

Food vs. Cash Crops—What Should be the Balance?

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Thank you very much for inviting us to contribute on a topic that is strategically important for all of us involved in agricultural development. Ethiopia is a country of special interest to us in this regard because of our remarkable partnership on chickpea. Chickpea is an example of a single crop being used for both food and cash. Ethiopia is Africa's largest producer; major international markets are in the Middle East and South Asia. Improved varieties and extension in East Shewa Zone in the Oromia region have resulted in a 90% yield increase (2003-05 average compared with 2008) and 40% increase nationwide. The total production of chickpea jumped from 168 thousand metric tons in 2003-05 to 312 thousand metric tons in 2008. This contributed to skyrocketing export earnings, from \$1 million in 2004 to \$26 million in 2008.

EIAR scientists at Debre Zeit together with a range of partners should be congratulated for their gallant efforts in up-scaling this initiative, training over 5,000 farmers during the 2007-2009 seasons. Similar impressive impact has been achieved with another leguminous grain crop, pigeonpea in Tanzania, also serving both food and export purposes (Shiferaw et al. 2008). ICRISAT and EIAR have also collaborated on sorghum improvement for decades, with significant impact. Our distinguished colleague Dr. Gebisa Ejeta spent five years with ICRISAT (1979-84) working on introducing striga-resistant sorghum varieties into the region.

As these examples illustrate, in which a crop serves both food and cash purposes, the notion of a single, ideal balance point between food vs. cash crops may be too simplistic. However, exploring this question can lead us to some powerful insights that can help us become more successful in reducing poverty and hunger in the developing world.

Inclusive market-oriented development

The World Bank's landmark 2008 World Development Report ('Agriculture for Development') identified a common thread underlying the development of agricultural economies worldwide and over modern history. That common thread was a transition from a rural subsistence enterprise, to an inclusive market-oriented enterprise responding to demand from urban centers. Importantly, they note that poverty and hunger decline as this transition proceeds. In a sense, rural areas use agriculture to capture a share of the growing wealth of cities.

Our own in-depth analyses at ICRISAT, carried out under our long-term Village Level Studies initiative concur with the Bank's analysis (Walker, 2010). We've studied the changes that have occurred over three decades in a number of villages in drylands in Africa and Asia. Where poverty is declining, it is largely due to improving connections to urban markets that purchased agricultural produce and offered additional employment opportunities.

We have adapted this development dynamic to become a conceptual model for ICRISAT's new Strategic Plan to 2020. This simple diagram (Fig. 1) illustrates the concept:

We refer to this strategy as '**inclusive market-oriented development**' (**IMOD**). It recognizes that any crops that are sold into urban markets become *de facto* cash crops (since urban areas pay for them with cash).

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The term ‘inclusive’ is meant to signal that we aim to include the poorest of the poor in our strategy, particularly through the basic food crops that they grow. ‘Orientation’ signals that we consider not only private-sector market drivers but also the social actions and policies that many nations adopt to help the poor to raise staple crop productivity and connect these staple crops to markets in order to reward increases in production. Thus, in the concept of inclusive, market-oriented development, the role of ‘markets’ is broadened and made inclusive of the poor.

In this inclusive market-oriented development context the ideal balance between food vs. cash crops might be stated as a strategy: ***“ensure food security first, then add income to the extent possible through cash crops.”***

Food *and* (not vs.) cash crops

If reductions in poverty and hunger correlate with increasing connections to markets, then rather than seeking a single ideal balance point between food vs. cash crops, the important question for development agencies should be, “how can we foster a sustainable, equitable transition for the poor along the inclusive market-oriented development pathway?” A change in the balance of food vs. cash crops will be a logical outcome of this underlying transition. For each farmer the balance will be different depending on their stage in the transition, particularly their food security status, their access to markets, and their capacities (assets, skills, capital).

At the subsistence end of the spectrum, a farmers’ overriding desire is to feed their families with basic levels of calories and protein. They are unlikely to begin cultivating high-value exotic vegetables and export crops as long as they feel insecure about their own sources of basic nutrition. Governments and donor agencies as well are anxious about ensuring basic food supplies for these extreme poor, because hunger and malnutrition are not conducive to social stability or economic growth. Therefore it lies in the interests of both poor rural farmers and of society as a whole to stimulate staple food crop production increases as the first trigger for inclusive market-oriented development.

Jointly, these groups need to take steps to grow and manage surpluses of staple foods, saving the surplus in emergency food reserves or exporting it, while taking action to moderate grain price fluctuations so that the poor no longer feel food-insecure. In essence this converts the surplus portion of staple food crop production into a cash-crop commodity, because it involves farmers selling a surplus into markets. This is what we’ve been seeing happen with chickpea and pigeonpea in this region, and good organizations and initiatives are active in this areas in addition to governments (e.g. Purchase for Progress and Technoserve).

Additional reasons why staple foods such as the major grain crops make sense as the first step along the inclusive market-oriented development pathway are:

- Staple food grains are relatively hardy and productive crops even under sub-optimal growing conditions, and are cheaper and easier to grow than most cash crops, suiting them well to the poorest farmers in the most remote areas;
- Surplus production is readily generated by staple food grain cropping; the mere use of fertilizer plus improved seed can often double or triple yields in developing countries, as the Sasakawa Foundation has demonstrated here in Ethiopia and in other African countries and which also resonates with ICRISAT findings in West Africa and in Southern Africa using a fertilization technique called microdosing (Tabo et al. 2007; Twomlow et al. 2008); and
- Staple food grains are less perishable than most cash crops, so they are more easily stored as emergency food reserves and also more easily transported over bad roads from remote areas to distant markets and ports.

