers. Colombian biotechnologists such as Alejandro Chaparro and Kelly Ávila have written extensively about how to circumvent IPRs by doing a ‘freedom to operate’ analysis (*análisis de libertad de operación*); using open-source biotechnology (transbacter, Pcambia) offered by international institutes such as PIPRA and BIOS; or developing ‘generic GM seeds’ alike to pharmaceutical drugs (Chaparro and Ávila, 2013).

Santiago (2014), a professor in plant science in Manizales, expressed his dilemma very clearly:

“In terms of intellectual property, I have a dilemma, something I have not been able to define inside of me. On the one side, one knows that if someone works in a variety, well you want to be recognized for what you do. On the other, these (patents) need to have normal, not exaggerated, costs. For instance, we have set as a goal to release new vegetable varieties –conventional, not GM– at affordable prices and protected by our own intellectual property –state property–, because we are a public institution. But this is not so simple, we are in the middle of it.”

7. Conclusion

The loss of seed worlds in the coffee-growing zone is a long-term historical process, but became intensified with the advent of the Green Revolution promoted by Fedecafé to replace the ‘traditional’ model of coffee cultivation –known as ‘coffee-forest’– with mono-cropping and increased use of agrochemical inputs. Fedecafé’s model reproduced forms of coloniality of nature and power that subordinated a rich world of agricultural practices, knowledges, and place-

based economies of indigenous peoples in Riosucio. On the one hand, plants and other non-human beings became hierarchized in terms of their market value. The creole crop varieties, as well as medicinal and edibles plants, roots, and trees, that were planted along coffee were deemed undesirable as they were associated with backward subsistence agriculture and indigenous cultures.

On the other, coffee producers in the *resguardos* became increasingly dependent on the market both for agrochemical inputs and for food provisioning, losing autonomy and food sovereignty. At the same time the governmentality of coffee production implied the rationalization and ‘scientific’ management of coffee production which increased indigenous farmers’ dependency on Fedecafé’s technical expertise –through extension programs- and ‘improved’ seed varieties. Fedecafé justified its coffee-production model on the name of progress and development, particularly higher productivity, profitability, and efficiency in the use of resources and land.

Fedecafé’s standardization and rationalization of coffee agriculture was not accomplished without resistance and adaptation on the part of indigenous farmers in Riosucio. In response, plant scientists I interviewed in Caldas hold a hegemonic discourse to explain such resistance. In my interviews, the main explanations were indigenous people’s reluctance to change and the inability and/or unwillingness to conceive agriculture as ‘business.’ This ethnocentric hegemonic discourse revealed an ontological friction between a modern capitalist view of agriculture as an extractivist activity and the place-based models of agriculture –combining ‘traditional’ polycropping systems with agroecological approaches– in Riosucio.

To be sure, these ‘traditional’ and agroecological models are historically changing as the result of friction or conflictual encounters with various waves of colonization and the

implementation of developmentalist paradigms by institutions such as Fedecafé. The clearest example is coffee which was first introduced in the Americas as a plantation crop; and in Riosucio, during the *antioqueño* colonization. Yet, in the face of Fedecafé's own implementation of the Green Revolution paradigm, the coffee-forest became a 'traditional' indigenous model further transformed by agroecological principles promoted by grassroots local organizations, such as Asproinca.

Even though, there is often resistance to Fedecafé's model among indigenous farmers in Riosucio, they have also partly adopted and adapted to it. Such adaptation has been the result not only of economic and non-economic pressures, such as credit granting conditioned to the cultivation of Cenicafe's varieties; but also of on-farm experimentation with new practices and seeds on the part of indigenous farmers.

Furthermore, Fedecafé has brought prosperity to coffee producers in Riosucio. Fedecafé still provides an institutional framework that, particularly in times of neoliberal 'free' market policies, provides important protections in terms of income and social investment to vulnerable small-scale coffee farmers. Fedecafé's seeds are not completely homogenous and standardized, but partly designed for the small-scale agriculture and tropical conditions prevalent in Riosucio and, the country, at large. In addition, these seeds are public goods and, as such, they are not enclosed by IPRs but freely distributed to farmers. Farmers can save Cenicafe's seeds for the next harvest and there has been an effort to produce seed adapted to different regions. All coffee-farmers in Riosucio –and across Colombia- can always sell all of their harvest thanks to Fedecafé's purchase guarantee policy, although at prices dictated by international markets.

On the issue of transgenic crops, plant scientists I interviewed reproduced some of the global dominant discourses. They argued that GM crops constituted one of the latest successes in

redesigning plant breeding to fulfill human needs in terms of food and energy sources (i.e., through agro-fuels). Plant genetic engineering was also portrayed as a more precise and efficient technology than conventional breeding due to the belief on a controlled and safe transfer and combination of genes or genotype. Concerns and critiques to GMOs were contained and managed through (in)valid zones of conflict as ‘misinformation’ or arguing for the need of a risk–benefit analysis based on substantial equivalence.

Genetic engineering was seen as particularly important in the case of coffee because there are no *broca*-resistant genes in coffee collections so far, so conventional breeding is ruled out. Yet, Colombian biotechnologists working on coffee development understood the engrained inequalities of global markets, the techno-scientific establishment, and the geopolitics of plant genetic resources. They were critical of so-called fair trade and the threats of biopiracy, particularly in a country such as Colombia, which they described as economically and technologically ‘underdeveloped’, yet immensely rich in biodiversity. Such critique was, however, still within a mercantilized view of nature where biodiversity conservation was justified if useful and profitable.

As I will explain in Section 3, indigenous farmers from Asproinca and the *resguardos*’ Seed Networks continued to grow creole varieties even though that implied effort, time, and resources. More recently, these seed savers’ conservation practices have become politicized in the context of the renewed indigenous movement in Riosucio and in several regions across the country. For instance, in Riosucio, the *resguardo* of Cañamomo and Lomapieta declared itself as a Transgenic-Free Territory and built a Communitarian Seed House.

In fact, seed sovereignty has become an important banner of indigenous struggle in Colombia. Several seed savers networks came together in 2012 to form the Network of Free

Seeds (NFS) supported by some NGOs, academics, and rural movements. Section 3 seeks to investigate why and how indigenous communities in Riosucio resist seed commodification and IPRs and build seed sovereignty by creating and maintaining seed commons and relational seed worlds.

CHAPTER 5: COMMUNITY SEED ECONOMIES, SOVEREIGNTY, AND THE COMMONS

“Like don Roberto, I brought all the *chocho* and amaranth I could to give it all away; that’s the idea. Do whatever you want with the seeds, they are free for you to take. But make sure they are propagated and conserved” (Seed Saver Rocío, Bogotá, 2014)

“We decided that we’re not going to be afraid anymore. If one day the Ica comes to the *resguardo* to seize our seed, I believe we will be strong enough not to allow them to do so” (Seed Saver Rosa, Riosucio, 2014)

1. Seeds of Autonomy and Struggle

In May 2014, I attended a meeting with Riosucio’s *cabildo*’s and municipal authorities, seed savers, and NGOs seed activists affiliated to the Seeds of Identity Campaign¹⁰⁷. The meeting took place at the Community Seed House located in *La Mandrágora* Communal Farm in Cañamomo and Lomaprieta *resguardo* (see Figure 4) We sat in wooden benches outside the Seed House against the backdrop of coffee and plantain fields. I took notes –by request– while sipping dark coffee sweetened with *aguapanela*, a traditional beverage made of *panela*, an unrefined brown sugar.

A heated discussion took place at the meeting regarding three instances of seed conflicts in the last two years. The conflicts took place between the Riosucio’s indigenous municipal government, the *cabildos*, and the *resguardos*’ seed savers, on the one hand, and coffee and *panela* growers’ federations (*Fedecafé* and *Fedepanela*), and the Ministry of Agriculture, particularly Ica or its branch in charge of plant health inspection and safety, on the other¹⁰⁸.

¹⁰⁷ *Cabildos* are the *resguardos*’ autonomous government. *Resguardo* is the name for indigenous territories in Colombia. For further information, see chapter 3.

¹⁰⁸ReSa means ‘Food Security Network’

In the first clash, Riosucio's municipal government and the *cabildos* refused the requirement to use Ica's certified seed in food security programs of the Ministry of Agriculture's Food Security Network (*Red de Seguridad Alimentaria* or *ReSa*). The indigenous authorities insisted on conditioning the implementation of *ReSa*'s programs in Riosucio's *resguardos* on the use of creole, non-Ica certified seed from the Community Seed House and seed saving networks. At the meeting, Rosa (2014) –a seed saver from Canamomo and Lomaprieta *resguardo*– proudly recalled how they defied *ReSa*'s staff by saying: “We're sorry but here we have our own proposal, our own seeds, and we don't want certified seeds. So, you may turn around and take your program somewhere else.”

The second clash originated over the seeds used in *alianzas productivas* (productive alliances). These are the Ministry of Agriculture's agricultural development programs to be implemented locally across the country. Riosucio's municipality started to supply such programs with creole plantain, *panela* cane, and avocado seeds mainly from the Seed House and *comunero* farmers¹⁰⁹ to boost local production.

Manuel (2014), a seed saver and municipal government employee, told us with indignation, that the Ica ordered them to use certified *panela* cane seed brought from the northeastern Department of Santander and endorsed by *Fedepanela*¹¹⁰. The local administration refused to use such seed, arguing that local producers held the right to “cultivate their own varieties that are adapted to the area”. In relation to plantain, Manuel recalled that Ica, after much

¹⁰⁹ *Comunero* is the term used by indigenous people in Riosucio, and across the country, to refer to themselves. The term is meant to emphasize the ‘communal’ ethos that self-defines indigenous people

¹¹⁰ *Fedepanela* is the equivalent of *Fedecafé* for *panela* producers. Manuel was probably referring to a new cane variety called CC 93-7510 developed by Cenicaña, the research center on cane –similar to *Cenicafé*–, and Corpoica. This variety was first developed at a Corpoica research facility in Barbosa, Department of Santander, and released for *panela* farmers in this Department and in the Department of Boyacá. See <http://www.agronet.gov.co/noticias/Paginas/Noticia1232.aspx>

discussion, agreed to local producers using seed from their own plantain crops for the *Alianzas Productivas*. However, Ica forbade farmers who did not have plantain crops of their own to obtain seed from their neighbors. It ruled that the municipality bought certified seed from a specific Ica-approved plant nursery, located in the town of Chinchiná, to supply those farmers.

Figure 39: Example of Ica's Certified Seed –Quimbaya bean variety



Photo credit: my own

The mayor's office and the *cabildos* clashed a third time with *Fedecafé's* local Coffee Committee over maize seed supply for food security programs. According to Manuel (2014), the Coffee Committee is giving away Ica's certified corn to *resguardo* farmers. This harms the *cabildos'* food sovereignty programs that use creole seeds. Furthermore, indigenous authorities fear that Ica's corn –specifically Ica B-305– is contaminated with transgenes from GM varieties.

Manuel passionately called on *cabildantes* at the meeting to start the process to declare their *resguardos* Transgenic-Free Territories¹¹¹. He argued that such declarations would help to prevent the central and regional governments, growers' federations or future non-indigenous municipal administrations to impose the use of certified seed in official and private programs:

We need to demand from all of these government authorities and growers' federations [*gremios* such as *Fedepanela* and *Fedecafé*] that they use in their programs seed from our municipality, our region, our own seeds [*semillas propias*]. Seeds which have a history, a process, which are not contaminated. We have to assert [*hacer valer*] our autonomy and Ica's own norms that forbid to grow GM maize in indigenous *resguardos*. Otherwise, in the near future [*de aquí a mañana*], we are not going to be the municipal government any longer and they are going to impose that all *resguardos* have to use certified seed (Manuel, 2014)

These seed conflicts in Riosucio originated in the implementation of Ica's Resolution 970 that requires the exclusive use of certified seed and prohibits on-farm seed saving, as mandated by the US-Colombia FTA. In other words, such conflicts are the result of corporate-led seed laws, such as Resolution 970 –coupled with the expansion of GM seeds– that further erode seed commons.

Furthermore, the above narrative illustrates that conflicts around seed commons in Riosucio's *resguardos* are at the base of broader issues, namely indigenous rights to self-government and the defense of their own agricultural practices. I argue that seed conflicts are then part of larger conflicts over autonomy and '*modelos propios*' or place-based ways of inhabiting and sustaining themselves in the territory that defy the developmentalist governmentality of the agrobiotechnology apparatus. In other words, they are struggles for 'seed sovereignty' or for the autonomous control of the ways in which seed –as a collective heritage– is produced, owned, circulated, saved, and endowed with meanings and spirituality

¹¹¹Cañamomo and Lomapieta is the only *resguardo* –out of four– that is officially a Transgenic-Free Territory.

(Kloppenburg, 2010). In this sense, seed sovereignty is an integral part of food sovereignty and self-government.

By investigating grassroots initiatives in seed sovereignty in Riosucio's *resguardos*, I aim to contribute to debates within anthropology and in other related social sciences on alternative food economies, the commons, and human/non-human relationships and assemblages (Bennet, 2010; Ingold, 2011). I draw from studies on community economies (Gibson-Graham, 2006), the commons (Bollier, 2002 and 2014; Colloredo-Mansfeld and Antrosio, 2009; Nonini, 2007), and seed studies (Aistara, 2011; Kloppenburg, 2010 and 2013)

In this chapter, I first illustrate how seeds are a fruitful ethnographic subject for emergent conceptualizations on alternative economies, focusing on seed commons. I present an expanded discussion on seed commons by looking at the Open-Source Seed Movement promoted by critical public-sector plant breeders mainly from the global north as well as the responses from Colombian seed savers.

Second, I analyze the diverse seed economy in Riosucio's *resguardos* focusing in seed saving and exchanging practices among seed savers and farmers. Third, I explain the politicization of seed practices as active resistance against corporate seed enclosure and GMOs by looking at the Cañamomo and Lomapieta *resguardo*'s declaration as a Transgenic-Free Territory. Fourth, I discuss this *resguardo*'s Community Seed House as a community (seed) economy (Gibson-Graham, 2006). This chapter ends with an analysis of the challenges and limitations of these seed sovereignty initiatives in Riosucio.

2. Seed-Human Assemblages in Diverse Economies

2.1. Taking Back Economic Thinking: Buen vivir, Commons, and Community Economies

In western modernity, the economy has been conceptualized as a separate realm of human society that functions autonomously, according to market laws, and has ontological and

epistemological primacy or what Gibson-Graham (2006) call ‘capitalocentric’ thinking. Many thinkers, even within western tradition, have challenged this vision of the economy. Polanyi (2001), to give an example, points out that the autonomous self-regulated market is not a natural, ahistorical, universal phenomenon but was the result of quite specific and violent state policies and expansion of capitalism at the end of the nineteenth century.

From cultural studies, Lawrence Grossberg (2010) has argued for the importance to “bring the cultural turn to bear on economics”. Cultural economics constitutes an effort to critique economic reductionism and essentialism and bring to the fore the complexity and multiplicity of economies that overflows a singular and homogenous notion of capitalism or the propositions that the economy is an autonomous sphere from the rest of the social body and imbued with internal logics and limitless capacity to explain and determine every other social realm. Grossberg calls for rethinking what is defined as economic spheres, such as production and labor, and the lines dividing the economic from the non-economic given that these boundaries are always porous, temporary, broken, multiplied. For Grossberg, doing a different – conjectural- kind of economics involves recognizing that the economy is not only overdetermined (in Althusser’s terms), but also multiple, relational, and discursive. Thus, capitalism is always heterogeneous, hybridized and multiple and that works through difference and struggles in everyday life (Grossberg, 2010: 146-9).

In Latin America, studies on decoloniality and solidarity economy are challenging capitalist economics and putting forward alternative approaches about community and non-state communal logics of social life and alternative economics based on a critical reading of the history of colonialism and neocolonialism as well as the cosmovisions and knowledges of peasants, indigenous and afro-descendant people (Escobar, 2007; Mignolo, 2002).

A key concept to critique western notions of development and theorize other forms of economy is the *buen vivir* or "good life"¹¹². *Buen vivir* is framed in indigenous worldviews, especially Andean, which defines wellbeing as *convivir* or living with others, including nature, on the base of solidarity and care. The *buen vivir* resonates with the notion of 'socio-biocentrism' coined by Ecuadorian economist Alberto Acosta to critique the anthropocentrism that characterizes capitalism. Socio-biocentrism implies an economic model that ensures "the integrity of natural processes, flows of energy and materials from the biosphere and the planet's biodiversity while improving the conditions of life for all people "(Acosta, 2010: 19).

Buen vivir also entails the foundation of a counter-hegemonic political project that critically examines the political structures of modernity, especially the nation-state and representative democracy. Alternative politics are based on popular and indigenous traditions of direct democracy that call for the devolution of power from centralized bureaucratic institutions –be political parties or the state– into people's organizations and the general social body. Uruguayan journalist Raúl Zibechi (2010) has recently proposed the notion of "dispersing power" to describe the construction of 'popular anti-state powers' in Bolivia that are based on communal forms of democracy. These forms of direct democracy operate under the same logic of the Zapatista communities where there is a rotation of leadership positions and leaders must "lead by obeying".

Arturo Escobar, based on ethnographic research with Afro-Colombian communities in the Pacific region, analyze resistance to the transformations of the Pacific region by imperial globality that underlie ontological and epistemological differences. These ontological conflicts

¹¹² *Buen vivir* is the Spanish translation for what is called in quechua *suma kawsay* and in ayмара *Suma Qamaña* (Gudynas, 2011: 2)

are expressed in two levels: local and diverse economies, partially based on self-subsistence activities, vs. a monetized and market-oriented economy; and local models of nature (i.e. diverse agroforestral ecosystems) vs. capitalist model of nature (i.e. Plantation model) (Escobar, 2008: 32).

Feminist geographers by the name pen J.K. Gibson-Graham (2006) investigate place-based economies to bring to light the diversity of economic rationalities and practices that inform subsistence activities around the world. Drawing from fieldwork in the Philippines, Australia and the US, Gibson-Graham characterize community economies as those by which groups of people devise mechanisms to resocialize economic relations, based on ethical considerations and democratic decision-making. The aim is to make economic decisions on prices of goods, wages, reinvestments or the redistribution of surplus in ways that benefit and care for the communities and the environment. In other words, that wealth stays locally rather than being accrued by distant, unaccountable corporations and global financial markets.

To this end, the community economy requires an awareness of a) what it means to ‘live well’ for people in the here and now b) how the social *surplus* is produced, appropriated, distributed and consumed; d) how a *commons* is produced and sustained in order to achieve such wellbeing (88)

Studies on alternative economics then include three main projects: an epistemic challenge to western rationalism and individualism; a new kind of politics; and alternative relationships among humans and with nature. These projects entail 1) the construction of alternative economic languages and knowledge practices; 2) the ethical transformation of subjects (including of ourselves) or new ‘ways of being in the world’ that allows individuals and human groups to recognize and honor our interconnectedness and develop a new sensitivity towards alternative

economic practices that are present in the ‘here and now’; and 3) a renewed attention to place, seen in the emphasis on ‘community’ and the ‘local’ as strategies to re-embed the economy in more sustainable socio-natural relationships (Gibson-Graham, 2006; Escobar, 2008). The study of seed-human assemblages (Bennet, 2010: 21) or their networked socio-natural worlds provide rich insights to these emerging ways of rethinking the economy.

2.2. Seeds Genealogies and Inter-Species Community-Making

Seeds constitute a fruitful site to challenge deep-seated assumptions of the economy as disembodied, autonomous, and rational(ist) markets and individuals. Seeds contributes to undertake ‘reframing’ or “imagining the economy differently” in ways that connect –rather than confronts– us to one another and to ‘nature’ (Gibson-Graham, 2006). This task of re-embedding economic practices in socio-natural relations can be done by tracing genealogies of seeds –and bringing forth their connections with humans, nature and localities- in similar ways to tracing the origins of the food we consume.

According to anthropologist Guntra Aistara (2011), biotechnology companies have reduced seed genealogy to the seed itself, fetishizing it, taking into account only the labor and inventiveness of western scientists, transnational companies and capitalist farmers, and erasing all previous labor and social exchanges from farmers as ‘raw material’. This ‘corporate seed genealogy’ –based on the application of western techno-science, labor, and capital- is at the base of biotechnology companies’ claim to IPRs on seeds as their ‘inventions’ (see chapter 2) In contrast, seed savers consider seeds a commons because they trace a ‘multi-species seed genealogy’ that honors the labor and knowledges not only of their ancestors and past generations of farmers, but also of non-human beings, such as pollinizers and soil organisms, and the fertilizing and growing powers of the sun, the rain, or the winds.

In this context, it becomes crucial to visibilize the ways in which seeds contribute to inter-species community-making and ground alternatives economies on different conceptions of value, labor, and relations to nature.

2.2.1. Value

Anthropologists have studied how seed practices account for diverse understandings of value and economic behavior that do not fully conform to the rational choice model. For instance, anthropologists Stephen Gudeman and Alberto Rivera (1999) argue that peasants in the Department of Boyacá, Colombia, have a different conception of value that is closer to the Physiocrats than to the theories of classical liberalism. In classical liberalism, nature is not the source of value; rather humans create value in their capacity to labor or to transform and transcend nature in order to create civilization and progress. In contrast, for peasants in Boyacá, value is intrinsic to nature: the earth is not a resource, but the repository of ‘strength’ which humans garner and spend through raising and consuming crops. Thus, farmers and herdsman do not make crops or livestock, but rather contribute to set up certain conditions of development within which plants and animals develop. In other words, by saving and planting seeds, humans are not creating value through labor, but nurturing the earth and helping her to “give” her products, as a ‘midwife’ assists a birth (Gudeman and Rivera, 1999: 24-5).

Anthropological studies also analyze seeds’ double condition: on one hand, they are a ‘means of production’ when peasants save seeds for the next planting season; on the other, they are a consumption and ritual good when sold as grain or reserved for self-consumption. This decision is not just a rational choice based on cost-benefit analysis towards profit making or a consideration on productivity, but is embedded in cultural expectations and power relationships. For instance, Bezner (2010) shows how disputes in farmer households in Malawi about how to use groundnuts is gendered: men often want to sell or save groundnuts while women want to

consume them, specially feed them to young children to improve nutrition. On the other hand, Malawi women give maize and groundnut seeds to their daughters-in-law upon marriage and instruct them on how to select and store seed for future harvest thus guaranteeing knowledge transfer and the reproduction of a new household (Bezner, 2010). These two examples illustrate how seeds question the division between production and reproduction and highlight the important role of women's care of the family for the reproduction of labor (and really of human life) that goes unacknowledged in mainstream political economy (Gibson-Graham, 2006).

Peasants 'choose' to save, breed, share, buy and sell seeds for different reasons and seeds are considered valuable in different domains beyond 'economic growth', efficiency, productivity, and other modernist standards (Wittman, 2010: 92). Defining yield increase of one crop, as the ultimate goal of agriculture and seed development is reductionist. This is so because it only takes into account the production of exchange-value or food exclusively to sell as a commodity in the market.

Instead farmers value seeds for many different traits such as fodder quality, performance on intercrops, storage quality, taste or cooking properties, for symbolic/religious reasons, among others (Altieri, 2001: 24; Nazarea, 2005: 9) Farmers may continue to save and plant heirloom seeds for self-consumption crops because they want to have control over the quality of the food they consume (González, 2001); for preparing traditional recipes (González, 2001; Monsalve, 2006; Camacho, 2011); for the pleasure and curiosity of experimenting with new seed varieties (Nazarea, 2005; González, 2001; Shiva, 2001); or for guaranteeing food security when the market fails (González, 2001). Expertise in seed saving and exchanging can also provide non-monetary gains such as pride, satisfaction, social status and prestige, aesthetic pleasure, and sense of autonomy and creativity (González, 2001).

During my fieldwork in Riosucio, Asproinca and *cabildo*-supported seed savers shared with me their multiple motivations to save and conserve creole seeds¹¹³. In interviews and informal conversations, seed savers considered creole seed conservation a ‘traditional’ practice learnt from parents and grandparents who grew diversified crops under the model of coffee forest. Older *resguardo* farmers, such as Antonio, appreciate creole seeds because they “knew the seeds through their grandparents. They feel happy to see the seeds that their grandparents planted because [that way] they remember them” (2013). Other indigenous farmers may start conserving creole seeds out of curiosity and satisfaction as don Mauricio (2013a) recalled: “I had never seen corn in so many different colors. Now I try to get new seeds; this is why I seldom leave my land. I have fun with seeds: choosing, classifying and taking care of them in the farm.”

There is also a concern for producing and consuming diverse food. Mercedes stressed food variety as a motivation to become a seed saver: “it is about food variety rather than having just one thing. I know today is squash soup, tomorrow a *sancocho*; another day *cachas* [beans].” Likewise, José María (2014) linked on-farm seed conservation and saving with a concern on eating healthy:

“We don’t buy the seed. We have a thin bean seed that Guillermo brought us and we grow it for food and to save the seed. From that first seed we got new seed and we kept saving it. At Asproinca seed fairs, I got *bugueños* [beans]. The bean from the market is contaminated with chemicals; instead the ones from our garden are healthy”.

Creole seeds are also important to recreate the spiritual and aesthetic worlds as Mercedes (2013) pointed out to me:

“In rituals and ceremonies, seeds have their own mystery, their own power. Seeds are always present in rituals: there we connect; we purify and clean ourselves; we eliminate the bad energies. Seeds are used for protection. In dressing (*atuendos*) we

¹¹³ Asproinca is a local grassroots agroecological association I worked with in Riosucio. Although Asproinca is independent from the *cabildos*, some of its seed savers are also supported by the *cabildos*.

have always used seeds. Before using plastic beads (*chaquiras*) and other synthetic stuff, there were seeds, bones, animals' teeth”

2.2.2. Labor

In connection to value, seeds lead us to rethink labor. In western economic thinking (both liberalism and Marxism) there is no inherent value in nature; value is “innate to humans in their capacity to labor or to transform nature” in their process towards civilization. As anthropologist Tim Ingold (2011) explains, value is linked to the ability to transcend, dominate and improve nature through science and labor (77). Ingold goes on to explain that what defines agriculture, as a higher level in human civilization compared to hunter-gathering, is the ability to breed new varieties of plants rather than collecting food –which implies no transformation of nature through labor and thus no human progress-. This view contrast with small-scale farmers who see agriculture not as ‘making’ but as ‘raising’ crops. In other words, agriculture is an interspecies process of growth that involve human and non-human labor (78-9).

The development of biotechnology and the extension of intellectual property rights to plants take the conception that value creation is unique to (certain) humans to its ultimate consequences. In order to claim IPRs, biotechnology companies invisibilize the breeding labor done by small-scale farmers and nature since the development of agriculture. For instance, the role of insects as pollinizers or the fact that genes are not invented in laboratories, just isolated and recombined (Van Dooren, 2008; Aistara, 2011). Conversely, expanding the concept of labor to non-human beings opens up the ontological question of whether or not non-human beings can also produce value. Grossberg suggests that value should be seen as an expression of life, as the power or creation and cooperation, not necessarily restricted to human labor (Grossberg, 2010).

2.2.3. Inter-Species Relationships

Rethinking our relationship with non-human beings through food and agriculture, implies the ethical challenge to question our anthropocentrism and assume responsibility and co-dependence with non-human beings. As Marx noted, industrial agriculture implies a ‘metabolic rift’ where the co-dependency between nature and human beings in growing food is broken due to the modern capitalist assumption that civilization and development depends upon men controlling, exploiting, and privately appropriating nature similarly to other men’s and women’s lives and labor (Marx, 1990). Hanna Wittman (2009) suggests an alternative ecological rationality –which she calls agrarian citizenship– that emphasizes mutual rights and obligations between humans and nature in agricultural practice. Likewise, the Ecuadorian constitution has granted rights to nature so that economic development needs to be reconsidered from conceiving nature as just a collection of resources to be exploited/industrialized for human benefit (Gudynas, 2010). Therefore, agricultural practice would have to guarantee not just the reproduction of human life, but also of non-human beings by respecting the integrity and resilience of ecosystems, natural cycles and seeds’ reproductive capacity and promoting agrodiverse agricultural landscapes rather than the uniformity of industrial monocropping.

2.2.4. Commons

Drawing from Marcel Mauss (1967), Bronislaw Malinowski (1922), Marshal Sahlins (1972) and other literature in economic anthropology, studies on the commons argue that human societies have historically recognized that our biological and socio-cultural reproduction depends upon the flow of resources as ‘gifts’ and the ‘debts’ they create when given and received which must be acknowledged and reciprocated (Nonini, 2007: 69-70; Bollier, 2002: 32-34). They emphasize the importance of stewardship and common-access to resources that are linked to shared identities and history, place-based economies, and social relationships and institutions

grounded on reciprocity and solidarity as well as coercive means of social control (Bollier, 2002; Nonini, 2007; Colloredo-Mansfeld and Antrosio, 2009).

The commons underlie the interdependence among humans and between them and non-human beings and embody what people regard as sacred and indispensable for life and for signaling membership in a community, or what Stephen Gudeman has called the *sacra* (2001: 30). At the same time, commons may fail because of “overexploitation of resources and incursion by newcomers” (Colloredo-Mansfeld and Antrosio, 2009: 135). Social exclusion due to discrimination, stigma, and community membership can also delimit who is entitled to benefit from the commons. For instance, Rachel Bezner (2010) documented that in Malawian peasant communities, tenants are not part of seed exchange because community members do not recognize any obligation to reciprocate with them given that they are seen as temporary residents. Nonetheless, these tenants are among the poorest since they have been dispossessed and expelled from their lands due to neoliberal reforms and land scarcity. AIDS affected families are usually left out too due to social stigma linked to their illness (144). Likewise, some farmers can be excluded within their communities because of their reluctance to share and save their own seeds. In addition, seed commons may discourage seed genetic diversity if the communities do not have access to broader networks of exchange to be able to obtain new varieties and expand their pool of germplasm, or if seed knowledges and practices have been lost or diminished (i.e. ‘traditional’ knowledges on seed saving are hold mainly by elders but lost in new generations) (ACB, 2012).

The commons are envisioned as people’s struggle to keep shared resources outside the sphere of the market (Bollier, 2002; Gudeman, 2001). However, recent studies have argued that the commons can also provide the basis for the creation or revitalization of alternative markets

based on ‘cultural commons’ or cultural assets, such as indigenous handicraft and clothing designs that are shared among local artisans at the Otavalo market in Ecuador (Colloredo-Mansfeld and Antrosio, 2009).

More standard narratives on commons defines them as the governance or management of resources by stakeholders. For instance, Dietz, Ostrom and Stern (2003) argue that designing effective institutional arrangements for managing commons is difficult due to uncertainty, environmental constrains and conflicting human values and interests (1907). According to the authors, challenges to commons’ governance and maintenance are most acute when resources are highly valuable in the global markets; governance is required from the local to the global; power differentials are substantial among users or between them and outsiders; resources cannot be easily monitored; and there are no dense social networks that can induce rule compliance, devise conflict-solving mechanisms, promote trust among users, and are flexible enough to adapt to changing conditions through time such as new technologies and population increase that threaten the sustainability of commons (Dietz, Ostrom and Stern, 2003: 1908).

Even if valuable, this management and conflict-resolution approaches obscure the radical potential of commons for social transformation. As DeAngelis (2012) argues, commons are a site of struggle against capitalist enclosures and the commodification of life (xii) Thus the commons are not just an issue of proper management of common resources to avoid their depletion, but also antagonistic to capital commodification and alienation (Caffentzis, 2004: 22).

In his latest contribution, Bollier (2014) emphasizes commons’ powers to disrupt the *status quo* by pointing out that “to honor the commons can risk unpleasant encounters with the power of the Market/State monopoly” (5) Throughout the book, he conceptualizes commons as a highly versatile, autonomous, and truly democratic form of resource management by a

community for collective well-being. For instance, one of his definitions reads: “A self-organized system by which communities manage resources (both depletable and replenishable) with minimal or no reliance on the Market or State” (175).

This managerial and anthropocentric approach to commons contrasts with other moments in the book where Bollier displays what can be considered a ‘relational’ and inter-epistemic approach to commons. First, he asserts that the commons speak of a radically different mode of human existence (ontology) and human knowledge (epistemology). Quoting biologist Andrea Weber’s concept of biopoetics, Bollier writes that the commons is an “existential condition of life in all its forms, from cellular matter to human beings that dissolves the supposed opposition between nature and society/culture” (147). Biopoetics constitutes a different metaphysical prism that does not conceive life in terms of an individual and competitive struggle aimed at maximizing self-interest in a ‘free’ market and according to a Newtonian view of the universe dominated by abstract forces and laws. Rather biopoetics sees life as a “system of cooperative agents constantly striving to build meaningful relationships and exchange gifts. Competition still exists, of course, but it is interwoven with deep, stabilizing forms of cooperation” (148) For Bollier, the commons is a paradigm akin to this project of ‘Enlivenment’ –rather than Enlightenment– to “reintegrate ourselves with nature and each other”; the practice of the commons here “reveals itself as nothing less than the practice of life”.

Second, Bollier argues that the commons are about “honoring the new and diverse types of knowledges that are collectively constructed by commoners themselves”; place-based, context-relevant, practical, and ecologically valuable knowledges rather than “abstract, self-serving, bureaucratic or economic” expert-knowledges that too often and undeservingly prevail (154)

Third, he defines commons as a new vision of development grounded in alternative worldviews, such as *buen vivir*, that question “the rational instrumentalism and economic mentality of market capitalism” (158-9): “In this sense, the commons is not just about managing resources; it’s an ethical and inner sensibility” (159)

I bring together Bollier’s insights and seed savers’ relational approaches to seed in order to arrive at a conceptualization of seed commons that goes beyond Bollier’s own definition of commons as “a resource + a community + a set of social protocols” (15)

Describing seeds as merely a ‘resource’ contrast with *resguardo* farmers’ visions of seeds as sacred and as related beings –as *sacra*; it also plays into capital’s rational instrumentalism and nature/human divide that underlies the commodification of seeds. A definition of (seed) commons that more thoroughly integrates ‘biopoetics’ and place-based knowledges may be ‘an interspecies assemblage + a set of practices + a cosmovision / way of worlding.’ In other words, the models by which a community, composed of both human (i.e., farmers) and non-human (i.e., seeds), live and subsist together according to their distinctive socio-natural practices, knowledges, and ethics.

2.2.5. The Open-Source Seed Movement in Public-Sector Breeding: An Expanded Definition of Seed Commons?

To close this section on seed community economies based on commons, I present an examination of the debate on the Open-Source Seed Movement that took place at the Network of Free Seeds during my fieldwork. I consider this debate relevant because it highlights the complexities of defining seed commons among two set of actors whose views on this issue do not necessarily coincide, as one may think at first. This debate is illustrative of the importance of analyzing ontological and epistemological locations to understand how different groups conceive

what seed commons are. The Open-Source Seed Movement also provides insights on the intricacies of commons-market relations.

