ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 10, Issue, 10, pp. 41437-41443, October, 2020
https://doi.org/10.37118/ijdr.20260.10.2020

RESEARCH ARTICLE OPEN ACCESS

COOPERATIVE SUSTAINABILITY: SOCIO-ECONOMIC ASPECTS OF A GROUP OF AGROECOLOGICAL FARMERS LINKED TO ECOCITRUS

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Brazil

ARTICLE INFO

Article History:
Received 14th July, 2020
Received in revised form
18th August, 2020
Accepted 20th September, 2020
Published online 30th October, 2020

Key Words:
Productive transformation,
Ecological citriculture,
Family farming,
Agroecology.

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ABSTRACT

The research sought to understand and clarify phenomena present in the agrarian space occupied by ecological family farmers and organic AF linked to the Cooperative of the Ecologic Citrus Growers of the Caí Valley (ECOCITRUS) in order to list their main socioeconomic and productive characteristics, in order to analyze the effects of economic association in the field of organic production. The analysis of the social space produced by ecological farmers and organic farmers, and their cooperative, was done through the concept of region. The researched administrative Region is located in the state of Rio Grande do Sul (RS) - Brazil. In this region are some of the most important and consolidated expressions of ecological agriculture and organic agriculture that is under way in RS. Next, we proceeded to surveys and field observations, knowing and understanding all the processes that develop in the properties of family farmers, focusing on Agroecology. In these occasions the areas with orchards and the conditions of the productive feet (flowering, fruiting and ripening), the extension of the orchards and the association between different species and varieties of citrus were verified.In possession of the information and the primary data obtained from the producers, in the interviews with all ecological farmers linked to ECOCITRUS, the systematization, analysis and representation of these data was passed. The results endorse / confirm the thesis that family farmers and peasants become stronger to face the problems of distribution and commercialization when they acting through solidarity, associative and cooperative.

Citation: ***Claudio Bertazzo.*** "Cooperative sustainability: socio-economic aspects of a group of agroecological farmers linked to ECOCITRUS", *International Journal of Development Research*, 10, (10), 41437-41443.

INTRODUCTION

The Cooperative of the Ecologic Citrus Growers of the Caí Valley (ECOCITRUS), established in the municipality of Montenegro (Latitude 29 º 41 ' 19 "S; Longitude 51 º 27 ' 40 "W) is the most successful agroindustry and Citrus cooperativity venture in Rio Grande do Sul and southern Brazil. The ECOCITRUS began your activities with a work that refers to the first years of the 1990 (1990-1993). In that period, the state Government of Rio Grande do Sul – RS – established an agreement with the German Agency for Technical Cooperation – GTZ – which is the acronym for: Deutsche Gesellschaftfür Technische Zusammenarbeit. The Covenant had its predominant, although not exclusive, on the descendants of German immigrants. This agreement, among other goals, established the organization of rural producers in order to better integrate them into the communities where they lived and with better production to reach the markets.

GTZ's mediators used methodologies of group work, as well as the organization of collective purchases to obtain better prices.They also organized exchange visits, created pro-income groups, and finally sought the social development of that group of Montenegro farmers and neighboring municipalities that had accepted the invitations to attend the meetings. As the GTZ staff was well experienced, they organized very focused meetings, according to the methodologies and purposes they had at the Agency. Meanwhile, during a farmers' meeting in the municipality of Harmonia, one of the working groups produced a poster stating: "UMA FORMA ALTERNATIVA DE AGRICULTURA", in a literal translation: "AN ALTERNATIVE FORM OF AGRICULTURE". From this meeting on, farmers became interested in the subject.As they were of German ethnicity and maintained communications and exchanges with people from Germany, some had already had information about the biodynamic agriculture developed by the

German-Croatian Rudolf Steiner.And, as a result of the provocation of that meeting, a group of fifteen citrus farmers decided on November 2, 1994 to found the Association of Ecological Citrus Growers of the Caí Valley. The first action of the Association was to learn and know practices of soil management with minimal intervention and the operation of the composting unit.The process of learning ecologically based agriculture came about through these first actions and through the specialized support of the Technicians of the Technical Assistance and Rural Extension - EMATER-RS. The second major line of action was to put the Composting Plant into operation.Equipment and truck for transport and backhoe were needed to handle the deposited waste, besides the property for installation of the project.The property where the Composting Plant was installed is located in the district of Passo da Serra, in the municipality of Montenegro (RS), and was given by the owner who came to join the group, in its initial composition and in which it remains.The Association then obtained the funds through financing from the State Bank of Rio Grande do Sul, but later had to reimburse part of the resources used to purchase the backhoe, since part of it was bankrolled by GTZ.

