ICROFS

THE BALANCE BETWEEN SUSTAINABILITY DIMENSIONS: ECOLOGICAL BASE FAMILIAR SMALLHOLDERS' CASE FROM COAGROSOL/ BRAZIL[1].

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ABSTRACT

This report shows some initial results about the research project entitled GlobalOrg, on a Brazilian case study, investigating the sustainability of tropical fruit organic farming in a global food chains perspective. It was performed an analysis about the production strategies of certified units of a familiar smalholders cooperative from Itápolis-SP-Brazil. In this analysis it was verified the application of sustainability principles recommended by the ecological based agriculture, focused on the agrobiodiversity, material recycling and the social-economic aspects from the agroecology conversion process. The research occurs through the complementarities provided by a combination of sociological and agronomic research methods, it means, qualitative interviews and questionnaire application with semi-structured questions. What was concluded is that the establishment of an economic relationship between the cooperative and a fair-trade international entity stimulates an interesting growing in the production diversity and also stimulates the application of different principles of ecological based agriculture. It indicates an important balance between the sustainability dimensions and demonstrates a visible attitude change in the natural resource exploration in this region.

Key-words: Fair-trade, agroecological principles, biodiversity dimensions, cooperatives, globalization.

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INTRODUCTION

The main objective of this research consists of the identification and characterization of production systems from a familiar smallholder's cooperative – Coagrosol - placed in Brazil through the management and functionality analyses of tropical fruit production systems using the social-economic and environmental point of view (ABREU, 2005). The work is based on the research hypothesis: familiar smallholder's express different principles of ecological base agriculture following ethic-ecological motivations or market and productive interests and orientations. It was tried to evaluate how and in which conditions the Coagrosol associated smallholders are applying sustainable principles during the conversion period to ecological based agriculture. The evaluation of the principles applications were conduced following the tripod suggested by GLIESMAN (2000) and ALTIERI (2002) nominating economic, social and environmental equity dimensions as the sustainability equilibrium necessity for maintenance of human life on Earth. The work is motivated by a scientific international discussion expressed on the international project scope (HALBERG, et al, 2006) that is proposed to evaluate the sustainability of globalize organic food production chains in different developing countries that supply the European fair-trade and organic food market.

METHODOLOGY

The research methodology was constructed based on the international cooperation project between EMBRAPA – Brazilian Enterprise of Farming and Cattle-raising Research – and ICROFS - International Centre of Research into Organic Food Systems - using multidisciplinary and interdisciplinary approaches trying to highlight problems related to the ecological agricultural based production systems thought different international research partnerships. Danish researchers have been visiting Sao Paulo, the EMBRAPA Environment, The Federal University of Sao Carlos and the smallholder production units from Coagrosol, having intensive meetings with the Brazilian project staff. The study cases were decided - Tropical fruit chain production (orange) from Coagrosol, the data collection instrument – questionnaire – was constructed based on the cultural adaptations for the Brazilian case based on an instrument previously used in China for the same project aim. It was conduced an interview itinerary for organic food chain previously chosen using semi-structured researches methods, the questionnaires have been applied and the data were systematized in the EXCEL platform.

RESEARCH SAMPLE AND SOCIAL ASPECTS

The research sample for this work was constructed taking in consideration the GlobalOrg sampling. There are five sub-samples for the Brazilian tropical fruit – orange - case study: organic smallholders (10); smallholders with production systems converting to organic (9); fair-trade conventional smallholders (8); non fair-trade conventional smallholders (8) and big Organic farmer/groups (4). For this work, it was considered the first two GlobalOrg sub-samples plus the organic and conversion smallholders producing vegetables associated with Coagrosol, based on the ecological agriculture systems producing tropical fruit or not. The work sample represents

70% of the organic/conversion smallholders associated with Coagrosol, who the big majority is descendents of Italian immigrants. The production units presented 22.5 hectares in average, a great part of the sample is land owner and the labor requirements are provided mostly by their families. At the harvest season, it is common agreements with outsourced companies which realize the labour legal agreements with workers providing harvest services supplying. Some families cultivate vegetable gardens, natural herbs and grow small animals – poultry, pigs, goats and lambs for their family subsistence. An important characteristic is that they are frequently attending meetings at Coagrosol co-operative for technical knowledge and educational improvement, marketing decisions and for their common project activities.

