

## **SOCIAL ENVIRONMENTAL AND ECONOMIC STUDY OF FAMILY PRODUCTION OF THE BEEKEEPERS COOPERATIVE OF CATOLE DO ROCHA- PB**

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**Abstract:** The cooperatives and beekeeping activity play a key role in social and economic development of small producers, therefore aimed to study the environmental and socio-economic development of family farming cooperative of beekeepers in the municipality of Catole do Rocha, PB. The study was conducted in the microregion of Catole do Rocha in Paraíba State. Data were obtained through questionnaires and semi-structured, applied directly to the farmers and leaders, in this case, the presidents of associations of beekeepers of the communities studied. Data from the survey were analyzed using percentage calculations. Beekeepers associated are the proper community, or from the rural area of another municipality, showing a very small illiteracy rate, and even producers with higher education. The agricultural activities represent only 20% of average household income and the non-agricultural sources of income more frequent retirement or pension. The productivity and credibility of beekeeping have been growing considerably in recent years; there is an increased diversity of products and processing of honey. The institution currently more active in encouraging beekeeping is SEBRAE, and others like EMBRAPA and SENAR. Sustainability of activity were obtained average values, above average, but still not satisfactory, being necessary support measures and training for these producers especially in regard to preserving the environment.

**Key words:** Beekeeping, Honey production, Ratability.

## **ESTUDO SOCIOAMBIENTAL E ECONÔMICO DA PRODUÇÃO FAMILIAR DA COOPERATIVA DE APICULTORES DE CATOLÉ DO ROCHA – PB**

**Resumo:** As cooperativas e a atividade apícola exercem um papel fundamental no desenvolvimento social e econômico dos pequenos produtores, portanto objetivou-se estudar os aspectos sócio-ambiental e econômico da produção familiar da cooperativa dos apicultores do município de Catolé do Rocha, PB. O estudo foi conduzido na Microrregião de Catolé do Rocha no Estado da Paraíba. Os dados foram obtidos mediante aplicação de questionários e entrevistas semi-estruturadas, aplicados diretamente aos produtores e lideranças, no caso, os presidentes das associações de apicultores das comunidades estudadas. Os dados obtidos da pesquisa foram analisados através de cálculos percentuais. Os apicultores associados são da própria comunidade, ou oriundos da zona rural de outro município, apresentando um índice de analfabetismo muito pequeno, e inclusive produtores com o ensino superior. As atividades agropecuárias representam apenas 20% em média da renda das famílias, sendo as fontes de renda não agrícolas mais frequentes aposentadoria ou pensão. A produtividade e a credibilidade da atividade apícola vêm crescendo consideravelmente nos últimos anos, existe um incremento na diversidade de produtos e no beneficiamento do mel. A instituição mais atuante no momento no incentivo à apicultura é o SEBRAE, além de outras como a EMBRAPA e o SENAR. Na sustentabilidade da atividade foram obtidos valores médios, acima da média, porém ainda não satisfatórios, sendo necessárias medidas de apoio e capacitação a estes produtores principalmente no que se refere à preservação do meio ambiente.

**Palavras - chave:** Apicultura, Produção de mel, Rentabilidade.

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## **INTRODUCTION**

The use of honey produced by bees for food has been practiced by man for thousands of years and is mostly used as a natural sweetener. The way of extracting the honey could be in a predatory way of hollow trees, caves and termites. Over time beekeeping has evolved quite significantly and has gained wide space in Brazil and is considered an important economic alternative for the middle countryside.

Beekeeping in Brazil began with the swarms brought by immigrants during the colonization process. However, only with the introduction of African bees in the mid-1950s, there was the revolution of beekeeping in Brazil with the intersection of two populations, producing a hybrid known today of Africanized bees. Certainly there were problems until they reached the current stage of development, given the aggressiveness of these bees and beekeepers' inability to cope with the new reality (SOARES, 2004).

Brazil has special characteristics of flora and climate, coupled with the presence of the Africanized honey bee, give it a fabulous potential for beekeeping, still little explored.