Then, many companies stablished a partnership with the Association, as it would bring a mutual benefit: it would solve the problem of storage and deposition of agroindustry residues of Class II (free of heavy metals), and promote associated farmers with the supply of organic compound obtained free of charge by the association's plant.These companies pay a storage fee in addition to the costs of removing the materials to the site of the composting plant.The removal does not exempt the depositor company from its responsibility for the industrial waste that it generated until its total transformation into compost for organic fertilization. In this way, all the expenses of the Association are borne by the partners.However, the final product of this composting process (after the stabilization of organic waste) becomes the property of the Plant, which is one of ECOCITRUS's business axes.In other words; the Association receives to take care of non-toxic organic industrial waste from the industries.

Based on the experience of the Association of Ecological Citrus Growers of the Caí Valley, they organized themselves to establish in 1998 the Ecological Citrus Ecologists Cooperative of the Caí Valley - ECOCITRUS.It consisted of 20 associates, small landowners, whose properties have an average size of 10 ha.However, some associates may have larger area. This does not mean that this entire area is occupied with organic production, as there is no orchard and crop formation throughout this area. The Cooperative has in its framework of non-farmers associates, such as the machine operator, the geologist and the owner of the land where the Composting Plant is established.These are in number of 3 associates. It also has some plants that are in the process of production due to the senility of the orchards and replanting / renewal of the orchards.

Aspects socioeconomics, environmental and infrastructure aspects of citrus growers

In the process of development of this work, interviews were conducted with all ECOCITRUS associates in an ecological production situation, in 2008.In 2018 new polls were made and some producers, due to their old age, death and the lack of descendants who could manage the property, were outside the Cooperative.

Only 24 of the participants in the group originally surveyed in 2008 remain active. The information was gathered, it was systematized and organized in the form of tables and texts with considerations on the socioeconomic arrangement of agroecological producers.Also added information not present in the tables because they are relevant to understand the socioeconomic profile and the representation of symbolic values loaded by the producers. The information sought to raise among the group surveyed concerns the conditions of land tenure and the stability in working with perennial crops of citrus that has a great productive cycle - about 30 years.The condition of marital status, which was inquired from the associates, points to the problem of emptying field and to the establishment of families in the rural area linked to agricultural production.This refers to the issues of work and the characterization of peasant and family agriculture.Namely, who and how many works.Therefore, the labor income considering the size of the orchards and the specialty of the distribution relation.In the case of citriculture, all associates deliver their products to the ECOCITRUS Cooperative, which imposes a statutory 20% contribution / remuneration for services provided to cooperatives (collection, cleaning, storage, packaging, inventory, etc.). The associated receive biweekly from the Cooperative according to the classification of the fruits that they delivered in the period.

In addition to this information, also inquire about the beginning of the producer in ecological farming practices and their initiation and knowledge of Agroecology.It was considered important for the characterization of the socioeconomic profile to know the age of the producers.This shows the present and the future to plan the production and the succession itself in the properties. The socioeconomic and environmental conditions of this researched and remaining group are remarkable.They accompany (some founded the association and then the cooperative) to ECOCITRUS a long time ago, having already made the agroecological transition (CAPORAL; COSTABEBER, 2002). They are full agroecologists and their properties have been cleared of agrochemical residues for decades.The central problem of the research has always been to know the conditions of life and production and social reproduction of the farmers with agricultural practices based on the scientific bases of Agroecology.The document analyzes (financial reports of payments to associates) pointed to an excellent monthly income for the current conditions in Brazil. Living in (and) agriculture is always unpredictable.When it comes to ecological citriculture, and in some orchards with agroforestry systems implanted, the unpredictability is removed.