RESULTS & DISCUSSIONS

Coagrosol is a smallholder co-operative with approximately 130 associated producers and partners – organic; conversion and conventional fair-trade smallholders - and it is located in Itápolis, central region of Sao Paulo State. It is a private entity, represented and certified internationally by FLO – Fair-trade institute that guarantee the Coagrosol product sales. Since the beginning of the co-operative, in 2000, FLO has been present in the arrangements of commercial agreements. Fair-trade practices were implanted and the smallholders, represented by the co-operative, started to negotiate their production taking the fair prices considerations and the sells guarantees trying to value the smalholders, their families and partners and also their production agro-ecosystems. The frozen Orange juice, organic or conventional still has been the main co-operative product in terms of exportation volumes. An interesting fact is that in the beginning of the cooperative, some smallholders started to diversify their production agro-ecosystems. Two years later, the co-operative started to export mango pulp as the second exported product to Europe. In the third year, the cooperative has opened a new market, the guava pulp. Recently, the concentrated lime frozen juice started to be marketed.

The figure 1 shows an illustrative estimation of the marketing and product diversification evolution since Coagrosol began to sell organic products.

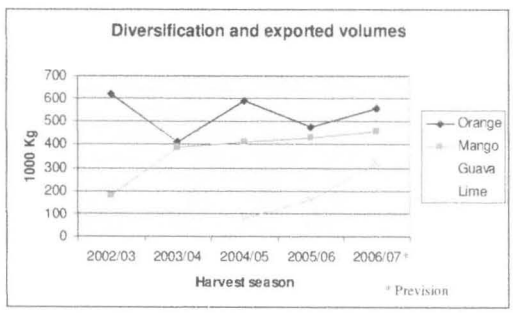

Figure 1: Marketing evolution of organic products from COAGROSOL. Source: Field work research realized on September 2007. Image elaborated by the author.

The interpretation of the tendency curves from the marketed volumes negotiated by the co-operative with the international market indicates that the smallholders are succeeding in the conversion process, nevertheless facing some difficulties during the process, particularly in the orange producers, that were previously monoculture agriculture types. Based on the identification and characterization of the production systems of certified smallholders from coagrosol, it was verified how these production systems have been expressing different principles of ecological based agriculture and in which conditions the productive strategies defined by the smallholders were integrating to the agro-biodiversity and to the nutrient recycle

management. The principles applied to the agro-environmental production practices have been done by a combination between strategies related to internal eco-social logic from the smallholder families together with the strong influence of socio-professional services provided by the cooperative technical assistance and also from the market demand. It was verified that there are different agro-environmental practices conduced by the smallholders and it was elaborated two different types of analyzes to understand the ecological based application: the first one evaluates the production management forms, which are providing agro-environmental benefits for the production units, and the second one evaluates how the smallholders production strategies are stimulating the nutrient recycle at the production plots. The first type of analyze looks at the production diversity presented at the smallholders units and also the diversification of production after the cooperative creation, and it can be visualized at the figures 2 and 3.

The production diversification, after the commercial relationship with the international fair-trade entity has been established, demonstrates considerable improvement on the agro-ecosystems studied that were previously orange monocultures.

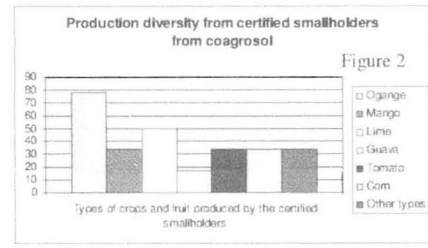

Figure 2

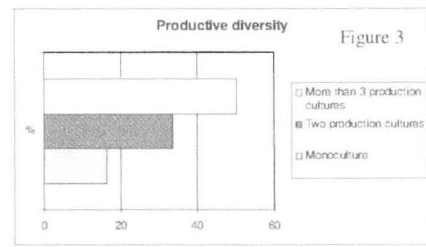

Figure 3

Referring to the ecological principles application related to the agro-environmental practices trying to improve the nutrient recycling, the figure 4 represents what have been practiced by the certified group. The contour cropping is the most used activity in the soil maintenance, and the weed management with underbrush implement provides the green manure in the tropical fruit plots. The use of manure is high, mostly the composted from the poultry and beef production, used to substitute chemical fertilizer applied directly to the soil. Near 50% of the smallholders cultivate leguminous plants to provide green manure and biological nitrogen fixation for the tropical fruit plots and also to produce mulching for the vegetable production. Just few smallholders cultivate agro forestry using the pruning residue between the fruit plants to maintain the soil humidity and the nutrient recycling. The smallholders apply, each year since the conversion, high levels of compost and manure respecting the limitations imposed by the certification body to substitute the chemical fertilizer, and the visual indicator of soil fertility has been improved so far as it can be seen at the figure 5.