Faced with the increasing corporatization of plant sciences, plant breeders and geneticists from universities and the public sector, mainly in the US and Europe, but also in the global south, launched the Open Source or Bio-Linux seed movement. Inspired in the open-software movement¹¹⁴, Bio-Linux recognizes the collective character of crop genetic resources and breeding-based knowledges in the design and implementation of public-sector breeding and agricultural extension services (Kloppenburger, 2010, Srinivas, 2006). The aim is to maintain the collective character of the labor and knowledge involved in plant breeding rather than privatized and monopolized through patents and patent-like breeders' rights (Kloppenburger, 2010). Research centers and breeding programs are then bound to share plant genetic material through legal mechanisms such as the General Public License for Plant Germplasm (Michaels, 1999), the Biological Open Source initiative (Bios) developed by the non-profit Cambia, the Open Variety Rights (Deibel, 2013), or the Declaration of Origin for Farmers' Varieties (Salazar and Louwaars, 2006). The Bio-Linux model is then intended to protect the biological commons from enclosing by IPRs so that further innovation is not blocked. In addition, Bio-Linux recognizes the sovereign rights of nations over their biodiversity under the Convention on Biological Diversity (CBD) so that plant materials are not conceived as a free commodity but a shared resource which access is bound by ethical commitments and social responsibilities.

The open source seed movement does not necessarily oppose genetic manipulation technologies nor does it deny rights of ownership to developers of new plant varieties. For

¹¹⁴The open software movement releases software that is free to be used, modified and developed upon by others. The aim is to prevent corporations from appropriating software through patents and other forms of IPRs that restrict further access to innovation.

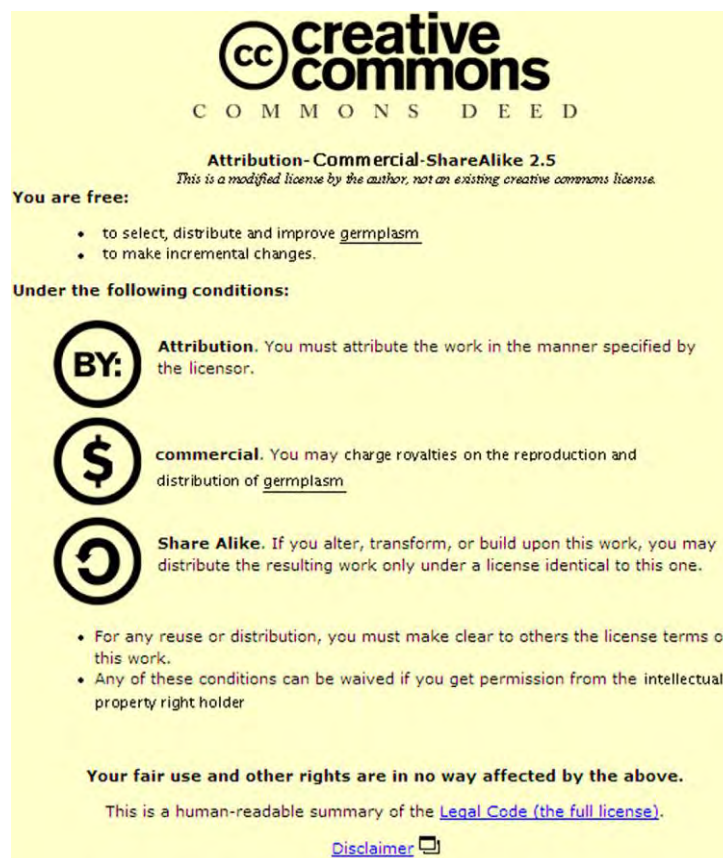
instance, Eric Deibel (2013) proposes a project on ‘Open Safety Seeds’ that could bring along synthetic biologists and geneticists to minimize the risks associated with genetic modification. For instance, “all sorts of ‘plug and play’ commodities in which particularly undesirable combinations of synthetic DNA and monocrops are cultivated to produce drugs, hormones, biofuels or other compounds in demand on the world markets” (306). However, there is also hope that open source licensing may prevent the further development of GMOs, because corporations will not be interested in such developments if they cannot recoup their investments through legally and biologically enclosing their ‘inventions’.

Likewise, this movement hopes to promote a legal framework for seed development that promotes collective ownership and free sharing, saving and improving genetic resources. This way, indigenous and peasant knowledges as well as seed will be protected and seed sovereignty defended. For instance, the open source seed movement may prevent and discourage bioprospecting and biopiracy because communities can condition bioprospecting agreements on open source licenses. In addition, the movement hopes to strengthen both public plant breeding and participatory plant breeding (Kloppenburger, 2010; Deibel, 2013). In sum, their initiatives strive to “offer scientists and public institutions a way to recover their intellectual freedom that has been coerced by TNCs” and to develop an “institutional framework that allows cooperation between small-scale farmers and scientists” (Kloppenburger, 2010: 163).

The open source seed movement conceives two main kinds of property licenses for seeds: Commercial and Non-Commercial Creative Commons licenses (Srinivas, 2006; Deibel, 2013; Kloppenburger, 2013). The Commercial type is based on Material Transfer Agreements where a seed developer may be allowed to patent the GM seed and charge royalties on its use, as long as the germplasm and GM technologies remain free to use by other researchers in developing new

varieties, and guarantee the ‘farmers’ exemption’ or farmers’ rights over saving, reusing and exchanging the protected seed (Srinivas, 2006: 330). In other words, the license does not allow for introducing patented novel gene constructs or transgenes into plants because that restricts further distribution and modification by other breeders or farmers. It allows that new seed varieties may be reproduced and sold, but the developer has no property claim on subsequent use or distribution (Deibel, 2013: 295).

Figure 40: Commercial Creative Commons license for plant varieties



Source: Deibel, 2013: 294

The Non-Commercial kind of licenses is based on alternative forms of property rights by combining open source principles with limited common property (LCP) so that charging royalties on the use of germplasm is not allowed. For instance, a community or plant breeding center or company may obtain a collective intellectual property right for a new seed variety, but

no member of such community can restrict or limit the rights of other members to research and innovate (Srinivas, 2006: 331). This license is intended for farmers' seeds that are not eligible for plant variety rights because they fail to meet the legal criteria of stability, distinctiveness and novelty; in other words, for creole seeds that are constantly being modified by farmers' agricultural practices (Deibel, 2013: 296).

Figure 41: Non-commercial Creative Commons license for plant varieties



Source: Deibel, 2013: 296

Can the Open-Source Seed Movement be considered a seed commons, even though they are not a community of farmers on a territory and participate, although in alternative ways, in capitalist seed markets?

Jack Kloppenburg –one of the leading scientists of this movement– has called on peasant movements around the world to embrace open-source seed: “Via Campesina and its allies should consider the potentials of ‘open source biology’ as a mechanism for seed sovereignty” (2008: 2). However, peasant and activist organizations in the global south such as La Via Campesina (LVC) and Navdanya¹¹⁵ have critiqued this proposal because it considers that seeds are a “collective patrimony of farming communities for the benefit of humanity”. There is also not unanimous support for Bio-Linux among seed activists in the international NGOs establishment.

¹¹⁵Prominent seed sovereignty movement in India founded by eco-feminist activist and scholar Vandana Shiva.

For instance, a Canadian-based seed activist I interviewed, told me in regards to this debate: “I agree with Via Campesina’s position. I don’t think seeds can be treated that way. I think this is a well-intentioned initiative; there has been a lot of time and effort put into it. But it seems more like a way to make a bunch of public sector plant breeders in the US feel better about what they are doing. I may be unfair, but that’s my impression.”

Kloppenborg (2013) recognizes “the open source route to recovery of seed sovereignty looks different, and is differentially appealing, depending upon location in the geo-social landscape” (3) Furthermore, the controversies on the Open Source Seed movement reflects how public sector seed breeders and seed savers/farmers may differently define seed sovereignty and commons according to their own relationships to seeds or seed worlds. While public sector seed breeders strive to protect their ‘freedom to operate’ to use germplasm and breeding/genetic technologies without IPRs restriction; seed sovereignty peasant movements more than struggling to protect their customary rights over seed; they claim to defend their seed worlds. This is not to say that those are antagonist claims. In fact, the Biolinux movement supports peasants’ claims to seeds and seed savers often endorse the need for a public breeding sector that is aligned with their interests rather than coerced or coopted by biotechnology corporations.

Nonetheless, the relationship of both social groups to seeds differ. Public-sector seed breeders relate more often to seeds from scientific and state institutional frameworks; farmers from their agricultural livelihoods in their territories, although also from their own forms of science-based observation and practices.

Most seed savers and activists from the Network of Free Seeds (NFS) I talked to supports La Via Campesina’s position. They believe that seeds are commons that cannot be legally owned by anyone; let alone by non-farmers. For the NFS and La Via Campesina movement, small-scale

farmers ought to have priority rights over the use and control of seeds because they have domesticated and developed the majority of crops available today. They consider seeds are living beings belonging to specific agricultural systems and access to them should be ruled by communitarian norms and responsibilities rather than western-based legal systems. For instance, the [Declaración de Yvapuruvu](#) (2013), released after an international meeting to discuss issues related to seed sovereignty in Paraguay and attended by NFS's member Grupo Semillas, states: “seeds are not things, commodities, or computer programs. They are not a resource open to anyone who can access them... seeds cannot be free in abstraction. Their liberty is only possible due to the peoples and communities that defend and maintain them in order to take care of them and enjoy the benefits they provide us all.” (In: Montecinos *et al*, 2014: 106).

However, not all NFS seed activists radically opposed the idea that alternative property licenses and other legal mechanisms could be effective to protect communities' seeds and biodiversity. In a conversation on this issue, Sara, a lawyer from Bogota, argued that sometimes it may be more effective to subvert the system by using the ‘enemy’s weapons’ than by completely resisting them¹¹⁶. She said that biopiracy will only increase with the US-Colombia and other FTAs. Those treaties provided corporations with legal and economic mechanisms to claim expanded IPRs on plant material –and to defend such rights, if necessary, before domestic and international tribunals. Faced with such menace, communities also needed legally-binding mechanisms to protect their biodiversity, besides communitarian regulations and declarations that hold no legitimacy before corporations, the State and multilateral institutions. Saul, a seed activist from the Seeds of Identity Campaign, replied that accepting an IPR system –even if a more progressive version– would mean to renounce to their struggle’s core principle that seeds –

¹¹⁶ Interestingly, Kloppenburg (2013) makes a similar argument.

and life in general— can never be property, in exchange for meager benefits. He argued that the IPR system is intrinsically colonial and capitalist and, thus, communities are *de facto* in a disadvantaged position to protect their interests; open-source licenses and other alternative legal tools would barely improve such situation. Furthermore, NFS seed savers and activists that oppose the Open-Source Seed Movement stress that their struggle is about achieving sovereignty not only for themselves but also for seeds, resembling Vandana Shiva’s campaign on ‘seed freedom’.

3. Seed Practices in Riosucio’s *Resguardos*¹¹⁷

Defying the apparent ubiquity of seed corporate global markets, there are an array of seed saving and circulation practices in Riosucio’s *resguardos*. This section analyses such diversity of seed practices that emerge from the frictions between ‘traditional’ agricultural models -the ‘coffee-forest’, Green Revolution models –the Fedecafé model; and the most current expansion of the seed corporate model through IPRs and GMOs (see chapters 2-5).

3.1. Seed Saving

Asproinca and the *resguardos*’ autonomous government or *Cabildos* encourage farmers to save creole seeds, particularly to grow food in gardens for self-consumption and petty trade. Local seed saving by farmers is known in the literature as *in-situ* conservation. However, only some of the *comuneros* or *resguardo* farmers could be consider seed savers because of their outstanding capacity, will and knowledge to conserve a large variety of creole seeds. These seed savers usually specialize in a few crops. For instance, in Asproinca, Don Jesús keeps 25 varieties of cane; Doña Ruth is known for her conserving work with beans and *cidra* –also called *guatila*

¹¹⁷ A modified version of this section appeared in Gutiérrez Escobar (in press) and was translated from Spanish.

(*Sechium edule*) –; and Mauricio has one of the largest collections on maize. Other *comuneros* – who are not affiliated with Asproinca– are also well-known seed savers, such as Rosa from Cañamomo and Lomapieta, and Fabián who specializes in cassava.

Most frequently, indigenous farmers, mostly women, in Riosucio’s *resguardos* grow creole crops in their gardens and fields to then save some of the seeds in their houses –usually in the kitchen or in a storage room–. Seed saving of creole varieties also occur at the Cañamomo and Lomapieta Community Seed House and at communal lands allocated by the *cabildos* for seed growing and saving to supply their seed sovereignty programs.

Certified seeds used by Riosucio’s farmers are initially developed and saved *ex-situ*, or outside their territories, in scientific research centers, such as Ica, Cenicafé, Cenicaña and Cenicel, and by national and transnational seed companies. However, seed development and saving of certified seeds becomes *in-situ* or on farm when indigenous farmers in Riosucio save certified seeds, cross them with creole varieties, and adapt them to their local conditions; a process known as creolization (Jones, 2013: 13) (see chapter 6).

3.2. Seed Circulation

In principle, seeds’ property is collective meaning that there is no farmer who privately owns a seed through IPRs and can restrict its use and circulation. In this sense, among indigenous farmers in Riosucio, there is a propensity –born in millenary customs and traditions– to exchange and give away seed with an implicit commitment for reciprocity. Of course, not all *comuneros* in Riosucio at all times follow norms on reciprocity and gift-giving. For instance, at a workshop with Asproinca members in the Lomitas community –San Lorenzo *resguardo*–, a woman commented that there are “neighbors who take advantage. They are asking for seeds all the time but never save and plant them in their own fields” while others “are selfish and do not like exchanging seeds, only selling them”

Seeds circulate in multiple ways in Riosucio: as gifts that usually entail the moral obligation to reciprocate; through exchange (*trueque*); and by purchase (commerce). Seed gifting, exchanging and commerce happens among family, neighbors, and other seed savers; or between indigenous farmers and Asproinca *promotores*, *cabildo* members, agricultural extension workers, NGOs staff, and commercial representatives of biotechnology companies. Seed circulation takes place at farms and fields, seed fairs, at the Cañamomo and Lomaprieta Community Seed House, through food aid and security and agricultural development programs, and at seed stores.

Therefore, indigenous farmers in Riosucio obtain seeds from multiple sources which accounts to the high circulation of seed and its importance. One source of seed circulation is through Asproinca *promotores* –trained in agroecology– who supply other members with seeds when they carry out their farms’ evaluations. *Promotores* may give these seeds away or barter with the farmer to obtain seeds they need. In turn, *promotores* obtain these seeds from other Asproinca and *resguardo* farmers and seed savers, and from exchanging with other communities in Colombia, and even, abroad. For instance, Asproinca farmer Eugenia (2013) told me that her brother, a former *promotor*, brought home amazon potato from a seed fair in the Department of Putumayo, in the Colombian Amazon. Amazon potatoes (*Dioscorea sp*) are a special kind because they are a vine which fruits do not grow underground –like a regular tuber– but aboveground similar to fruit trees (see Figure 42). Another time, he brought several varieties of creole maize from Peruvian seed savers when he traveled there to represent Asproinca at an agroecological workshop. Eugenia still conserves these varieties and has incorporated them into the family’s diet.

Figure 42: Amazon potato



Photo credit: my own

A second source are the *cabildos*' food sovereignty programs which give seeds away for free to *comuneros* who then ought to give back 50% of the amount of seed they originally received. Other times, the *cabildos* give seed for free to certain *comuneros* who become seed suppliers. Don Jorge, for example, received different varieties of creole vegetable, maize and beans seed from Cañamomo and Lomaprieta *cabildo*. He acquired the commitment to sell the produce first to the food sovereignty programs and the Community Seed House.

A third source are *trueques* or seed fairs promoted by Asproinca, the *cabildos*, and the municipal government where Riosucio farmers engage in seed gifting, exchange and sell or purchase among them and with other seed saving networks. In a *trueque* I attended, organized by the San Lorenzo *cabildo* on September 2013, there were delegates from La Vía Campesina, who brought creole maize seed from Peru; students from San Lorenzo *resguardo* who are part of

public school's seed saving programs; a women group from Families in Action Program (*Familias en Acción*) who sell cakes made of local varieties known by their high nutritional value, such as *chachafruto* (*Erythrina edulis*); students from a program on environmental studies at the National Training Service (SENA), and from the agroecological program at the Technological University at Pereira.

Asproinca and the cabildos also support seed savers to go to *trueques* in other parts of the country and, sometimes, abroad. Don Luis, an Asproinca seed saver, grows *secano* rice which he obtained from the San Andrés de Sotavento zenú *resguardo* in a seed fair. *Arroz secano* is a *criollo* variety maintained mainly by the zenú indigenous people whose territory is located in in the savannas near the Atlantic Coast (Department of Córdoba). This rice variety is characterized because it is rain-fed rather than cultivated in flooded fields.¹¹⁸

A fourth source to obtain seeds is from institutions that promote agroecological peasant markets and work with communities in the conservation of creole seeds such as the Botanical Gardens at the University of Caldas at Manizales and S.O.S Children Villages.

A fifth source are public and multilateral institutions and NGOs working on food security and agricultural development programs that distribute certified –and *creole* seeds when forced by the indigenous authorities– for free or at subsidized prices. The most active in Riosucio are the Growers Federation –particularly Fedecafé, USAID, the Ministry of Agriculture and its seed-related institutions Ica and Corpoica, and the Colombian Institute of Family Wellbeing (ICBF by its Spanish acronym).

A last source are seed stores where indigenous farmers can only buy certified seeds at standard market prices.

¹¹⁸ See Recar, SwissAid and Grupo Semillas. 2008. [Semillas criollas del pueblo zenú](#). *Recuperación de la memoria, del territorio y el conocimiento tradicional*. Bogotá: Arfo Editores.

Table 4: Seed saving and circulation in Riosucio

Seed saving	Seed exchange (<i>trueque</i>)	Seed gifting	Seed commerce (selling and buying)
At Asproinca seed savers' and members' farms (<i>in-situ</i>)	Farm-based <i>trueque</i> among family members, neighbors, and seed savers	Farm-based gifting among family members, neighbors and seed savers	Farm-based commerce among family members, neighbors and seed savers
At <i>resguardos</i> ' farms for seed sovereignty programs (<i>in-situ</i>)	* <i>Cabildos</i> ' Seed Sovereignty Programs *Asproinca <i>Promotores</i>	* <i>Cabildos</i> ' Seed Sovereignty Programs *Asproinca <i>Promotores</i>	* <i>Cabildos</i> ' Seed Sovereignty Programs *Asproinca <i>Promotores</i>
Cañamomo and Lomapieta Seed Community House (<i>in-situ</i>)	Cañamomo and Lomapieta Community Seed House	Cañamomo and Lomapieta Community Seed House	Cañamomo and Lomapieta Community Seed House
<i>Ex-situ</i> seed reproduction farms and seed banks: *Growers Federations' Research Centers (Cenicafé, Cenicaña, etc.) *Corpoica *Ciat	National, regional and local Seed Fairs	*Public food aid and security and agricultural development programs sponsored by the municipality, the Coffee Growers' Federation, the central and departmental government, ICBF, Ica, *Multilateral food and security programs sponsored by USAID, Or NGOs such as S.O.S Children Villages.	*Growers Federations (Fenalce, Fedepanela, etc.) *Seed stores

Source: Based on –and translated from- Gutiérrez Escobar (in press)

3.3. *Seed Fairs or Trueques*

Organized seed fairs or *trueques* are a central event among Riosucio's seed savers. They are an illustrative example of how seed commons work. *Trueques* allow for seed savers from across the country or regions to meet each other and exchange not only seed, but also their relational seed-human worlds: knowledges associated with their cultivation and preparation as food, socio-cultural meanings, medicinal qualities, ritual uses, etc. Seed exchanges are also a celebration of seed commons as participants often exchange seeds through non-monetary transactions, such as gift giving and bartering, although seeds are also sold at 'fair prices'. This is so because it makes the exchange easier as seed prices are difficult and often looked down upon. There is also a political and ethical commitment to giving away seeds so that they freely circulate and extend across fields and gardens, which seed savers consider is the most adequate way to conserve them. For instance, Rocío from the Seeds of Life Savers Network, said at an NFS' seed exchange:

“Like don Roberto, I brought all the *chocho* and amaranth I could to give it all away; that's the idea. We hope that this year around a thousand families are recuperating the gold amaranth and *chocho* that we gave them. These are two seeds really important for Andean agriculture, these seeds are native to the equatorial Andes –northern Peru, Ecuador and southern Colombia– and that have become lost. This is why it is very important to recuperate them in the sowing, eating and commercialization. Do whatever you want with the seeds, they are free for you take, but make sure they are propagated and conserved” (Rocío, 2014).

Sometimes seeds are bought and sold, particularly when one of the parts does not have seeds to exchange. The most experienced NFS' seed networks, such as those from Cañamomo and Lomapieta *resguardo* and the Seeds of Life Savers Network, have created Communitarian Seed House to save and reproduce creole seeds. Their seeds are packed and assigned prices through a collective process of decision-making between seed savers and the Seed House staff who are farmers themselves. This process aims to allocate prices to seeds that are fair to both

seed savers –recognizing their effort and time in growing these seeds– and to low-income farmers who want to obtain such seeds (see Figure 46). In other words, the redistribution of surplus is much more democratically defined taking into accounts the needs of all those involved in seed production and exchange. As explained below (section 5), these seed practices sustain what Gibson-Graham (2006) has called an ‘community economy’ where there is solidarity and care for others as well as democratic decision-making along the production, circulation, surplus allocation, and consumption of goods.

There is a great variety of crops, forest, vegetable seeds at *trueques*: native, creole, creolized, and sometimes wild relatives. In principle, seeds are available to anyone as long as there is a commitment to save and reproduce the acquired seed –so that the conservation process continues– and the seed is not enclosed, but rather continues to circulate among farmers, as you can see in Rocío’s previous testimony. However, during my fieldwork, NFS seed savers discussed the danger of unwillingly promoting biopiracy through seed fairs and other kinds of seed exchange. The fear was that bioprospectors –plant scientists hired mainly by biotechnology companies and foreign/multilateral agricultural institutions– would attend the seed fairs looking for native and creole seeds that could provide profitable traits for new GM seeds. In this sense, seed savers talked about being attentive and asking people why they wanted the seeds, where they came from, etc.

Seed fairs account to how the free exchanging of seeds, under communitarian control, is crucial for indigenous people in Riosucio to keep a vigorous seed system that allow them to conserve and develop *criollo* seeds for seed sovereignty.

4. Keeping the Seed Walking Freely in the Territories: Resistance against IPRs and GMOs in Riosucio

4.1. Reversing the Wearing Down of the Commons

Seed savers in Riosucio have long created spaces of ‘quirkiness’ and economic alterity by saving local seeds and cultivating plants that are not considered profitable or desirable (Nazarea, 2005). Seed saving, as anthropologist Virginia Nazarea argues, constitute peasants’ everyday forms of resistance to partial enclosure of the free circulation of seeds by governments and corporations and over the value and meanings of heirloom seeds as not inferior to hybrid/GM varieties (Nazarea, 2005; see chapter 7).

However, seed sovereignty becomes crucial in the face of an expanding corporate seed regime characterized by what Nonini (2007) calls the ‘wearing down’ of [seed] commons by biotechnology corporations and government and multilateral institutions through TRIPs-based seed laws and the expansion of GM seeds (Kloppenburg, 2010: 385). In tandem with seed enclosure, the seed corporate regime entails renewed forms of developmentalist governmentality or the set of legal and bureaucratic practices and expert knowledges that seek the ‘modernization’ and rationalization of local seed systems (Aistara, 2011). In Colombia, the corporate seed regime was implemented through adjusting domestic seed laws and certification systems to UPOV91 standards, as mandated by the US-Colombia FTA, and the promotion of GM seeds, particularly maize and cotton (see chapter 2)

As a result, seed savers in Riosucio and across the country started to articulate the importance of seed commons, not only at the level of *habitus* –so that it is only talked about when it is violated– but also at the level of organized political mobilization. In other words, seed commons were reinterpreted and mobilized in the context of small-scale, grassroots seed

sovereignty movements such as those in Riosucio's resguardos and Asproinca, and at the Colombian Network of Free Seeds (NFS), at large.

The reluctance to commoditize seeds, is partly explained by the solidarities formed among 'poor' people in the countryside who cannot afford to buy such an important resource in agriculture:

"We give the seed away for free; we don't sell it. Here in the countryside where we are all poor, there is no need to sell [seeds] to anyone. From Paneso [community] we brought rice, maize, and a seed called *achiote* [annatto] I believe" (José Maria, 2014)

However, resistance against seed commodification is deeply ethical too and based on what could be called "seeds' rights". According to Maria, a Board member, Asproinca does not buy seed from families because then seed conservation becomes business. Guillermo (2013), another board member, beautifully argued for seeds' freedom to walk the land:

"I believe that one should not trade with seeds because they belong to nature. Seeds need to be walking the land without limits; they are free to be born and live wherever they want. Just like us; we need to be free to go anywhere without someone else telling us that we can't go there, that you can't cross through here. Same with seeds; they have to be free."

Nonetheless, sometimes there is not enough commitment and understanding among members on the importance to "keep the seed walking". In other words, there are some resguardo farmers who become 'free riders'. Thus, *promotores* have to go to the farms to recover the seeds themselves.

To discuss the consequences of seed enclosure and the strategies of resistance in the *resguardos*, I organized three workshops with Asproinca associates. To instill discussion, I showed Documentary *970*, directed Colombian filmmaker Victoria Solano. The workshops took

place in Lomitas and Piedras communities in the San Lorenzo *resguardo* and in El Mochilón community in the district of Supía¹¹⁹.

Figure 43: 970 documentary showing at Don Víctor's and Doña Hermida's house, El Mochilón community, Supía



Photo credit: my own

Documentary 970 criticizes the Colombian Agricultural Institute's (ICA) Resolution 970 for criminalizing the informal sale of farm saved seeds. The documentary denounces how the riot police unit seized 62 tons of rice seed in the town of Campoalegre, Department of Huila, and threw them in a landfill, after ICA declared it was non-certified and illegally saved seed that posed phytosanitary and health risks for the rice sector and consumers (See Introduction to this dissertation).

¹¹⁹ In Lomitas, the workshop took place in December 2nd, 2014; in Piedras September 9th, 2013 and in El Mochilón in September 20th, 2013.

For Asproinca's indigenous and peasant associates, their right to freely use and exchange seeds is based upon the fact that their seeds are natural, healthy and have been inherited from previous generations. In the workshops, associates said that: "seeds belong to indigenous *resguardos*, no one has manipulated them, they have no chemicals like in other places; they are natural." On creole seeds, one woman claimed: "They are good for you, those GM [seeds] have a lot of hormones, that harms you and the children one is raising."

Another associate refers to the collective character of seeds:

"We are in this world only in passing, what we have is coming from generation after generation, and one does not take anything [after death]. Our parents left them for us; the seeds were already there. Seed comes from the earth. The seed does not belong to us, who are the ones who sow them."

Regarding the privatization and monopolization of seeds, through legislation such as Resolution 9.70, Asproinca members expressed the need to resist by keeping on saving and exchanging seeds. They also emphasized how seed grabbing represents forms of domination and undervaluation of peasant and indigenous agricultural work. For an associate:

"If we conserve the seed, then they [seed companies] never sell their seed. That is why they confiscate [our seeds] and prosecute peasants so that others learn the lesson and don't do it. That is like enslave us, made us give the money to them. What is worth is what is theirs, ours is not."

Likewise, another Asproinca's member said: "we need union, to unite more among us and make something so that does not happen around here. Do not let the traditional seeds to be lost, keep on sowing, have vegetable gardens, so that we do not give money to the companies." Finally, they showed indignation for the confiscation and destruction of farmers' rice seeds in the town of Campoalegre: "Throw away their [farmers'] food. Their work is worth nothing; it is very sad that food is thrown away. So many people in the streets going hungry; this is a crime to throw food away."

The notion that *criollo* seeds cannot be enclosed by IPRs because they are ‘natural’ and ‘come from the earth’ as opposed to ‘manipulated’ speak to the local idioms of ‘natural’. For seed savers and farmers in Riosucio, the ‘natural’ is related to seeds’ own life energy or *fuerza*, also called *elemental*, and linked to the notion of *temperamento*. *Temperamento* refers to being hot or cold, but it goes beyond these concepts as we understand them. Plants’ and other beings and things’ coldness or hotness is associated to their ‘energy’ and, as such, acquire certain qualities. These concepts of *fuerza* and *temperamentos* are shared among Andean peasant communities (Gudeman and Rivera, 1999).

Farmers breed seeds but without affecting the plants’ *elemental*, which means that seeds remain ‘natural’ and hence healthy, tasteful, happy, etc. Since humans feed from plants’ *elemental*, such food then remains healthy and nutritious. In contrast in scientific breeding, plants’ *elemental* become altered or poisoned by the use of agro-toxics and, more recently, by genetic modification. Thus, plants –and by extension humans– become sick and malnourished. In consequence, for seed-savers in Riosucio, seeds are living beings with their own energy and essence and as such they cannot be property.

Guarapo maker and healer, Diego (2013), explained me that certain plants are powerful for nurturing and healing humans: bitter plants counteract bad energies or *elementales* while sweet plants provide wellness –strengthens good *elementales*–. When I asked him about GM plants’ energy, he replied that they “lose their beneficial energy given that they are manipulated for evil”.

When I asked Asproinca seed savers about GM crops’ *fuerza* and *temperamento*; many of them said they did not know. A few of them, such as Mauricio (2013b), told me that when you consume these plants, they become ‘*alimentos de contra*’ or food that is counter-food: rather

than feeding you, providing nutrients and strength, and making you healthy; they make you ill and weak. However, they did not elaborate any further on how specific GM plants' energy differed from non-GM. I believe this is so because GM seeds are relatively new to this region. Thus, seed savers and healers have not yet developed a consistent theory on how genetic modification may impact plants' *fuera*.

4.2. The Cañamomo and Lomapieta Transgenic-Free Territory

The resistance of Emberá-Chamí communities in Riosucio might seem premature because to date no GM variety of coffee has been developed and there are no large fields of other GM crops nearby¹²⁰. Furthermore, the Colombian Institute of Agriculture (ICA) has prohibited GM crops in fields within a radius of 300 meters, or some 1,000 feet, of indigenous territories. However, seed savers in Cañamomo and Lomapieta consider extremely worrisome *any* cultivation of GM maize because of the threat of contamination of *criollo* varieties. They argue that the ICA's measures are ineffective against wind and insects, —vectors that disperse pollen with no regard for the 300-meter radius set by law. In addition, ICA's biosafety measures do not address the risk of contamination posed by imported GM maize and its potential use in government and privately-sponsored programs intended to assure food security and advance agricultural development (Gutiérrez Escobar, 2015).

The Cañamomo and Lomapieta *resguardo*'s [declaration](#) as a Transgenic-Free Territory states that indigenous people's seeds and knowledges are their “collective patrimony” and belong

¹²⁰ In 2013, total cultivation of GM maize in the Department of Caldas, where Riosucio is located, amounted to 319 hectares (Agrobio, 2013).

to “mother earth”. Seeds cannot be “altered in their natural condition of being, contaminated,” nor privatized through any form of intellectual property rights¹²¹.

The declaration also forbids the implementation of any “food security and agricultural development programs that contain GM seeds, food, or technological packages that put at risk our traditional seeds, ancestral knowledges, and territory”. As a result, both the municipality and the *cabildos* are rejecting any official program on food aid and security and agricultural development that require the use of seeds certified by the ICA, unless they use seed from the Seed House. The worry is that government institutions and NGOs would use imported GM maize and soybean, as well as ‘improved’ certified seed that harms the efforts to conserve creole varieties and to guarantee seed self-provisioning or seed sovereignty¹²².

Finally, the declaration says that the *resguardo* is committed to continue growing and conserving their ‘traditional’ or *criollo* seeds and related knowledges, supporting seed savers, and strengthening their traditional systems of cultivation and food sovereignty. To comply with such mandate, the *resguardo*’s authorities or *cabildo*, along with seed savers, have strengthened seed saving networks and built a communitarian seed house. The idea is that local seed savers and other indigenous farmers sell their creole seeds to the Seed House. Seeds are then reproduced and sold or redistributed to local families or to other seed saving networks. The *cabildo* supports seed savers by allowing them to cultivate on communal land, providing them with creole seeds –bought from or exchanged with seed savers from other indigenous communities– and inputs, such as

¹²¹This might suggest that the community considers seeds as ‘natural’ rather than as socio/cultural-natural entities. However, the sentence’s wording is strategic, as part of a strategy to reject GM seeds.

¹²² GM corn and soybean are imported from the US and Argentina and increasingly available in the market at lower prices than non-GM domestic varieties due to the US-Colombia free trade agreement. The concern over the introduction of GM corn as grain for consumption, food processing or feed is also related to its perceived negatives effects on human and animals’ health.

green manure. The *resguardo* has gained support from the Network of Free Seeds, particularly SwissAid's Seeds of Identity Campaign, and from the municipal government because Riosucio's mayor is an indigenous leader from Cañamomo and Lomaprieta (see chapter 5).

In order to implement the TFT resolution, Riosucio's municipal government and the Cañamomo and Lomaprieta *cabildo* have rejected official food security and agricultural programs, such as ReSa, unless they use creole seed as I recalled in the introduction to this chapter.

The Cañamomo and Lomaprieta *cabildo* and the mayor's office are also trying to get private and public organizations to replace the use of food supplement *Bienestarina* –made of maize and soy flour– in food aid programs with meals containing plantain and cassava flour, beans, *yacón*, *quinua* and other local foods. However, according to Juana (2013), a municipal indigenous officer and Asproinca seed saver, food safety standards from the Invima (the government's institution in charge of food safety), legal requirements to use Ica's certified seed, and low local production capacity have become an obstacle to supply such programs. Cañamomo and Lomaprieta seed savers network have also successfully lobbied to other institutions, such as the University of Caldas, and Fedecafé's Coffee Committees in Caldas and Antioquia, which are carrying out food sovereignty programs with *criollo* seeds supplied by the Communitarian seed House.

Nonetheless, not all organizations impose the use of certified seeds in Riosucio. For instance, the Austrian NGO SOS Children's Village International provides funding for *resguardo* families to grow gardens for self-consumption using creole seeds, as well as runs daycare centers which menu [*minuta*] is based on traditional foods.

In order to exercise their seed sovereignty and autonomy over their territory, the Cañamomo and Lomaprieta *cabildo* has called upon its unarmed indigenous force, named

guardia indígena and charged it with protecting the *resguardo*, to confiscate GM seeds so the territory stays Transgenic-Free, according to one guard on the force (Gerardo, 2014).