It is explained: the fruits are harvested on demand from the ECOCITRUS Agroindustry.Until a few years ago, the Cooperative sold fruits in natural.After the expansion of the juice plant, all the fruits are transformed into juices.And even fruits (mandarins) discarded by the thinning of excess fruit in the tree (it is necessary to tear off the mandarins still small so that the remaining ones grow and are bigger when they mature), are also processed by the agroindustry, that commercializes the essential oils. Thus, while fruits - oranges and tangerines - are not required by ECOCITRUS, they remain in the trees maturing naturally in predominantly shaded orchards.When climatic factors accelerate the natural processes, ECOCITRUS accelerates the process of crushing the fruits and stores the juices (concentrated or not).These actions provide to ward off undesirable effects of adverse

natural (and economic) phenomena. However, certified organic orange and mandarin juice are not*commodities* yet. It was found during interviews that farmers' declared farm incomes are underestimated.On this account, when the Cooperative presents the actual accounting of the payments made to the associates, in general, we see that between the real and the declared there is a considerable gap.This is no problem. Ecological citriculture guarantees them a good income and they do not want to display / expose it. At least not in the polls. The production income has its visibility in the facilities and infrastructure of the properties.It was observed during the visits that all their residences are provided with electricity, piped water service (local) or the public network.The comfortable houses are also served with fixed and mobile telephone services and selective collection of recyclable household waste.The importance given to environmental sanitation can be seen in the sewage networks for the local deposition of domestic wastewater, present in the residences of these farmers.Most of them with a sump and sink.Some with plant treatment.

In this sample of ECOCITRUS associates, they are predominantly owners of their crops (23 owners and one lessee).The associate did not detail the situation of the lease; however, it appears to have security in the lease.He implanted the orchard in another man's land.The property that leases has the size of 3 ha and as a farmer, declares its farming in 1.5 ha.
The properties and production units are very close to paved roads to drain their production.The work of agroecologists, as it was observed in the field, consists of harvesting green (ripe) or mature fruits, packing in plastic resin boxes and waiting for transportation.The cooperative is the one that establishes the script and is responsible for the entire logistics.It is common for citrus growers to request a fruit collection when they realize a need in their orchards or some threat to their production.

Aspects of agroecosystems, techniques and technologies of citrus growers: In the whole Valley of Caí - RS - are cultivated about 8,000 ha of tangerine, with orchards in agroecological styles only 5% of this total. In the region are harvested 75% of the different varietals of tangerines produced in Rio Grande do Sul.Thus, in order to face the dangers of this overpopulation of citrus, the recommendation of the agro-ecologists is that organic producers diversify the cultivated varietals much more, since they are exposed to the same problems of the orchards in the surroundings(GLIESSMAN, 2001).However, it must be recognized that citrus growers according to the scientific basis of Agroecology are at an advantage over conventional producers.Their orchards are in better conditions of soil and plant sanity.This may delay minimizing the occurrence of harmful events, but it does not completely remove them. Even if, the possibility of propagation of pests that may arise as a consequence of agrometeorological factors or other vectors is very real due to the overpopulation of citrus in the region.Therefore, the recommendation to diversify is very timely and has demonstrated its effectiveness. A relentless threat to citrus from the Cai Valley- RS - is caused by the fungus *GuignardiaCitricarpa*, popularly known as black-spot disease.In 2015 there was an event in the conventional orchards. It was not recorded or, if it occurred, the infection may have been so irrelevant in the agroecological orchards that it was not reported. The infection is attributed to the precocious heat and the great precipitations on the region during the maturation of the fruits, which according to the varietal, starts in mid-May (more precocious - satsuma / Japanese, e.g.) until September (Montenegrin variety). In 2016 the weather conditions were also adverse and gave the conditions for a new event of manifestation of the disease. (Information of interviewees 2008/2018). The prevention of some of these factors is that it induces these ECOCITRUS producers to implement agroforestry systems in their orchards.This system also acts as a barrier and protection for the fruit species, as they complement each other and none draws nutrients from the other. Unfortunately, the model of orchards in agroforestry systems is not yet widely used among farmers.