There in the Northeast about 110,000 beekeepers organized into associations and cooperatives that generate the field approximately 200,000 jobs, predominantly formed by family labor, and three thousand direct jobs in the industrial sector. Annual production is around 11,600 tones, representing approximately one third of the national production of honey (AGROCIM, 2011).

According to Souza (2002) the most important result of the implementation of beekeeping in the Northeast region of Brazil is the conservation of the ecosystem, which for lack of alternative to the survival of the backcountry has been degraded with the removal of firewood, deforestation and burning. The conservation and rational use of these areas represent the maintenance of life in the region, which is why the deployment of beekeeping is so important. Many opportunities have arisen due to the beekeeping, which has led to significant increase in the number of producers and projects to develop technologies to increase productivity and improve the quality of honey from Africanized honey bees produced in northeastern Brazil. However, Vilela (2002) reports that in the face of technological and economic immaturity of beekeeping in this region, the challenge is to obtain information and develop techniques that result in the scientific knowledge of the characteristics of local natural resources, propitious to honey production and possession this knowledge, propose management techniques that contribute to the beehives of productivity growth and to improve the honey quality.

This activity is much interest in various segments of society because it is an activity that corresponds to the triple of sustainability: social, economic and environmental. The social because it is a way of generating jobs and employment in the field. As for the economic factor, in addition to income generation, there is the possibility of obtaining good profits and environmental issue because bees act as natural pollinators of native and cultivated, preserving them and ultimately contributing to the balance of the ecosystem and maintenance of biodiversity (PAXTON, 1995).

In Paraíba, despite the region sacrificed by climatic instability, the growth is remarkable and the area that has been occupying Beekeeping in the interior of this State (TARGINO, 2005). However, little is known about beekeeping in the high interior of Paraíba.

Farmers prioritized before the beans, corn, cotton and other crops dependent on rain, today, have come to believe more in beekeeping, therefore made to pass this activity to complement the main aspects in relation to income generation for these farmers. In fact, the income generated from the Beekeeping is larger and more secure than other crops, in view of the growing market for organic products and good prices offered to bee products due to their known nutritional and therapeutic properties. Moreover, it is an agricultural activity with less dependence on rainfall.

One of the activities carried out by means of associations in rural areas is beekeeping, according to Freitas, Khan and Silva (2004) is an activity within the model family of great importance, presenting itself as an alternative income.

Thus this paper aims to study the socio-environmental and economic production of the cooperative family of beekeepers in the municipality of Catole do Rocha, PB. The data used were obtained through questionnaires and interviews semi-structured, applied directly to producers. The questionnaires were based on methodology used by (MARTINS 2005; EMBRAPA, 2002 and ALMEIDA, 2005).

After this introduction, follows a brief review of the literature on the topic, the discussion of methodological issues, discussion and presentation of results and finally the closing remarks.

### **Beekeeping, honey and cooperatives: theoretical aspects**

Most scholars of Brazilian apiculture considers that it started from 1839 with the introduction by the Jesuits, the European black bee, brought from Portugal and Spain, called *Apis mellifera mellifera*, then commonly called "Europe bee" or "the kingdom bee." Until then, if

they knew the native stingless bees, *Meliponae* species, such as: mandacaia, tuiúva, tiúba, jataí, Manduri, guarupu urucu, Jandaira, among other names (KERR, 1980).

Some authors claim that the species was introduced by the Jesuits brown bee, called *Apis mellifica* typical (GONÇALVES, 2000). However, all agree that were introduced in 1845 in southern Brazil, by German immigrants, several colonies of *Apis mellifera mellifera*, beginning racional Brazilian beekeeping. Then, between 1870 and 1880, were introduced yellow Italian bees called *Apis mellifera ligustica*, also brought from Germany (GONÇALVES, 2000).

It is an activity that involves the bee creation with the purpose of honey production, wax, propolis, royal jelly and bee venom. The biggest factor contributing to the growing demand for these products is to search for healthy foods, since the honey is rich in nutrients, tasty, and is used in the prevention and treatment of some diseases.

However, so that these products have market share of food is required to submit quality and competitiveness within this market is increasingly demanding. For this it is necessary that we have the most diverse information about this activity, such as those who practice, their social and economic situation, the profitability of this activity, it causes environmental impacts and finally, the fact that this is a sustainable activity or not.