Once inclusive market-oriented development is triggered for staple food crops, the stage is set to expand it into additional high-value cash crops, because the basic experiences and channels for input supply and

output marketing have been established. Farmer grain cooperatives for example can add new crops to the mix and provide training and inputs. These cooperatives can also leverage their market connections to additionally trade the new cash crops.

Research is an essential component of this strategy, as the chickpea, pigeonpea and sorghum cases illustrate. Research develops new technologies to increase returns-on-investment, ensure equity and sustainability, and remain competitive in the marketplace. At ICRISAT we develop research products intended for the whole range of stages along the inclusive market-oriented development pathway in order to ensure that farmers are enabled to progress each step of the way (ICRISAT, 2010).

Awareness of the role of markets provides powerful insight to understand how the food vs. cash crop balance will vary across farmers and locations. In order to use this concept for effective development, however additional dimensions must be included.

A systems perspective

The great man whom we honor in this symposium, Dr. Norman Borlaug famously said "working in Africa has been the most frustrating experience of my professional career. The yield potential is there, but you can't eat potential. We need inputs, access to markets, infrastructure, and credit if African agriculture is to experience a Green Revolution." (Ortiz et al., 2007).

Dr. Borlaug recognized that attention was needed to the entire value chain system, not just improved varieties. We might also ask, how can we ensure that market-oriented development happens in an equitable way, rather than leaving the poorest behind? And how can farmers be protected against investment risks such as drought, which can wipe out their crop? How can farmers be protected against boom-bust cycles of wildly fluctuating market prices? And how can we ensure that the drive to sell to markets does not lead to unsustainable exploitation of the environment? These considerations prompted ICRISAT to qualify its strategic concept to include the notions of inclusiveness, and of market orientation that can include social actions that influence markets in a manner that promotes equity and security as well as income.

All of these considerations lead to the conclusion that a systems perspective is essential in guiding inclusive market-oriented development. We must look beyond single, simple 'magic bullet' solutions to understand how they will fit into and succeed in the entirety of the systems in which they function. All the critical components of these systems, 'from plow to fork' must be examined and addressed appropriately so that the ultimate desired impacts — reduced poverty, hunger, malnutrition, and environmental degradation — are truly achieved.

Examples of food systems analysis and interventions have been ICRISAT's help to the National Smallholder Farmers' Association of Malawi (NASFAM) to screen groundnuts for dangerous aflatoxins to meet export safety standards, and to help catalyze a link to Fair Trade importers which resulted in higher prices received by Malawian farmers. This systems perspective-based, inclusive, market-oriented approach is now expanding into Mozambique, Tanzania, and Kenya.

Research-for-development contributions

Finally, in addition to the impacts mentioned above we would like to mention some ways in which research institutions such as ICRISAT and its partners in the tropical drylands can further support development agencies in fostering inclusive market-oriented development. Inclusive market-oriented development can be made more effective by better understanding the market connection possibilities of particular target communities. Market access is largely influenced by distance, road condition and urban demand. Geospatial analysis and modeling tools can reveal such patterns and can include layers of social data that help to understand where inclusive market-oriented development is likely to occur, and why (World Bank, 2009). This would provide invaluable information for development institutions.

Market access raises additional questions such as access for **whom**? We need a better understanding of who the poor really are rather than blending them all together as an average statistic at country level. Different categories of poor have different degrees of entitlement and empowerment in relation to inclusive market-oriented farm activities, e.g. women, children, youth, the landless, the elderly, and disadvantaged ethnic groups. This information is need at local scales so that it can be related to market access and agro-ecological conditions. This kind of in-depth, geo-referenced understanding of rural society is particularly insufficient in Africa today.

Risk assessment is equally important, especially in drylands where climate risk is a major influence on farmer's decision-making. Climate change adds more uncertainty to the mix in the long run. Research is making good progress in understanding and evaluating risk and relating it to climate change and climate variability, and in turn to crop response and profits. Farmers must understand and feel able to handle the risks involved in growing cash crops if they are to successfully negotiate the transition towards inclusive market-oriented development.

As the chickpea, pigeonpea, sorghum, microdosing and aflatoxin cases demonstrate, research can also provide specific technology innovations to increase the value that is generated by inclusive market-oriented development. This higher value in turn creates a stronger incentive for farmers to take the next step along the development pathway through further investment. As described above, however care must be taken not to consider technology innovations in a vacuum, but rather in a systems context so that they serve farmer needs and conditions and therefore become adopted and generate benefits.

Conclusions

The question should not be food **vs.** cash crops; it should be how to make food **and** cash crops work synergistically to propel farmers out of poverty. Ensure food security first, not in a way that creates aid dependency but rather in a way that makes it a springboard towards market-oriented development.

In ending we would like to remind us of all of some things that we already know, but sometimes forget to apply in practice:

- If someone has no money, they cannot buy food no matter how cheap it is. We must end extreme poverty.
- If farming is not profitable farmers will not invest in it and improve it.

Let us therefore increase our understanding of the dynamics of poverty escape and inclusive market-oriented development, including their equity, risk and environmental consequences. Food crops and food security come first, but an end to poverty will bring an end to hunger.

Thank you.