5. The Cañamomo and Lomaprieta Community Seed House: Building Seed Community Economies in Riosucio

5.1. Commons, Bio-Centric Practices of Care, and Place-Based Knowledges

I arrived in a ‘*moto-taxi*’ (motorbike-taxi) or public transportation motorbike, to La Mandrágora –a communal farm in Cañamomo and Lomaprieta *resguardo*–. After a short 15-minute ride from the town of Riosucio, I was excited to finally see the seed house completed, which construction began in 2012 before my fieldwork started. The architectural design resembles the Seed House built by the Viracocha Foundation to support seed saving networks in the district of San Agustín, in the southern department of Huila. Cañamomo and Lomaprieta seed savers are in contact with the Viracocha Foundation through the NFS to which both of these organization belong to. The Viracocha Seed House’s design blends the principles of biobuilding with ‘vernacular’ architecture, specifically *malocas*. A *maloca* is a long house or communal dwelling of *Witoto* and other indigenous people in the Colombian amazon.

The design choice reflects the *resguardo* seed savers’ interest in reasserting their indigenous identity and communal ethos. Communal houses are one of the central spaces for the collective recreation of the community, even if *malocas* are not specific to the *emberá-chami* people.

The Community Seed House provides an interesting case of how some indigenous communities in the Colombian Andes engage in what Gibson-Graham (2006) call ‘communities economies’ or those in which “social interdependency (economic being-in-common) is acknowledged and fostered and new kinds of economic subjects are produced” (165)

Figure 44: Cañamomo and Lomaprieta Community Seed House



Photo credit: My own

The Cañamomo and Lomaprieta Communitarian Seed House constitutes a community seed economy in two aspects. First, its seed production and distribution systems that maintain seeds as commons. Second, there is collective decision-making in the Seed House's functioning. For instance, seed prices are collectively concerted so that allocation of surplus is fair in seed purchase. The Seed House as a community economy entails two additional characteristics. In the first place, it strives to engage in a non-anthropocentered economy of care by looking after the needs of farmers and seeds –and the socio-natural system they are embedded in–. In the second, seed development is based on the farm-based knowledges and practices of seed savers,

agroecology, and on selected insights from western science. In this sense, I add to Gibson-Graham conceptualization of a ‘community economy’, the biocentric or non-anthropocentric notion and practice of care as well as the importance of inter-epistemic dialogue and place-based knowledges.

The Seed House strives to maintain *criollos* as a common good by keeping seed outside the IPR system and by creating and supporting alternative markets that allow for barter and reciprocity as well as provide a space for selling seeds without commodifying them. This Communitarian Seed House, as others, preserves agrobiodiversity and ‘traditional’ knowledges to strengthen local seed provisioning and prevent the genetic contamination of creole varieties. It is a center for grassroots participatory seed development to produce agroecological and healthy seeds that can be adapted to the needs of small-scale food producers in Riosucio’s *resguardos* and nearby communities, including strategies to adapt to climate change.

The Communitarian Seed House is an excellent example of how creole seed conservation has become politicized in Riosucio in the context of the struggle for indigenous territory, identity, and self-governance. In its seed bags (Figure 45), one can read the following statement: “The Seed House is a meeting space for seed savers that recuperate, conserve, produce and exchange agroecological native and creole seeds which are a peoples’ patrimony to strengthen culture and the development of indigenous communities.”

At a SwissAid workshop in November 2013 at the Universidad Tecnológica de Pereira seed savers from the coffee-growing zone discussed the advantages and disadvantages of Seed Houses. Benjamín (2013), a seed saver from Riosucio, explained the aims of the local Seed House:

“We are defending the traditions of our ancestors. This is a process to recover seeds that have become extinct due to programs that have instilled in people coffee monocropping, the

Green Revolution, extensive cattle farming and forget about food sovereignty and the food staple crops (*pancogeres*)”

Figure 45: Cañamomo and Lomaprieta Community Seed House: Seed Bag (back)



Photo credit: my own

5.2. *Reglamento Interno de Semillas: Regulating Seed Practices Communally*

In order to regulate seed practices, Cañamomo and Lomaprieta seed savers associated with the Seed House developed an ‘Seed Internal Guideline’ (*reglamento interno de semillas*) with the help of SwissAid’s Seeds of Identity Campaign to define seed lending and purchase regulations, seed saving and conservation methods, etc.

5.2.1. Seed Varieties and Savers

To start the process of seed production at the Communitarian Seed House in 2012, seed savers collectively identified the most endangered varieties and the most important for food sovereignty and income for local *comuneros*. Cañamomo and Lomaprieta seed savers based these collective seed assessments (*Diagnósticos Participativos de Semillas*) on the experience acquired during the SwissAid and Grupo Semillas' Study of Creole Maize (2011), which took place in Riosucio as a case study in the coffee-growing zone¹²³. The decisions on which maize varieties to conserve were initially based on the results of such study. From then on, seed savers periodically evaluate the availability of creole seeds in the *resguardos* and characterizing them according to their cultural, economic, and agronomical uses.

The Communitarian Seed House buys seed from the *resguardos*' seed savers networks and from other networks and farmers as long as they are *criollo* varieties and have been produced agroecologically or without the use of petro-chemical inputs. There are two kinds of indigenous farmers that produce seed for the Seed House. One kind is the seed savers or farmers who have “a special love for conserving creole seed varieties” (Rosa, 2013b). They have an immense variety of seeds but they do not produce them in great quantity. The other kind is the *cosecheros* (growers) who have a reduced variety of seeds –usually those that are most accepted at the markets – but are larger-scale producers than seed savers. *Cosecheros* are important to provide large quantity of seeds for supplying food security and aid programs. The Seed House trains *cosecheros* to produce seed agroecologically; however, they have a more “market-oriented” vision according to seed saver Rosa (2013b).

¹²³ For further information, see chapter 6.

The *cabildo* supports local seed savers and *cosecheros* by allowing them to cultivate on communal land –which has been ‘*recuperada*’ or recovered from *terratenedos* or large non-indigenous landowners, after decades of struggle¹²⁴– and by providing them with organic inputs, such as green manure, and *criollo* seeds bought from or exchanged with seed savers from other indigenous communities, particularly the *Zenús* from the Caribbean region. In fact, seed savers’ fields are considered part of the Communitarian Seed House (Mercedes 2013). Sometimes the *cabildo* calls for a *convite* or *minga* –collective community labor– to help seed savers and *cosecheros* to sow, harvest, select and save seeds for the Seed House.

According to seed saver Rosa (2013b), there are several kinds of seeds at the Seed House. The ‘commercial kind’ or those seeds that are most often sold at local markets such as Riosucio’s market place and, thus, many *comuneros* request them. These commercial seeds may not be creole because the market requests ‘improved’ varieties, but they are produced as agroecologically as possible. The ‘conservation’ kind that are creole seeds, those that are “different, rare, very visually beautiful” such as varieties of quinoa, maize, beans, amaranth, etc. There is no distinction between ‘creole’ and ‘native’ seeds; they are all referred as creole at the Seed House.

This is because the crucial criteria are their contribution to food and seed sovereignty and indigenous identities, independently of whether or not they are native to their territories. For instance, quinoa is not native to Riosucio but seed savers consider it an ‘indigenous’ seed. These ‘conservation’ seeds are mainly requested by seed savers and do not circulate as much. The ‘self-consumption or food’ kind that is creole varieties of crops such as plantain, cassava and other tubers that are staples for indigenous people in Riosucio. The ‘forest’ kind that is native trees

¹²⁴ For further information, see chapter 2.

which can be planted for reforestation programs so that birds and other animals have food to feed from and do not attack *comuneros* fields. This way, the Community Seed House attends the “needs of other beings” instead of conceiving them as plagues that need to be eradicated by using agrotoxics. Lately, the Seed House has also started to conserve and acquire vegetable and medicinal/spiritual seeds because *comuneros* consume them and to supply the ‘traditional’ healers. Finally, there is the conservation of creole animal breeds, particularly hens, which “have become lost due to the entry of new breeds for feeding” (Rosa 2013b)

5.2.2. Seed Registers

SwissAid’s Seeds of Identity Campaign has worked with the Cañamomo and Lomapieta Seed House to design and implement seed registers. There are several kinds of registers according to the different information on seeds and seed savers that needs to be recorded. Seed savers registers are important to know which seeds are being conserved by which families and where they are located. This way the Seed House knows where to look for specific seed supplies when it runs out and make sure that no seed is left alone, particularly those that are in danger of becoming extinct and need to be systematically reproduced and cared for.

Seed registers are called ‘Seed Passports.’ There is one for each seed variety conserved at the Seed House recording its scientific and local name and what it means; its origin or the place, time, and person where it was first acquired from and which local seed saver is currently taking care of it; its botanical description; why the seed is special or its advantages (high in nitrogen, very tasty, etc.); the best growing and conservation techniques; and its food, medicinal, agronomical, cultural uses. Some of this information is printed in the seed bags (see Figure 45)

5.2.3. Seed Gift-Giving, Barter, and Purchase

For seed savers in Cañamomo and Lomapieta, seeds are a not a commodity for capital accumulation but a collective and sacred living being that guarantees –through its free circulation

and reproduction– the biological and socio-cultural reproduction of farming communities. For instance, according to the Seed Guideline, when seeds are given for free, the Seed House requires recipients to give back up to 50% of the amount of seed they originally received after the first harvest in order to maintain seed provisioning.

In this context, during my fieldwork there was great anxiety and heated discussions among seed savers not only from Riosucio, but also from other communities affiliated to the NFS, regarding whether or not the Seed House could sell and buy seeds. At a SwissAid meeting, Eloisa (2013) a Riosucio’s seed saver, explained the issues that were at stake:

“We don’t want to speculate with high prices [in seed]. We would like for the seed saver to have a high income from selling his seeds but that would imply that farmers would have to buy expensive seed. We don’t want that because it’s an agroecological seed, then only higher-income people (*el estrato alto*) can access these types of seeds. This is why we consider a fair price both for seed savers and for whoever acquires the seed. We don’t want to make a business like seed companies do.”

After several meetings and discussions, seed savers decided that seeds’ prices are assigned through a collective process of decision-making between seed savers and the Seed House staff who are indigenous farmers themselves from the *resguardo*. This process aims to allocate prices to seeds that are fair to both seed savers –recognizing their effort and time in growing these seeds– and to low-income farmers who want to obtain such seeds. In fact, fair prices recognize that producing agroecological seed takes more labour and time than regular seed. For instance, the Seed House requires seed savers to de-kernel and select maize and beans by hand (Rosa, 2013b)

Rosa explained the ethical commitments that guarantee seed savers can earn a fair income to live in a ‘system that functions with money’ without turning seeds into a regular commodity for profit-making or that does not take into account the rights and needs –that does not take care– of farmers and seeds:

“We did the collective and conscientious exercise to analyze this issue and we decided that what we pay to the seed saver is the labor, the time, the effort, the space in his field to produce this seed agroecologically. The cost recognizes all of that even though seeds have no price. But unfortunately, we are in a system that functions with money. If only we could get on the bus and pay with a corncob or we had an alternative currency, that’d be ideal. What we do is to have fair prices, we don’t sell [the seed] to anyone but directly to the producer or to an organization that we know is going to sow it and take care of it” (Rosa 2013b).

Accordingly, the labels on seed bags state: “This seed is not a commercial product. Its price is to recognize the seed saver’s effort and dedication”. The Seed House reproduces the seed and sells it or redistributes it through barter or for free to *resguardo* families, to other seed saving networks, or to farmers who make the commitment to care for the seed.

Figure 46: Cañamomo and Lomaprieta Community Seed House: Seed Bag (front)



Photo credit: my own

5.3. Participatory Guarantee System and Inter-Epistemic Dialogue

The Seed House engages in epistemic resistance by rejecting conventional schemes – based on ‘universal’ criteria on sanity and quality– by ICA and seed companies to certify hybrid and GM seeds according to criteria that turn on yield, purity, and genetic homogeneity while considering creole seeds unproductive and risky in terms of phytosanitary standards. For Riosucio seed savers –and in general NFS seed savers–, certified seeds are massively produced in ecosystems that are different from those of farmers, they are highly susceptible to climate conditions and poor soils that are often characteristic of peasant and indigenous farming; and they only work well in combination with expensive technological packages. In addition, they reject certified seeds for their centrality to export-oriented corporate agriculture that threatens peasant economies and agrobiodiversity through land grabs, seed commodification, food imports, and the genetic contamination of traditional varieties. In fact, seed savers refer to both hybrids and GM varieties as *semillas desmejoradas* or “degraded seeds,” a designation directly challenging the primacy of scientific breeding and knowledges. Local varieties are not treated as ‘nature’s raw material’, ‘illegal’ ‘inefficient’ and ‘backward,’ but as the result of generations of labour and knowledge, adapted to local conditions.

Accordingly, the Seed House has developed its own standards of safety and quality creating a *Sistema Participativo de Garantías*, or Participatory Guarantee System (PGS). PGS constitutes epistemic disobedience (Mignolo, 2002) against hegemonic definitions on what a ‘good’ seed is. PGS is mainly based on the knowledge that gives farmers the ability to preserve and develop heterogeneous varieties on their plots and to incorporate elements of “Western” science only as they deem appropriate. For instance, the Seed House staff requires seed savers to supply seeds adapted to local conditions and grown and reproduced without the use of chemicals while also using conventional standards for germination, cleanliness, humidity, etc. There is a

mix of preservation techniques: the purchase of refrigerators for storage is under consideration, but hot pepper and other traditional elements are used to repel weevils and seeds are kept by the stove to prevent infestation by other insects.

PGS is also a seal of quality that aims to exercise social control over the potential destructive practices and behaviors of seed savers who may sell seeds that are not well preserved from weevil, humidity and other factors that affect their germination. In short, PGS is about “trust and solidarity among seed savers; about knowing how the seed was grown and in which community” (Rosa, 11/2013)

6. Debating Community Seed Houses and Transgenic-Free Territories

6.1. Cañamomo and Lomapieta Community Seed House

During my fieldwork, there were debates on the convenience to build the Community Seed House in the Cañamomo and Lomapieta *resguardo*. The issue was to what extent the Seed House would reproduce the model of seed banks. The debates took place within the NFS and between the Riosucio’s *resguardo* seed savers and the *Cabildos*, on one hand, and Asproinca, on the other. Asproinca has carried out far-reaching and successful seed conservation projects in Riosucio for over thirty years. Within the NFS, the debate was not restricted to the Cañamomo and Lomapieta Seed House but on promoting and supporting seed houses in other communities such as the Zenú in the San Andrés de Sotavento *resguardo* in the Department of Córdoba.

In principle, seed networks in Colombia, and across Latin America, reject the term ‘seed bank’ because of its association with the logics of capitalist financial systems: for-profit accumulation, speculation, etc. Seed networks then use alternative names such as Communitarian Seed House, Seed Social Pantries, (*Dispensa social de semillas*), Seed Centers (*Centros de semillas*), among others.

Seed Houses are in opposition to ‘seed banks’ and other forms of ‘*ex-situ*’ conservation. This kind of conservation occurs in seed or gene banks, some managed by the Consultative Group for International Agricultural Research (CGIAR) that draws its funding from governments and multilateral agencies and, increasingly, biotechnology companies and major philanthropic foundations. At seed banks, seeds are frozen and stored, becoming “beyond the reach of farmers and the earth as if they were dead,” in the words of Riosucio’s seed saver Mauricio (2014). For Mauricio and other NFS’ seed savers, seed banks grab creole seeds from farmers to develop (un)improved seeds that do not benefit small-scale farmers or peasant agriculture but large seed companies and corporate agriculture. As a result, local agronomical knowledges and breeding practices are invisibilized and small-scale farmers become disempowered actors who are constituted as passive recipients of improved hybrid and transgenic seeds (Aistara, 2011).

For seed savers, seed conservation must be done in farmers’ own lands to guarantee seed sovereignty or the local control over seeds and the linked knowledges and cultural practices. According to seed saver Mauricio (2014): “I have been very keen on asking for new seeds to cultivate them. It’s not about keeping them in little jars or shelves, but without anyone who grows them.” A fellow seed saver, Guillermo (2013), explained the benefits of on-farm seed conservation in the following terms: “I believe that seed must stay in the farm. If you keep the seeds in your farm, then you can always go to the fields for fresh seed as well as select the best quality ones.”

The Seed House is then conceived differently from a seed bank. Its main function is not to store seeds, but only to serve as a space to facilitate seed circulation and reproduction. In other words, seed storage is temporary because seed houses are oriented to self-provisioning through constant seed saving and circulation:

“The Seed house is not a space to store seeds in jars; it’s a meeting space for seed savers. The number one seed reservoirs are the seed savers’ fields and the Seed House is more like a space for seeds to circulate. At the seed house, seeds go through a cleaning and selection process to store them while they are taken somewhere else or while the next growing cycle comes along. The Seed House is a transitory space for seeds; seeds enter in and go out to the fields and we only guarantee that they maintain their quality while stored” (Rosa 2013a)

Figure 47: Corpoica’s seed bank



Short and Medium Term Seed Conservation Room (33.8-23° F)

Photo credit: my own

Nonetheless, Asproinca seed savers critiqued the Seed House in Cañamomo and Lomapieta because they believed all the money, time and effort should rather be invested in strengthening the seed savers networks. They believed in stronger seed networks as well as raising awareness among local indigenous farmers on the importance of conserving creole seed

for the Seed House to work well. In other words, the priority should not be the Seed House but rather supporting the seed savers directly.

At the 2014 NFS meeting, there was also a discussion on how convenient it would be for the NFS to have a central Seed House where seed savers' networks from around the country could send to and obtain seed from. Those who were in favor argued that in many regions and communities, seed networks are inexistent or not consolidated and, thus, there are imminent risks to lose creole seeds. In addition, natural disasters and the pervasive effect of the civil war also constitute real threats against seed conservation at the local and regional level:

“Today more than ever it’s essential to storage seed because of climate change, prosecutions from authorities and, God forbids, a war, an intense dry season or the like. And that’s when Christ begins to suffer [*Cristo comienza a padecer*] if we don’t have seed stored. There are seeds that can be stored up to eight years without losing their germination capacity” (Roberto, 2014).

Roberto proposed to have seed storages [*despensas*] in each department’s capital city or at the community as well as a national seed storage in Bogotá, managed by SwissAid or Grupo Semillas, so that communities have readily access to them in cases of calamity or hardship.

Likewise, Rocío from the Seeds of Life Guardians Network, said that even if it is true that “the best seed house is the earth”, communities and families need to collectively store seed and not “just do political activism and organizing.” She argued that seed storage is a long-held practice: “If we go back in time, my father, my grandparents, they always saved seed for those crops that they were not cultivating at the moment and kept it for a year or whatever time until new seed was available and so they could renovate their stock” (Rocío, 2014) Joseph, a seed saver from Europe who funded an agroecological organization, said half-jokingly: “we need to watch out to avoid being robbed [the national seed house] and [its seeds] patented”, expressing the fears of biopiracy that often come up among NFS seed savers when discussing the storage of creole seed.

Those who were against argued that a central Seed House would set a negative precedent and deviate efforts to guarantee the provisioning of seeds at the local and regional level; geographical scales that made possible the necessary close connection between Seed Houses and farmers' fields and places of exchange: "we have to have the seeds in the fields always because it's too high of a risk to have them concentrated in one place. It's not about Grupo Semillas or SwissAid creating a seed bank" (Eduardo, 2014).

Debates among resguardo seed savers also related to the several challenges faced by the Community Seed House due to the progressive loss of creole varieties and the knowledges and practices associated with how to grow and store them (see chapter 5). First, the Seed House's seed savers are trying to solve issues with seed quality –such as weevil and low germination– by recovering 'traditional' knowledges from elders, applying agroecological techniques, and experimenting among themselves.

Second, there are problems coordinating seed supply to adequately match local and regional demand, so that seed circulates fluidly: "sometimes we have a lot of seed requests and we don't have enough seed; sometimes, seeds remain stored at the Seed House for too long and get damaged" (Rosa 2013b). Seed shortage is especially acute when the Seed House needs to supply private and public food aid/security and agricultural development programs. For instance, Manuel, a seed saver who also works with the municipal government, explained at a meeting at the Seed House held in May 2014:

"We have had difficulties replacing *Bienestarina* [a food supplement] with *guineo* [a creole plantain variety] or [creole] maize *colada*¹²⁵, because we do not have the crops. There are few maize and plantain *cosecheros* [growers]. Most of the maize is [cultivated] in the cold lands where the cycle is longer –between eight and nine

¹²⁵ *Colada* is a hot beverage, usually fed to children. It is made of starch -most often maize starch or *maicena*- milk, sugar, and cinnamon.

months—, while we don't cultivate in the hot lands, where the cycle is shorter, because there is mostly cane" (Manuel, 2014)

Third, there is the challenge of long-term financial self-sustainability for the Seed House, which does not sell enough seed to make it economically viable, particularly given that it is not profit oriented but based on 'fair prices'. Maintaining the Seed House is expensive, so it depends upon external resources from SwissAid's Seed of Identity Campaign and Riosucio's municipal government. There are also resources from the *resguardos*, especially Cañamomo and Lomapieta, but they would be insufficient by themselves. The fear is that external aid may dry out, particularly from the municipal government, the moment the indigenous movement loses the local elections. Fourth, the problem of 'generational shift' among seed savers because the young generations are leaving the farms to work on the mines and nearby cities and towns (see chapter 4). This is a problem to guarantee the future self-sufficiency in creole seeds in Riosucio's *resguardos*. And fifth, the threat that the government implements seed laws that criminalize the free reproduction, circulation, and commercialization of seeds, including *creole* varieties. By arguing that the Seed House is violating IPRs and phytosanitary regulations (see chapter 2), the Ica could order the seizing and destroying of seeds and impose fines and incarceration sentences.

6.2. Transgenic-Free Territories

Seed savers and authorities from Cañamomo and Lomapieta are conscious that declaring their *resguardo* as TFT is largely a political statement that is difficult to implement. First, it is not easy to identify GM from non-GM seeds and food, particularly when labelling of food is not required, and the labelling of seed is usually implemented at entry ports and gets lost as it goes down the commercial chain. Second, seeds circulate rapidly and informally among farmers, and through the market and institutional programs, making it difficult to control the use and propagation of GM seeds. Third, growing *criollo* seeds, rather than hybrid or GM seeds, requires

sacrifices on the part of already marginalized indigenous farmers. There are no large markets for *criollos* and biotechnology corporations have powerful economic, legal, and political instruments, such as IPRs and FTAs, to commodify and monopolize seeds (see chapters 2 and 4).

Small-scale farmers in Riosucio, and across the country, on the brink of bankruptcy and expulsion from their lands, are often not in a position to reject GM seeds and food, be they in the form of donations or credits and aid programs. Furthermore, a considerable portion of peasants – and to a lesser extent, indigenous farmers- continue to frame their agricultural practices within the paradigm of the Green Revolution, cultural practices and mentalities that are difficult to change in the short term. Thus, they are often afraid and reluctant to grow *criollos* and shift to alternative production systems such as agro-ecology. This is even the case among non-seed savers farmers in Riosucio’s *resguardos*, who may not necessarily reject GM seeds or hybrids. Neither may they be willing to devote part of their already small plots to grow *criollos* for which there are no large markets and which demand time and effort. After all, since the coffee bonanza of the 1970s, farmers in Riosucio, and across the country, were encouraged by high prices and instructed by the Colombian Coffee Growers’ Association to shift to a high-input, monetized model of coffee mono-cropping. Thus, farmers grew accustomed to grow coffee “right up to the house’s kitchen” and buy food in the town. Finally, seed savers and *cabildo* authorities are often unable to enforce the prohibition on GMOs to rich farmers –often non-indigenous– may not have the political and ethnic consciousness to reject GMOs and have the economic, political and legal leverage to more easily circumvent the prohibition. A Riosucio seed saver articulated these problems at a meeting in the Seed House in May, 2014:

People are told not to sow GM seeds, but unfortunately there are not enough seeds and the fields [*parcelas*] are too small. If one knocks down the cane or coffee to cultivate [creole] maize is not profitable. In Escopetera and Pirsá [*resguardo*] rich people who have their lands there, [they] are not going to knock down the grasses to grow maize

and they do not care if there are GMOs. We need to find solutions to these issues” (Samuel, 2014)

Likewise, both Samuel and Rosa, Cañamomo and Lomapieta seed savers, talked about how *comuneros* are renting fields to non-*comuneros* to sow bean, avocado, *granadilla* and other crops¹²⁶. The problem with renting to foreigners is that they are either unaware or do not care about the prohibition to grow GM crops.

Seed savers and indigenous authorities at the meeting also underscored the lack of awareness among *comuneros* and *resguardo* authorities themselves on the threats of GM varieties and the importance to conserve creole seeds for seed and food sovereignty and indigenous self-government, autonomy and identities. Ricardo, a local leader stated: “How committed are we really with this issue of TLTs? We go around approving resolutions left and right, but no one takes responsibility”

At the end of this meeting, seed savers and *cabildo* and Cridec authorities agreed to work on the following issues in order to make seed sovereignty initiatives, such as the TFT declaration, more effective:

1. To design protocols with seed savers and food sovereignty programs coordinators to regulate the entrance and use of seeds in the *resguardos*.
2. To push forward the initiative to declare the other three *resguardos* (Escopetera and Pirsá, La Montaña and San Lorenzo) as TFT at the Cridec, and among the *comuneros*, the seed savers’ networks and food sovereignty committees, and the *cabildo* authorities from those *resguardos*.

¹²⁶*Granadilla* (*Passiflora ligularis*) is a fruit similar to passion fruit native to the Central Andean countries, including Colombia.

3. To continue to raise awareness, train and divulge the threats of genetic contamination, IPR laws on seeds, the implications of the Cañamomo and Lomapieta and Riosucio's municipality TFT declaration, and the importance to recover and preserve creole varieties in the *resguardos* through workshops, communitarian radio programs, popular education publications, etc.
4. To visit public and private institutions, such as Fedecafé, ICBF, Universities, Incoder, Umatas, to explain the TFT declarations and demand their observance in terms of the GMOs prohibition and the mandate to use creole seeds in their programs.

7. Conclusion: A Diverse Seed Economy

“In the process of losing the territory, seeds were lost. We can't speak of food sovereignty with seeds from abroad and distributed by official programs, such as ReSa, which do not germinate and may carry the danger of [GM] contamination. So in the last years, indigenous communities became aware of this problem and began formulating communities' life plans [*planes de vida*]. Based on those life plans, we formulated policies for food sovereignty. This is a political process of autonomy in defense of territory, culture, and the seed” (Rosa 2014).

Resguardo farmers, exercising their right to self-government, have struggled to implement their own models (*modelos propios*) of subsistence and inhabiting the territory, called 'life plans', in opposition to mainstream 'development plans.' This testimony by Cañamomo and Lomapieta seed saver Rosa illustrates how the defense of territory, identity, and *modelos propios* is deeply connected to seed sovereignty initiatives –seed saving networks, the Community Seed House and the Transgenic-Free Territory Declaration. For instance, on-farm seed saving, the Participatory Guarantee System (PGS) and the Seed House are a rejection of hegemonic seed systems where seeds are produced and commercialized through and within institutionalized and entrepreneurial spaces, such as laboratories, government offices, or seed chain stores that require specialized practices and knowledges involving licenses, patents, capital investments, or genetic engineering (Aistara, 2011).

Seed systems in Riosucio speak to a diverse economy where seeds are developed, saved, circulated, and consumed in different spaces, by varied actors, and through different market and non-market mechanisms. These include capitalist and alternative markets, farmers' own fields and gardens, NGOs, growers' federations, national and multilateral agricultural research systems, gift-giving, *trueques*, purchase, fair prices, communal work, 'traditional knowledges' etc. Seeds are considered a "heritage of farming communities for the wellbeing of humanity" which must be conserved and taken care of within communities and according to social norms; rather than 'things' or a 'resource' open to use by anyone or frozen stored in seed banks and other *ex-situ* initiatives.

The Cañamomo and Lomapieta Community Seed House illustrates a community economy based largely in a strong sense of commitment with seed conservation for promoting food and seed sovereignty, defense of their territory and communities, and strengthening indigenous identities and self-determination.

In such community seed economy, embera-chami farmers grow, conserve and market creole seeds. However, these seed practices are not the result of purely calculative, disembodied market relations. For instance, seed prices are not based on the behavior of international markets, stock exchanges and biotechnology companies' board decisions. Rather economic-decisions are embedded in specific contexts and according to seeds' diverse values –or the ability to satisfy a range of farmers' needs such as agronomical, nutritional/medicinal or ritual – as well as to moral considerations on 'fair prices' for both 'consumers' and 'buyers.' In other words, there is a collective commitment and struggle (with setbacks and conflicts) on the part of seed savers to maintain seed as commons –based often on solidarity and reciprocity– despite the constant encroachments of corporate agriculture and government seed and food policies.

In this chapter I introduced perspectives on biocentric or non-anthropocentric practices of care, place-based knowledges and legal pluralism (community seed regulations) to the analysis of community economies and the commons. In this sense, seed commons are a ‘cultural’ commons (Collaredo-Mansfeld and Antrosio, 2009) because seed savers, as indigenous artisans from Otavalo, seek “a robust defense of the identity at the heart of the economy: the link among people, place, and crafted goods they inherited from their parents and that they hoped would provide for their children” (149). For seed savers in Riosucio, seed commons would also be part of our ‘species commons’ (Nonini, 2007) because of the deep interconnections through plants’ *fuerza* or *elementales* that nurture humans in food consumption. In other words, seed commons lead us to rethink community, identity and our own humanity in terms that include non-humans and the worlds we create together.

Bringing together Gibson-Graham (2006) conceptualization on diverse economies and the corporate food regime analysis (Friedmann and McMichael, 1989; McMichael, 2009), I create a model of the Diverse Economy of Seeds in Riosucio. This model integrates the multiple kinds of seed-based enterprises, transactions, labor, and legal/property regimes in Riosucio’s *resguardos*.

A more streamlined diagram of Seed Diverse Economy in Riosucio below based on Gibson-Graham’s model of the Iceberg (Figure 48). I divide the Seed Economy into two models: 1) the Capitalist Economy of Seeds or ‘Dead Seed System’ as Colombian seed savers call it, and the 2) Non-Capitalist Economy of Seeds or the ‘(Communal) Live Seed System’ in seed savers’ parlance.

Table 5: The Resguardos' Diverse Seed Economy

Enterprise	Seed Transactions	Labor (in seed production and conservation)	Legal/Property Seed Regime
<p><u>Capitalist</u> *Biotechnology Companies (Monsanto, Syngenta, Bayer, and Dow)</p>	<p><u>Market</u> *Capitalist Seed Markets</p>	<p><u>Wage:</u> *Farm day laborers (<i>jornaleros</i>) *Asproinca's <i>promotores</i> *Biotechnology companies' employees *State/non-profit seed-development centers' employees (<i>Fedecafé</i>) *Central government and Municipal employees *Cooperatives' and NGO's employees</p>	<p><u>Liberal</u> *Extended IPRs (patents) *Pro-business seed certification</p>
<p><u>Alternative Capitalist</u> *State-owned and Non-Profit Seed Development Centers (<i>Fedecafé</i>) *Local and international NGOs (SOS Villages)</p>	<p><u>Alternative Market</u> <i>Local trading systems</i> *Small-scale seed stores in town *<i>Fedecafé</i>'s seed markets * <i>Asproinca</i> and <i>Resguardos</i>' Seed Saving Networks <i>Barter (trueque)</i> *On-farm and at Seed Fairs</p>	<p><u>Alternative paid</u> Reciprocal labor (<i>minga</i>) In-kind (with seeds/food)</p>	<p><u>Alternative Liberal</u> *Limited IPRs: Breeder's rights + Farmer's privilege *State seed certification *Biolinix *Seed as public goods</p>
<p><u>Noncapitalist</u> <i>Communal</i> *<i>Asproinca</i> and <i>Resguardos</i>' Seed Saving Networks *Canamomo and Lomapieta Community Seed House *Cooperatives (<i>Asprocafé</i>) <i>Independent</i> *Farms (Local indigenous and peasant farmers)</p>	<p><u>Nonmarket:</u> <i>Gift-giving</i> *Among farmers and seed savers *At Seed Fairs *By government's food aid and rural development programs *By NGOs' and cooperatives development programs *By <i>Fedecafé</i> *By <i>Asproinca</i> *By <i>resguardos</i>' and municipal government's food sovereignty programs <i>Theft</i> *By biotech companies (Bioprospecting)</p>	<p><u>Nonpaid</u> *Family labor in planting and conserving seeds *Women's labor in gardens *Women's food preparation *<i>Asproinca</i>'s <i>Junta Administrativa</i> Staff *Volunteers at NGOs</p>	<p><u>Non-Liberal (Communal)</u> *No IPRs –Seed Commons *Communitarian Seed <i>Reglamentos</i> *Participatory Guarantee Systems (certification) *Seeds' rights</p>

Based on: Gibson-Graham, 2006: 174-175

1)The Capitalist Seed Economy or Dead Seed System is in turn subdivided into two models:

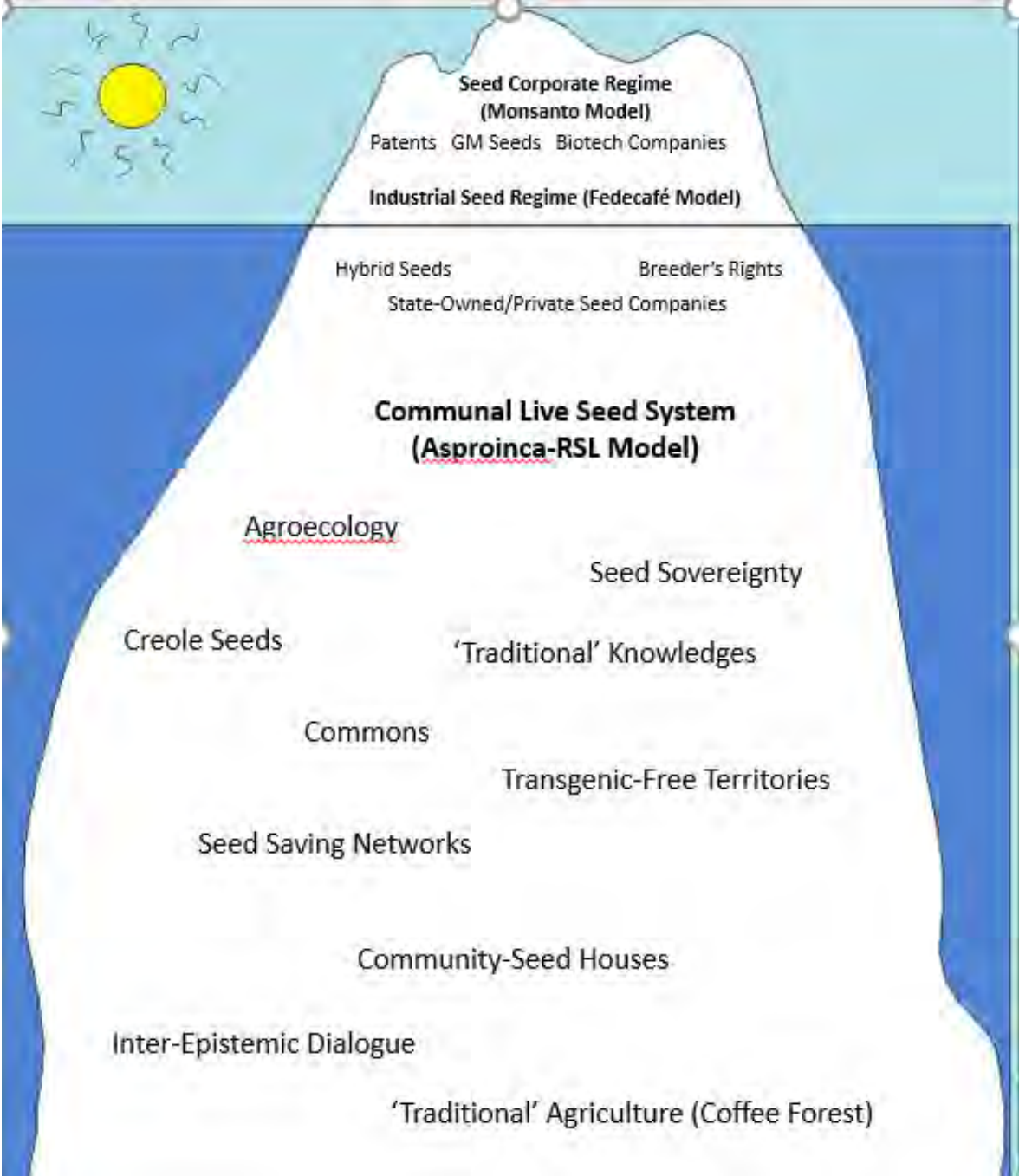
a. The Corporate Seed Regime –or the Monsanto Model– which corresponds to the current corporate enclosure of seeds by biotechnology companies through patents and GMOs. As the dominant model today, it is placed at the top of the iceberg.

b. The Industrial Seed Regime which features an alternative capitalist model based on the partial commodification of seeds under the Green Revolution: seeds are both commodities and public goods. Legally, this partial commodification results in a limited IPRs regime based on breeder's rights. Breeder's rights are less restrictive than a patent because they allow for what is known as the 'farmers' privilege' or farmers' rights to freely save and reuse seeds. I call it the Fedecafé Model because this is the emblematic Green Revolution institution in Riosucio (see chapter 4). In the iceberg, it is located part underwater and part above the water to visualize how this regime is losing its dominance *vis a vis* the corporate seed regime.