Beekeeping can be considered a sustainable activity, it may contribute as part of sustainable development, as well as generating income and having special participation in pollination, acts by stimulating actions, such as: conservation of native forests - impacting, in turn, in fauna conservation, and induced a reduction in the indiscriminate use of pesticides, given the possibility of contamination of honey and even death of the bees - which contributes to the maintenance of soil fertility (OUR COMMON FUTURE, 1991).

It is one of the activities of the fastest growing agricultural sector in Bahia, occupies the seventh position in Brazil and the second in the Northeast, being responsible for generating around 30,000 direct jobs. In the state there are currently around 150 000 hives and 5 000 beekeepers, spread across geographic space (EBDA, 2002).

In Rio Grande do Norte most breeders start in beekeeping watching other breeders. This activity is still unknown by most people in this state, is still considered a relatively new activity, including technicians responsible for the technical assistance and regional development (BELCHIOR FILHO, 2004).

Great interest among farmers, because it's an activity that does not require much time commitment, nor does it require a lot of sophistication in terms of technology, and generate jobs and income for families, including youth and women. (FREITAS *et al.*, 2003).

But this lack of technology and knowledge brings consequences such as improvisation and distortion of beekeeping techniques. And the results have been a

potential beekeeping short of what could be expressed, affecting not only productivity but also quality and product diversification. Preventing the conquest of new markets (BELCHIOR FILHO, 2004).

Brazilian law defines honey as a foodstuff produced by honeybees from the nectar of blossoms or from secretions coming from live parts of plants or secretions of plant-sucking insects that are on the living parts of plants, the bees collect, transform combine with specific substances of their own, store and let ripen in the combs of the hive (BRAZIL, 2000). The Ministry of Agriculture and Fisheries classifies honey as a product of animal origin. According to Menezes (2003) honey is produced from the nectar collected from various flowers made by forager bees, containing plenty of water, glucose, sucrose, maltose, minerals, vitamins, enzymes, hormones, proteins, acids, amino acids and yeast. Because it contains mainly glucose and fructose, are very rapidly absorbed by the body, without providing power fat as well as commercial common sugars.

The production of honey is the result of two modifications suffered by nectar: a physical, by dehydration or elimination of water, other chemicals, by inversion of the sugar compound into simple sugars. Nectar suffers then in the bee stomach definite action of two enzymes: invertase, which converts sucrose into fructose, and amylase, which converts starch into maltose. It was conclude, therefore, that sucrose can be minimized or even cancellation, leaving only honey (invert sugar) and ready to be assimilated into the alveoli and mature regurgitate and receive the seal or operculum (WIESE, 1985). Honey dispenses almost all the work of the human organism, because it has been assimilated by the body and reversed the bee and its composition is a high energy food.

It is considered the bee product easier to be explored, and also the best known and one with greater marketability. Besides being a food, is also used in pharmaceutical and cosmetic industries, known for its therapeutic actions (FREITAS, KHAN & SILVA, 2004). It is the main product of beekeeping, being the management easier. This is a highly nutritious and healthy food.

Several physical-chemical and chemical have been used in the characterization of honey. This is a complex food by biological point of view and also analytical, since its composition varied according to their floral origin and geographical, and climatic conditions (BASTOS, 1994).

It is commonly found in honey variations in their physical and chemical composition, given that several factors influence the quality, such as weather, stage of maturity, species of bees and flowering type (PEREZ *et al.*, 2007), as also the processing and storage of this product (AZEREDO *et al.*, 2003). However, it can't have sugar and / or other substances that alter its composition (BRAZIL, 2000).

Brazil has reserves that can provide floral thousands of tons of honey, top quality, accepted by the world's most demanding markets (WIESE 1993).

In 2003, honey production in the Northeast reached a rate of 32%, surpassing the South and Southeast regions, contributing to Brazil occupy the 3rd position among the world's largest exporters of honey (DUARTE, 2004).

Due to climatic stability, the Northeast region will concentrate the largest honey producers in Brazil within five years. Emphasizing that beekeeping is not only a good option for those who want to invest in the field, but one of the best, so that the honey has become an important export item (GLOBO RURAL, 2003).