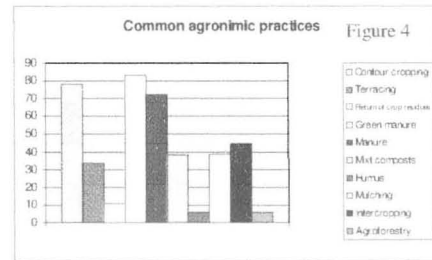

Figure 4

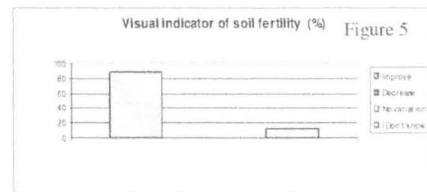

Figure 5

The fair-trade international entity promotes annual audits in the cooperative, supports projects and provides awards for the biggest exported volumes. The smallholders have been stimulated to improve the production unit

management. The awards paid for exported volumes are converted to social and environmental projects in the cooperative region demonstrating that the economic dimension of the sustainability has been applied in the way to reach a balance between others dimensions: the social and environmental dimensions. This characteristic can be better understood when analyzing the figure 6 that represents the smallholders' comprehension about the improvement of their relationship with the market after the conversion to ecological based agriculture.

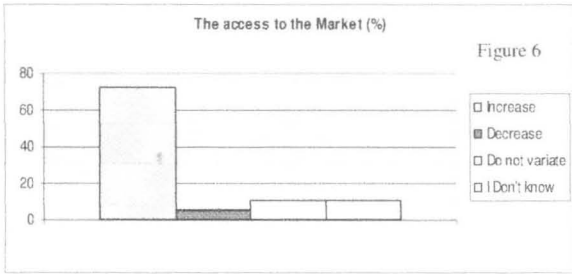

Figure 6

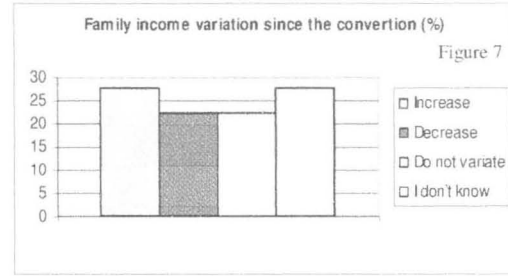

Figure 7

It was verified that, for more than 70% of the smallholders, the access to the market has improved since they converted to ecological based agriculture. The planning to invest on production activities started to be more interesting as they had guarantee the market demand from the international entity that contributes to the production diversification and for the environmental biodiversity recovery. The educational improvements from the smallholders were provided by the necessity of learning about new production forms and crop diversity. A better economic situation rose only 27.5% of the sample, as it can be seen at figure 7. It can be explained by the American Dollar depreciation compared to the Brazilian currency, what has jeopardized the better income from the fruit marketing associated with the lack of administration of some of the smallholders.

The present work verified that a sample of near 30% of the certified smallholders is doing a simple input substitution acquiring certified products in the market that are ready to be diluted, and used in the agricultural practices, and the farm managements are doing a similar way as the conventional production. They apply mixed liquids and manure to substitute the chemical pesticides and fertilizers as recommended by the organic agriculture principle. This group of smallholders presents one or two economic products of interest.

Another sample (50%), more expertise, produces their own inputs in the farms, following agronomic recipes from the cooperative technical body and use techniques from the biodynamic agriculture as natural mixtures, moon calendars and also utilizes techniques from the natural agriculture on the soil fertilization. This sample presents more diversified agro-ecosystems, with three or more economic interest cultures using recognized techniques from the regenerative agriculture as the intercropping and the use of leguminous plants in the soil nitrogen fixation. In some situations it was possible to infer the application of permacultural principles at the production units. There is a production differentiation related to the application of ecological based principles. Also the production diversification occurs when the smallholders apply more and more ecological based agriculture principles. The figure 8 presents the general characteristics of the production strategies associated to these ecological principles. All smallholders do the input substitution. As the increase of the knowledge,