2)The Live Seed System or non-capitalist seed regime where seeds are a commons. It is based on seed sovereignty which plays out in Riosucio through community seed houses, seed saving networks, and transgenic-free territories embedded in 'traditional' models of agriculture, particularly the coffee-forest, and in agroecological practices. In addition, this model propends for the cultivation of *resguardo* farmers as subjects who desire non-capitalist or alternative economy economic subjectivities and practices. There is a conscious effort on the part of seed savers and indigenous authorities to promote seed practices based on solidarity, barter, reciprocity, that reject seed homogenization, intellectual property rights, genetic modification and other enclosing mechanisms. The Live Seed System is located under water as it is invisibilized and marginalized *vis a vis* the capitalist seed system. This is a modified version of

Gibson-Graham’s iceberg because it is bottomless to reflect seed pluriverse. In other words, the many different forms of Live Seed Systems that are present in different communities around the world.

Figure 48: The Diverse Economy of Seeds



Source: based on Gibson-Graham, 2006: 73

CHAPTER 6: SEED LIVING SYSTEMS: RELATIONAL ONTOLOGIES AND MULTISPECIES PRACTICES OF CARE¹²⁷

“What does that mean 'tame'?”

"It is an act too often neglected," said the fox. It means to establish ties."

"To establish ties?"

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you, I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world..."

"I am beginning to understand," said the little prince. "There is a flower... I think that she has tamed me."

(Antoine de Saint-Exupéry. *The Little Prince*)

1. Astrid and Creole Beans: A Life-Time Taking Care of Each Other

Like the Little Prince, in Antoine de Saint-Exupéry's story, seed saver Astrid would have probably said that the creole beans in her garden have 'tamed' her; or rather that they have tamed each other over a life time of mutual care and need.

Astrid is a middle-age indigenous woman from San Lorenzo community or *resguardo* in the district of Riosucio. She is a kind and joyful woman who dedicates most of her time to conserving creole and creolized beans, *cidra* (chayote squash), maize, and other kinds of vegetables and fruits as well as raising free-range hens and turkeys. Beans, however, are her passion. She sows both vine and shrub beans and conserves them in glass jars that fill up an

¹²⁷This chapter draws from Asproinca and Gutiérrez (2014) as well as from a paper presented for the International Conference "Concentración y acaparamiento de tierras, desarrollo rural y derecho a la alimentación (Universidad Externado de Colombia, Bogotá, October 9-11, 2013) and currently in press (Gutiérrez Escobar, in press)

entire cabinet in her house creating a beautiful collage of sizes, colors, and shapes. In fact, Astrid is well-known in her *resguardo* for her large variety of beans. Neighbors know they can go to her for advice on how to grow, save, or consume a certain variety of bean they acquired; or to ask for beans in case they need to renovate their stock.

Ever since I met Astrid, I was impressed by her deep love of beans. The first time I visited her farm, she spent all afternoon, with a broad smile in her face, showing me the incredible diversity of creole beans sprouting everywhere. On another visit, I asked her if it would be ok to take pictures of her beans for my research. Astrid nodded and brought her jars filled with beans over to the dining table in the corridor. She arranged them carefully in several ways so that I could take different sets of pictures. For the first, she grouped the jars according to beans' varieties. For the second, she poured the beans on large leaves she picked from her garden so that beans would look beautiful against the leaf's green color background. She arranged the beans by varieties, then sub-varieties, and finally put them altogether. That way, she told me, people in other places would see my pictures and be marveled by the beans' beauty; maybe they would even take an interest in conserving them.

Astrid learnt to love and conserve beans and *cidra* from her mother who prepared them in several ways to feed the family, following a culinary tradition that brings together Embera-Chami indigenous and *paisa* eating habits and preferences¹²⁸. Beans are a staple crop in Riosucio, and across the coffee-growing *paisa* region, and *cidra* is one of the main ingredients in preparing bean-based meals. *Cidra* is also used for cakes, particularly for children. She further

¹²⁸ *Paisa* refers to the identity and culture of the people in the coffee-growing region colonized in the 19th century by settlers coming from what today is the Department of Antioquia. People from Riosucio, as a district located in the coffee-growing region, are considered *paisas*. However, *paisas* have historically been considered 'white' people, so people from Riosucio fit this identity uneasily due to their indigeneity– (see chapter 3)

engaged in seed conservation through her participation in the Indigenous and Peasant Producers Association (Asproinca by its Spanish acronym), a grassroots environmental organization founded in 1992 and formed by 350 peasant and indigenous families from the districts of Riosucio and Supía, in the department of Caldas.

Figure 49: Astrid's beans

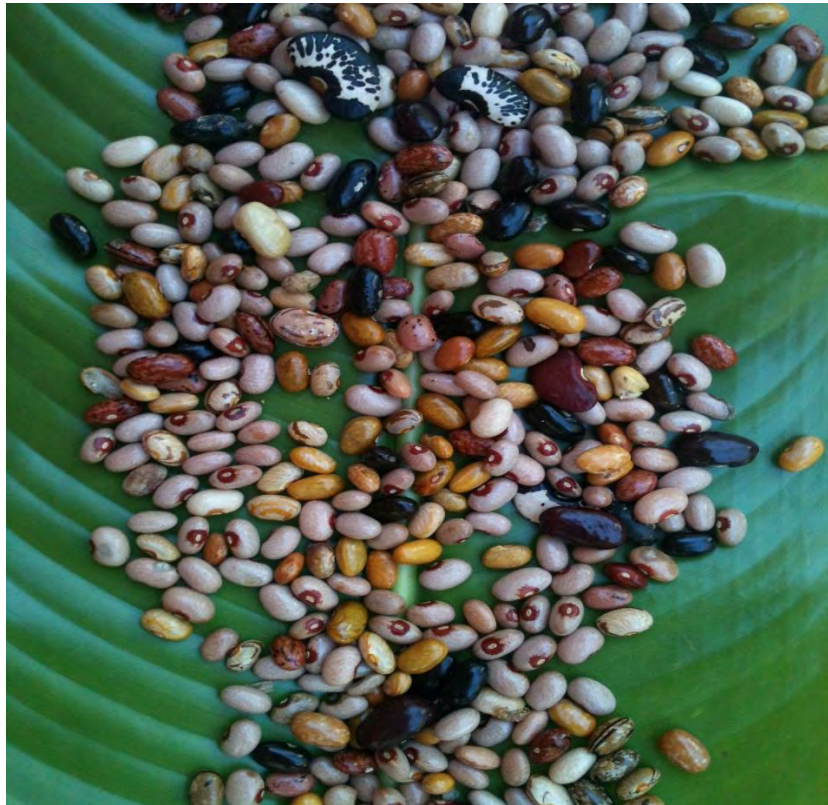


Photo credit: my own

Seed saving requires much dedication from women farmers such as Astrid. In fact, she often times described seed conservation as similar to child raising. To be sure, whenever I talked to her about the beans, I felt as if she was telling me all about how she raises her children to be healthy and generous; and how they grow old and support each other throughout their life journey.

Other Asproinca women seed savers I met in Riosucio also talked about seeds in ways that resembled human beings. For instance, one day on the fields, Selma, a young Asproinca

promotora, explained to me that mulberry is very spoiled [*mimada*] because she needs fertile soil and water abundance to grow. Eugenia (2013), another Asproinca associate, referring to the importance of green manure, explained to me that plants need “a diversity of *sana* (healthy) food that they like, so that they grow *alentadas* (healthy), just like us”.

Nonetheless, these intimate relations to seeds are not unique to women or seed savers from Asproinca. Over my fieldwork, it was not unusual to hear indigenous peasants in Riosucio and Supía refer to their seeds and crops not as a resource to be exploited, but as almost human beings with different qualities and feelings and with whom they have close relationships. For instance, male indigenous peasants sometimes describe creole sugar cane and coffee varieties as ‘very grateful’, meaning that they show gratitude for the care received by producing rich harvests. Over and over again, I heard from these farmers say that plants have “become addicted” to chemical fertilizers.

This deep sense of connectedness to seeds as sentient beings, rather than resources or commodities, is shared by other communities around Latin America. For instance, *mestizo* peasants in Boyacá, Colombia (Gudeman and Rivera (1990), and indigenous Zapotec communities in Oaxaca, Mexico (Gonzalez (2001), consider maize as sacred, willful living beings to be raised and taken care of. Thom Van Dooren (2007) talks of an ‘inter-species co-evolutionary kinship’ to describe the sense of interconnectedness Andean farmers hold with certain crops, such as maize (quoted in Guntra, 2011).

To be sure, Anthropological studies have long argued that many non-western societies do not organize the world according to dichotomist ontological realms that separate ‘nature’ and ‘culture’ or ‘individual’ and ‘community’ (Ingold, 2011) In contrast, these societies establish a

continuum of relationships –across time and space– between the human and non-human world that constitute all that exists

Asproinca seed savers –as other Colombian seed savers and activists affiliated with the Network of Free Seeds, and in other networks in Latin America, are increasingly using the term ‘living seed systems’ to refer to grassroots systems of creole seed conservation and exchanging as a caring-based practice that sustains life. The term ‘living’ is used to contrast these systems to the industrial seed system –or ‘dead seed system’, as they call it. To these seed savers and activists, the dead seed system destroys the diversity of communities’ seed systems by ‘incarcerating’ creole seeds –and all the relations embedded in them– in seed banks “beyond the reach of farmers and the earth as if they were dead,” in the words of Riosucio’s seed saver Mauricio (2013b).

As I illustrate in the introduction to this dissertation, seed savers’ movements in Colombia, and across Latin America, are increasingly conceiving the *agronegocios* or agribusiness as part of the advance of death and destruction of their seed and food sovereignty and other ways of subsisting in their territories –the worlds they inhabit in relation with other non-human beings. Living Seed Systems then entails the defense of those socio-natural worlds, specifically around seed saving, conservation, exchange and consumption. I argue that living seed systems are the result of a relational ontology where humans, plants and other non-human beings are intrinsically interconnected and inter-dependent in the territory as a multispecies community that contrast with corporate agriculture.

Drawing from recent theoretical approaches to seed systems (Muller, 2014a and b; Demeulenaere, 2014), I argue that Asproinca farmers’ conception of seeds as sentient beings with whom they are intrinsically connected emerges from a ‘relational’ worldview or ontology; a

conception that everything that exists, including humans, does so in terms of relations or connectedness (Escobar, n.d.) In other words, “relational ontologies” are those “narratives about what exists in the world in which the non-human, human and supernatural worlds are not considered separate entities, but interconnected and continuous” (Escobar, 2014: 58). Relational ontologies contrasts with the dominant form of the ‘modern’ ontology based on an atomized universe composed of pre-existing, self-contained beings organized in a hierarchy around two main divides: (one) nature vs. (different) culture(s); and Us vs. Others (Latour, 1993; Plumwood; 2002)¹²⁹

In Chapter 5, I analyzed living seed systems as a commons. In this chapter, I conceptualize seed living systems as relational ontologies based on multispecies practices of care. Besides the political ontology framework, I bring together insights from living systems theory (Capra, 1985; Capra and Luisi, 2014; Noble, 2008); agroecology (Altieri and Toledo, 2011); identity theory (Holland *et al*, 1998); and post-dualist approaches to non-human beings and feminist political ecologies of care (Bellacasa, forthcoming; Bird Rose, 2012) I draw from this recent post-dualist scholarship because they offer ethnographic and theoretical frameworks to investigate seed systems and seed sovereignty in ways that resonate with how Asproinca indigenous farmers, and particularly seed savers, conceive seeds from a relational perspective.

First, I analyze Asproinca’s seed living systems as the expression of a (seed-human) ontology. Second, I explain Asproinca’s proposal for food sovereignty, autonomy, and agroecological systems, particularly in relation to the ‘coffee-forest’ model, as forms to reconstitute communal inter-species or relational worlds. I examine Asproinca’s *Promotores*

¹²⁹ See Chapter 1.

Team, the micro-credit fund, and the Participatory Land Planning as place-based initiatives towards their own agroecological models or '*modelos propios*'.

Third, I analyze Asproinca's seed systems as 'multispecies figured worlds' based on practices of mutual care (Holland *et al*). I describe seed saving and exchanging practices, particularly Seed Fairs. I also briefly present depict my encounters with three other Asproinca seed savers –Mauricio, Eugenia, and Mercedes– to offer a more intimate narrative of how and why farmers become seed savers.

2. Relational Ontologies, Life Systems, and Multispecies Practices of Care

“Wherever we see life, we see networks” writes Fritjof Capra (2002) to succinctly define what a systemic conception of life entails. Living Systems Theory offers a way of thinking life in terms of connectedness, relationships, patterns, and context. This resonates with how indigenous peasants in Riosucio conceive seed as a sentient being related to humans through food growing and consumption.

In their most recent work (2014), Capra and Luisi explain that this network organization is present at all levels of life in the planet from subatomic particles, electromagnetic waves or minerals to cells, living organisms and ecosystems. They describe such 'networks nesting within networks' as the ceaseless flow of energy and matter. In living organisms, matter and energy flow through metabolic networks in a constant intake of food, production of waste, and recycling of such waste as food for other organisms. Metabolic networks then regenerate and perpetuate organisms and life in general.

Drawing from philosopher James Hatley's concept of 'ethical time', anthropologist Deborah Bird Rose (2008) examines how death is an intrinsic part of making life on Earth possible through the cyclical flow of gifts and reciprocity among species and across time. She discusses two ecological and interconnected modes of time: sequence and synchrony. Sequence

or generational time is the transmission of the possibility of life across generations as an “unasked gift that carries an obligation”. Synchrony involves “flows among individuals, often members of different species, as they seek to sustain their individual lives” or “multispecies nourishment” (129) In this sense, being birthed means that one is indebted to one’s parents and grandparents –to ancestors- and to all of those humans and non-humans who, in turn, made their life possible. Across one’s lifespan, one becomes responsible for passing on such gift of life by nourishing others. At the same time, one is being nourished by multiple others that make one’s life possible and are, themselves, passing on the gift of life to me others (136) This ethics of time as a multispecies gift of life that “situates living beings as always entangled with and responsible to and for others—both nourishing and being nourished. The way of life [...] is to keep the gift moving” (137).

In another essay (2012), Bird Rose retells an Australian aboriginal story to urge us to think otherwise –that is relationally and ethically– about history, nonwestern peoples, and our relation to the Earth (157). The aboriginal story is about how after the severe dry season that characterizes Australia’s desert region, a species of bats called flying foxes call the rain to bring life back to the country. Rose show how this story is an ethical teaching on the importance of multispecies gifts sustained across generational and synchronic time as illustrated in the symbiotic relation between flying foxes and myrtaceous trees and shrubs in Australia. The flying foxes are crucial for dispersing the myrtaceous seed; the myrtaceous, in turn, provide most of the flying foxes diet (131-2). Thus, flying foxes and myrtaceous trees probably co-evolved to develop specific morphological and habitat adaptations to each other. Flying foxes have evolved to synchronize their migrations with myrtaceous flowering periods. Thus, flying foxes move across from the highlands to the lowlands in this region following the rain patterns that bring

about flowering. In this way, rain, flying foxes, and myrtaceous trees are entangled in ‘ethical knots of time’ or time cycles that are crossed by mutuality and gift.

This kind of symbiotic relationships also joins humans and seeds in ethical time. Muller (2014a), drawing from Donna Haraway, describes seeds as true companion species for humans for thousands of years, coevolving and becoming together in the world (3). In fact, a seed anchors a socio-natural world that is constantly being enacted in agricultural practice. If one were to trace the genealogy of seeds, there would be a variety of human and non-human actors – and their knowledges and practices– in networks of biological and socio-cultural symbiotic and antagonist relations evolved in time (Aistara, 2011; see chapter 6). There would be soil microorganisms that make nutrients available for plants, bees’ pollinizing actions, human’s sowing and harvesting, birds and insects who disseminate seeds, the rain and sun who provide water and energy for photosynthesis. In turn, seeds and human agriculture pass the gift onto other animals.

Anthropological studies also emphasize the relational approaches of Latin American farming communities to plants in agriculture. Stephen Gudeman and Alberto Rivera argue that for Colombian peasants in the Department of Boyacá, the earth is not just a resource, but the repository of ‘strength’ which humans garner and spend through raising and consuming crops. In saving and planting seeds, humans are not creating value through labor, but nurturing the earth and helping her to “give” her products, as a ‘midwife’ assists a birth (1999: 24-5). In other words, Andean farmers conceive agriculture as the circulation of this vital force that is garnered and spent in an endless cycle of growing and consuming plants. Roberto González similarly describes for a Zapotec community in Oaxaca, Mexico, that peasants conceive maize cultivation

as a “way of caring for a willful living being, a genuine plant-person; it is a direct link to the deities; and nearly all of its fruits are eaten directly by farmers’ families” (González, 2011: 164).

Seeds savers in Riosucio conceive their relations to seeds in ways that celebrate these notions of multispecies relational worlds based on connectedness, mutuality, gifts, diversity, and care across generational and synchronic times. Asproinca seed savers refer to plants and seeds as the result of creating ‘*vínculos*’ or connectivity between them –in tandem with all other non-humans that make agriculture and life possible. For Riosucio seed savers, maize or bean seeds are the continuous reproduction of life that connect them as a multispecies community across their territory:

“Seeds are the origin; they are life. Seeds connect us one with another; they are food, life. We are interconnected through seeds. You give seed to someone and that person grows it and harvests it and gives it to others. That’s how the seed travels ” (Mercedes, 2013)

Furthermore, Asproinca seed savers stress the reciprocity and flow of gifts embedded in agriculture, not only for humans but for all other beings that depend upon food growing:

“We have to have a variety of seeds because we need a diverse world in which both human beings and animals must live together with seeds because we all need seeds. When they [bugs] come to the seed, they also leave something behind. We can’t be unaware that when a bug comes to a seed and perforates it, it is because he also needs the seed. We sometimes become jealous because they come to feed from our fields, but they can’t sow crops to survive. We can do it not only for us, but also for many animals that are overflying, that are around” (Alvaro)

Seed Living Systems may then be defined as a multi-species network of care where plants, humans, and many other organisms that feed and thrive in connections to one another.

This seed-human relational ontology is important in that, akin to environmental thinking, it questions western paradigms of development based on controlling and possessing nature for several reasons. First, seeds regain their status as a living being and a companion-species rather than as a “genetic resource at the disposal of humans [...] that can be violently seized in a

techno-scientific manner” (Muller, 2014a: 5) Second, we are prompt to accept that seeds have their own agentivity and coevolve with humans. Third, there is a call to defend the different worlds that emerge from such inter-species relations, which challenge and interrupt the globalizing project of the One World –based on systems of oppression and control through seed commodification– (Muller, 2014a: 5-6)

3. The Coffee-Forest World as a Relational Ontology

Mauricio is a well-known seed saver from Cañamomo and Lomapieta *resguardo* in Riosucio, who specializes in creole maize conservation. He was one of Asproinca’s founders and has mostly served as a Board member. Mauricio’s family has traditionally grown sugar cane, coffee, cacao, cassava, maize, plantain, and raised livestock and minor species both for self-consumption and for the market.

At the time of my fieldwork, Mauricio was growing two main market crops: cane and coffee, complemented by cacao. He conserved fifteen different varieties of cane, which harvest he took to a nearby communal mill or *trapiche* to make *panela* for self-consumption (*pa’l gasto*) and to sell in the town of Supía that is closer than Riosucio.¹³⁰ Mauricio grew coffee, both Colombia variety and the ‘old’ creole varieties, particularly *pajarito*, because he told me “they are very scarce”¹³¹. He was also raising three cows and sold milk locally.

Mauricio’s family farm –*El Pedrero*– is an Asproinca model farm. Mauricio never implemented the commercial monocropping model, but maintained a diversified production. This was due in part to family tradition, his implementation of Asproinca’s agroecological

¹³⁰ He was selling between eight and twelve *panela* bags every two weeks; each bag contains two *panela pacas*. See Annex for weight and measurement conversions

¹³¹ Mauricio sold around four coffee arrobas per year to Fedecafé’s cooperative, as well as cacao. Fedecafé buys cacao to supply its Luker Company that sells chocolate-based products.

model, and the fact that his farm is large, in comparison to most farms in his community, which allows for a variety of micro-ecosystems.

Mauricio's farm is a beautiful example of the 'coffee forest' model in combination with agroecological principles. The coffee-forest was a pre-Green Revolution form of coffee polycropping that resembles the ecological structure of a forest (Corrales y Forero, 2007) As seen in Figure 50, Mauricio grows coffee in association with¹³²:

- 1) *Pancoger* crops such as plantain, yucca, and *arracacha* which are mainly for self-consumption, but if abundant also for the market;
- 2) Other cash-crops like cacao;
- 3) *Botón de oro* and *nacedero* which are plants used for fodder for the farm animals; and
- 4) *Guamo*, walnut and cedar trees which branches provide shadow for the coffee, their roots hold the land to prevent erosion, and the fallen leaves fertilize the soil. Trees may also provide wood for the house and for building infrastructure such as the *marquesina* to dry the coffee or for animal sheds.

Mauricio also grows a diversified commercial yellow maize field in association with yucca, plantain, squash, and beans.¹³³ There is a home garden where he grows squash, creole maize of different colors (*maiz de colores*), beans, onions, aloe, and pineapple and a fruit garden with orange, guava, *guanabana*, and lemon trees.

There are also five fodder fields delimited by life fences and cultivated with several grass varieties, such as *trencilla*, *matarraton*, *boton de oro*, and *braquearia*.

¹³² Mauricio drew this Diagram as part of Asproinca's Participatory Land Planning methodology

¹³³What is known as *milpa* in Mesoamerica.

Animal raising is also diversified. Cows, pigs, hens, rabbits and fish are raised both for the market and for self-consumption. The wastewater and residues from the animals' sheds –as well as from the house and coffee fields feed the *biodigestor*, a technology to produce gas for cooking on-farm. Water treatment in a decontamination system using local plants.

Mauricio's family has preserved a patch of secondary forest by one of the coffee fields. It is fed by the water spring, which in turn was protected by growing *nacedero* plants on its margins. The forest provides wood and food –particularly fruits and nuts– for the family as well as shelter for migrating birds, insects and other animals.

Mauricio's farm illustrates how Asproinca, to enhance food sovereignty, promotes 'traditional' diversified models of food production, in combination with forms of ecological agriculture or what is known as agroecology. Miguel Altieri and Victor Toledo (2011) define agroecology as "production systems that are biodiverse, resilient, energetically-efficient, socially just and basis for food sovereignty". Altieri and Toledo emphasize the importance of reducing dependency on agrochemical and energy inputs by recycling nutrients and energy and promoting beneficial biological synergies to enhance the soil, conserve agro and livestock diversity and integrating crops and livestock. They also point out the importance of "optimizing interactions and productivity of the whole farm rather than the yields of individual species" as well as farmer-to-farmer research and the production for local markets that shorten food circuits. Empowering peasant organizations and communities as well as standing against conventional agriculture are also important features of agroecology as political practice (587).

Figure 50: El Pedrero Farm



Photo credit: my own

Figure 51: Asproinca farmer in a diversified field



Photo credit: Ana Bahena

Asproinca reconstitutes the coffee-forest as an agroecological model that integrates the place-based knowledges of indigenous peasants. Rather than high-input coffee monocropping, Asproinca promotes crop diversification and the use of creole seed varieties, biological control of insects and weeds, and the protection of water sources and biodiversity. Low input models are important for Andean peasants and indigenous farmers such as those in Asproinca given that many of them own an average of one to two hectares of land, though many barely own a *cuadra* (Asproinca, 2006: 11)¹³⁴.

Asproinca also promotes silvo-pastoral models in Riosucio's cold highlands where livestock is the main source of income. This model is based on taking advantage of biological interactions among livestock, trees and fodder. The main practice is the use of mixed fodder

¹³⁴A hectare is equivalent to 2.5 acres while a *cuadra* is only 1.5 acres. A *cuadra* is a colonial area measurement that is still in use all across Colombia.

production (*Bancos mixtos de forrajes*) for on-farm animal feeding together with native trees. Trees and fodder species, such as *botón de oro*, *braquearia*, *mataratón*, *limoncillo* or *bore*, are used to build ‘live fences’ (*barreras vivas*) for cattle and crops instead of barbwire to distinguish different fields within the farm. Trees provide shade for cattle and their roots help ventilating the soil, fixing nitrogen and recycling nutrients. Fodder –as well as trees- provides food for cattle and other animals and insects in the fields.

Live fences may also serve for food production. For instance, José María (2014), an indigenous farmer from the Piedras community in San Lorenzo *resguardo*, told me that he decided to make the fence with *mafafa*, cassava and *guandúl* with seed provided by Andrea, a *promotora*, rather than *botón de oro* because he wanted to grow food for the family.¹³⁵

Figure 52: Live Fences using Limoncillo. Piedras Community, San Lorenzo Resguardo.



Photo credit: Ana Bahena

¹³⁵*Guandúl* is a bush bean variety.

Figure 53: Cutting Bore to Feed His Cow. Sipirra Community, Cañamomo and Lomaprieta Resguardo



Photo credit: Ana Bahena

I describe Asproinca farms as the enactment of a particular multispecies world where crops, trees, grasses, animals, insects, humans, soils, buildings, gardens, streams or ponds are intimately related. From a feminist political ecology perspective, all of these different micro-ecosystems within Asproinca farms are the result of multispecies practices of care and mutual dependency, which are fostered rather than weakened or destroyed as happens in corporate agriculture.

These multi-species coffee forest fields are then deeply interconnected with the rest of human and non-human beings in the farm from the cows and pigs, the soil microorganisms, and the family. The fields provide both crops for the market and for self-consumption; and ‘wild’ plants such as *botón de oro* and *nacedero* as well as ‘cultivated’ plants. There is then a continuation between the ‘wild’ -such as the forest, the streams, the *guadual*, the soil communities- and the ‘cultivated’ -the fields and *potreros*, the fish ponds, the stables and sheds, the gardens, the fruit orchard, the vermiculture. These permeated borders resemble what Anna

Tsing (2005) calls ‘Gaps’ or “conceptual spaces and real places into which powerful demarcations do not travel well” (175). As Tsing described for the Meratus Dayak people of mountains of South Kalimantan, there are also many kinds of gaps in Riosucio between cultivated and the wild, subsistence and market economies, farms and the forests, agriculture and food gathering.

4. Asproinca: The Search for Autonomy, Place-Based Knowledges, and *Modelos Propios*

To defend and reconstitute the coffee-forest world under an agroecological approach, Asproinca seeks grassroots forms of communal organization, knowledge producing systems, and financial autonomy. These are important to reduce their dependency from globalized agricultural and financial markets as well as top-down techno-scientific practices –specially Fedecafé’s technological packages and extension programs– as well as resist the expansion of biofuels, GM crops, and industrial forestry that are encroaching their territory (Asproinca, 2008: 40; Corrales y Forero, 2007)¹³⁶.

Asproinca then conceives itself as an organization that mainly promotes families and communities to come together and organize themselves to autonomously define the kinds of agricultural models –and ways of living at large– or what they call, as other grassroots organizations in the country, *modelos propios*.

Collective organization works at many socio-spatial and political levels. At the local level, collective organization is sought by forming groups to carry out projects or requesting support from the municipality or the indigenous government called *Cabildo*. Selma (2013) explained the importance of organization to associates in a meeting:

The other main thing we do is to support and encourage people to associate to solve a common problem. For instance, in the case of *panela* producers in a community, how

¹³⁶ Fedecafe is the Colombian Coffee Growers’ Federation

do they get together to build a communitarian *trapiche* (sugar mill), so that they do not have to depend on others to *moler* their cane who may rip them off (*darles por la cabeza*)? Or if they have their own *trapiche*, how can they improve it collectively so they do not have to use the *bestia* ('mule')¹³⁷?

At the time of my fieldwork, Asproinca supported three kinds of communitarian groups: women's groups, communitarian *trapiches* (sugar cane mills) and environmental committees.

At the regional and national level, Asproinca participates in larger movements and protests against neoliberal policies on agriculture because they believe that communities which depend upon food commodities –such as coffee– cannot achieve food sovereignty without tackling the inequalities of globalized markets over which they have little or no control.¹³⁸ An alternative, of course, is to delink completely from international markets; however, this is a long-term process given that local and domestic markets are broken and rural populations are the most vulnerable in the country.

Specifically, Asproinca supports *Dignidad Agropecuaria Colombiana*, a nation-wide farmers' movement. During my fieldwork, Asproinca participated in a *Dignidad Agropecuaria*-led national coffee strike that took place in February 2013. Asproinca members participated in a road blockage in the nearby community of Irra for several weeks until the central government agreed to a subsidy for coffee-producers. Towards the end of my fieldwork, Asproinca supported *Dignidad Agropecuaria* in a Referendum for National Agriculture to reform the Constitution in

¹³⁷Mules are called *bestias* or beasts. They are a usual source of animal power in the poorest *trapiches*

¹³⁸ For instance, coffee farmers in Riosucio, as in the rest of the country, do not participate or take any decision on how coffee prices are determined, which depend upon: 1) foreign stock exchanges, 2) global coffee demand and supply, 3) the exchange rate of the Colombian peso vs. foreign currencies, and 4) trading policies defined by the Colombian government, FTAs and multilateral institutions.

order to defend and guarantee food sovereignty and security against Free Trade Agreements and other free market policies.¹³⁹

As part of the *modelos propios* framework, Asproinca aims for a farmer-to-farmer model and horizontally-based organization. Asproinca conceives the family and its farm as the primary space for training and knowledge-production for all the members. Thus it promotes training and learning processes that are not mainly based on foreign technological transfer but on the recovery and recreation of ‘traditional’ or place-based knowledges and agroecology. Asproinca regularly promotes exchanges or *intercambios* among members to visit each other’s farms and promote farmer-to-farmer learning.

Figure 54: Asproinca Training. Costa Rica community, San Lorenzo resguardo



Photo credit: my own

To achieve horizontality and autonomy, the associated families, *promotores* and board members can only be small-scale farmers from the area of Riosucio and Supía. There is only one

¹³⁹ By voting the Referendum, the Colombian people will decide on whether or not to reform the Constitutional articles that refer to agricultural production directly (arts. 64, 65 and 66) and indirectly (art. 100). Amendments to the Constitution are intended to: 1) protect and promote domestic agricultural production and labor, as well as biodiversity and traditional knowledge, in frames of sustainability and gender equality; 2) unilaterally renegotiate or terminate current FTAs; and 3) through the enactment of a Law on Family Farming, guarantee peasant, indigenous and Afro-descendant communities the rights to a decent life, to social development based on their own economic models and to conserve and manage the biodiversity and traditional knowledges found in their territories

external advisor, Alicia, a woman who has been with Asproinca for many years and is fully attuned to their vision. All Asproinca families and groups form the Members' General Assembly. The Assembly meets twice a year to receive the reports on the organization's activities and projects and on the management of the communitarian fund, as well as to elect their representatives to the Administrative Board.

The Administrative Board meets the first Friday of each month and has a president, a secretary, auditors, and a treasurer. The Board is in charge of making sure the organization is working properly, to solve any conflict among the members, to supervise the *promotores*, and to grant credit. All Board members must be Asproinca's associates, elected at the General Assembly every two years, and they work *ad honorem*. Asproinca then promotes grassroots forms of leadership that seek horizontality and autonomy, as Selma (2013) explained in a training workshop:

There are no external people [at the Board]. It is not about bringing in the 'expert' (*-el doctor o la doctora*) to run the organization. This is not paid job but voluntary and all members of the Board must have their sustainable projects in their own farms, like any other member of Asproinca

To further analyze how Asproinca implements *modelos propios*, I focus on two main features: the *promotores* team and the micro-credit fund. Through these initiatives, Asproinca seeks to reduce dependency from expert knowledges, technological packages and credits offered by the *Federación* and other institutions. As Alfredo (2014), an Asproinca *promotor*, told me clearly:

Unlike the *Federación*, in Asproinca we are not interested in convincing our members to change the way they grow coffee to sell agrochemicals, to make them dependent, to give them technical assistance. We are interested in helping the family, that they have their own seeds from their own crops; it's about producing in the farm and that we can maintain it under our own conditions

For Asproinca, designing alternative agroecological cultivation and water and soil management means to develop practices and technologies adapted to the local conditions of the indigenous territories in Supía and Riosucio, particularly the steep slopes of the Andes mountain range and the fragility of tropical soils, and to family farming.

4.1. Promotores: Place-based knowledge production

Promotores are mostly young Asproinca members who are particularly sensitive to the organization's principles of sustainability and autonomy. As farmers themselves, they know local farming techniques and the biodiversity in their territories. In addition, they have undergone training in agroecology by participating in courses across the country and even abroad in Sweden, Costa Rica and Peru, among other countries. *Promotores* ensure that Asproinca does not have to rely upon external agronomists trained under the principles of the Green Revolution model. They do not work full time for the organization; only a few days a week to allow time to take care of their own farms.