On the other hand, in accordance with the principles recommended by agro-ecologists, in the other orchards there is a diversification of species and productive varieties, in order to avoid uniformity and monoculture, which is a major cause of diseases, pests and other calamities of non-diversified agriculture. A very widespread technique among citrus growers, especially the producers of sweet oranges, is fruit sacking.Its process is simple, without being costly.White paper bags (like those that pack popcorn) are placed on the Bahia or navel oranges, in order to avoid the inn of insects and fruit loss.The bag protects them by concealment without altering development, maturity and sweetness. Another common feature among these producers is that they have formed intra-row crops, either grasses or legumes.They never leave the soil uncovered.As we know, the consortium of friendly plants strengthens soil fertility conditions and results in better and healthier fruits.The ecological management of the soil that these producers do consists in cultivating between the careers of citrus oats, vetch, ryegrass, crotalaria, etc.which serve as green manure.They avoid moving tractors to not compacting the soil, as well not revolving the soil with plows, only pouring the cover grass with a trailing beam so that the new sowing can sprout - or even the seeds of the previous crop that are dormant in the soil.

Most associate no longer need to put compost in the soil.They did once or twice during the transition process and after the soil regained its fertility, its management is done only with green manure and incorporation of organic matter, which is responsible for soil life.Thus, the diversity of life in the soil exerts and manifests its importance as it provides the soil with the ideal conditions for water retention, O2 circulation, root development, and etc.PRIMAVESI, 2006 and 2016).In practice, soil diversity surpasses surface diversity, which in itself does not solve the problems of the soil-water-plant relationship and especially the large number of orchards in the region, and the prevalence of conventional citriculture in the environment of citrus ecologists.That is why such an argument is made about the diversity of life on the ground.

Inputs available to citrus growers: It must be considered that economic science classifies equipment as inputs and not only the products that enhance agricultural production.In the field, therefore, there was verified, in each property / unit of agricultural production, the equipment and implements used by the associates.The inputs they had are: tractors, trailers, brushcutters, sprayers, loaders, etc.They serve to transport fruit, various loads and to carry out the cultural treatments in the orchards.The use of sprayers results from the need, possibly, to apply the biofertilizer in the orchard or some phytosanitary preparation for the prophylaxis of diseases that

emerge in them.The biofertilizer, however, is sprinkled on the orchard when the fruits begin to ripen.This protects them from the attack of insects and birds and also nourishes them, therefore, the product is absorbed by the plants and the organisms of the soil, being incorporated to the biomass of the species in cultivation and existing in the surroundings.Sometimes they only apply liquid from their livestock to fertilize / irrigate / protect orchards.One of the effects of spiked cutting is to drive away predatory insects by the strong aroma of its components.It hides and disguises the sweet aroma of the fruit that is maturing away insects.That is why they have such equipment.If this is the case, they are even suitable for sprinkling with water in drier periods, or in an unexpected drought. In practice, through the management of these inputs, mostly local, producers are seeking to broaden the perspectives for the ecological citriculture of the Caí Valley (RS), in which they are inserted, producing healthier foods with higher nutritional quality.They are therefore committed to Agroecology and to the production of safe food. Next, observe the six tables that were constructed with the information collected with the associates and the analysis that is done in relation to some of the selected items to constitute them.

The table shows that only the associate nº 1 still produces / sells vegetables.These are marketed directly by the producer at the fair and do not involve work and action by ECOCITRUS.The associatenº 3 specializes in tangerine.The others produce oranges, lemons and mandarins.Currently the cooperative collects only oranges and mandarins, since it does not sell more fresh fruits, only orange and mandarin juices. Member nº 6, in addition to organic farming, has a rural inn called Casa da Atafona.The inn's restaurant was housed in an old water mill.For these reasons, this producer has three fixed employees and contracts the services of 15 more safarists when receiving groups of diners.The income obtained with the inn and the restaurant does not reach 20% of the income obtained with citrus.The producer states that he can do both activities well, precisely because the citrus agroecosystem is in equilibrium, it is sustainable and has very few interventions to be done (GLIESSMAN, 2001).In its 23 hectares of ecological orchards, it obtains an income of more than 300 thousand reais per year, in an average income of approximately 13 thousand reais / ha per year. In this set of associates, in addition to the express synthesis, it should be added that associate nº 10, in addition to the operation of its orchard, was responsible for the work teams of ECOCITRUS.These teams were part of an experimental project.They were instituted to provide specialized services, of an eventual nature, to the other cooperatives.Their activity has emerged from the situation in which many associates have grown old, their children having started their own orchards, and only the elderly couple with occupational diseases left by the repetitive effort of fruit harvesting.To mitigate the situation, the cooperative invested in the training of workers who were linked to the ecological production of citrus and could perform the tasks on properties with labor difficulties. When the associate received the team on his property, the cooperative was remunerated with the value of working hours.The associate would have as an alternative payment, to provide working hours in the activities of ECOCITRUS. If it was not in this way, it had the value deducted from the products delivered for marketing.The project / service worked for a few years, having been disabled due to overcoming the needs that created it.