The beekeeping activity, especially in the case study in question, can occur by the cooperative. For cooperative means a civil society, composed of people united by cooperation and mutual assistance, managed in a democratic and participatory, with common economic and social objectives whose doctrinal and legal aspects are distinct from other companies. According to Oliveira (2008) since its birth in 1844, the cooperative has been an important tool for unity and integration among the peoples of the world.

The cooperative movement emerged in Brazil in the early twentieth century, when European immigrants brought the first experiences and the hardships they might face a new world. The emigrants joined their meager savings and your knowledge of organizational models that powerful their efforts, which resulted in significant economic and social force in the regions where they settled. The cooperatives, in the beginning of the century took shape mainly agricultural and consumer, and the latter had a higher growth, since the consumer eventually, years later, being bought by large markets. However, it should be noted that these initiatives, although cooperative, not often practiced self-management (SINGER, 2008).

It is clear the significant increase in growth of urban cooperatives throughout Brazil. These organizations stand as an alternative to the unemployment crisis. Meet not only the popular base layers, but also a contingent of skilled workers and a good standard of living. Cooperatives can guarantee the return of these professionals to the labor market with competitive advantages in relation to commercial undertakings. For this part of the unemployed, already qualified with a high level of education, the consolidation of the cooperative becomes easier in view of the greater degree of awareness of the professionals (ARNAUD and MARACAJÁ, 2010).

## **MATERIALS AND METHODS**

The methodology used in the study was a case study on the COOBEE – Cooperative of Beekeepers of Catole do Rocha. Data were collected through

questionnaires and interviews semi-structured, applied directly to producers. The questionnaires were based on methodology used by (MARTINS, 2005; EMBRAPA, 2002 and ALMEIDA, 2005).

The COOBEE emerged with the aim of providing services to its members and defend their economic interests without speculative purposes, as well as to provide cooperative means of obtaining resources and beekeeping equipment, processing, manufacturing and marketing of production (ARNAUD and MARACAJÁ, 2010).

It is a cooperative of beekeepers, officially constituted on the date of December 27, 1985, pursuant to Law No. 5764 of December 16, 1971. According to Article 8 of its Statute aims to provide services to its members and defend their economic interests, without staring speculative to what is proposed within their systematic action as a society of unique category, favor the cooperative to means of obtaining funds to purchase machinery, equipment, beekeeping supplies, processing, manufacturing and marketing of production "(COOBEE, 2010).

According to data from COOBEE currently the Cooperative has 55 members, meeting the beekeepers of municipalities of Catole do Rocha, Riacho dos Cavalos, Jericó, Brejo dos Santos, Brejo do Cruz, Bom Sucesso, Mato Grosso and São Bento. In these municipalities are located 6,000 (six thousand hives) producing a total 120 to 180 tons of honey *apis melliferas* bee. This production depends on the climate question, ie depends on winter and flowering.

The beekeeping business has also the advantage of a low volume of investment and a high probability that possibility is enhanced by the Brazilian tropical conditions and the use of Africanized bees (SOUZA, 2004 b).

Among the beekeepers surveyed, there are 1,821 beehives, of this total, 84.4% are in clusters, and 15.6% with empty hives. Honey production was declared approximately 29,069 kg of honey, from this total 97.5% was sold and 2.5% was consumed by households. Been working to produce this amount of honey, 83 workers (COOBEE, 2010).

Despite the difficulties in organizing a cooperative, the COOBEE is proving to be an important way of generating jobs, income, social inclusion and as a rescue of citizenship when entering the production system in the small and medium beekeeper. In this sense, it is essential to involve and exercise effective monitoring of the actions of the cooperative by its members (ARNAUD and MARACAJÁ, 2010).

## **RESULTS AND DISCUSSIONS**

In this topic we leave for the data analysis and reflections on them. It will present information on the socioeconomic profile of producers, production indicators, quality of life, social capital and environmental indicators.

Among the interviewed farmers in the cooperative, 16% are from other cities in the state, and the other 84%

With regard to marital beekeepers, a more significant part of the sample is married, 96%, but there was no sample of beekeepers union consensus, and the number of single was 4%.