According to Antonio (2013), one of Asproinca founders, to maintain the *promotores* initiative was very difficult in the beginning for two reasons. On the one hand, Fedecafé's local committee "declared us war" (*nos hizo la guerra*) saying that we were crazy to promote what they considered the backward model of shade-grown coffee". On the other, Asproinca members were reluctant to accept *promotores*. Members said *promotores* were not agronomists –they were not 'experts'- and questioned how another peasant like them could teach them anything. As a result, it took a lot of time and effort to raise awareness of, and rebuild trust in, their own capabilities and knowledges; to convince members that farmer-to-farmer initiatives do work.

Antonio (2014a) explained the difference between Fedecafé's extension workers and Asproinca *promotores*:

Fedecafé's extension workers studied at universities; they hold a degree. *Promotores* are trained in their own farm, in their own projects; they have acquired experience through practice. They have no academic experience although they have taken *capacitaciones* with knowledgeable people to learn about theory and complement their practical experience. You know we have invited professionals to give us *capacitaciones*; we even brought Mario Mejía, the father of agroecology in Colombia.

Antonio highlighted that *promotores* are highly knowledgeable and their knowledge is not inferior when compared with agronomists because it is constantly adjusting to local necessities and conditions. Antonio (2014a) even assured us that, for these reasons, “recently graduated agronomists” have a lot to learn from their *promotores*. As Asproinca *promotores* and myself wrote in a joint publication:

“In Asproinca, the role of farmers is not reduced to silent spectators who hold knowledge that comes from abroad, from agricultural extension workers. On the contrary, producers are without doubt, the main characters in the production of knowledges that are born in the fields (Asproinca and Gutiérrez, 2014: 47; my translation)”.

Asproinca's members insist on the importance of *promotores* and farmer-to-farmer knowledge production and training in agroecology because they are deeply aware of what Foucault called power-knowledge. They understand that expert-knowledges are intimately connected to domination and that such domination is not only imposed from outside but reproduced from within through subjectivities and self-representations. In Selma's (2013) words:

For Asproinca, it is very important to train associated families to develop processes in the farm. But above all, training them about the importance of living in the countryside and living with dignity. Often times we are ashamed of living in the countryside because we are considered backwards

Asproinca's external advisor, Alicia (2014), also emphasized the importance of changing ‘mentalities’ to modify the ways in which agriculture and living in the countryside takes place among members:

Sometimes we find that the farm has not changed a lot, but the owners' mentality did. The family now thinks differently and that is a *ganancia* because when the ways of

viewing life change, then surely the farm would change as their [farming] practices become similar to that new way of viewing life

4.2. The Fondo Rotatorio de Crédito

Asproinca strives for autonomy and *modelos propios* through grassroots financial initiatives, mainly a *Fondo Rotatorio de Crédito* or micro-credit fund. This fund is based on solidarity and has become self-sustaining. Families can only request a credit if they are going to invest it in a project previously discussed with and approved by *promotores* and the Board as part of the Participatory Land Planning. Each family, together with the *promotor* assigned to the farm, defines a payment schedule based on their financial capacities. There is a low interest of 1% monthly, no interests on defaulting the debt and families can renegotiate their payment schedule as many times as necessary¹⁴⁰. Neither the credit amount nor the payment installments are limited; they can be as low as the equivalent to a few dollars.

This fund is an example for many grassroots organizations around the country. According to Selma (2013), the key to its success over time is that most of Asproinca members pay their debt because they are aware that:

They should pay back [the credits]; otherwise it runs out and serves no one anymore. Instead if I pay, it will help me tomorrow, if I pay for the pigs today, tomorrow I can borrow for the *biodigestor*; and the fund is conserved for my children, my neighbor, someone else from my community. Then there is awareness of the need to pay back; that it's not money to leave in one's pockets (*embolsillárselo*)

In fact, frustration with conventional credit from banks and state entities is common among Asproinca farmers because of the onerous interests and the lack of independence to

¹⁴⁰ Neoliberal reforms privatized state-owned agrarian banks, such as *Caja Agraria* and *Banco Cafetero* (which belonged to Fedecafé), that provided subsidized credit for farmers. Thus, farmers in Colombia have to obtain credit from commercial banks with around 13% annual interest. Finagro, which replaced *Caja Agraria*, offers a 1% annual interest, but this institution seldom grants credits to farmers directly (Oscar Gutiérrez, June 7, 2016, personal communication).

manage such funds. Don Victor who lives in his farm in the Mochilón *vereda* in Supía told me about his experience with a credit from *Caja Agraria* to grow coffee:

They [*Caja Agraria* staff] told me to use the credit for coffee growing and I show them some plants –*caturro* plants- I had sown in a field. They said [referring to the coffee field]: “This is very beautiful. Now you have to buy a bag [*bulto*] of urea and spread this much quantity along a 20cm-wide circle around each plant. I swear to God, fifteen days later, they [the coffee plants] were ready to feed the stove; they dried out completely. I showed them the burnt coffee field and said ‘I shouldn’t have to pay this money [the credit]. You know nothing about coffee; the plants got burnt because you told me to put too much urea.’ Then I decided that I did not want to know anything about both coffee and credit.

Figure 55: Receipt from the Communitarian Fund

ASPROINCA
ASOCIACIÓN DE PRODUCTORES
INDÍGENAS Y CAMPESINOS
NIT. 810.000.836-9

**FONDO ROTATORIO
COMUNITARIO DE CREDITO**

**COMPROBANTE
DE CAJA** N° 10146

Ciudad y Fecha: _____

Valor total \$: _____ En letras: _____

Abono por capital \$ _____ Abono por intereses \$ _____

Línea de Crédito: _____

Proyecto: _____

Finca y/o Grupo: _____ Vereda: _____

FIRMA DE QUIEN TIENE A
SU NOMBRE EL CRÉDITO
C.C. No.

FIRMA DE QUIEN RECIBE
POR ASPROINCA
C.C. No.

Photo credit: my own

In a training workshop for non-Asproinca members, Selma (2013) explained the conditions for credit granting as follows:

“I can’t have a credit approved to buy a cow if I have not taken care of the fields, if I have not grown food to feed her, if I don’t have where to keep her, if I haven’t thought about what to do with the cow’s dung and it’s going to contaminate the stream [*cañada*].”

In fact, the Administrative Board only approves credit for those families who have complied with the minimal conditions as certified by the *promotor*. “For building a *trapiche*,”

Selma continued:

“The group needs to create a plan to dispose and process these residues [ashes and *bagazillo*] so that they do not contaminate but are recycled for other needs. They also need to get other sources of funding by doing *rifas* and to help with labor through *convites*

Oscar, one of the board members, explained that the Communitarian Fund is successful because Asproinca administers it to improve members’ quality of life by switching to a different way to live on the land. This is different from a bank, which grants the credit but does not care if you “invested it in the farm, if you improved your life, or if you spent it on buzz (*trago*) or entertainment”. In contrast, Asproinca oversees the investment, making sure the farmer is using the money to carry out the project as planned. For instance, if the board approves the credit request of a member to make a life fence, the money is released gradually to cover the specific expenses involved in the process to grow the fence, under the *promotor*’s guidance. When the fence is finished, the *promotor* is then in charge of planning the payment schedule with the member so that “the money enters back into the *fondo* and becomes available for other members.”

5. The Defense and Reconstitution of the Coffee-Forest

5.1. Planificación Predial Participativa

To reconvert farms from coffee monocropping or extensive livestock to the coffee-forest or silvo-pastoral models, Asproinca develops various participatory methodologies or the Participatory Land Planning model (*Planificación Predial Participativa*).

When a family wants to become a member of Asproinca, they are first encouraged to visit associated families in their community to better understand what the organization aims for and

the kind of projects it develops. When there are several families who want to join, *promotores* and Board members organize a preliminary training where they explain Asproinca's principles and take them on a tour to visit selected associated families. This way, potential members can make a more informed decision because Asproinca understands that "this is not for everyone, and that is valid too" (Selma, 2013). If the families confirm they desire to join, then each of them are assigned a *promotor* and undergo training for around six months using the *Planificación Predial Participativa*. The aim is that the family and the *promotor* together analyze the farm's productive and ecological problems to then identify and decide on different alternatives to solve them. This is accomplished in several steps.

First, the family and the *promotor* carry out a diagnostic of the strengths and weaknesses in the management of the farm to determine the most urgent interventions. Second, they design a "farm management plan" (*plan de manejo predial*) to reconvert the farm to agroecology, according to the family's interests and capabilities. Third, they decide which project(s) the family is going to start with. To this end, they may start with demonstrative fields so that the family can verify on their own the advantages of a certain technology or practice suggested by the *promotor*. Fourth, the family makes, if necessary, a request to the Administrative Board to obtain credit and begins the project under the *promotor's* supervision (Asproinca and Gutiérrez, 2014: 43)

As part of the Participatory Land Planning, each Asproinca family makes beautiful diagrams of their farms to document how it has been transformed over time accordingly to the Farm Management Plans. The first diagram is done when the family becomes a member. A new updated diagram is made after the first or second year and then every five years or so (Figures 56-58).

Figure 56: Altobonito Farm Diagram

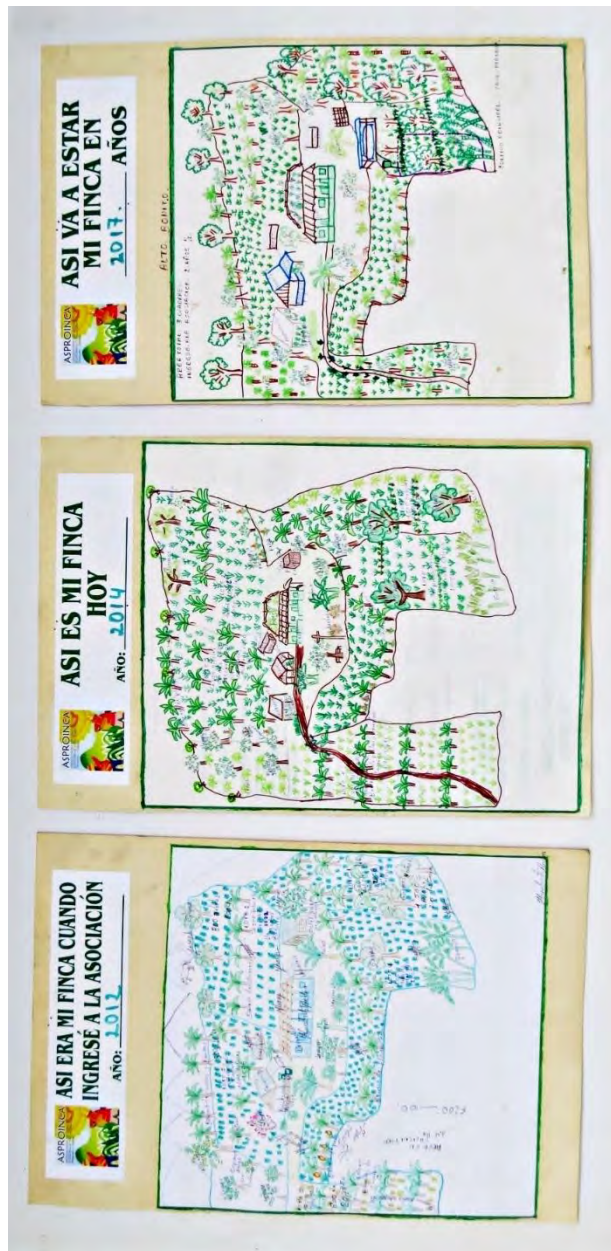


Photo credit: my own

Figures 57 and 58 show the process for *Bella Vista* (Beautiful View) farm. These are the first and last drawings, dated in 1995 when the family became a member of Asproinca and in 2012. One can see how the farm went from coffee monoculture to a diversified system that includes the raising of fish and rabbits, *biodigestor*, pig sheds, a home garden, a greenhouse, and a shed for drying coffee, among other innovations.

Figure 57: Bella Vista Farm in 1995

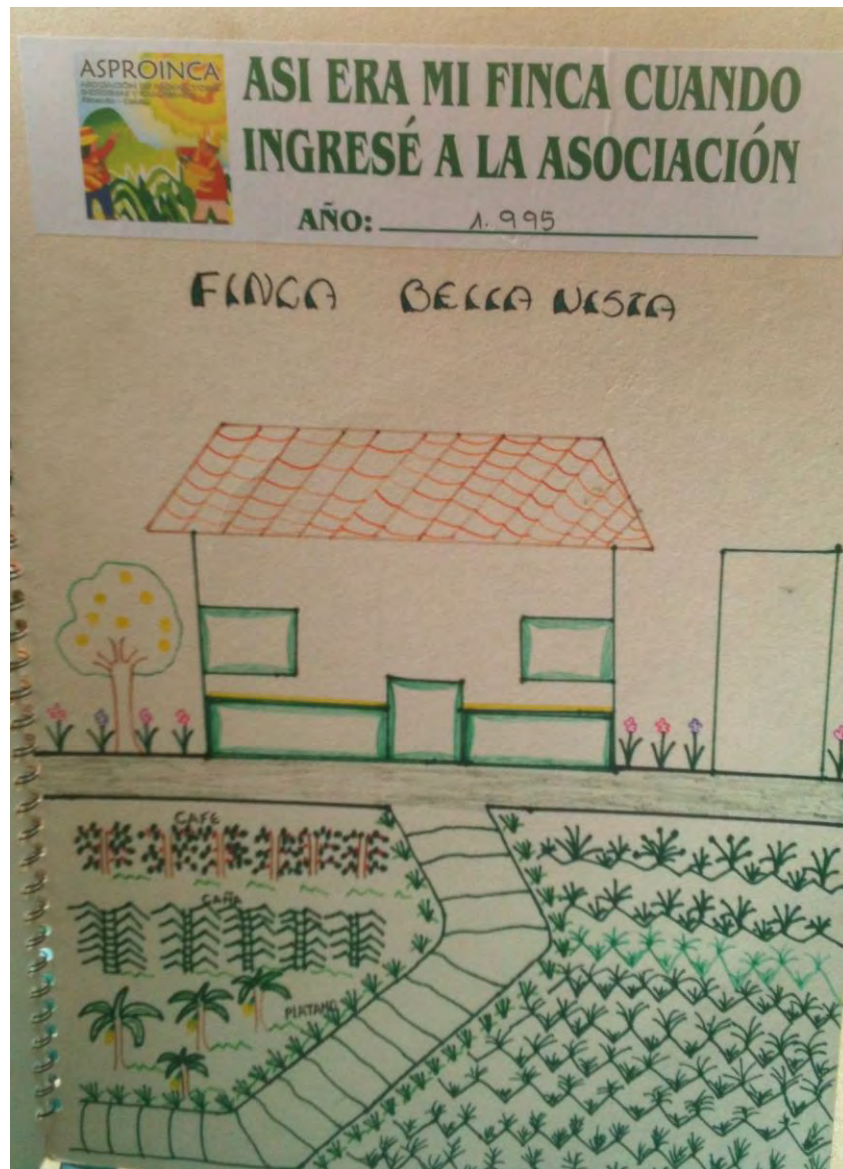


Photo credit: my own

Figure 58: Bella Vista Farm in 2012

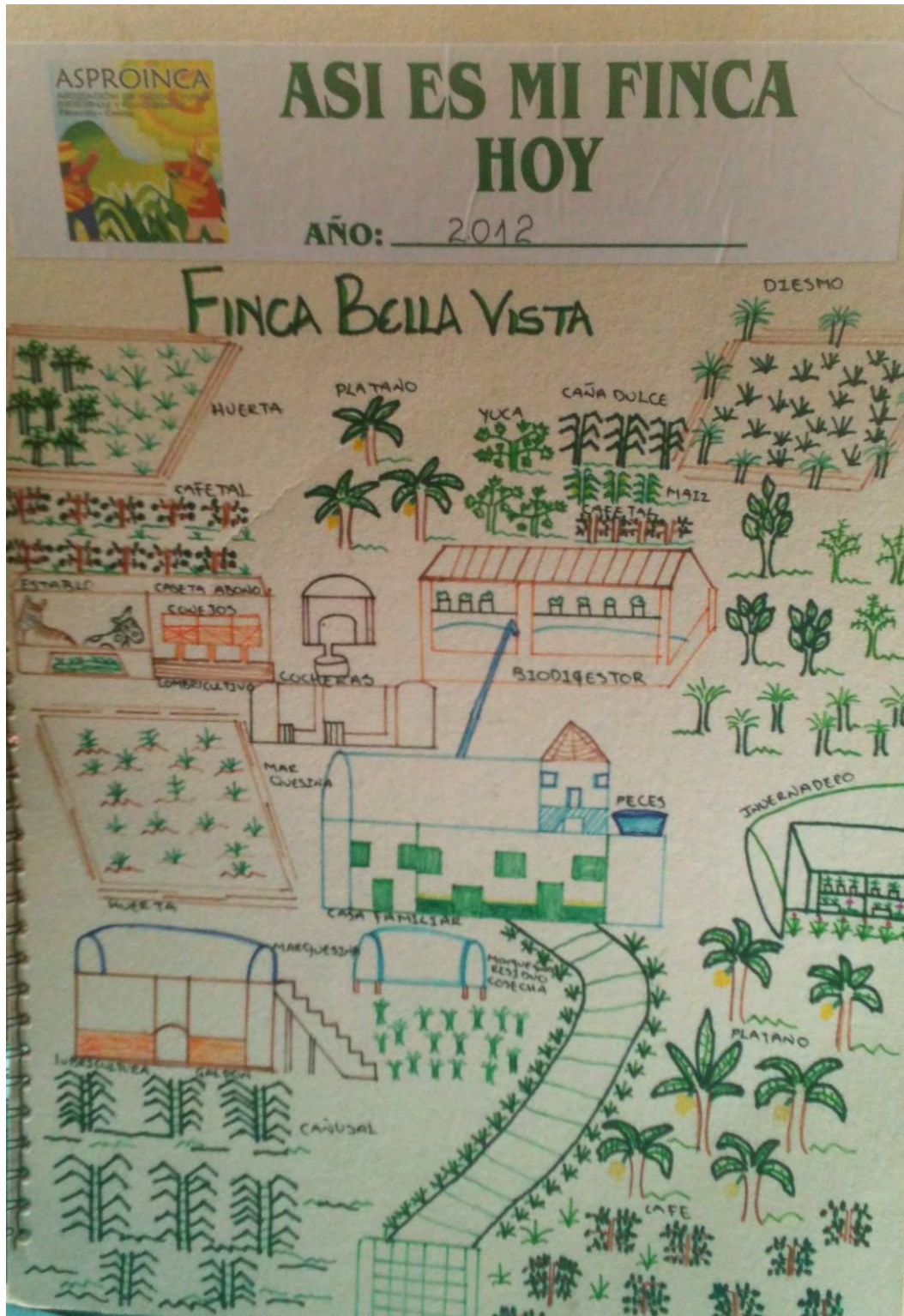


Photo credit: my own

5.2. *Practices of Multispecies Care*

To better understand the importance of creole seed conservation as part of Asproinca's defense of the relational worlds embedded in the coffee-forest, this section explains some of the agroecological initiatives put forward by this organization.

The projects include 1) The protection of water sources and basins and wastewater treatment both from sewage and from agriculture; 2) the production of organic manure and biological pesticides; 3) the making of animal feed; 4) clusters to cultivate biodiversity (*núcleos para cultivar la biodiversidad*), home gardens and creole seed conservation; 5) local energy production through *biodigestores* for home cooking; and 6) soil conservation practices.

5.2.1. Multispecies Care of Soil, Water, Animals, Plants, and Humans

From a feminist political ecology and ontology, Asproinca farmers conceive soils, water systems, fields, and animal raising systems as living beings that integrate complex networks of care and reciprocity. For instance, soil care is embedded in a relational view of soils as a living being, rather than as an inert resource to be optimized by adding chemical fertilizers for productivist aims (Bellacasa, forthcoming: 29). Luis (2013), Mercedes' father, beautifully explained how soils are what we could call 'a living ecosystem' that needs to be taken care of, rather than turning them addicted to chemical inputs:

“Soils are like us. The person who gets used to take pills to sleep has to take them all the time until the doping doesn't work anymore. It's the same with soil. She gets used to chemicals and when you realize it, she's not productive anymore. One needs to sustain soil with organic manure and keep planting trees. There lies life for many beings, for water.”

Soil conservation includes three main practices apart from producing organic manure and disposing wastewater, as don Jorge (2013) explained to me once on a visit to his farm located in the Cañamomo and Lomaprieta resguardo, very close to the town of Riosucio. First 'selecting the weeds' so that beneficial plants are not removed from the soil such as *Gamboa* and *Siempreviva*,

which might also be good for animal raising. Second, the use of “natural” pesticides using the juice from hot peppers, garlic, *salvia*, *artemisa*, *barbasco* among others. For don Jorge, hot pepper is the most effective for coffee because “it sticks to the grain and when *broca* comes [to eat the grain], she does not like it.”

Third, the replacement of hoes for machetes in soil preparation. According to Asproinca members I talked to, the hoe removes the organic matter and kills microorganisms contributing to soil infertility as well as makes it easier for rains to wash away the soils and produce erosion. In contrast, Asproinca farmers use the machete for weeding at ground level and leave the weed on the floor to decompose, a practice called *guachapear*:

“Before, we swung the hoe (*voleábamos azadón*) and when it rained, then it dragged the soil down the slope. But *guachapeadito*, it leaves the foliage that becomes manure and prevents soil from rolling down when it rains. This is what you do on an organic farm” (Jorge, 08/2013)

Asproinca families produce green manure by using vermiculture and composting, and biofuel in *biodigestores*. For *biodigestores*, the wastewater and residues from the house, horse stables, pig sheds, and chicken coops as well as organic residues from coffee (cherry pulp) and *panela* production (bagasse) are accumulated in a certain area and covered with plastic. The plastic retains the gas produced by decomposing organic matter, which is then channeled through PVC tubes to home stoves in kitchens for cooking. Wastewater from the *biodigestor* is also used for crop irrigation using hoses. Wastewater may also be cleaned, using native plants such as *buchón*, *azolla*, *lechuguilla*, and *salvinia*, before dumping it into the streams or reusing it in fish-farming projects (see Figures 59 to 63)

Figure 59: Biodigester



Photo credit: my own

Figure 60: Stove fed by Gas from Biodigester



Photo credit: Ana Bahena

*Figure 61: Asproinca promotor fertilizing the field with wastewater from the biodigestor.
Piedras community, San Lorenzo resguardo*



Photo credit: my own

*Figure 62: Station of a decontaminating system using lechuguilla plant. Alto Morón Farm,
Cañamomo and Lomapieta resguardo*



Photo credit: my own

Figure 63: Composting Bed, Casablanca Farm



Photo credit: my own

Practices to conserve and promote plant biodiversity on the farm include home gardens, subsistence crop fields and Clusters (*núcleos*) to cultivate biodiversity (see Figures 64 to 67). These seed conservation projects are usually cared after by women, with occasional help by men, and provide food and medicine to improve nutrition and well-being for the family.

Figure 64: Collecting amaranth from their home garden



Photo credit: Ana Bahena

Figure 65: Doña Elena working at her home garden, Piedras Community, San Lorenzo resguardo



Photo credit: Ana Bahena

Figure 66: Cluster (núcleo) to grow diversity



Photo credit: Ana Bahena

Figure 67: Doña Fernanda picking tomatoes from home garden



Photo credit: Ana Bahena

Tables 5 and 6 show the multiples uses of plants and trees in Asproinca farm systems from feeding animals and humans to biological control methods that partly replace the use of

chemical-based pesticides and herbicides. The tables sum up the multiple forms of multispecies care embedded in polycropping and agroecological systems in Asproinca farms.

Table 6: Plants

Plants for Fodder	<i>Bore, Nacedero, Rame, Botón de Oro Braquearia, Matarratón, Caña Brava</i>
Medicinal plants	<i>Prontoalivio, Basil, Lengua de Suegra, Borraja, Peppermint, Rosemary, Herb of Grace, Lemon Balm, Cimarrón Coliander, Mejorana, Aloe Vera, Árnica, Thyme, Tarragon, Sidrón, Ruda de Castilla,</i>
Astringent plants for biological control and seed conservation	<i>Hot Peppers, Garlic, Sage, Sagebrush, Barbasco, Rue, Higuierilla</i>
Plants for soil improvement and crop protection	<i>Gamboa, Siempreviva, Higuierilla</i> Beans: <i>Guandúl, Canabalia</i>
Plants for water decontamination	<i>Lechuguilla</i>
Aggressive plants (weeds)	<i>Arrocillo and Caminadora: Attack–cripple– maize and beans</i>
Plants for food processing	<i>Cadillo to clean the guarapo</i>

Source: my own and Asproinca: 2006: 78

Table 7: Trees

Trees for wood	<i>Arboloco, Nogal, Piñón, Mestizos, Urapán, Cedro, Chumbimbo, Arrayán, Cartaguereño, Guadua</i>
Fruit trees	<i>Orange, Tangerine, Avocado, Lemon, Madroño, Chachafruto, Granadilla, Curuba, Tomate de Árbol</i>
Medicinal Trees	<i>Gualanday, Roble, Cedro, Nogal, Azahar de la India</i>
Trees for soil improvement and crop protection	<i>Guamo</i>
Trees for biological control	<i>Borrachero</i>

Source: my own and Asproinca: 2006: 78

Asproinca also promotes the conservation of creole races of cattle –such as the *orejinegro* (black-eared) –, which are suitable for both milk and meat or *ganado de doble propósito*.

Guillermo, an Asproinca Board member, explained to me the advantages of creole races of cattle. According to him,

“If a cow is not producing milk anymore you can then fatten and sell her for meat. But if you have genetically ‘improved’ cows that are only for milk, then when one of them gets old or sick and does not produce milk anymore, you have to give her almost for free because she doesn’t get fat and her meat is not appreciated by butchers.”

Cattle raising also depends upon land availability. The family needs to set apart at least two fields; one for growing the fodder and the other one to tend the cattle. If the family does not have enough land, then Asproinca advises to raise other animals such as pigs, rabbits, ducks or hens. Other families may have the conditions for fish farming because they have their own water springs (*nacederos de agua*) to build small ponds that raise between 200 and 500 fish. Cattle raising is usually a men’s labor while small animal raising is done by women as they are raised in the domestic space.

Figure 68: Creole Hens Coop



Photo credit: Ana Bahena

Figure 69: Creole hen races conserved by Asproinca



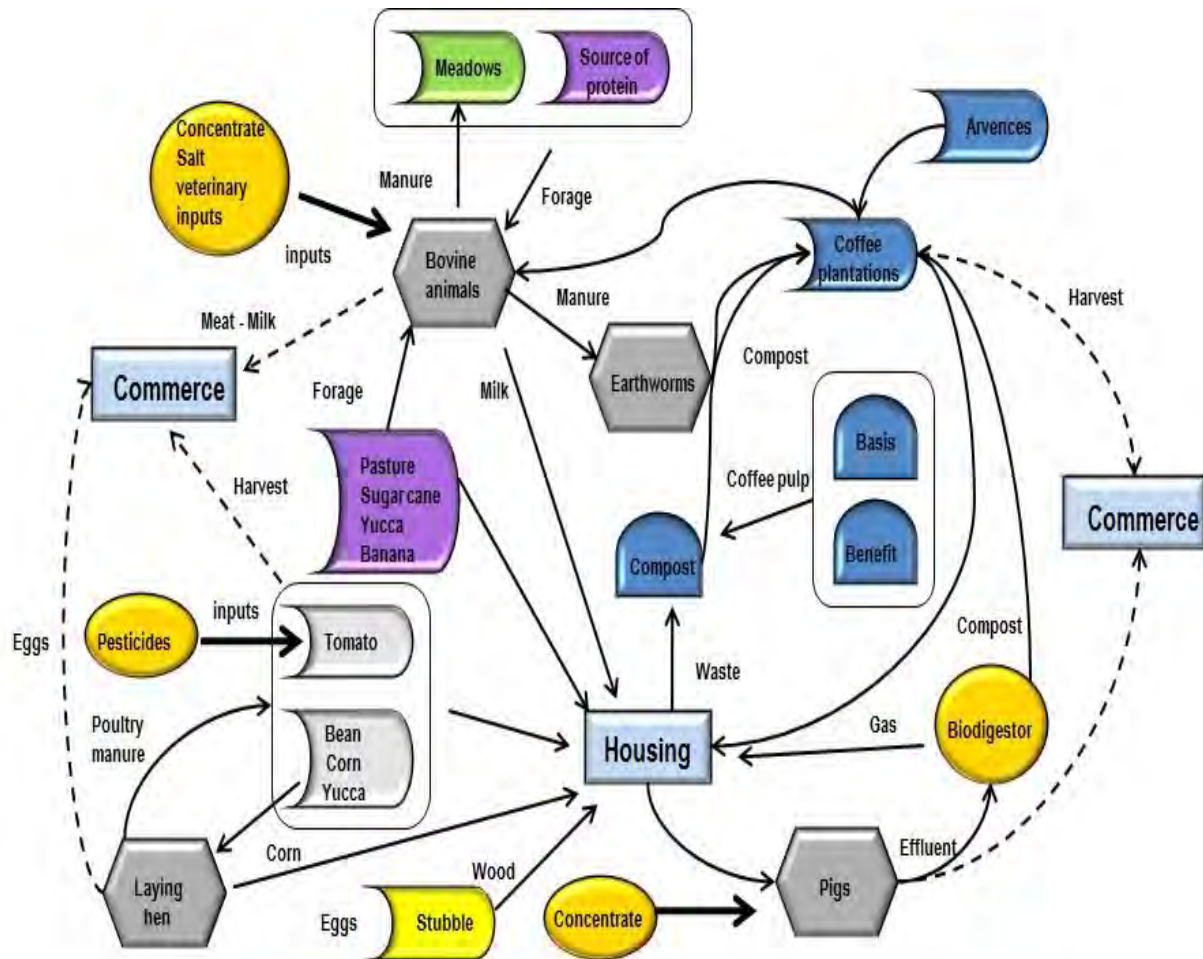
Photo credit: my own

Asproinca's farms and communities are socio-natural networks that mimic and enhance ecosystemic relations where recycling and feedback loops are crucial to maintain energy and nutrients flowing. This agroecological approach to farming was clearly explained by Selma (2013), on a training workshop for Asproinca members I attended:

Everything has a sequence, a cycle: when you get the pigs, then you can think about the biodigestor, but not the other way around. And that same manure from the biodigestor can be used to fertilize the fodder that in turn feed the pigs: it is all a cycle. A cycle that implies that nothing can be wasted in the farm so that the farm is as self-sufficient as possible. One needs to be realist; total self-sufficiency is not possible because of our conditions, we would lie if we said we can produce all of our food, but we can at least produce part of it

Colombian professors Elcy Corrales and Jaime Forero, who have long done research with Asproinca, explained these relations in Figure 70:

Figure 70: Integrated Management of an Asproinca's farm



	ENERGY SOURCE		STORAGE		ENERGY OUTPUT
	PRODUCTIVE ELEMENT Physiognomic units identified by the colors of the maps		OTHERS		ENERGY INPUT
	CONSUMPTION ELEMENT		RECYCLE FLOW		ENERGY LEAK

Source: Corrales and Forero, 2007: 38

6. Asproinca's Seed Systems

6.1. Seeds of Identity in Multispecies Figured Worlds

For Asproinca seed savers, as well as for other seed savers in Riosucio, the defense of seeds is linked to the defense of indigenous and peasant territories and worlds against the

imposition of corporate models of agriculture. To grow creole seeds is to grow food sovereignty, autonomy, and biodiversity. As the loss of agrobiodiversity is seen as linked to the loss of territory and culture, the defense of *criollo* seeds, especially maize and beans, has become increasingly important (see chapters 5 and 6).

For Guillermo (2013), an Asproinca board member, territory, agriculture, and indigenous self are intrinsically connected:

“[Being indigenous] means that we are part of a race and we have our own government (*gobierno propio*), our own territory and identity; it’s a culture that has existed as long as history has and that we must conserve. An indigenous territory without culture is not a territory. Typical foods, traditional seeds, music, dance, all of these are typical, are ours. Today they tell us to grow to make money but agriculture is made to allow us to stay in the territory. Territory is where the population is, where we can walk, where we can have a voice, have our own food; it is the most sacred we have as indigenous people because it allows to work and make our own opinions.”

Guillermo articulates the right to territory similarly to black communities in the Colombian pacific as the ‘right for a space for being’ (*Derecho a un espacio para ser*) or a vital space where human groups –being indigenous, afro-descendant, peasants, etc.– “develop their being collectively” according to their own life projects and ways of thinking and feeling (*sentipensar*) in relation to other non-human beings (Escobar, 2014: 85)

In this context, recovering creole seeds have become fundamental to the defense and reinvention of collective indigenous selves in Riosucio, particularly as seeds are being commoditized and enclosed by biotechnology corporations. For some, such as Lucía (2014) who works at Asprocafé, a small-scale coffee farmers’ cooperative from Riosucio and Supía, creole seeds may be the last source of indigenous identity and legacy of their ancestors:

“We brag about being an indigenous zone with four *resguardos*, but if you look closely, we are totally culturized by the influence of Antioquia and the church. The little that remains is that we still have traditional seeds in some communities. This is a struggle against what is coming, against the corporations that patent the seeds. Then something that belongs to us is not ours anymore, but of those who have money”.

Creole seeds have then become a powerful identity marker for indigenous peasants in Riosucio who have endured an extensive process of *mestizaje* or acculturation (see chapter 4). Creole seeds embody the historical agro-cultural memory and practices of indigenous people in Riosucio. In this sense, seed conservation may be considered a ‘figured world’ or “socially and culturally constructed realms of interpretation” that forge novel identities (Holland *et al*, 1998: 51-3). Holland *et al* (1998) explain, figured worlds become embodied and reproduced by participants through discourses, performances, and materials artifacts, and are organized around positions of status and influence along race, class, gender, etc. (Holland *et al*, 1998: 56-59). Groups of people exercise their agency by collectively creating figured worlds that liberate them from the constraints of their own cultural worlds. For instance, in cultural worlds, regular artifacts acquire specific means that evoke and shape the new positions and identities of participants. (Holland *et al*, 1998: 64). By looking at Live Seed Systems, I bring a bio-centric perspective to identity-making processes. A possibility opens for conceiving how figured worlds may become embodied in –and through– non-human beings, such as seeds, who are both participants and socio-natural ‘artifacts’ that shape indigeneity in Riosucio.

In this sense, Seed Living Systems may be considered a ‘multispecies figured world’ where indigenous farmers consider creole seeds as living beings who take part in a struggle to liberate themselves from the constraints of continuing forms of colonization embedded in the expansion of capitalist agriculture such as the Green Revolution model of coffee monocropping and, more recently, intellectual property rights and genetic engineering.

Creole seeds in Asproinca’s figured worlds are then more than artifacts being mobilized for identity-making processes. Seed savers constantly reconstitute what it means to be indigenous –and human– in their intimate relation with creole seeds. Being indigenous in

Riosucio is relationally defined with seeds who are kin, flesh and blood, in a cycle of sharing life's reproductive energies or *fuera* through sowing and consuming seeds.