The associate nº 12, due of the large size of its orchards, needs to hire manpower to service its tillage.Its greatest need is in the harvest period (thinning of the tangerine berries and harvesting of ripe fruits). Associate nº13, graduated in Biological Sciences, works in the training of agro-ecologists at InstituteMorrodaCotiaof Agroecology (IMCA).The IMCA succeeded the Association of Citrus Growers that preceded the formation of the ECOCITRUS Cooperative and is connected to it.This associate chooses to be identified as a farmer and not as a teacher. In his work he seeks to apply academic knowledge with traditional knowledge and those derived from experience as a farmer.Its orchards are ecological citrus research fields for the Federal University of Rio Grande do Sul and for EMBRAPA Temperate Climate - Pelotas (RS).Associates nº 13, 14 and 15 have their orchards in agroforestry systems, whose situation of equilibrium of the agroecosystem facilitates the administration of the orchards, requiring little cultural treatment and dispensing extrafamilial labor. Associate nº14 who has a nursery of fruit and tree seedlings, which requires the constant presence of a worker. And, associate nº 16, who also works at ECOCITRUS (Agroindustry Office), has a worker hired to handle the orchards.

The associates nº 19 and 20, are brothers and entered together for ECOCITRUS, from which they received the training in the foundations of Agroecology and in the techniques and technologies of ecological citriculture.Associate nº 20, in addition to the orchards, also has a dairymaid with production of 100 liters / day, which, however, does not follow all principles of organic production, since it uses external inputs (feeds) to complement the feeding of dairy cattle, since the production of maize is not enough to feed all of them.It also develops beekeeping, with an annual production of 80 kg of honey.The distribution of this honey does not pass through ECOCITRUS. Associates nº 21 and nº 28 are two ecological citriculture.They entered the cooperative through the women's quota.How was that?In the formation of ECOCITRUS, the women who accompanied their families during the discussions and in the implementation of the associative projects and after the Cooperative, received - all together - a quota.With the advance and maturation of the association, this unique quota was deployed and the participants were able to enter each one with a quota that guaranteed them the full associate's right.These shares did not have the same representation in the capital of ECOCITRUS as that of the founding partners, because it was a split of a single quota.In fact, this only has practical effect upon the dissolution of the cooperative.

Associate nº 21 manages her orchard along with her son, in the harvest she hired a worker.In fact, the harvest is composed of two moments: the first is a period that takes place in March when it is necessary to make the green mandarins thinning.Then comes the harvest of the ripe fruit that happens from June and continues until November, according to the varieties of tangerines.Associate nº 28, however, depends on the team of workers created by ECOCITRUS, mentioned above.Her children made other families and she was unable to care for the 19 ha of orchards alone.When she started as an agroecologist, she did not have to make the transition in the orchard, she was one of the producers who never experimented with agrochemicals in her orchards.Just learned the scientific fundamentals of organic farming. In this group of associates there is a predominance of citrus orchards, grown entirely in ecological systems of production.