According to data presented in Table 1 about 20% of surveyed beekeepers are semi-literate, with the same value completed high school, higher education comprised 4% of respondents, with 12% complete primary, which shows that the percentage was higher 44% of beekeepers interviewed did not finish elementary school. Also noteworthy is that the most part of workers is the number of years in farming.

As can be seen in the data in Table 2, the off-farm income of beekeepers cooperative, were very

from the same town, both referred to the rural community and the urban area.

diverse, but it is observed that most of these activities does not show significant weight to the composition of this indicator, highlighting only in average, income from pension or which constitute 44% of average total income and those from government family allowance program, representing 24% of average total income. In addition, it was observed that 32% of producers also rely on other income as a civil servant, businessman and others.

Another fact to consider is that all beekeepers have at least one non-agricultural source of income. Other relevant information is that beekeepers do not provide any service to businesses in the region, which is to reaffirm the family farming as the predominant mode of production.

**Table 1** - Participation of beekeepers in relation to the education of the cooperative in the municipality of Catole do Rocha - PB, 2011.

Level of Education	Average (%)
Not read	-
Signs	20
Primary. I (incompl.)	44
Primary. I (compl)	-
Primary. II (incompl.)	-
Primary. II (compl.)	12
High Education (incompl.)	-
High (compl.)	20
Graduation (incompl.)	-
Graduation (compl.)	4
<b>Total</b>	<b>100(average %)</b>

**Table 2** - Percentage of producers in relation to sources of income of non-agricultural cooperatives in the municipality of Catole do Rocha - PB, 2011.

Source Income Fund not from agriculture	Average
Retirement / pension	44
Family Allowance	24
Other (trade, civil servants)	32
<b>Total</b>	<b>100</b>

Among the activities, there is a marked tendency on the part of producers to elect beekeeping as preferred. As can be seen in Table 3, more than half of the farmers interviewed (80%) chose beekeeping as preferred activity.

The activity was least preferred by producers of fruit, being placed in last position among the respondents.

The activity that producers as a second alternative was determined to cattle.

**Table 3** - Economic activities undertaken by beekeepers cooperative, in ascending order of satisfaction, Catole do Rocha – PB, 2011.

<b>Productive activity</b>	<b>1°</b>	<b>2°</b>	<b>3°</b>
Beekeeping	80	12	4
Goat / sheep	4	28	-
Fruits	-	4	32
Rainfed Agriculture	8	24	16
Cattle	8	32	48
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

Between the years 2006 to 2011 the COOBEE signed agreements with the CONAB for giving simultaneous supply of honey for the enrichment of school meals at the Schools of municipal schools in the cities of neighboring regions, such as: Catole do Rocha, Brejo do Cruz, São Bento, São José do Brejo do Cruz, Riacho dos Cavalos and Jericó, as well as for the food bank SESC / SENAC city of Patos and also to the communal kitchen of Pombal, which benefited a total of 20,456 persons among children, youth and elderly, where it was during this period totaled 52 tonnes of honey (ARNAUD and MARACAJÁ, 2010).

Considering the studied sample of 25 producers in 2010 counted 1,821 hives with this total, 84.4% are in

clusters and 15.6% empty, occupied the hives were collected 29,069 kg of honey, which resulted in an average of 15, 96 kg per hive.

As can be seen in Table 4, 60% of beekeepers consider a profitable activity and 24% consider it very profitable. There is however a portion of 12% which relates to such activity only covers costs and a small amount, almost negligible 4% said that they are unprofitable.

In general the activity had a good acceptance and a growing credibility in the region, as agreed FREITAS (2003), MARTINS (2005): the production of honey is a very profitable activity, reaching high levels of profitability, incurring few costs.

**Table 4** - Degree of satisfaction of producers for the profitability of beekeeping cooperative in the municipality of Catole do Rocha – PB, 2011.