In other words, the fact that seeds are crucial for process of identity-making speak to notions of 'personhood.' Seed savers not only define themselves in ways different to capitalist conceptions of the 'individual', but also in non-dualist, relational conceptions that set a continuum between humans and other beings such as seeds (Holland *et al*: 1998: 139)

6.2. Every Comunero Family is a Seed Saver; Every Field is a Seed House

With different degrees of success, Asproinca strives to turn each of the associated *comunero* families into seed savers¹⁴¹. Each Asproinca family at least has a small garden to grow creole bean and squash varieties for self-consumption taken care by women mostly. As a result, there are strong seed systems among Asproinca members who save creole seeds by exchanging them informally at their farms or at seed fairs.

Asproinca has promoted the recovery of creole varieties of corn, beans, manioc, sugar cane, plantain, cider, as well as different kinds of vegetables, tuber and eatable roots (Asproinca, 2006: 78). Some of these varieties are not local but brought from other parts of the country and abroad. For instance, in the case of corn, Asproinca's associates have obtained new traditional varieties from seed fairs organized by seed networks such as the Seeds of Identity Campaign. Likewise, Asproinca's seed savers and *promotores* have brought seeds from other communities, such as the Resguardo de San Andrés de Sotavento¹⁴², and from countries such as Peru and Costa Rica, where they have received training in agroecology.

¹⁴¹ *Comunero* is the term to refer to any indigenous resident in a *resguardo*. *Comunero* comes from the word 'common.' This term reflects communitarian, non-capitalist conceptions of humans similar to the social sciences concept of 'person,' rather than individual, as seamless beings (Holland *et al*: 1998: 139) See chapter 3.

¹⁴² This indigenous community has a large corn diversity and declared itself as Transgenic-Free Territory in 2010.

Asproinca’s associates have also adapted hybrid seeds donated by government agrarian institutions. Farmers consider these hybrid varieties as traditional given that they have been adapted to the local soil and weather conditions. For instance, old coffee varieties developed by the Coffee Federation –but currently scarce as new varieties have replaced them– such as *Caturro*, are considered creole and conserved by Asproinca families. ‘ICA cassava’ (*yuca ICA*) is another example of creolization. This ‘improved’ variety was donated by ICA to farmers in Riosucio and is now adapted to local conditions, crossed with other varieties, and saved and exchanged at large.

The seed savers that I worked with had an average of twelve varieties of beans, though regular Asproinca members may have between six and ten varieties. The zone of Riosucio and Supía has large bean diversity and Asproinca’s associates have done an important effort to recuperate traditional varieties as seen in Tables 4 and 5.

Table 8: Traditional varieties of beans conserved by Asproinca

Beans				Leguminous Green manure
<i>Algarrobo</i>	<i>Chocho</i>	<i>Trepador</i>	<i>Cagavivo</i>	<i>Guandúl</i> (White and red)
<i>Morado</i> (Purple)	<i>Cubano</i> (Cuban)	<i>Rochela</i> (Red, brown, black, and white)	<i>Revoltura</i>	<i>Múcuna</i>
<i>Sangretoro</i> (Bull’s blood)	<i>Petaco</i> (Yellow, white and purple)	<i>Cacha</i> (Red, white and yellow stripes)	<i>Bugueño</i> (Black and brown)	<i>Guamo mono</i>
<i>Blanquillo</i> (Little White)	<i>Sobaco</i> (Armpit)	<i>Higuerillo</i>	<i>Tizón</i> (charred stick)	<i>Haba</i>

Beans				Leguminous Green manure
<i>Caribeñito</i> (Caribbean)	<i>Bala</i> (Bullet)	<i>Boca de ángel</i> (Angel's mouth)	<i>Diablito</i> (Little devil)	<i>Churito</i>
<i>Mortiño</i>	<i>Rabo de zorro</i> (Fox's tail)	<i>Boca de señorita</i> (Ladies' mouth)	<i>Ojo de perro</i> (Dog's eye)	<i>Crotalaria</i>
<i>Calima</i>	<i>Criollo</i> (Creole)	<i>Caraota</i>	<i>Rojo</i> (Red)	<i>Teofrosia</i>
<i>Berraquito</i>	<i>Habichuela</i> (Greenbean)	<i>Maní</i> (peanut) (Purple and white)	<i>Huevo de pinche</i>	
<i>Guarso</i>	<i>Año</i> (Year-round) (Red, white, and multiple colors)			

Source: my own and Asproinca, 2006: 78.

Table 9: Characteristics of bean varieties in Riosucio

Name	Color	Description
<i>Cachas</i>	Red with white spots Black with white spots	This is the largest variety in size, compared to the others in this table. It is abundant and very resistant to 'plagues'.
<i>Frijol de año</i> (Yearly bean)	Pink, white, red, and striped brown and white.	Its name refers to the capacity to produce year round.
<i>Bugueño</i>	White and brown	The brown kind is one of the most abundant and highly appreciated. The white kind is very scarce. Its name is a demonym for Buga, a town in the Cauca Valley Department. The name signals that this bean was probably brought from Buga to Riosucio.

Name	Color	Description
<i>Limoneño</i>		Grows in the warm lowlands
<i>Uva</i> (grape)	Purple	Grows in the warm lowlands
<i>Uribe</i>	Pink	One of the eldest and scarcest varieties. Highly appreciated because of its flavor. It is a bush bean. <i>Uribe</i> is a common last name in the <i>paisa</i> region. This bean was probably named Uribe because someone with that last name first brought it; it does not refer to former President Álvaro Uribe.
<i>Cuero de vieja</i> (Old woman's hide skin)	Black, yellow and brown	It is an abundant variety. Its name refers to the bean's wrinkled and hard skin, that looks like a hide.
<i>Ojo de ángel</i> (Angel's eye)	Light brown	Its name refers to its white rounded slot that resembles an eye.
<i>Boca de ángel</i> (Angel's mouth)	Beige	Its name refers to its white rounded slot that resembles a mouth.
<i>Petaco</i>	Maroon	It grows in the cold highlands and produces year round. It is abundant.
<i>Guandúl</i>	Brown	It is abundant. It is a non-eatable bush bean used as green manure due to the high quantities of nitrogen it releases to the ground.
<i>Algarrobo</i>	Bluish with white stripes	It is scarce. Bush bean. Known for its flavor

Source: my own. All varieties are vine beans unless otherwise stated.

According to seed saver don Luis, the 'beans from before' that are now scarce or lost, are mostly bush –rather than vine beans–, such as the Uribe that “was round, brown with dark

spots”, the Algarrobo, “elongated, bluish with white stripes”, and Radical that was “dark, elongated, very tasty and traded a lot”. There are also non-eatable nitrogen-rich leguminous used as green manure. The varieties I found in the farms are Crotalaria, Teofrosia, Canabalia, Guandúl, and Múcuna. Some of these nitrogen-rich beans can also be consumed if prepared properly. For instance, people roast Múcuna beans and grind them until obtaining a powder that is prepared with hot water or milk as hot beverage. The drink tastes similar to coffee so Asproinca farmers also call this bean ‘Nescafé’ (see chapter 5)

Figure 71: Abundant bean varieties conserved by Astrid



Black Cachas



White and pink year-round bean



Ladies' mouth

Figure 72: Scarce bean varieties conserved by Astrid



White Bagueño



Pink Uribe

Seed savers learn about seed conservation from their parents and their own experience cultivating them, as well as from other seed savers and farmers, and at times from agricultural extension workers. Some seeds are difficult to distinguish for the untrained eyes; this ability is one of the most important to become a seed saver. For instance, yucca varieties are very similar to each other; so much so that I could seldom tell them apart on my own, despite seed saver Don Fabián’s efforts to teach me.

Figure 73: Don Fabián’s Yucca Stand at a Seed Fair, Riosucio’s Candelaria Plaza



Photo credit: my own

Seed savers also need to develop a sensibility that is not based primarily on vision, but on all senses: smell, hearing, touch. As Bellacasa recalls for organic farmers, Asproinca seed savers also develop a ‘feeling for the soil’ or “intensive affective relation with soil ecology” (26). This feeling for the soil involves knowing whether or not a soil is good for a certain seed variety – evaluating how much organic matter, humidity, etc.– based on the color, texture, or smell.

6.3 Seed Fairs: Walking the Seed Freely in the Territories

On a Saturday morning in July 2014, I took a jeep to the main settling (*centro poblado*) in the San Lorenzo *resguardo*. There, I waited for a jeep Asproinca hired to the Blandón community. Asproinca invited me to participate in a *minga* –collective work- with the *promotores* and local members to set up the Seed and Knowledges Fair that were to take place next day. Asproinca organizes this Fair every year with all the associates to exchange creole seeds and knowledges. The Fair also seeks to evaluate how successful seed conservation programs are and to be a joyful event where families strengthen their friendships and solidarities.

When the jeep arrived, I got in from the back. As I was going to sit down inside, I saw a dead pig, with the stomach cut open, lying on the jeep's floor. I stopped cold and tried hard not to scream. The *promotores* laughed at my fright and told me to sit on the front, by the driver. As we drove up the hilly road, I could not stop feeling as if the dead pig's head was looking at me from behind. After about half an hour ride, the jeep came to a stop. Last winter there were powerful landslides that damaged the road and it had not been repaired since. We continued the journey on foot for around two hours until we reached the Blandon's school where the fair was going to be held. Two *promotores* men tied up the pig's feet and hands together with a rope and slid a *guadua* stick across them. Then men took turns to carry the pig up the hill.

When we arrived at the school, we organized teams to undertake different tasks. Alfredo, one of the *promotores*, cut up the pig and hanged the parts from the roof to be cooked for next day. A group of women prepared *morcillas*, a kind of sausage made by filling the pig's intestines with its own blood, rice and species; others prepared lunch for that day. I helped to build the stands for the fair using the *guadua* sticks and leaves we had brought. Asproinca *promotores* also brought marquees (*carpas*) for additional stands and for the sound system to play music.

Figure 74: Carrying the Dead Pig



Photo credit: my own

Figure 75: Fair's Stands Building Work



Photo credit: my own

Next day, a Sunday, we made the journey to Blandón's school again. In the morning, I presented before Asproinca members my fieldwork research results contained in a *cartilla* or popular education publication entitled *Seed Conservation as Peoples' Patrimony. The Case of Asproinca in Colombia* (see appendix). This officially ended my fieldwork with Asproinca.

Asproinca's board organized a contest to award the three families or communitarian groups who had brought the largest variety of seeds. The prizes were given in bonuses to buy farming tools. The first prize also included the pig's head, which is most appreciated for its flavor and to make pork aspic or pig head cheese (*queso de cabeza*). Pork aspic is a traditional peasant food. The meat from the pig's head –and sometimes from the feet- is cooked for several hours and cut into very fine pieces. Then the meat is mixed with gelatin and spices, such as thyme, cloves, oregano, and rosemary, and refrigerated in a mold for about 8 hours to make it into cold meat.

The Board awarded the first prize jointly to Astrid and a local foundation called Seeds of Life that was invited to the Fair. They each brought 25 creole varieties, mostly beans but also maize and squash.

Stands were organized by family or by communitarian groups. People brought food prepared with creole ingredients and seed to exchange. The Fair was a joyful celebration of seed diversity and friendships, as well as indigenous and peasant identities and culinary traditions. At the stands, Asproinca indigenous and peasant farmers engaged in conversations about how to sow, save, and consume the different seed varieties. There were discussions on the seeds' properties in terms of soil fertility, biological control or nutrition. Seed savers also engaged on telling the seeds' life stories: where and whom they first obtained the seed from; the memories of their childhood or relatives the seed brings back; the effort they put into adapting the seeds to

their new homes in the fields and gardens. Pride, knowledge sharing, affection, memories, stories, smells, flavors, beauty, friendships and *compadrazgos*; all of these are embedded in the seeds and circulate in human-seeds webs at the fair. Seed Fairs are part of seed-human journeys; Asproinca seeds savers, as others in the country, ‘walk the seed’ by passing it from hand to hand and onto different fields and territories.

Figure 76: Astrid Receiving her Award



Photo credit: my own

7. Asproinca’s Seed Savers: Stories of Relational Seed Worlds

7.1. Mauricio

On a sunny morning in August 2013, I left my hotel room at Riosucio’s *Plaza de San Sebastián*, crossed by the *plaza*’s church and head towards the parking spot for jeeps going to the Cañamomo and Lomapieta *resguardo*. I took a jeep for the Portachuelo community to visit for

the first time Asproinca's maize seed saver Mauricio, whom I introduced in the beginning of this chapter. The jeep takes the paved road that goes down from Riosucio to the Panamericana highway and, after a 20-minute ride, it veers towards an unpaved, sinuous road that goes deep in the *resguardo*. My cue was to get off the jeep at the Portachuelo's store and walk down the trail for around 45 minutes. Selma, one of Asproinca's *promotora*, had reassured me that everyone in the community knew Mauricio so I would only have to ask every now and then for directions to get to his home, which turned out to be true. However, after about thirty minutes walking on the trail, I started feeling weak, dizzy and getting a strong headache, symptoms that I know well because I suffer from low blood pressure. I gathered all of my strength and made it to his farm.

By the time I got there I was feeling really ill and I had to ask Mauricio to let me rest before starting with the tour around his farm. He asked me to describe how I felt and then told me to rest on a bed. He came back with a hot beverage made of herbs and said it will make me feel better. I drank it and slept for around two hours. When I woke up I was feeling fine but embarrassed to come across as a weak, spoiled urban girl who could not even stand a short walk in the countryside. When I thanked him, he said kindly that he was glad I was recovered and advised me to rest. That day I learnt Mauricio is not only a dedicated seed saver but also a renowned traditional healer in his community. Although he did not tell me the exact ingredients in the beverage, it was certainly an effective medicine. After that day, every time I saw him, he asked about my blood pressure.

Mauricio learnt about traditional medicine from his grandfather who was also a healer. His childhood training on plant medicinal properties developed a deep sensibility for plant diversity and conservation, which then led him to become a seed saver. Mauricio is a well-known maize seed saver in Riosucio as he probably has the largest collection. His family always

kept the farm diversified and never adopted Fedecafé’s model of coffee monocropping. Although Mauricio (2013a) sows Fedecafé’s coffee varieties, he has also kept creole varieties in his fields, along with maize and beans, despite much pressure: “People have begged me. My niece who works at the [Fedecafé] cooperative has told me: ‘do not be old-fashioned. Those [maize] seeds do not sell. Sow [the certified maize] that the coffee committee is offering.’”

Figure 77: Mauricio Selecting Maize



Photo credit: my own

In Cañamomo and Lomapieta *resguardo*, where Mauricio lives, there is still a strong seed saving tradition. However, some indigenous farmers in his community question his seed saving labor as Mauricio (2013a) recalled: ‘why will I sow those seeds if you can’t sell them? Stop wasting any more time on sowing those seeds that no one is going to eat.’

Mauricio is an enthusiast of recovering ancestral knowledge on seed conservation. He grows local plants in his home garden, such as *artemisa*, *ruda*, and *borrachero* tree¹⁴³ ground, dry and make them into powder. Then he mixes the seeds with the powder to protect them from weevil. Biological control for seed conservation is based on complex botanical knowledges. Some of these plants are very toxic, like *borrachero* and *barbasco*, so seeds treated with these plants can only be used for seed but cannot be consumed. Other plants, such as *artemisa* or *ruda* are not toxic for humans and thus can also be consumed by the family.

Mauricio sows the maize the old way. He uses a traditional tool called *Recatón*, which is also used for planting beans. Indigenous farmers such as Mauricio make the *recatón* themselves, as you cannot find them in agricultural stores. *Recatón* has two parts: the wooden stick and a flat metal piece at one end. Its flatten, elongated shape helps digging holes with the right deep for maize and beans. It is a customized –rather than standard- tool, designed to accommodate to farmers’ height as well as to the terrain. The more mountainous the field, the larger the *recatón* is. Mauricio also uses a gourd cut open and tied to his waist to store the seeds as he plants the field.

Mauricio’s abundant production of creole maize allows him to provide seed for Asproinca, the *resguardo*’s food sovereignty programs and the Cañamomo and Lomapieta Seed House. He sows about half a hectare in maize and stores the harvest in a small granary in his house.

Being a seed saver requires work and dedication; one needs to be constantly recuperating creole varieties and breeding new ones adapted to local conditions. According to Mauricio (2013b): “people admire the varieties one has but do not put themselves to sow them. They

¹⁴³ *Artemisia*, *Ruta graveolens* (Rue or Herb of Grace), and *Brugmansia arborea*.

congratulate you for all of the effort, but that is it. Others don't do it because it is very demanding". In addition, most seed savers in Asproinca are older given that the youth is gone to work in the nearby mines of Marmato and Quiebralomo which difficult knowledge transfer on agrobiodiversity to the new generations.

Figure 78: Recatón



Photo credit: my own

Figure 79: Mauricio Sowing Maize



Photo credit: my own

7.2. Eugenia

Eugenia is a seed saver woman, specialized in medicinal plants. Eugenia told me how before she joined Asproinca, about five years ago, she had a tiny garden where she grew onions and tomatoes. She was 'asking neighbors for seeds and vegetables all the time,' even though she had the land to grow food. With Asproinca's support, she "pulled my socks up (*ponerme las*

pilas)” and said to herself: “if the other women have a garden, why can’t I? I have my garden ever since”.

Table 10: Eugenia’s medicinal plants

Plant	Medicinal use
Aloe Vera	Prepared as juice mixed with papaya helps colon’s inflammation
<i>Romero</i>	The leaves are boiled and used to prevent hair loss
<i>Arnica</i>	Used in compress with salt is good to ease pain and inflammation caused by a dislocated bone or tendon (<i>‘descomposturas’</i>)
<i>Ruda de Castilla</i>	In beverage with honey helps to ease pain and inflammation caused by wasps’ and worms’ bites.
<i>Sidrón</i> and <i>Toronjil</i>	Good for nervousness
<i>Prontoalivio</i>	Good for insomnia, mixed with <i>limoncillo</i> .

Source: my own

Eugenia represents the importance of rural women in conserving creole seed for feeding the family and taking care of illness. She has a beautiful vegetable and medicinal garden that she maintains with love and dedication. With Asproinca training on food preparation, she not only diversified her garden, but also her family’s diet contributing to better nutrition and health: “I taught my husband to ‘eat wilderness’ (*comer monte*) as I said: spinach and carrots and other kinds of mulch. I make soups or chop them and he now eats them.” (2013) After much effort to convince her husband on the importance to have her garden, she finally managed to have a piece

of land for herself nearby the house and have her husband loosen the soil after each harvest, a task that is too physically demanding to accomplish it by herself. Then, she adds coffee pulp and hen's dung to the soil and leaves it for eight to fifteen days to decompose, before planting the seeds. According to Eugenia (2013):

Men are into [sowing] coffee and plantain, but they don't care if one, as a woman, needs a garden. My husband became interested in helping me with the garden because of Asproinca's training. Now he knows it is important to grow our own food rather than buying it at the market.

7.3. Mercedes

Mercedes is a young woman who became a good friend of mine. She lived with her parents and brother in La Montaña *resguardo* and was unmarried at the time of my fieldwork. I admire her because she is a brave woman who pursued a future despite the odds. She was born with dwarfism and has trouble walking, as one of her legs is considerably shorter than the other. Thus, she does not have the physical conditions to labor in agriculture. Instead, she studied a technical career in forest management at Sena Institute and then did a bachelor degree in agroecology at the Bolivarian University in Venezuela.

While she was studying at Sena, she became interested in seeds for making handicrafts in order to help cover living and studying expenses. Mercedes started working with black cedar seeds to make necklaces with dolphin shaped pendants and earrings. When I met her, she was living off her handicrafts; she had a stand at every Seed Fair and any other cultural event in Riosucio I attended. Her interest on seed conservation then originated more on handicrafts than agriculture; even though as she progresses in her studies in agroecology, she started to be more aware of the importance of creole seeds for agriculture and feeding.

Currently, she conserves creole crop seeds and trees seeds to feed her family and for her handicrafts as well as for reforestation of nearby water basins. She grows her own seeds –

especially beans- in her home garden as much as possible, so she does not have to walk long distances to obtain them. Seeds she cannot grow –particularly from local trees– she collects them in the nearby forest such as cedar and *chumbimbo*.

Figure 80: Mercedes's Jewelry Made with Canabalia Beans



Photo credit: my own

Mercedes has a deep relation with seeds. She embraced agroecology –and particularly seed conservation– as a way of life because seeds are “life from the start”. To her, agroecology is not just related to agriculture but to the maintenance of all forms of life, including humans; agroecology is then an integral approach to environment and health conservation and food provisioning. In contrast, conventional agriculture is tied to chemicals and technological packages which deteriorates health and soils, damages biodiversity and privileges market logics: “They have convinced us that we need rentability and competitiveness; money is necessary, but the most important is to live well (*tener bienestar*)” (Mercedes, 2013)

Mercedes questions the logics of development that define well-being as endless economic growth and profit-making by articulating a set of other values, such as autonomy and diversity in food production, that are linked to indigenous notions of *buen vivir* or "good life"¹⁴⁴. *Buen vivir* is framed in indigenous worldviews, especially Andean, which defines wellbeing as *convivir* or living with others, including nature, on the base of solidarity and care.

7.4. Seed Saving and Gendered Practices of Care

Seed savers are then farmers who hold an especially deep love and caring for seeds. Asproinca –as well as NFS seed savers– often refer to their labor as similar to raising kids; a labor that is born out of love and care for seeds who are like children to them. In fact, when I asked Mercedes (2013) about what motivated her to become a seed saver, she replied “maternal instinct, I believe. What you need to be a seed saver is to love seeds and be committed to their conservation.” Seed-caring practices include to plant the seeds under optimum conditions and look after them while they grow by feeding them with the healthiest food (i.e. organic, on-farm manure) and keeping them warm, joyful and safe from harm; and to harvest and save them once they are ‘grown up’. At this moment, a seed saver ought to let the seed walk freely –to live her own life as grown up children do- so that it circulates among other seed savers and farmers in other communities and territories.

As a largely gendered, care-based activity, women seed savers in Riosucio sometimes endure patriarchal demeaning attitudes towards their seed conservation work of varieties that are not for the market, as Astrid confided me:

¹⁴⁴ *Buen vivir* is the Spanish translation for what is called in quechua *suma kawsay* and in aymara *Suma Qamaña* (Gudynas, 2011: 2)

“My husband tells me to stop bothering with those seeds and, sometimes, I think that way too. But then I say to myself: ‘no, how can I let my beans die?’ I love my seeds. And so, I grow them again”.

Asproinca *promotores* team and Board have worked towards educating the members on issues of gender equality because they are conscious that seed diversity conservation relies largely upon women. Furthermore, women’s gardens and biodiversity knowledge also contributes to food production in charge of men. For instance, *doña* Hermida (2013) explained to me how she grows a seedbed with *cadillo* plant, which is used in *panela* and *guarapo* production. Doña Hermida takes the *cadillo* and removes the bark; then she presses it well, grinds it and puts it in water for a few days. Finally, she presses it again to extract the slime (*baba*) and adds it to the boiling cane juice in the *trapiche* to make it thicker for *panela*.

Figure 81: Asproinca Calendar “Women from the Countryside Sowing the Future”



Photo credit: my own

Since the beginning, Asproinca’s Administrative Board and the *promotores* have organized workshops on gender issues and formed women’s groups to empower and train them.

For instance, each year, Asproinca publishes a calendar that contains teachings for the members. An old calendar, for the month of July, talks about the women's role in 'sowing the future in the countryside'. The Calendar says that the future is guaranteed by women's labor in saving, cleaning, and protecting seeds for following harvest; women are "seed, food, and water growers." Their seed caring allows the community to stay in the territory in harmony with nature.

The calendar calls on men to "value, recognize, respect and make visible the contribution that women make in the farms" and to support their food production for self-consumption over the commercial and industrial crops that are usually managed by men. In other words, it calls for prioritizing the well-being of the family over making business. This is about reclaiming women's practices of care that allow for reproduction and the maintenance of life; practices that have been neglected or considered inferior—belonging to the domestic or personal sphere—in comparison to men's productive work in agriculture and cattle raising (Bellacasa, forthcoming: 28; Gibson-Graham, 2008).

8. Sharing the World with Seeds

Seeds are fascinating beings I had not really thought and felt about before my fieldwork. Asproinca farmers create relational worlds with seeds in their everyday agricultural practice. They make conditions right for seed's breeding, cultivation, and propagation. These farmers, and especially seed savers, establish deep relationships with their seeds by investing the time and effort in conserving them, even if they gain no profit. For instance, unlike certified seeds which are identified by serial numbers, Asproinca farmers call their seeds after meaningful names that represent a specific physical or agronomic characteristic, a place, a last name, etc.

Asproinca seeks to defend the territory and livelihoods of peasant and indigenous farmers in Riosucio and Supía through agroecology. This organization promotes the conservation of

creole seeds –and linked knowledges- through home gardens, diversified coffee and cane farming, silvo-pastoral agroforestry, seed savers’ networks, seed exchanging fairs, and a team of *promotores* based on farmer-to-farmer training. Asproinca’s farm management plans mimic the functioning of ecosystems to design agricultural systems that enhance food webs, use and recycle on-farm resources and energy in order to reduce market dependency, specially the use of agrochemicals, and the expansion of biofuels. To this end, there is a micro-credit fund (*Fondo Rotatorio Comunitario*) to finance Asproinca’s programs independently from the conventional financial system.

Asproinca’s seed systems interconnect seed savers in multi-species webs of reciprocity, exchange, and diversity. Based on love for seed and appreciation for beauty and value in heterogeneity, seed savers take care and walk the seed in their farms and territory as if they were raising children. While certified seeds may be valued in certain aspects and contexts, Asproinca farmers strive for seed sovereignty or their control over seed saving, conservation and development of their own creole and creolized seeds.

To be sure, within Asproinca perspective, agriculture is not reduced to an ‘economic’ activity where seeds are only defined as ‘means of production’ and valued in terms of their contribution to productivity. Instead, agriculture is a form of living in the territory with other non-human beings; seeds are sacred, willful beings with whom there are strong relationships and co-dependencies. Seeds for Asproinca farmers hold value on their own and at the vortex of such co-dependencies.

CONCLUSION: LIFE AND DEATH IN INDIGENOUS SEED SYSTEMS

1. Seed Conflicts, Genealogies, and Coloniality

This dissertation looked at seed conflicts in Colombia between farmers and biotechnology corporations, such as Monsanto or Syngenta, and allied factions in the central and provincial governments. To examine seed conflicts, and seed-human relationships more broadly, in Colombia, I developed a multi-pronged approach that weaved together political economy, ecology and ontology.

The analysis of seed conflicts allowed me to reflect upon 1) the particularities of current processes of agricultural globalization and how those impact indigenous economies, identities, resistance, and worlds; and 2) how and why grassroots proposals for seed sovereignty contribute to revisit discussions on non-human worlds, the commons, and diverse food economies and agricultural knowledges.

This dissertation provided several lines of analysis to explain what I believe is a key question to understand both contemporary trends in agri-food systems as well as resistance and alternatives: How did we come to accept what I call, based on Aistara (2011), a ‘corporate seed genealogy,’ where seeds go from living beings who have co-evolved with humans through domestication for thousands of years, to become commodities that are ‘invented’, and, hence, claimed as private property by biotechnology corporations? I argued that this corporate seed genealogy is only possible due to particular ontological and epistemological propositions about what seeds are that underlie seeds’ governance and property regimes.

Scholars, such as Shiva (2001), Muller (2014a and b); and Demeulenaere (2014), have shown that such propositions emerge from a dualist modern ontology that conceptualizes seeds – and particularly creole and native varieties from the global south– as part of the (Nature) Other. These so-called ‘natural’ and ‘inferior’ seeds are then considered ‘raw material’ to be ‘improved,’ using genetic manipulation and, once manipulated, considered a human ‘invention’ that can be enclosed through IPRs for capital accumulation (Van Dooren, 2008). Thus, this ‘corporate seed genealogy’ reflects the coloniality of power and knowledge because it regards only western corporations and science as genuinely inventive, while rendering the labour and knowledge of indigenous and peasant communities invisible, as “nature’s raw material” to be improved upon. Furthermore, the corporate seed genealogy involves the erasure of not only non-western scientific labour and knowledge, but also non-human, so that biotechnology companies can claim GM seeds are their ‘invention,’ and more broadly, a ‘human invention’, which is basic legal prerequisite to grant IPRs. Rendering invisible and inferior native and creole seeds – and the associated labor and knowledges of small-scale farmers– is then a form of the coloniality of nature (Alimonda, 2010)

2. Dead and Life Seed Systems

In this dissertation, I showed how seed savers in Riosucio, associated with the Network of Free Seeds and Asproinca, conceived their seeds, plants, and other non-human beings who dwell in their fields in, at least, three different ways from biotechnology corporations. First, they conceptualize seeds as a ‘commons’ or anything material and immaterial that is indispensable for collective wellbeing as humans and with other species and, as such, cannot be enclosed and privatized (Bollier, 2002 and 2014). Second, they refer to seeds as sentient beings, rather than merely resources or commodities, with whom they are intimately connected and inter-dependent

in the territory. Third, they strongly relate the conservation of creole seeds with their struggle for autonomy, food sovereignty, territory, and indigenous identities.

As other communities and social movements in Colombia –and across Latin America– seed savers are increasingly associating neo-extractivist projects, particularly the expansion of corporate agriculture based on GM seeds, to death and destruction. Conversely, they are defining their movements and resistance as the defense of life. These seed savers specifically talk about the ‘dead seed system’ of corporate agriculture vs the ‘life seed system’ of communities. These exact terms are most often used by those seed savers more politically active within the Network of Free Seeds. However, most seed savers I talked to would use concepts related to death (sickness, addiction, destruction) and life (care, birth, love) to explain why they conserve creole seeds and oppose GMOs. I found visually compelling this poster on a NFS’ forum on the defense of maize against transgenic crops in Colombia, to illustrate the ‘dead’ vs ‘life seed system.’

Figure 82: Dead vs Life Seed System



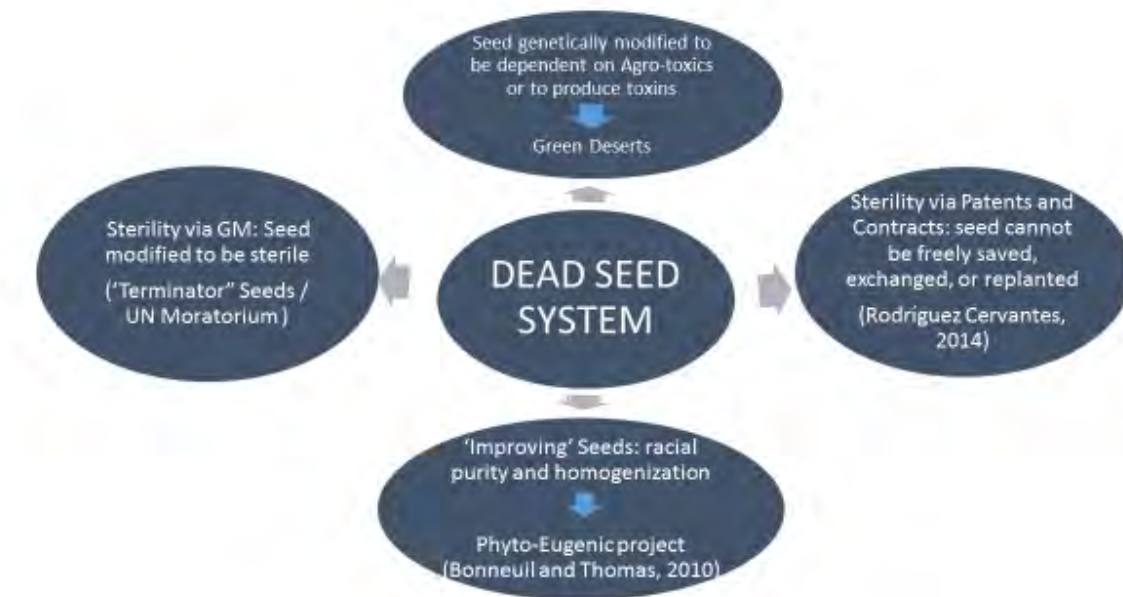
Source: <http://www.swissaid.org.co/node/403>

In GM crops, death is genetically engineered into plants, such as maize, by three means: biological, legal, and contractual (Rodríguez Cervantes, 2014). Biological means involve four forms. First, death operates through the elimination of other organisms –of undesirable non-human bodies in a form of necro-power–, which are considered plagues or weeds, turning fields into green deserts where only GM crops grow. Second, sacred and crucial plants for food sovereignty, such as maize, have now become poisonous through genetic engineering, not only to the ‘targeted’ insects, but to many other organisms, as the Bt toxin they produce circulates along the food chain. Third, the development of ‘Terminator’ and ‘Zombie’ seeds (ETC Group, 2008) or seed genetically modified to be infertile or to only produce viable seed if under the influence of specific chemicals. Fourth, phyto-eugenics (Bonneuil and Thomas, 2010) or the seed development paradigm that strives for racial purity and homogeneity by eliminating varieties that are considered ‘inferior,’ defined in terms of profitability for the corporate agri-food system.

Legal and contractual forms use legislation and private contracts to forbid seed saving in order to eliminate the reproductive capacities and life cycles of plants in farmers’ fields.

Drawing from seed savers’ ‘life’ vs. ‘dead’ conceptualization of seed systems, I argued that seed conflicts in Colombia cannot be fully understood only in terms of resistance of small-scale farmers against seed grabbing and enclosure by biotechnology corporations. Rather, seed conflicts are also ontological conflicts or conflicts over what seeds are –and by extent what defines us as humans in the context of our relations to seeds and plants enacted through agriculture and food practices.