Table 1. Characterization of the producers linked to ECOCITRUS

Quesition	Partner 1	Partner 3	Partner 4	Partner 6
Marital Status	Married	Married	Married	Married
Age	60 years	60 years	49 years	69 years
Scholarity	Elementaryschool	Elementaryschool	High School	ElementarySchool
Situation	Proprietary	Proprietary	Proprietary	Proprietary
Ecologicalarea	8 ha	15 ha	6,5 ha	23 ha
Agoecology starts	1994	1993	1999	1989
Cultivation/Products	Vegetables/Greengrocers	Tangerine	Citriculture	Citriculture/Roost
Labor	Family/02-day care	Family/ 01housekeeper	Family	Famíly, 3 fixedand 15 safarists.
Monthlyincome	5,0 SM	3,5 SM	4,0 SM	10 SM

Source: Field Research, 2008/2018

Table 2 - Characterization of producers linked to ECOCITRUS

Quesition	Partner 7	Partner 10	Partner 11	Partner 12
Marital Status	Married	Married	Stableunion	Married
Idade	60 years	76 years	49 years	76 years
Scholarity	Agronomist	Elementaryschool	Elementaryschool	Elementaryschool
Situation	Proprietary	Proprietary	Proprietary	Proprietary
Ecologicalarea	10 ha	15 ha	7 ha	15 ha
Agoecology starts	1994 Founder	1995	1994 Founder	1993 Founder
Cultivation/Products	Citriculture	Citriculture	Citriculture	Citriculture
Labor	Family	Family/01 housekeeper	Family	Famíly/ ECOCITRUSteam
Monthlyincome	5 SM	3,5 SM	5 SM	10 SM

Source: Field Research, 2008/2018

Table 3. Characterization of producers linked to ECOCITRUS

Quesition	Partner 13	Patner 14	Partner 15	Partner 16
Maritial Status	Married	Married	Estableunion	Married
Age	53 years	52 years	54 years	54 years
Escolarity	Biologist	High school	High school	Incomplete High school
Situation	Proprietary	Proprietary	Proprietary	Proprietary
Ecologicalarea	30 ha	5 ha	11 ha	8 ha
Agroecology starts	1993 Founder	1995	1989	1996
Cultivation/Products	Citriculture	Citriculture/ seedlingproduction	Citriculture	Citriculture
Labor	Family/03 housekeeper	Family/1 Safrist	Family	1 Employee
Monthlyincome	10 SM	6 SM	5 SM	3,5 SM

Source: Field Research, 2008/2018

Table 4. Characterization of producers linked to ECOCITRUS

Quesition	Partner 19	Patner20	Partner21	Partner28
Maritial Status	Married	Married	Estableunion	Married
Age	49years	50years	57years	68years
Escolarity	agriculturaltechnician	Elementaryschool	Elementaryschool	Incompleteelementaryschool
Situation	Proprietary	Proprietary	Proprietary	Proprietary
Ecologicalarea	7 ha	7 ha	5,5 ha	19 ha
Agroecology starts	1996	1996	1994	1994
Cultivation/Products	Citriculture	Citriculture	Citriculture	Citriculture
Labor	Family	01 FixedWorker	Family/ 01 safrist	Family
Monthlyincome	2,5 SM	1,5 SM	7 SM	09 SM

Source: Field Research, 2008/2018

Table 5 - Characterization of producers linked to ECOCITRUS

Quesition	Partner29	Patner32	Partner36	Partner43
Maritial Status	Married	Married	Estableunion	Married
Age	43years	56years	58years	56years
Escolarity	agriculturaltechnician	High school	High school	Elementaryschool
Situation	Proprietary	Proprietary	Proprietary	Proprietary
Ecologicalarea	5 ha	2,8 ha	10,5 ha	4,5 ha
Agroecology starts	1994	1992	1999	1994
Cultivation/Products	Citriculture	Citriculture	Citriculture	Citriculture/vegetables
Labor	Temporary	Just theproducer	Family	Familyandsafrists
Monthlyincome	4,5 SM	1/5 SM	5,5 SM	4 SM

Source: Field Research, 2008/2018

Table 6 - Characterization of producers linked to ECOCITRUS

Quesition	Partner48	Patner49	Partner51	Partner53
Maritial Status	Married	Married	Estableunion	Married
Age	37years	72years	56years	36years
Escolarity	Elementaryschool	Incomplete elementar school	Elementaryschool	High school
Situation	Renter	Proprietary	Proprietary	Proprietary
Ecologicalarea	1,5 ha	3 ha	5 ha	5 ha
Agroecology starts	2003	2004	1994	1995
Cultivation/Products	Citriculture	Citriculture	Citriculture/vegetables	Citriculture
Labor	Family	Family	Family andsafrists	Family
Monthlyincome	1,1 SM	04 SM	6 SM	3,5 SM

Source: Field Research, 2008/2018

Table 7. Synthesis of the characteristics of ECOCITRUS members

Category		Average	Total
Maritial Status		Married = 21	87,5%
		Estableunion - 02	8,5%
		Notmarried - 01	4,0%
Age		56 year	--
Areaoforganicfarming		10,01 ha	240,3 ha
OwnerProducers		95%	23
Tenantproducers		05%	1
Labor in the UPAs		3 people	102
	Incomplete elementar school	8,3%	2
	Elementaryschool	46%	11
Escolarity	Incomplete high school	4,1%	1
	High school	25%	6
	AgriculturalTechnician	8,3%	2
	Highereducation	8,3%	2

Source: Field research, 2008/2018, organization of the author.

But, associate nº 36 has diversified its crops: it cultivates 1.5 ha of persimmon and 0.5 ha of fig, which are already in full production, in addition to 0.5 ha with sugar cane.All these products are processed and / or marketed directly by this associate.The associate nº 43 also produces vegetables that it trades directly in free markets, and its orchards are formed by varieties of tangerines in 60% of the cultivated area.Despite the linearity in citriculture and ecological gardens, it is stated, according to the survey, that the associate nº 29 is the only one of ECOCITRUS associates that owns a conventional eucalyptus crop.Several associates cultivate these trees for the extraction of wood, but none manage them according to the standards of conventional agriculture: the use of insecticides, using, as the others, biofertilizers on the new plants of their eucalyptus plantations.However, this associate, in citriculture is an ecological farmer. Besides these crops, this associate grows 2 ha of sugarcane in organic production systems. The income they declare, therefore, is a mix of their different agricultural initiatives.

The associate nº 48 has its orchard of 1,5 ha constituted mainly by tangerines and some orange feet of the sky.His wife and his associate work there on weekends.His joining the cooperative was after working as an employee in the packing house of Agroindustry.Once he met the cooperative system, he assumed a membership fee.Member nº 49 is already retired and does not want to expand his activities.Although it took on a cooperative quota only in 2004, it has been following ECOCITRUS' work for many years, having relatives who have been associated for a long time.Until recently this farmer, along with his brother, took his productions and marketed them directly at the fairs.He has been an agro-ecologist since 1993 and preferred to continue distributing his production autonomously until 2004.Members of no. 51 and 53 work in partnership with their parents, having different orchards within the same area, however with individualized accounts in the receipt of products and payments for deliveries with ECOCITRUS. As can be seen in Table 7, the family has been very important for this group of farmers.This reflects the concepts of family agriculture that emerge from Law 11.326 of July 24, 2006;since the average of its properties are inferior to 4 fiscal modules (18 ha in the municipalities of the Valley of the Caí) and whose main labor used in the property / farming comes from the family itself. The degree of schooling of the producers was investigated to show the diversity of literacy of the group of producers.And what was visible in field observations emerges in this synthesis: the difference in schooling was not an impediment to the learning of the scientific concepts, techniques and technologies that gravitate Agroecology.ECOCITRUS' concern with its partner institution - IMCA - has offered initial and continued training in Agroecology and agroecological citriculture to its members.Including organizing field days in properties where are experienced some technical and technological innovations.In this particular case, the difference in literate culture did not prevent advances in agricultural practices.Of course, the opening paragraphs, quickly reporting on the origins of this group, demonstrate the thirst to move out and change from a model of agriculture that celebrates death and destruction to a nature-friendly agriculture based on living soil. And, generously, an agriculture that promotes social and environmental well-being.

Final Considerations: Fruits are, therefore, the main product of the researched associates.However, it is very common for the associates to work and to carry out activities in the Institution itself.As farmers who are commonly the associates have their temporary crops and their own vegetable gardens, livestock raising of small animals and some own dairy cattle.All for self-consumption.These producers associated with ECOCITRUS (as well as the others), have their productions certified as organic by the ECOVIDA Network of

Participatory Certification and by the Biodynamic Institute - IBD. Polls and information gathering revealed that these producers made their choices for ecological styles of agriculture, mature and consciously.Most of them say they would not go back to conventional farming.It is even possible that the reason for this decision conceals a mathematical / economic reflection: it is possible to earn more by spending less by producing ecologically.Here's the basic idea: Organic products are cheaper to produce than in conventional farming.You spend less on inputs.If you need to add elements and nutrients to the soil, they use the organic compound or biofertilizer from the Cooperative.This is one of the reasons that made your productions cost less.However, this is speculative and does not hold up, given the facts and events that were witnessed, studied and analyzed.Producing ecologically is a lifestyle.To live well.Many claimed to be tired of handling and eating poisons. Most of them,carry sequels of the conventional production process.No, they do not want another mode of agriculture.They want to improve what they do and add values of immaterial nature.