Figure 83: The Dead Seed System

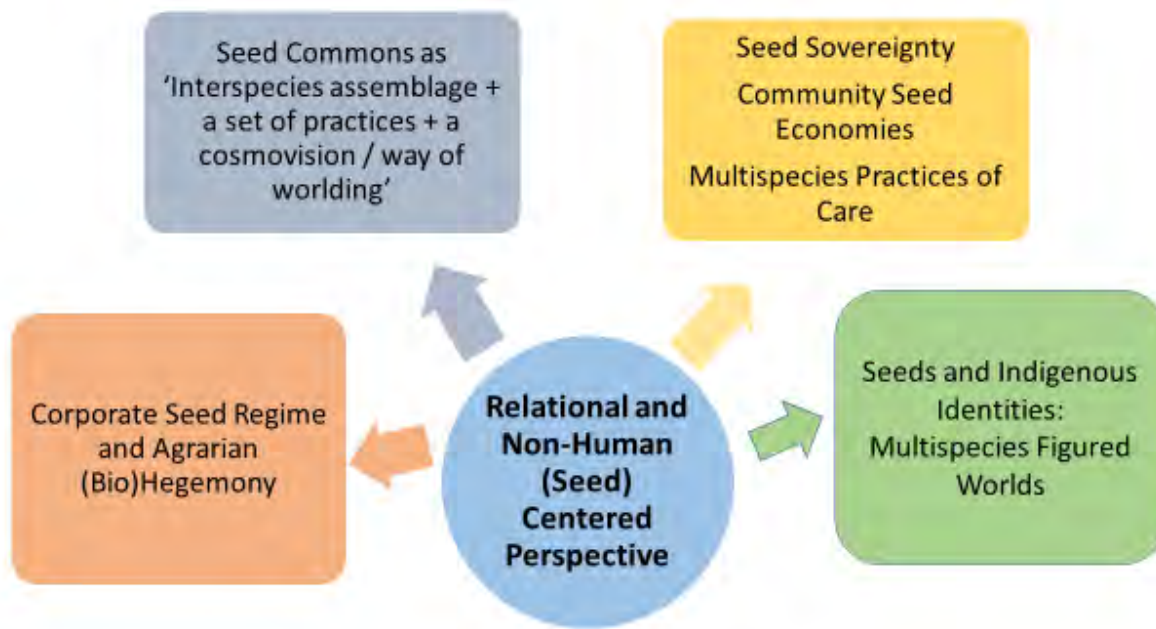


Source: my own

In other words, following Escobar (2016), Muller (2014a), and Demeulenaere (2014), I analyze seed conflicts in terms of a political ontology or a struggle to defend ‘live seed systems’ against the advance of ‘dead seed system/world’ that arrogates itself the right to become the one and only. Specifically, I provide a relational and non-human (seed) centered perspective to analyze food regimes and agrarian hegemony, commons, food sovereignty and community economies, and issues of indigenous identity and territory.

Using this framework, I explained, throughout the dissertation, why and how the defense of creole seed has become politicized in Colombia in the context of the struggle for indigenous territory, identity, and self-governance. To do so, I focused on the Embera-Chami indigenous communities in Riosucio, Department of Caldas.

Figure 84: Theoretical Map of the Dissertation



Three important clarifications are in place. First, I conceptualize ‘live’ vs. ‘dead’ seed worlds as analytical terms that do not entail clear boundaries in terms of actors and meanings. Corporations may hijack creole seeds into the world of the corporate seed system by patenting and commodifying them for global high-end niche markets, such as the case of quinoa in South America. Peasant and indigenous communities in Colombia may plant GM seeds, for several reasons or under different kinds of coercion or incentives, becoming participants in the corporate seed system, although in a disadvantaged position. At the same time, communities may devise communitarian strategies to enforce Transgenic-Free Territories, “heal” GM contaminated creole maize, and other seed sovereignty initiatives that aim to reclaim life and ‘push back’ the advance of dead seed systems in their territories. Plant scientists in Colombia, as around the world, may not fully participate and endorse the dead seed system, but advance critical positions against abusive IPRs and propose forms of open source genetics and ‘generic’ GM seeds.

Second, the Dead Seed System does encompass the management of life or forms of biopower. Through genetic engineering, biotechnology corporations certainly manage the fertility and life cycles of seeds and other organisms that are deemed profitable enough to be reproduced under controlled conditions – particularly to assure revenues from IPRs, and agro-chemical and seed sales – in laboratories, farm nurseries, and seed banks, such as those from the CGIAR Consortium which are increasingly corporate-controlled. Similar to the scientific management of human populations that emerged in the nineteenth century as illustrated by Foucault (2004), the biotechnology apparatus uses a range of technologies to manage GM and IPRs protected plants’ life cycles (fertility, sickness, etc.), in order to enhance wealth and productivity. Seeds then become objects of manipulation through a series of scientific knowledges (from genetics to nano-technology), IPRs and contractual law, and political economy (such as calculations on seeds’ productivity or on their value in stock markets) and other technologies of power.

Third, I assigned a prominent analytical position to the local categories of ‘live’ vs. ‘dead systems’ due to my conviction that honoring people’s knowledge is theoretically and politically crucial for knowledge production in academia. My initial literature review for this dissertation placed issues of the political economy and ecology of seeds as the most prominent analytically. However, as I conducted fieldwork, it became evident, rather quickly, that for seed savers, seed conflicts deeply raised issues about life and death, resilience and destruction as embedded in conflicting definitions of seeds. Taking seed savers’ knowledge seriously, allowed me to broaden my theoretical approach to include issues of ontology and to understand place-based seed conflicts more rigorously not only analytically, but also, politically. As anthropologists doing engaged research, our political commitments can only be truly effective if informed by peoples’

own understandings of struggle, alternatives, and worlds. Furthermore, engaged scholarship is an effort to debunk academia as the one and only place of knowledge production. Instead, from a decolonial perspective, I embrace inter-epistemic dialogue (*diálogo de sabers*) with seed savers and activists to visibilize the diversity of sites and peoples where knowledge originates, both in the here-and-now and as emergent.

3. The Corporate Seed Regime in Colombia, Biohegemony and Resistance in Colombia

In Chapter 2, and drawing from studies on ‘food regimes’ (McMichael, 2009; Otero and Pechlaner, 2008; and Fitting, 2011), I situated seed conflicts as a result of the expansion of the Corporate Seed Regime. I characterized the Corporate Seed Regime as the corporate-led governance, food aid and security development apparatus, and political economy of seeds, premised upon seed commodification, via genetic engineering, phyto-sanitary regulations, and stringent intellectual property rights on plant material, at the national and supra-national levels. The Corporate Seed Regime fits on the larger phenomena of accumulation by dispossession, based on the commodification of untapped commons, such as seeds (Harvey, 2005). In this process of the wearing down of commons (Nonini, 2007), I analyzed how seeds have historically transitioned from being a commons to a public good, develop mostly by state agencies and distributed to farmers freely, to a full-range commodity privately owned by corporations (Kloppenburg, 2004). These processes of enclosure, through IPRs and genetic modification, resulted in novel seed-based languages and practices within indigenous struggles for identity and self-government, much the same way as earlier lexicons around indigenous language, land, water occupied a prominent place in such struggles.

Chapter 2 situates such changes in the technology and governance of seeds in particular contexts of negotiation and resistance in Colombia. As Tsing (2005) argues, global power does not operate as a well-oiled machine but in friction with place-based difference. I demonstrated

how seed conflicts have intensified in Colombia as a consequence of the Free Trade Agreement (FTA) with the US, which came into effect in 2012, particularly in two dimensions. First, this FTA increased imports of GM seed and foods in Colombia by gradually eliminating trade barriers to agricultural products from the US; a trend that fits into the neoliberal reforms implemented since the 1990s. As a result, we are importing soybean, maize and cotton seed from the US, which is the largest global producer and trader of genetically modified or GM varieties. GM seed and food imports raised public concerns about consumers' and nature' rights; the environmental and health impact of monocropping, genetic modification, and the pesticide treadmill; the genetic contamination of creole varieties; and the threat to food and seed sovereignty.

Second, the US-Colombia FTA required Colombia to join the International Union for the Protection of New Varieties of Plants (UPOV) in its latest version of 1991. The implementation of UPOV 1991 modified Colombian property rights regime to adjust -or 'harmonize'- it to US standards. This 'harmonization' sought to legally restrict Colombian farmers' rights to use and save the seeds they grow and facilitate 'biopiracy' or the plunder of the country's biodiversity by corporations. Specifically, UPOV91-based legislation 1) granted patent-like forms of intellectual property rights (IPRs) for those who develop or discover a plant variety; 2) defined the violation of breeder's rights, including for "essentially derived" varieties, as a crime, punished with jail, fines, and seed confiscation; 3) ruled that all seeds in the country must be certified by ICA, indirectly making creole and native seed illegal, and 4) imposed stringent restrictions on seed-saving.

The implementation of the Corporate Seed Regime has not been a smoothly and uniform

process in Colombia, but rather fraught with setbacks and resistance due to a combination of processes: the failure of GM maize, and particularly cotton, since 2012; the 2013 Agrarian Strike and a general rise in agrarian-based mobilization; and the creation of the Network of Free Seeds that promoted seed sovereignty and anti-GM activism through, for instance, civil disobedience and legal demands against the new seed laws and the approval of GM varieties for cultivation and import. I argued that these processes of resistance –with different degrees of success– defied biohegemony (Newell, 2009) or the consensus, forged and implemented through discursive, material, and institutional mechanisms, on the supposedly unquestionable benefits of corporate-led agrobiotechnology and the commodification of seeds and other forms of life.

This chapter argued that the Corporate Seed Regime and biohegemony are sustained upon a Corporate Seed Ontology expressed in two interconnected forms of reductionism: genetic and economic. Genetic reductionism implies conceiving seeds as a collection of genes that can be precisely and safely decoded, manipulated, moved across different species, and switched on and off to devise super crops that will allegedly make agriculture more efficient and advanced as well as bring about the end of hunger. Economic reductionism turns seeds into resources only valuable in so far as they serve the needs of some humans and particularly, in so far as they can be converted into commodities that can be privately owned, quantified, priced, and traded in global seed and stock markets for capital accumulation (McAfee, 2003).

4. Homogenizing and Improving Seeds: Coloniality of Power and Nature in an Indigenous Resguardo

In Chapter 3, I analyzed how the process of coloniality of power and nature has operated historically in Riosucio. I showed the stigmatization as inferior of certain plants and foods, such as *guineo* plantain, *guarapo* and *chirrinchi*, shade-grown coffee varieties, or *revoltura* beans, that

sustained indigenous and black people' models of subsistence and of inhabiting the territory in tension with the model of 'agriculture' as business, since the colonial period.

By analyzing Riosucio's history through the lens of seed-human worlds, I argued that the quest for seed homogeneity and 'improvement' results from, and reinforces, larger processes of destruction, accommodation, and resistance of indigenous worlds, territories and self-government.

In Chapter 4, I focused on a particular process of coloniality of seed-human worlds in Riosucio: the introduction of the Green Revolution model in coffee production that partially replaced the coffee-forest model. Since the 1970s, Fedecafé –the Colombian Coffee-Growers Federation started to develop sun-grown, input dependent coffee varieties, so that farmers will switch to monocropping, in order to modernize production and increase productivity to take advantage of the international coffee bonanza. Fedecafé functions as a sort of public-private development agency, rather than a for-profit seed or biotechnology company. As such, Fedecafé's coffee model is an 'engaged universal'; or the result of applying the Green Revolution model within a particular socio-historical setting that shapes it in unique ways (Tsing, 2005).

A powerful example of this 'friction' between global and abstract forces, and its place-based manifestations, is seen in Fedecafé's seed development policies. Fedecafé prides itself to be a democratic institution that seeks the welfare of its members as well as to maintain the high reputation of Colombian coffee worldwide. In this sense, Fedecafé's seed are not completely homogenous, but somewhat adapted to the many different micro-ecosystems and socio-cultural conditions of coffee growing regions in Colombia. In addition, these seeds function as a public good within the coffee sector, which means that there are no IPRs restrictions to save, exchange

or commercialize the seeds inside the country. Nonetheless, monocropping based on Fedecafe's varieties in Riosucio has contributed to the disappearance not only of shade-grown coffee varieties, but also of creole varieties of all the other crops that were associated to cultivation under the coffee-forest model and that supported indigenous ways of life.

5. Community Seed Economies: Rethinking Commons and Markets

Chapter 6 explored why and how recovering creole seeds have become fundamental to the defense and reinvention of collective indigenous selves in Riosucio, particularly seed savers associated with the grassroots organization Asproinca, and the indigenous governments or *cabildos*. Creole seeds embody the historical agri-food worlds –memories, practices, knowledges– of Emberá-Chamí people in this region. To be sure, the defense and conservation of creole seeds is another kind of ‘engaged universal,’ or place-based conjugations of the agroecological paradigm with ‘traditional’ farming and food practices, and some aspects of Fedecafé's model of coffee production.

In this chapter, I analyzed three seed sovereignty initiatives to explain how creole seeds and anti-GM activism have become part of indigenous struggles for identity and autonomy. First, the seed savers' networks that conserve, exchange, and breed creole seeds at different scales from on-farm to the national –and even international– through seed fairs.

Second, the 2009 declaration of the Cañamomo and Lomaprieta *resguardo* as one of the few “Transgenic-Free Territories” in Colombia. This declaration forbade the cultivation and consumption of GM seeds and foods, particularly in public and private food security and agricultural development programs; expressed the commitment to defend traditional seeds, ancestral knowledges and territory; and mandated that local food sovereignty programs were based on the use of creole seeds from local seed savers or obtained through exchange with other seed saving networks.

Third, the Community Seed House in this same *resguardo* which temporarily stores and reproduce creole seeds and organically-grown commercial seeds to supply *cabildos* food sovereignty programs and conserve agrobiodiversity in the *resguardos*.

I argued that these three initiatives evidenced not only a community seed economy (Gibson-Graham), but also the diversity of seed-human worlds that include seed barter, gift-giving, and fair prices; inter-epistemic dialogue between ‘traditional knowledges’, agroecology, and critical western science; or alternative seed certification systems that reflect the manifold values of seeds from ritualistic, to medicinal, to agronomical and dispute the primacy of industrial scientific breeding of ‘improved seeds,’ which seed savers refers to as *semillas desmejoradas* or “degraded seeds.”

Finally, in this chapter I analyzed how these seed sovereignty initiatives in Riosucio have prompted conflicts with the government and corporations which enforce seed certification and intellectual property rights on seeds, as well as promote GM crops. These seed conflicts in Riosucio originated in the implementation of Ica’s Resolution 970 that requires the exclusive use of certified seed and prohibits on-farm seed saving, as mandated by the US-Colombia FTA, that erodes seed commons. Furthermore, these seeds conflicts are at the base of broader issues, namely indigenous rights to self-government and the defense of their own agricultural practices. Seed conflicts are then part of larger conflicts over autonomy and ‘*modelos propios*’ or place-based ways of inhabiting the territory that defy the developmentalist governmentality of the agrobiotechnology apparatus. In this sense, seed sovereignty is an integral part of food sovereignty and self-government.

I end this section by clarifying that not all farmers in Riosucio are radically against GM, hybrid and other industrial improved seed. Many of these farmers have, in different degrees,

adopted the Green Revolution paradigm which is difficult to challenge and subvert; other are in a too vulnerable position to reject GM and other ‘improved’ kinds of seeds, be them in the form of food aid, agricultural and food security programs, or as a condition for obtaining credit. As I and Elizabeth Fitting (2016) wrote:

“With the current coffee-crisis and the strengthening of indigenous politics, farmers in Riosucio are diversifying their production and increasing the cultivation of creole varieties, but this may not be as fast and steady as seed-savers networks and indigenous leaders hope for. Furthermore, seed sovereignty, the conservation of creole crops, agroecology, and anti-GM activism are increasingly important but not fully among the main issues currently on the political agenda of Colombian agrarian organizations as land reform, the peace process, and opposition to mega-mining and FTAs continue to be more salient issues. This may prove challenging for on-going and future alliances between seed savers networks and other agrarian movements in the country”.

6. Seed Relational Ontologies

By looking at Seed Systems in Riosucio, in Chapter 6, I bring a bio-centric perspective to identity-making processes. A possibility opens for conceiving what Holland calls figured worlds that become embodied in –and through– non-human beings, such as seeds, who are both agents and socio-natural ‘artifacts’ that shape indigeneity in Riosucio.

Seeds-human worlds in Riosucio are based on a sense of multispecies care and coevolution that supports practices of reciprocity, autonomy and diversity. Seeds may represent domination and exploitation for peasants and indigenous people when enclosed by powerful outside market actors, such as biotechnology corporations, and genetically modified. However, creole seeds may also constitute a figured world with humans; a living being who is material, symbolic and spiritually significant to definitions of personhood in the Colombian Andes.

There are plenty of processes by which Asproinca farmers and seeds become together in their territory: the cyclical expenditure and renovation of energy or *fuerza* through cultivating and consuming seeds; the ritual bondages associated to agricultural cycles where seeds figure

prominently; the transmission of identities and knowledges in seed conservation; or the ways seed walk the territory alongside farmers as they are exchanged.

One important caveat. The meaning of ‘creole’ seeds and its association with indigenous identities and struggles is historically and contextually dependent in Riosucio. The clearest example is coffee. Coffee has been both a vehicle of coloniality and resistance. Coffee is native to Africa, was then brought as a plantation crop to the Americas during European colonization and arrived in Riosucio in the hands of a later colonization by *antioqueño* settlers. However, shade-grown coffee varieties became traditional since the 1960s with Fedecafé’s implementation of the Green Revolution model that included sun-grown varieties.

7. The Epistemological and Ontological Dimensions of Seed Conflicts

In a nutshell, in this dissertation I argued that seed conflicts in Colombia are ontological and epistemological conflicts to define what seeds are, and whose knowledge and labor counts in seed development at several, interconnected dimensions:

First conflicts over whether seeds are, on the one hand, commodities that can be privately owned and monopolized using the legal figure of ‘invention’ under the modern corporate ontology or, on the other, closely related beings that constitute a commons, under a more relational ontology. I showed how seed savers in Riosucio challenge this corporate seed ontology by arguing that creole varieties are not resources to be ‘discovered’, ‘invented’, and commodified by corporations and western-based science, and that UPOV91-based laws are unconstitutional.

Second, a dispute over which knowledge systems and labour define what a good seed is. For the industry, it is seeds ‘improved’ using western techno-science for capital accumulation. Hence, corporations define GM seeds as good seeds because they are homogeneous, hold commodity value in global markets, are engineered for efficient pest control, and have high

productivity and input-dependency. Seed savers in Riosucio challenge the superiority of industry seeds by calling them ‘degraded seeds’ and refusing to use ICA’s certification systems. In contrast, they consider creole seeds ‘good’ seeds, because they are connected to their indigenous worlds and struggles, they are free and circulate in farmers’ hands, are heterogeneous and adapted to the different agricultural systems of small-scale farmers, and contribute to seed and food sovereignty and autonomy.

8. Future Seed Journeys

On a final note, I believe my dissertation opens up discussion on how seed conflicts contribute to theorizations on non-human agency. In my opinion, seeds are endowed with agency, not because of consciousness or subjectivity, but due to their capacity to act on others somewhat independently of those others’ –including humans’– will, meanings, designs or control. In contrast, for most Asproinca and NFS seed savers, seeds are conscious, sacred beings; their vital force or *elemental* emerges from a supranatural, spiritual being or substance –be it Mother Nature, the Creator, God, etc.– that is present in all living creatures. From my perspective, such vitality and agency may be thought as intrinsic to living beings in the terms proposed by systems theory; as a “propensity of living systems and organisms for self-organization and self-generation” (Capra, 2002).

The agency of genes, toxins, and other proto-agents, as Bennet (2010) calls them, is clearly seen in that they exceed the control of human-led genetic manipulation by causing unforeseen effects when violently inserted into foreign genomes and organisms. Bt toxins present in GM crops travels beyond the confines of GM organisms through water, soil, wind, and metabolic networks to end up in new organisms and life networks such as breastfeeding babies, bees, cattle or monarch butterflies and producing unknown effects. Transgenes producing

unknown –and unaccounted for– variant proteins that may be toxic or allergenic for host organisms, including humans.

Extending agency to non-human beings is important for two reasons. First because it calls into question the objectification of nature –inanimate objects- that leads to instrumentalization, exploitation and suffering of non-human beings, such as seeds. Second, and interrelated, because considering non-humans as actants contributes to dismantle human ‘uniqueness’ and superiority that has grounded our fantasy of control and prevented us from feeling empathy for -and recognizing our interconnectedness and co-dependence on- other earth-beings and systems. These issues are open for further research as they are beyond the scope of this dissertation.

APPENDIX 1: GMOS IN COLOMBIA

Table 11: GMOs Authorized for Commercial Cultivation in Colombia¹⁴⁵

	Crop	Technology	Characteristics	Company	Year of approval
1	Carnation <i>Dianthus caryophyllus</i>	Moonshade (FLO-11226-8)	Modified flower color (Blue colored petals)	International Flower Developments	2000 (greenhouse cultivation for export)
2	Rose <i>Rosa hybrid</i>	IFD-52401-4	Modified flower color (Blue colored petals)	International Flower Developments	2010 (greenhouse cultivation for export)
3	Cotton <i>Gossypium hirsutum L</i>	Bollgard (MON531-6)	Insect Resistance (IR) Lepidopterans / antibiotic resistance	Monsanto	2003
4		Bollgard x RR (MON 531-6 x MON 1445-2)	(IR) Lepidopterans + (HT) Glyphosate	Monsanto	2007
5		Bollgard II x RR Flex (MON15985 x MON 88913)	(IR) Lepidopterans + (HT) (Glyphosate) // antibiotic resistance and visual marker	Monsanto	2007
6		Roundup Ready (RR) (MON1445)	Herbicide Tolerance (HT) Glyphosate	Monsanto	2004
7		Glytol x Liberty Link25	HT (Glyphosate and Glufosinate)	Bayer	2013
8	Soy <i>Glycine max L.</i>	MON87708-9 x MON89788-1	HT (Glyphosate and Dicamba)	Monsanto	2012

Source: My own from Agrobio, n.d.; ISAAA, n.d.; and Chaparro 2013.

¹⁴⁵ Updated to 2014

Table 12: GMOs (maize) authorized for semi-commercial/controlled cultivation in Colombia¹⁴⁶

	Crop	Technology	Characteristics	Company	Year of approval
1	Maize <i>Zea mays</i> <i>L.</i>	Roundup Ready (RR) (MON 603-6)	HT to Glyphosate	Monsanto	2007
2		Roundup Ready 2 (NK-603)	HT (Glyphosate)	Dupont - Colombia	2007
3		Yielgard (MON 810-6)	Insect Resistance (IR) to Lepidopterans // antibiotic resistance	Monsanto	2007
4		Yielgard x RR	IR (Lepidopterans) + HT (Glyphosate)	Monsanto	2007
5		Herculex I (DAS 01507-1)	IR (Lepidopterans) + Herbicide Tolerance (HT) (Glufosinate)	Dow Agrosiences and Dupont	2007
6		Herculex I x RR	IR (Lepidopterans) + HT (Glyphosate and Glufosinate)	Dow Agrosiences and Dupont	2008
7		Agrisure CB/LL (Bt11)	IR (Lepidopterans)	Syngenta	2008
8		Agrisure GT (GA21)	HT (Glyphosate)	Syngenta	2010
9		Agrisure GT/CB/LL (Bt11 x GA21)	IR (Lepidopterans) + HT (Glyphosate and Glufosinate)	Syngenta	2010
10		Agrisure Viptera (MIR162)	IR + Mannose metabolism	Syngenta	2014

Source: My own from Agrobio n.d.; ISAAA, n.d.; Chaparro 2013; Castaño Hernandez, 2013.

¹⁴⁶ Updated to 2014

Table 13: GMOs Authorized for Human and Animal Consumption in Colombia (except maize)

	Crop	Technology	Characteristics	Company	Year of approval
1	Cotton <i>Gossypium hirsutum L</i>	Roundup Ready (RR) (MON1445-2)	HT (Glyphosate)	Monsanto	2003 (food and feed)
2		RR Flex (MON88913-8)	HT (Glyphosate)	Monsanto	2008(feed) 2009(food)
3		Bollgard (MON531-6)	IR // antibiotic resistance	Monsanto	2003 (food and feed)
4		Bollgard x RR (MON531-6 x MON1445-2)	IR (Lepidopterans) + HT (Glyphosate) // antibiotic resistance	Monsanto	2007(feed) 2008(food)
5		Bollgard II (MON15985-7)	IR (Lepidopterans) // antibiotic resistance	Monsanto	2009(food)
6		Bollgard II x RR Flex (MON15985 x MON 88913)	HT (Glyphosate) // antibiotic resistance and visual marker	Monsanto	2007(feed) 2010(food)
7		Liberty Link Cotton25 (ACS-GH001-3)	HT (Glufosinate)	Bayer Cropscience	2008(feed)
8		GlyTol (GHB614)	HT (Glyphosate)	Bayer Cropscience	2012(feed)
9	Soy <i>Glycine max L.</i>	Roundup Ready (MON4032-6)	HT (Glyphosate)	Monsanto	2005(food) 2007(feed)
10		Intacta RR 2 Pro (MON-87701-2 x MON-89788-1)	IR (Lepidopterans) + HT (Glyphosate)	Monsanto	2011(feed) 2012(food)
11		MON-87708-9 x MON-89788-1	HT (Glyphosate and Dicamba)	Monsanto	2012 (food and feed)
12		MON87769-7	HT (Glyphosate) +Modified product quality (Modified oil fatty acid)	Monsanto	2012(feed) 2014(food)

13		Vistive Gold (MON87705)	HT (Glyphosate) +Modified product quality (Modified oil fatty acid)	Monsanto	2012(feed) 2014(food)
14		Genuity RR2Yield (MON 89788)	HT (Glyphosate)	Monsanto	2010 (food and feed)
15		Optimum GAT (DP356043)	HT (Glyphosate and Sulfonylurea)	Dupont	2010 (food and feed)
16		Cultivance (CV127)	HT (Sulfonylurea)	BASF	2011(feed) 2012(food)
17		Liberty Link (A2704-12)	HT (Glufosinate)	Bayer Cropscien ce	2012(feed)
18		Liberty Link (A5547-127)	HT (Glufosinate)	Bayer Cropscien ce	2012(feed)
19	Rice <i>Oryza sativa L.</i>	Liberty Link Rice62	HT (Glufosinate)	Bayer Cropscien ce	2008 (food)
20		Liberty Link Rice601	HT (Glufosinate)	Bayer Cropscien ce	2008 (food)
21	Sugar Beet <i>Beta vulgaris</i>	Roundup Ready H7-1	HT (Glyphosate)	Monsanto	2005 (food) 2010 (feed)
22	Wheat <i>Triticum aestivum</i>	Roundup Ready (MON 71800-3)	HT (Glyphosate)	Monsanto	2004 (food)
23	Flax, Linseed <i>Linum usitatissimum L.</i>	CDC Triffid Flax (CDC-FL1-2)	HT (Sulfonylurea)	University of Saskatche wan	2007 (feed)

Source: My own from Agrobio, n.d.; ISAAA, n.d.; Chaparro 2013; and Castaño Hernandez, 2013.

Table 14: GM Maize Authorized for Human and Animal Consumption in Colombia

	Technology	Characteristics	Company	Year of approval
1	Enogen (SYN3272-5)	Modified Product Quality (Mannose metabolism)	Syngenta	2013 (feed)
2	Herculex I (DAS 1507-1)	IR (Lepidopterans) + HT (Glufosinate)	Dow Agrosiences and Dupont	2006 (food and feed)
3	Herculex I x RR (DAS 1507-1 x MON 603-6)	IR (Lepidopterans) + HT (Glyphosate and Glufosinate)	Dow Agrosiences and Dupont	2009 (food) 2010 (feed)
4	Herculex RW Rootworm Protection (DAS 59122)	IR (Coleopteran) + HT (Glufosinate)	Dupont	2011 (food) 2010 (feed)
5	Herculex XTRA RR (TC1507 x 59122 x Nk603)	IR (Coleopterans and Lepidopterans) + HT (Glufosinate and Glyphosate)	Dow Agrosiences	2012 (food and feed)
6	Mavera (LY038-3)	Modified Quality product (increases the production of amino acid lysine)	Monsanto	2009 (food) 2008 (feed)
7	Optimum Intrasect (TC1507 x MON810 x NK603)	IR (Lepidopterans) + HT (Glyphosate and Glufosinate)	Dupont	2012 (food and feed)
8	Yieldgard (MON810-6)	IR (Lepidopterans) //antibiotic resistance	Monsanto	2003 (food) 2006 (feed)
9	Yieldgard Rootworm (MON863-5)	IR (Coleopterans)	Monsanto	2011 (food) 2010 (feed)
10	Yieldgard x RR (MON603-6 x MON 810-6)	IR (Lepidopterans) + HT (Glyphosate)	Monsanto	2009 (food) 2007 (feed)
11	Yieldgard CB + RR (NK603 x MON810)	IR (Lepidopterans) + HT (Glyphosate)	Monsanto	2009 (food) 2007 (feed)
12	Yieldgard Plus with RR (MON863 x MON810 x MONNK603)	IR (Lepidopterans and coleopteran) + HT (Glyphosate)	Monsanto	2007 (feed)

13	Yieldgard VT Pro (MON89034)	IR (Lepidopterans)	Monsanto	2007 (feed) 2010 (food)
14	Yieldgard VT Triple (MON810 x MON88017)	IR (Lepidopterans and Coleopterans) + HT (Glyphosate)	Monsanto	2011 (food and feed)
15	Yieldgard VT PRO x RR 2 (MON 88017)	IR (Coleopterans) + HT (Glyphosate)	Monsanto	2011 (food) 2010 (feed)
16	Yieldgard VT Triple PRO x RR 2 (MON89034 x MON 88017)	IR (Lepidopterans and Coleopterans) + HT (Glyphosate)	Monsanto	2010 (food and feed)
17	Genuity SmartStax (MON89034 x TC1507 x MON88017 x DAS 59122)	IR (Lepidopterans and Coleopterans) + HT (Glyphosate and Glufosinate)	Monsanto and Dow Agrosiences	2010 (food) 2011 (feed)
18	Genuity Drought Gard (MON87460)	Drought Stress Tolerance	Monsanto and BASF	2011 (food) 2012 (feed)
19	Genuity VT Double PRO (MON89034 x NK-603)	IR (Lepidopterans) + HT (Glyphosate)	Monsanto	2010 (food) 2011(feed)
20	Roundup Ready (MON87427)	HT (Glyphosate)	Monsanto	2014 (food)
21	Roundup Ready 2 (NK-603)	HT (Glyphosate)	Dupont	2004 (food) 2006 (feed)
22	Liberty Link (T25)	HT (Glufosinate)	Bayer CropScience	2012 (food) 2011 (feed)
23	Roundup Ready 2 Liberty Link (NK603 x T25)	HT (Glyphosate and Glufosinate)	Monsanto	2012 (food and feed)
24	Liberty Link Yieldgard (T25 x MON 810)	IR (Lepidopterans) + HT (Glufosinate)	Monsanto	2012 (food)
25	Agrisure GT (GA21)	HT (Glyphosate)	Monsanto	2012 (food) 2010 (feed)

26	Agrisure RW (MIR604)	IR (Coleopterans) + Modified Quality product (Mannose metabolism)	Syngenta	2012 (food and feed)
27	Agrisure GT/RW (MIR604 x GA21)	IR (Coleopterans) + HT (Glyphosate) + Mannose metabolism	Syngenta	2014 (food) 2012 (feed)
28	Agrisure CB/LL (Bt11)	IR (Lepidopterans) + HT (Glufosinate)	Syngenta	2009 (food) 2008 (feed)
29	Agrisure GT/CB/LL (Bt11 x GA21)	IR (Lepidopterans) + HT (Glyphosate and Glufosinate)	Syngenta	2012 (food) 2010 (feed)
30	Agrisure CB/LL/RW	IR (Coleopterans and Lepidopterans) + HT (Glufosinate) + Mannose metabolism	Syngenta	2012 (food)
31	Agrisure Viptera (MIR162)	IR (Lepidopterans)	Syngenta	2012 (food) 2010 (feed)
32	Agrisure Viptera 3110 (Bt11 x MIR162 X GA21)	IR (Lepidopterans) + HT + (Glyphosate and Glufosinate) + Modified Quality product (Mannose metabolism)	Syngenta	2010 (feed) 2012 (food)
33	Agrisure Viptera 4 (Bt11 x MIR162 x MIR 604 x GA21)	IR (Coleopterans and Lepidopterans) + HT (Glufosinate and Glyphosate) + Mannose metabolism	Syngenta	2012 (food)
34	Agrisure 3000Gt (Bt11 x MIR604 x GA21)	IR (Coleopterans and Lepidopterans) + HT (Glufosinate and glyphosate) + Mannose metabolism	Syngenta	2014 (food) 2012 (feed)
35	Enlist (DAS 40278)	HT (2-4, D)	Dow Agrosiences	2014 (food) 2013 (feed)
36	Powercore (MON89034 x TC1507 x NK603)	IR (Lepidopterans) + HT (Glufosinate and Glyphosate)	Monsanto	2014 (food)

APPENDIX 2: LEGAL DEMANDS AGAINST SEED LAWS IN COLOMBIA

Legal Actions	Lawsuit Situation (Updated to May 2016)
<p>Claim of unconstitutionality by the NFS against <u>Law 1518 of April 23 of 2012</u> that approves the International Convention for the Protection of New Varieties of Plants, UPOV 1991.</p>	<p>Civil society organizations carried out several interventions through documents and the collection of more than 10.000 signatures to request the Constitutional Court (C.C.) to declare this law unconstitutional (<i>inexequible</i>) (June/2012)</p> <p>The C.C. declared this law unconstitutional (Dec./2012), for “not having previously consulted indigenous and afro-descendant communities”.</p> <p>Furthermore, the C.C. argues that the application of intellectual property rights on seeds by UPOV 91, could affect the biodiversity, culture and territories of these peoples.</p>
<p>Writ of <i>Tutela</i> by the NFS against <u>ICA’s 970 Resolution of 2010</u> due to lack of previous consultation with indigenous and afro-descendant peoples.</p> <p>A Writ of <i>Tutela</i> is a Constitutional Case to protect fundamental rights.</p>	<p>The Colombian government repealed Resolution 970 due to political pressure from the NFS, the controversy caused by the Documentary 970, and the demand of peasant leaders during the 2013 Agrarian Strike.</p> <p>In September 2015, ICA released Resolution 3168 to replace 970. The NFS argues that Resolution 3168 is similar to its predecessor in at least two crucial ways: it mandates that all seed used in the country must be certified seed (indirectly making creole and native seed illegal) and it maintains the restrictions on saving and commercializing certified seed thus helping to ensure market control and IPRs for seed companies. In other words, the Resolution 3168 continues to indirectly criminalize the use and commercialization of creole varieties by “keeping them ‘imprisoned’ in farmers’ plots”</p>
<p>Claim of unconstitutionality by the NFS of <u>Criminal Code’s article 306</u> on the Usurpation of Industrial Property Rights and Plant Breeders' Rights.</p>	<p>The Constitutional Court noted that the expression “which are legally protected or similar to the point of confusion to a right legally protected” infringes the <i>principio de taxatividad</i> (principle of legal certainty or <i>lex certa</i> principle) because it not possible to define which is the degree of similarity [between protected and creole seeds] that is to be penalized.</p> <p>In this sense, this expression, understood as similar rights or rights derived from the plant breeders’ rights, is too wide and it neither defined nor conceived with clarity and could imply the use of</p>

	<p>prohibited legal figures by the Constitution in matters of criminal law.</p> <p>For these reasons, the expression “which are legally protected or similar to the point of confusion to a right legally protected” is to be removed from the legal system concerning breeders’ rights.</p>
<p>In May 2016, <i>Dignidad Agropecuaria</i> –one of the agrarian coalitions that led the 2013 Strike– presented before the National Electoral Council, a Popular Referendum for National Agriculture to constitutionally protect domestic agricultural producers against the impacts of ‘free’ trade policies and FTAs. The Referendum includes the repeal of all UPOV91-based legislation.</p>	
<p>Other judicial actions by Grupo Semillas and SwissAid</p>	
<p><u>Petition to nullify</u> (<i>Acción de Nulidad</i>) <u>Decree 4525 of 2005</u> before the State Council (<i>Consejo de Estado</i>)</p> <p>Decree 4525 of 2005 establishes regulations for the Cartagena Protocol on Biosafety (Norm for the approval of genetically modified organisms).</p>	<p>This Petition to Nullify was admitted in December 2008 and is still in course.</p>
<p>Petitions to Nullify (<i>Acción de Nulidad</i>) three administrative acts before the State Council (<i>Consejo de Estado</i>) (May 2007) as follows:</p> <ol style="list-style-type: none"> 1. The approval of Yielgard Bt [GM] maize, owned by Monsanto, for commercial cultivation. 2. The approval of Herculex (Bt and tolerant to glufosinate-ammonium) [GM] maize, owned by Dupont, for commercial cultivation. 3. ICA’s authorization of GM maize cultivation due that it was not previously consulted with the public and affected indigenous, afro-descendant, and peasant communities. 	<p>These Petitions to Nullify were admitted in 2008 and they are still in course.</p>

Source: my own based on NSF, 2015: 72 and Gutiérrez and Fitting, 2016.