Currently, the orchards are planting woody species and producing flowers.The system of agroforestry is being inserted in the midst of the already productive orchards.Some are in the early stages of this system, but already have enough trees planted to produce shade in their orchards.The founding idea of agroforestry cultivation is to allow the protection of plants from excess insolation and excessive exposure to ultraviolet rays.The same trees that provide citrus shade also serve as barriers to some fungi that are spread by the wind.Growers who have already planted shade trees in orchards have the advantage of being able to work and cultivate crops in the orchard without being exposed to full sunshine.This makes the work less arduous and also has the advantage of producing excellent fruits, which do not mature in an accelerated manner. Soil management is thought to aggregate organic matter and feed the fauna and microorganisms that live in it (PRIMAVESI, 2006 and 2016).Thus, they avoid leaving the soil uncovered.They commonly sow between the rows of citrus leguminous plants that feed livestock,or simply to promote the fixation of nitrogen in the soil.The producers also use forage turnip, ryegrass, oats and vetch, which give great results for soil fertilization. After certain crops, the seeds that fall, stay in the soil and germinate by themselves and the green cover grows, dries and rejoins the soil, fulfilling its cycles.Oats and ryegrass are grazed so that other seeds on the ground can receive light and sprout.The scourge serves to feed the domestic cattle; and if it is not the case, it remains in the soil as straw that fertilizes it.This happens in the orchards that have not yet entered the agroforestry system.The cattle do not graze in the orchard in order to avoid trampling and not to compact the soil, which is sandy-loamy.The herb is mowed and fed to cattle and horses in another location. After analyzing the experiences of the ECOCITRUS associates, we conclude that (based on our field observations, dialogues, follow-up to ecological citriculture, comparative analyzes of properties and production units, and search for the theoretical explanation agricultural practices):

- The agroecological transition is a plausible fact in the crops of these agro-ecologists, having advanced through collective practices, theoretical training and observation and experimentation, which made them feel like researchers;
- These producers continually seek to improve their own practice and continuous learning of how to reach more biodiverse and sustainable agroecosystems (ALTIERI, 2002),collectively analyzing the steps and processes they have already carried out, and with patience, persistence and determination already reap good sustainability results in their farming systems;
- The local experiences of these ecological citricultures' have attracted scientists from some institutions to study their experiences and seek to understand through the tools and academic methods the ecological styles of citriculture developed there.This has generated the opportunity of dialogue between the agroecology of the scientists with agroecology of the ecological farmers, through participatory methodologies;
- The Cooperative's economic prosperity results from the solidarity of all associated producers (and for them returns), whose original action is based on the recovery of soil fertility and the consequent valorization and recovery of biodiversity, whose complex services and solidarity between species(and within species) emerge from these agroecosystems healthy and safe fruits for human consumption;
- Citrus growers linked to ECOCITRUS seek to adopt technologies adapted to their family and material conditions, and to create endogenous technologies in the cultivation of ecological citriculture, within each production unit, in order to achieve environmental and socioeconomic sustainability;
- In the properties of these producers are frequent agricultural practices, and universal, the constant coverage of the soil due to its service of maintenance of the nutrients, both those that are in the soil as in the covering vegetation;also seek to select species that form deep roots, capable of potentiating soil porosity and drainage as well as capturing nutrients in the deeper layers of the soil;
- The high profitability of organic citriculture in these areas is due to the equilibrium of agroecosystems and the low costs of this agriculture, which is not dependent on external inputs.

Thanks

We thank the research support to the National Council for Scientific and Technological Development (CNPq) and to the funding agencies: MAPA, MCTIC, MEC and SEAD - Civil House.

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