Currently, *Dignidad Agropecuaria* –one of the agrarian coalitions that led the 2013 Strike– is promoting a Referendum for National Agriculture to constitutionally protect domestic agricultural producers against the impacts of ‘free’ trade policies and FTAs. The Referendum includes the repeal of all UPOV91-based legislation.

APPENDIX 3: RIOSUCIO IN HISTORY

Global Scale	Regional Scale	Local Scale
<i>[Abya-Yala]</i>	Umbra and Pirsá <i>cazicazgos</i>	Umbra and Pirsá communities
Spanish Colonial Empire Viceroyalty of Peru (1536-1717)	Province of Popayán	Sebastián de Belalcázar's Conquest Campaign <i>Resguardos</i> : La Montaña (1538), San Lorenzo (1627) and Cañamomo and Lomaprieta (<i>circa</i> 1627) Quiebralomo <i>Real de Minas</i> (1627). Slaves brought mainly from Mozambique to work the gold mines.
Spanish Colonial Empire Viceroyalty of New Granada (Bourbon Reforms) (1717-1819) Independence War (1810-1821)	Province of Popayán	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta. Quiebralomo <i>Real de Minas</i> . Guamal becomes a community of freed slaves in 1736. <i>Antioqueño</i> colonization begins Mines sold to the British to finance the Independence War.
Great Colombia (1821-1831)	Department of Cauca	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta.
New Granada (1831-1857)	Province of Popayán	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta. Slavery abolished in 1851.
Granadina Confederation (1857-1863)	Federal State of Cauca	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta.

United States of Colombia (1863-1886)	Sovereign State of Cauca	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta.
Republic of Colombia (1886-)	Department of Cauca (1886-1905)	<i>Resguardos</i> : La Montaña, San Lorenzo, and Cañamomo and Lomaprieta. Indigenous families from Cañamomo and Lomaprieta found Bonafont town in 1890 which becomes the Escopetera and Pirsá <i>parcialidad</i> .
Republic of Colombia	Department of [Great] Caldas (1910-1966)	<i>Resguardos</i> : La Montaña, and Cañamomo and Lomaprieta. San Lorenzo <i>resguardo</i> , and Escopetera and Pirsá <i>parcialidad</i> are dissolved in 1943. <i>Antioqueño</i> Colonization ends
Republic of Colombia	Department of Caldas (1966-)	<i>Resguardos</i> : La Montaña, Cañamomo and Lomaprieta, and San Lorenzo (since 2000). <i>Parcialidad</i> : Escopetera and Pirsá (since 2003) Guamal is recognized as a black collective territory in 2012.

Source: my own from Escobar Gutiérrez, 1976; Caicedo 2013; Appelbaum, 2003; and Valencia Llano, 1994

REFERENCES

- Acosemillas 2013 (August) *Press Release*. <http://www.acosemillas.org/novedades.php?id=36> (Accessed March 25, 2015).
- Acosta, Alberto. 2010. "La naturaleza con derechos. Una propuesta de cambio civilizatorio" http://therightsofnature.org/wp-content/uploads/pdfs/Espanol/Acosta_DDN_2012.pdf (Accessed January 20, 2016).
- Asociación de Biotecnología Vegetal Agrícola (Agrobio) n.d. "Transgenicos en el mundo, Colombia y región Andina." Online resource <http://www.agrobio.org/transgenicos-en-el-mundo-colombia-region-andina/> (Accessed, November 23, 2015)
- Agrobio and Consejo Superior de la Judicatura (CSJ). 2012. *Biotecnología agrícola moderna, organismos genéticamente modificados y bioseguridad*. Bogotá: Beta Impresores.
- Aistara, Guntra. 2011. "Seeds of Kin, Kin of Seeds: The Commodification of Organic Seeds and Social Relations in Costa Rica and Latvia". *Ethnography*, 12 (4), 490-517.
- Alianza Biodiversidad and Campaña Mundial de la Semillas Vía Campesina. "Declaración de Yvapuruvu, October, 18, 2013". Camila Montecinos *et al.* *Leyes de semillas y otros pesares. Los pueblos de América Latina las cuestionan e impugnan*. Alianza Biodiversidad, 104-6.
- Alimonda, Héctor. 2010. "Sobre la insostenible colonialidad de la naturaleza latinoamericana" Palacio Castañeda, Germán (ed.) *Ecología política de la Amazonía: las profusas y difusas redes de la gobernanza*. Bogotá: ILSA, UNAL, and Ecofondo, 61-98.
- Altieri Miguel. 2001. *Genetic Engineering in Agriculture: The Myths, Environmental Risks, and Alternatives*. Oakland, CA: Food First Books.
- Altieri, Miguel and Victor Toledo. 2011. "The Agroecological Revolution in Latin America: Rescuing Nature, Ensuring Food Sovereignty and Empowering Peasants." *Journal of Peasant Studies*, 38 (3), 587-612.
- Andean Community (CAN) *Decision 391 Common Regime on Access to Genetic Resources*, <http://www.sice.oas.org/trade/junac/decisiones/dec391e.asp> (Accessed June 26, 2015)
- Asproinca and Laura Gutiérrez. 2014. *La conservación de las semillas como patrimonio de los pueblos. El caso de Asproinca*. Manizales: Manigraf Grupo Editorial.
- Beltrán, Teresita. 2013. "Lecturas de la 970: La 970 no le prohíbe a los agricultores resembrar su semilla nativa." *El Espectador* (August, 30) <http://www.elespectador.com/noticias/nacional/970-no-le-prohibe-los-agricultores-resembrar-su-semilla-articulo-443719> (Accessed March 17, 2015)
- Bollier, David. 2002. *Silent Theft: The private Plunder of our Common Wealth*. New York: Routledge.

- _____. 2014. *Think Like a Commoner: A Short Introduction to the Life of the Commons*. Canada: New Society Publishers.
- Bonneuil, Christophe, and Frédéric Thomas. 2010. "Purifying Landscapes: The Vichy Regime and the Genetic Modernization of France." *Historical Studies in the Natural Sciences*, 40 (4), 532–568.
- Bravo, Elizabeth. 2014a. "Una visión sobre la bioseguridad en América Latina desde la ecología política" Toro, Catalina, Germán Vélez and Elizabeth Bravo. *La ecología política de la bioseguridad en América Latina*. Bogotá: Universidad Nacional de Colombia.
- _____. 2014b. "Los cultivos transgénicos y los paradigmas científicos de los que emergen a la luz de los derechos de la naturaleza". *Letras Verdes*. Revista Latinoamericana de Estudios Socioambientales N.º 16 (September): 54-75
- Camacho, Juana. 2011. *Embodied Tastes: Food and Agrobiodiversity in the Colombian Andes*. Doctoral thesis in Anthropology, University of Georgia.
- Campaña por las Semillas libres en Colombia. 2012. *Comuniqué, La Corte Constitucional de Colombia declaró inexecutable la ley 1518 de 2012, que aprueba UPOV 1991*.
- Capra, Fritjof. 1985. "Criteria of systems thinking." *Futures*, 475-478
- Capra, Fritjof and Pier Luigi Luisi. 2014. *The Systems View of Life: A Unifying Vision*. Cambridge: Cambridge University Press.
- Casifop, Coa and Grain. 2012. *El maíz no es una cosa, es un centro de origen*. Mexico: Casifop, Coa and Grain.
- Castaño Hernández, Adriana. 2013. "Regulación para la liberación comercial de cultivos genéticamente modificados (GM) para la alimentación humana." Chaparro Alejandro (ed). *Propiedad intelectual y regulación en biotecnología vegetal: el caso de los cultivos genéticamente modificados (GM)* Bogotá: UNAL, 99-115.
- Caicedo, José Luis. 2013. "Antecedentes históricos del territorio de Riosucio, 1538-1943." Riosucio: Alcaldía de Riosucio (unpublished manuscript)
- Chaparro, Alejandro. 2013. "Regulación para el uso agrícola de cultivos genéticamente modificados (GM)" Chaparro Alejandro (ed). *Propiedad intelectual y regulación en biotecnología vegetal: el caso de los cultivos genéticamente modificados (GM)* Bogotá: UNAL.
- Chaparro, Alejandro and Kelly Ávila. 2013. "El problema de la propiedad intelectual y la regulación en la liberación comercial de cultivos genéticamente modificados (GM) en Colombia." Chaparro Alejandro (ed). *Propiedad intelectual y regulación en biotecnología vegetal: el caso de los cultivos genéticamente modificados (GM)* Bogotá: UNAL, 1-14

- Collredo-Mansfeld, Rudolph and Jason Antrosio. 2009. "Economic Clusters or Cultural Commons? The Limits of Competition-Driven Development in the Ecuadorian Andes." *Latin American Research Review*, 44 (1), 132-157.
- Corrales, Elcy. 2002. "Sostenibilidad agropecuaria y sistemas de producción campesinos". *Cuadernos Tierra y Justicia* (5) Bogotá: ILSA.
- Decree 2687 of November 20, 2002 "Por el cual se modifica el artículo 7° del Decreto 533 de 1994". Bogotá, Ministerio de Agricultura y Desarrollo Rural In: *Diario Oficial* No. 45.004
http://www.avancejuridico.com/actualidad/documentosoficiales/2002/45004/d_2687_2002.html (Accessed March 23, 2013)
- Demeulenaere, Elise. 2014. "A Political Ontology of Seeds. The Transformative frictions of a farmers' movement in Europe." *Focaal—Journal of Global and Historical Anthropology*, 69, 45–61
- Díaz-Granados, Sergio. 2013. "TLC no varió la responsabilidad del país con el campo" *El Espectador* (August, 26) <http://www.elespectador.com/noticias/nacional/tlc-no-vario-responsabilidad-del-pais-el-campo-articulo-442645> (Accessed March 17, 2015)
- Escobar, Arturo. 1999. "After Nature. Steps to an Antiessentialist Political Ecology". *Current Anthropology*, 40 (1), 1-30
- _____. 2007. "Worlds and Knowledges Otherwise: The Latin American Modernity/Coloniality Research Program," *Cultural Studies* 21 (2-3), 179-210.
- _____. 2008. *Territories of Difference: Place, Movements, Life, Redes*. Durham: Duke University Press.
- _____. 2014. *Sentipensar con la tierra. Nuevas lecturas sobre desarrollo, territorio y diferencia*. Medellín: Ediciones UNAULA (Colección Pensamiento Vivo)
- _____. 2016. "Desde abajo, por la izquierda y con la tierra." *Contrapuntos*, Serie Desafíos Latinoamericanos, 7 (January 17).
- _____. n.d. "Sustaining the Pluriverse: The Political Ontology of Territorial Struggles in Latin America." Chapel Hill, N.C. (unpublished manuscript)
- Escobar Gutiérrez, María Elvira. 1976. *La comunidad indígena de Cañamomo y Lomapieta*. Montréal: Université de Montréal, Master's Thesis.
- Eslava, Luis. 2009. "Constitutionalization of Rights in Colombia. Establishing a Ground for Meaningful Comparisons." *Revista Derecho del Estado*, 22 (June), 183-229.
- ETC Group. 2007. "Suicide-Seed Sequel: EU's "Transcontainer" Turns Terminator into Zombie: <http://www.etcgroup.org/content/suicide-seed-sequel-eu%E2%80%99s-%E2%80%9Ctranscontainer%E2%80%9D-turns-terminator-zombie>

- ETC Group. 2008. "Communiqué: Who Owns Nature", 100 (November)
- Fenalce. 2011. "Plan Maíz País." *El Cerealista* (January-March)
http://www.fenalce.org/arch_public/paismaiz96.pdf
- Fitting, Elizabeth. 2011. *The Struggle for Maize. Campesinos, Workers and Transgenic Corn in the Mexican Countryside*. Durham: Duke University Press.
- Fitting, Elizabeth, Laura Gutiérrez Escobar, and Tamara Wattnem (in press). "Contesting Seed Standards: The Red de Semillas Libres in Colombia." Graham, J. and C. Holmes (eds.) *Localizing Standards*. Vancouver: UBC Press.
- Fleising, Usher. 2001. "In Search of Genotype: A Content Analysis of Biotechnology Company Documents." *New Genetics and Society*, 20 (3), 239-254.
- Foucault, Michel. 2004. *Security, Territory, Population: Lectures at the Collège de France 1977-1978*. New York: Palgrave Macmillan
- Franco García, Daniela. 2013 "Lecturas de la 970: 'La 970 no le prohíbe a los agricultores sembrar su semilla nativa.'" *El Espectador* (August 31)
<http://www.elespectador.com/noticias/nacional/970-no-le-prohibe-los-agricultores-sembrar-su-semilla-articulo-443719> (Accessed on April 17, 2015).
- Friedmann, Harriet and Peter McMichael. 1989. "Agriculture and the state system: the rise and decline of national agricultures, 1870 to the present". *Sociologia Ruralis*, 29 (2), 93-117.
- Gärtner, Álvaro. 2005. *Los misteres de las minas. Crónica de la colonia europea más grande de Colombia en el siglo XIX, surgida alrededor de las minas de Marmato, Supía y Riosucio*. Manizales: Editorial Universidad de Caldas.
- Gibson-Graham, J.K. 2006. *A Postcapitalist Politics*. Minneapolis, MN: University of Minnesota Press.
- Glover, Dominic. 2010. "The corporate shaping of GM crops as a Technology for the Poor". *Journal of Peasant Studies*, 37 (1), 67-90.
- Gómez Lee, Martha Isabel. 2010. *Conocimientos tradicionales y biodiversidad en el acuerdo de promoción comercial entre la República de Colombia y los Estados Unidos de América*. Cali: WWF and Universidad Externado de Colombia.
- Góngora-Mera, Manuel and Renata Motta. 2014. "El derecho internacional y la mercantilización biohegemónica de la naturaleza: la diseminación normativa de la propiedad intelectual sobre semillas en Colombia y Argentina." Góngora Göbel, Barbara, Manuel Góngora-Mera and Astrid Ulloa. *Desigualdades socioambientales en América Latina*. Biblioteca Abierta, serie perspectivas ambientales. Bogotá and Berlín: Ibero-Amerikanisches Institut, Universidad Nacional de Colombia, 395-434

- González, Roberto. 2001. *Zapotec Science: Farming and Food in the Northern Sierra of Oaxaca*. Austin: University of Texas Press.
- González Colonia, Carlos. 2005. "Carnaval". *Antología del Carnaval de Riosucio*. Manizales: Secretaría de Cultura de Caldas, 17-26
- Grain. 2010. "Global Agribusiness: Two Decades of Plunder". *Seedling*, 14 (July) <http://www.grain.org/article/entries/4055-global-agribusiness-two-decades-of-plunder>
- Gramsci, Antonio. 1971 [1929-35]. *Selections from the Prison Notebooks*. Edited and translated by Quintin Hoare and Geoffrey Nowell Smith. NY: International Publishers.
- Grupo Semillas and Campana Semillas de Identidad (CSI). 2011. *Diagnóstico de Maíces Criollos de Colombia*. Bogotá: Arfo Editores.
- Grupo Semillas. 2011. *Las leyes de semillas aniquilan la soberanía y autonomía de los pueblos*. Bogotá: ArfoEditores e Impresores LTDA.
- _____. 2014. "¡Ya viene la nueva 970 recargada! Las leyes que privatizan y controlan el uso de las semillas, criminalizan las semillas criollas" Camila Montecinos et al. *Leyes de semillas y otros pesares. Los pueblos de América Latina las cuestionan e impugnan*. Alianza Biodiversidad, 49-57
- Gudynas, Eduardo. 2010. "La senda biocéntrica: valores intrínsecos, derechos de la naturaleza y justicia ecológica." *Tabula Rasa*, 13 (July- December), 45-71.
- _____. 2011. "Tensiones, contradicciones y oportunidades de la dimensión ambiental del Buen Vivir." Ivonne Farah H. y Luciano Vasapollo (EDs). *Vivir bien: ¿Paradigma no capitalista?* La Paz: CIDES-UMSA and Plural.
- Gutiérrez Escobar, Laura (in press). "Resistencia frente a los transgénicos y la monopolización de las semillas en la zona cafetera". Bogotá: Universidad Externado de Colombia.
- _____. 2015 (a) "Soberanía alimentaria. La Red de Semillas Libres de Colombia". *Revista Contextos*, 4 (13), 11-24.
- Gutiérrez Escobar, Laura. 2015 (b) "Seeds of Struggle in Colombia" In: *Grassroots Development. Journal of the Inter-American Foundation* (36): 30-35.
- Gutiérrez Escobar, Laura and Elizabeth Fitting. 2015. "The Red de Semillas Libres: Contesting Biohegemony in Colombia". XXXIII Congress of the Latin American Studies Association (LASA) (San Juan, Puerto Rico, May 27 – 30)
- _____. 2016. "The Red de Semillas Libres: Contesting Biohegemony in Colombia" *Journal of Agrarian Change*, 16 (4), 711-19.

- Gutiérrez Escobar, Laura *et al.* 2016. “The Struggle for Peoples’ Free Seeds in Latin America: Experiences from Brazil, Ecuador, Colombia, Honduras, and Guatemala”. *Right to Food and Nutrition Watch: Keeping Seeds in Peoples’ Hands*, 68-76.
- Gutiérrez, Oscar. 2008. “Los agrocombustibles en Colombia y la higuerrilla en el Departamento de Caldas.” Asproinca. *Tierras y territorios sin agrocombustibles*. Bogotá: Arfo Editores e Impresores Ltda, 17-23.
- Hale, Charles. 2008. “Introduction.” Hale, Charles (ed.) *Engaging Contradictions. Theory, Politics, and Methods of Activist Scholarship*. Berkeley and Los Angeles: University of California Press, 1-30.
- Haraway, Donna. 1988. "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective." *Feminist Studies*, 14 (3), 575–599.
- Harvey, David. 2005. *A Brief History of Neoliberalism*, New York: Oxford University Press.
- Holmes, Christina and Janice Graham. 2009. “Genetically Modified Organisms as Public Goods: Plant Biotechnology Transfer in Colombia.” *Culture & Agriculture*, 31 (1), 26–38.
- Instituto Colombiano Agropecuario (ICA). 2013. “Rectification request to Victoria Solano.” *El Espectador* (August, 30)
<http://static.elespectador.com/archivos/2013/08/69d6b9ee48f48f49ff464ff86401ece6.pdf>
- ICA. *Resolution 970 of 2010 “Por medio de la cual se establecen los requisitos para la producción, acondicionamiento, importación, exportación, almacenamiento, comercialización y/o uso de semillas en el país, su control y se dictan otras disposiciones.”* <http://www.ica.gov.co/Normatividad/Normas-Ica/Resoluciones/2010/200R970.aspx> (Accessed November 17, 2013)
- Ingold, Tim. 2000. *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. New York: Routledge.
- International Service for the Acquisition of Agri-Biotech Applications ISAAA. 2014. “Brief 49: Executive Summary, Global Status of Commercialized Biotech/GM Crops”
<http://www.isaaa.org/resources/publications/briefs/49/executivesummary/default.asp>
 (Accessed March 5, 2015).
- _____. n.d. *Online GM Approval Database*
<http://www.isaaa.org/gmapprovaldatabase/> (Accessed November 5, 2014)
- Jones, Kristal. 2013. “The Political Ecology of Market-Oriented Seed System Development and Emergent Alternatives.” Conference Paper #54. Proceedings of the International Conference *Food Sovereignty: A Critical Dialogue*. New Haven: Yale University (Sept. 14-15).
- Kloppenborg, Jack. 2004. *First the Seed: The Political Economy of Plant Biotechnology, 1492–2000*. 2nd edition. New York: Cambridge University Press

- _____. 2010. "Seed Sovereignty and the Promise of Open Source Biology". Wittman, Hanna *et al.* *Food sovereignty. Reconnecting Food, Nature and Community*. Halifax and Winnipeg: Fernwood, 152-167
- _____. 2013. "Repurposing the Master's Tools: The Open Source Seed Initiative and the Struggle for Seed Sovereignty", Conference paper #56. Proceedings of the International Conference *Food Sovereignty: A Critical Dialogue*. New Haven: Yale University (Sept. 14-15).
- Lamprea Bermúdez, Natalia and José Luis Salazar López. 2013. "Patentes y biotecnología vegetal en Colombia." Chaparro Alejandro (ed). *Propiedad intelectual y regulación en biotecnología vegetal: el caso de los cultivos genéticamente modificados (GM)* Bogotá: UNAL, 15-32.
- Malinowski, Bronislaw. 1922. *Argonauts of the Western Pacific*. Prospect Heights, IL: Waveland Press.
- Mauss, Marcel. 1967. *The Gift: Forms and Functions of Exchange in Archaic Societies*. New York: Norton.
- Marx, Karl. 1990 [1867]. *Capital: A critique of Political Economy*, Vol. 1. London and New York: Penguin Classics.
- McAfee, Kathleen. 2003. "Neoliberalism on the molecular scale. Economic and genetic reductionism in biotechnology battles" *Geoforum*, 34, 203–219
- McMichael, Philip, 2009. "A Food Regime Genealogy" *Journal of Peasant Studies*, 36 (1), 139-69.
- Mignolo, Walter. 2002. "The Geopolitics of Knowledge and the Colonial Difference". *The South Atlantic Quarterly*, 101(1), 57-94.
- Monsalve, Dora. 2006. *La humanidad de las semillas sembradas en la tierra santa. La economía campesina en el Valle de Tenza*. Doctoral thesis in Anthropology. Bogotá: Universidad Nacional de Colombia.
- Muller, Birgit. 2014 (a). "Introduction: Seeds- Grown, Governed, and Contested, or the Intic in Political Anthropology." *Focaal Journal of Global and Historical Anthropology*, 69, 3-11.
- _____. 2014 (b). "The Seed and the Citizen. Biosocial Networks of Confiscation and Destruction in Canada." *Focaal Journal of Global and Historical Anthropology* 69, 28-44.
- Murra, John. 1975. *Formaciones económicas y políticas del mundo andino*. Lima: Instituto de Estudios Peruanos.

- Nazarea, Virginia. 1995. *Local Knowledge and Agricultural Decision Making in the Philippines: Class, Gender, and Resistance*. Ithaca, NY: Cornell University Press.
- _____. 2005. *Heirloom Seeds and Their Keepers: Marginality and Memory in the Conservation of Biological Diversity*. Tucson, AZ: University of Arizona Press.
- Newell, Peter. 2009. 'Bio-Hegemony: The Political Economy of Agricultural Biotechnology in Argentina.' *Journal of Latin American Studies*, 41, 27–57.
- Nemogá Soto, Gabriel. 2009. "Acceso a recursos genéticos y su relación con los derechos de propiedad intelectual." Chaparro Giraldo, Alejandro (ed). *Propiedad Intelectual en la Era de los Cultivos Transgénicos*. Bogotá: Universidad Nacional Unibiblos.
- Noble, Denis. 2006. *The Music of Life. Biology Beyond the Genome*. Oxford and New York: Oxford University Press.
- Nonini, Donald (Ed.) 2007. *The Global Idea of "The Commons"*. New York-Oxford: Bergham Press.
- NFS. 2013. "Documento de posición por la defensa de las semillas" *Revista Semillas*, 53-54.
- _____. 2014. "Las semillas patrimonio de los pueblos al servicio de la humanidad. Memorias de los Encuentros Nacionales de la Red Semillas Libres de Colombia de octubre 2013 y septiembre 2014" (unpublished manuscript).
- Dietz, Thomas, Elinor Ostrom and Paul Stern. 2003. "The Struggle to Govern the Commons." *Science, New Series*, 302 (5652), 1907-1912.
- Otero, Gerardo. 2012. "The Neoliberal Food Regime in Latin America: State, Agribusiness Transnational Corporations and Biotechnology" *Canadian Journal of Development Studies*, 33 (3), 282-294.
- Pérez Zapata, Hernán. 2009. *Sin maíz no hay país*. Santa Marta: ACIA and RECALCA.
- Polanyi, Karl. [1944] 2010. *The Great Transformation: The Political and Economic Origins of our Time*. Boston: Beacon Press.
- Plumwood, Val. 2002. *Environmental Culture: The Ecological Crisis of Reason*. New York and London: Routledge.
- RALLT. 2016. *Bulletin 653: Megafusiones corporativas*.
[http://www.biodiversidadla.org/Principal/Otros Recursos/Boletin de la Red por una America Latina Libre de Transgenicos/Megafusiones corporativas. Boletin 653 de la RALLT](http://www.biodiversidadla.org/Principal/Otros_Recursos/Boletin_de_la_Red_por_una_America_Latina_Libre_de_Transgenicos/Megafusiones_corporativas.Boletin_653_de_la_RALLT)
- Red de Semillas Libres (RSL) 2015. *Las semillas patrimonio de los pueblos al servicio de la humanidad: Memorias de los encuentros nacionales de la Red Semillas Libres de Colombia*. Bogotá: RSL and Grupo Semillas.

- Richards, Paul. 1989. "Agriculture as a Performance". Chambers, R. A. Pacey, and L. Thrupp (eds.) *Farmer First: Farmer Innovation and Agricultural Research*. London: Intermediate Technology Publications, 39-42.
- Rodríguez Cervantes, Silvia. 2014. "El control corporativo de las semillas y sus consecuencias más allá de la agricultura." Toro, Catalina, Elizabeth Bravo and Germán Vélez (eds). *La ecología política de la bioseguridad en América Latina*. Bogotá: UNAL, 59-82
- Roff, Robin Jane. 2008. "Preempting to nothing: neoliberalism and the fight to de/re-regulate agricultural biotechnology." *Geoforum*, 39, 1423–1438.
- Ruíz Navarro, Catalina. 2015. "El ICA y sus criterios cinematográficos." *El Espectador*, (February 28), <http://www.elespectador.com/noticias/medio-ambiente/el-ica-y-sus-criterios-cinematograficos-articulo-546747> (Accessed on April 17, 2015).
- Salas, María Angélica, and Hermann J. Tillmann. 2010. *Participatory Action Research. Embracing the Knowledge Perspective within the Field*. Chiang Mai: Regional Center for Social Science and Sustainable Development, Chiang Mai University.
- Scharper, Stephen and Hillary Cunningham. 2007. "The Genetic Commons: Resisting the Neoliberal Enclosure of Life," Nonini, Donald (ed.) *The Global Idea of "The Commons."* New York and Oxford: Berghahn Press, 53-65.
- Sell, Susan. 2009. "Corporations, Seeds and Intellectual Property Rights Governance." Clapp, Jennifer and Doris A. Fuchs (eds). *Corporate Power in Global Agrifood Governance*. Cambridge: MIT Press, 187-223.
- Shiva, Vandana. 2001. *Protect or Plunder? Understanding Intellectual Property Rights*. London and New York: Zed Books.
- Srinivas, Khrisna Ravis. 2006. "Intellectual Property Rights and Biocommons: Open Source and Beyond." *International Social Science Journal*, 58 (188), 319 -334.
- Tsing, Anna. 2005. *Friction: An Ethnography of Global Connection*. Princeton: Princeton University Press.
- US-Colombia FTA. 2012. <https://ustr.gov/sites/default/files/col-ipr.pdf> (Accessed October 23, 2014)
- Van Dooren, Thom. 2008. "Inventing Seed: The Nature(s) of Intellectual Property in Plants." *Environment and Planning*, 26, 676- 69.
- Vélez, Germán. 2002. "En Colombia estamos consumiendo soya transgénica." Acción Ecológica, RALLT and Instituto de Estudios Ecologistas del Tercer Mundo. *Ayuda alimentaria y transgénicos*, 60-64
- _____. 2014. "La situación de los transgénicos en Colombia. Manzur, María Isabel and María Isabel Cárcamo (Eds). *América Latina: La Transgénesis de un continente. Visión*

crítica de una expansión descontrolada. Santiago de Chile and Rio de Janeiro: Ediciones Boll, second edition, 97-106.

Wittman, Hannah. 2009. "Reworking the Metabolic Rift: La Vía Campesina, Agrarian Citizenship, and Food Sovereignty." *The Journal of Peasant Studies* 36 (4) (October), 805-826.

_____. 2010. "Reconnecting Agriculture and the Environment. Food Sovereignty and the Agrarian Basis of Ecological Citizenship" Wittman, Hanna *et al.* *Food sovereignty. Reconnecting Food, Nature and Community*. Halifax and Winnipeg: Fernwood, 91-105.

Zibechi, Raúl. 2010. *Dispersing Power: Social Movements as Anti-State Forces*. Edinburgh: AK Press.

Recorded Oral Presentations by Laura Gutiérrez Escobar:

Benjamín. 2013. SwissAid Seeds of Identity Campaign Workshop on Seed Houses. Pereira (November 6) Tape Recording.

Eduardo. 2014. "NFS Seed Exchange (*trueque de semillas*) at the National Workshop: Social actions for the defense of seeds. Bogotá (September 5) Tape Recording.

Eloisa. 2013. SwissAid Seeds of Identity Campaign Workshop on Seed Houses. Pereira (November 6) Tape Recording.

Esteban. 2014. "NFS Seed Exchange (*trueque de semillas*) at the National Workshop: Social actions for the defense of seeds. Bogotá (September 5) Tape Recording.

Manuel. 2014. "Seed Savers Meeting". La Mandrágora Farm, Cañamomo and Lomaprieta *resguardo* (Mayo 3) Tape Recording

Martínez, Luis Humberto. 2013. Public hearing at the Lower House "Cuando alimentar al país es un delito" convened by Representatives Alba Luz Pinilla and Wilson Arias, Bogotá, (October 7) Tape Recording

Pedro. 2013. "NFS First National Meeting: Local and social organizations for the defense of free seeds in Colombia." Bogotá (October 1-3) Tape Recording

Roberto, 2014. "NFS Seed Exchange (*trueque de semillas*) at the National Workshop: Social actions for the defense of seeds. Bogotá (September 5) Tape Recording.

Rocío. 2014. "NFS Seed Exchange (*trueque de semillas*) at the National Workshop: Social actions for the defense of seeds. Bogotá (September 5) Tape Recording

Rosa. 2014. "NFS Seed Exchange (*trueque de semillas*) at the National Workshop: Social actions for the defense of seeds. Bogotá (September 5) Tape Recording.

- _____. 2013. “Transgenics, new technologies and food sovereignty: A Meeting of the Network for a Transgenic-Free Latin America”. Bogotá (May 23) Tape Recording
- _____. 2013b. SwissAid Seeds of Identity Campaign Workshop on Seed Houses. Pereira (November 6) Tape Recording.
- Samuel. 2014. “Seed Savers Meeting”. La Mandrágora Farm, Cañamomo and Lomaprieta *resguardo* (Mayo 3) Tape Recording
- Selma. 2013. “Asproinca Training Workshop”. Riosucio (September 14) Tape Recording.
- Vélez, Germán. 2013a. Public hearing at the Lower House “Cuando alimentar al país es un delito” convened by Representatives Alba Luz Pinilla and Wilson Arias, Bogotá, (October 7) Tape Recording.

Personal and collective interviews conducted by Laura Gutierrez:

- Alberto. 2014. Interview by author. Tape Recording. Riosucio, April 14
- Alfredo. 2014. Interview by author. Tape Recording. Riosucio, August 31
- Alicia. 2013 Interview by author. Tape Recording. Riosucio, August 9
- _____. 2014. Interview by author. Tape Recording. Riosucio, September 12
- Antonio. 2013. Interview by author. Tape Recording. Riosucio, November 10.
- _____. 2014(a) Interview by author. Tape Recording. Riosucio, July 30.
- _____. 2014(b). Interview by author. Tape Recording. Riosucio, August 2.
- Carlos. 2013. Interview by author. Tape Recording. Bogotá, December 9.
- Carmen. 2013. Interview by author. Tape Recording. Manizales, August 8
- César. 2014. Interview by author. Tape Recording. Manizales, May 6.
- Darío. 2014. Interview by author. Tape Recording. Manizales, June 3
- Diego. 2013. Interview by author. Tape Recording. Riosucio, July 15
- Ernesto. 2014. Interview by author. Tape Recording. Manizales, June 3
- Esteban. 2014. Interview by author. Tape Recording. El Espinal, March 12
- Eugenia. 2013. Interview by author. Tape Recording. Supía, July 7
- Federico. 2014. Interview by author. Tape Recording. Manizales, May 6

Germán Vélez. 2013b. Interview by author. Tape Recording. Bogotá, December 10

Gerardo. 2014. Interview by author. Tape Recording. Riosucio, May 13

Guillermo. 2013 Interview by author. Tape Recording. Riosucio, November 3

Hermida. 2013. Interview by author. Tape Recording. Riosucio, September 25

Javier. 2014. Interview by author. Tape Recording. Riosucio, August 1

José. 2014. Interview by author. Tape Recording. Riosucio, April 22

Juan. 2014. Interview by author. Tape Recording. Riosucio, August 11

Juana. 2013. Interview by author. Tape Recording. Riosucio, September 19

Julián. 2013. Interview by author. Tape Recording. Manizales, December 12

Jorge. 2013. Interview by author. Tape Recording. Riosucio, August 14

José María. 2014. Interview by author. Tape Recording. Riosucio, March 29

Lucía. 2014. Interview by author. Tape Recording. Riosucio, April 16

Luis and Mercedes. 2013. Interview by author. Tape Recording. Riosucio, August 13

Marcos. 2014. Interview by author. Tape Recording. Riosucio, April 30.

Mauricio. 2013a. Interview by author. Tape Recording. Riosucio, August 3

_____. 2013b. Interview by author. Tape Recording. Riosucio, October 16

_____. 2014. Interview by author. Tape Recording. Riosucio, July 7

Melisa. 2014. Interview by author. Tape Recording. Bogotá, August 27

Milena. 2014. Interview by author. Tape Recording. Manizales, January 29

Rafael. 2014. Interview by author. Tape Recording. Riosucio, July 5

Sandra and Ángela. 2013. Interview by author. Tape Recording. Manizales, October 31,

Santiago. 2014. Interview by author. Tape Recording. Manizales, January 29

Sergio. 2014. Interview by author. Tape Recording. El Espinal, March 12