<b>Degree of Satisfaction</b>	<b>Average</b>
Give losses	-
Only cover the costs	12
Unprofitable	4
Profitable	60
Very profitable	24
<b>Total</b>	<b>100</b>

It may be noted that the vast majority of surveyed beekeepers working in partnership, whether with family or with other beekeepers. Of these, 40% work with family and 60% with other beekeepers. Pereira (2003, p.36) states that the work must be done with the help of a partner, "in beekeeping task made all four hands is easier to be performed.

Looking at Table 5 we can prove that among the many products that can be obtained from the beekeeping, the highest participation in the production of the cooperative in question were the honey and wax sets, equivalent to 84% of the products obtained. Among other products, such as honey product represents only an

average of 8% and 8% of the producers and the honey and wax, the pollination for use in agriculture.

One of the main causes of failure of certain producers in beekeeping is the lack of training for this, and considering the rapid growth of activity from 1996 to VILELA and PEREIRA (2002, p.25) report that was approximately 10.43% per year, reaching 25.40% in 2000, many of whom are farmers motivated primarily by rapid profit activity, which meant that they initiate activity without the necessary training, the result of this growth was a discontinuity which was 18.25% in 2001 and 10.13% in 2002.

**Table 5** - Products arising from the beekeeping cooperative in the municipality de Catole do Rocha –PB, 2011.

<b>Obtained Products</b>	<b>Average</b>
Honey	8
Honey and Wax	84
Honey and pollination p / agriculture	8
<b>Total</b>	<b>100</b>

**Table 6** - Percentage of producers regarding the health aspects and health cooperative in the municipality of Catole do Rocha - PB, 2011.

<b>Sanitary Aspect and Hygiene</b>	<b>Average</b>
<b>Treatment of Water</b>	
No treatment	-
Boiled, filtered or sodium hypochlorite	100
<b>Total</b>	<b>100</b>
<b>Destination of the Human Waste</b>	
Thrown open to the	8
Buried	-
Directed at the pit or sewage	92
<b>Total</b>	<b>100</b>
<b>Given the household trash destination</b>	
Plays in the open	4
Burnley	96
Buried	-
Another: public collection	-
<b>Total</b>	<b>100</b>
<b>TOTAL</b>	<b>100</b>

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**Table 7** - Organization of beekeepers associations and unions of cooperatives in the municipality Catole do Rocha- PB, 2011.

<b>Social Participation</b>	<b>Yes</b>	<b>No</b>	<b>Average</b>
1. Participates actively in activities of the association?	80	20	100
2. In meetings usually suggestions?	52	48	100
3. The suggestions are presented appraised and approved?	80	20	100
4. Decisions are appreciated and approved at meetings?	72	28	100
5. The decisions taken at meetings are performed by the board?	76	24	100
6. The investments of the cooperative are Submitted to and approved in meetings?	76	24	100
7. It is affiliated with the rural union?	48	52	100

**Table 8** - Use of methods to control pests and diseases in cooperative production unit in the municipality de Catole do Rocha – PB.

<b>Control Methods</b>	<b>Average</b>
Pesticides	68
Biologic	12
No method	20
<b>Total</b>	<b>100</b>

It is noteworthy that 60% of beekeepers surveyed held a training course, and the last course

was held for producers administered by SEBRAE, of which 52% of respondents' participated beekeepers, 4% of farmers have attended courses conducted at EMBRAPA and SENAR by 4%.

Regarding the participation of producers in events on beekeeping, we can observe that: 72% of producers received some training and 28% did not.

Important aspects in the lives of farmers and bring impacts on their productive activities are the health and hygiene, such that treatment of water for consumption, use was made of human waste and household garbage to the given destination.

With regard to the treatment of drinking water can be seen from the data shown in Table 6 that 100% of producing a treatment to provide water to be consumed.

Most of the residences of the two communities have septic tanks, generating an average of 92% who drive these human wastes, although there is still a share of 8% that still dump their waste and open (Table 6).

As for the fate given to household waste, can be seen in Table 6 that 4% of the waste produced is still played in the open. It was observed that most of the burned waste is produced having a percentage of 96%.

Another important aspect to the lives of producers with respect to participation in the cooperative. These data are in Table 7 where it appears that the associative character is quite evident, accounting for 80% of all farmers interviewed are active members of the beekeeping association.

As regards environmental issues is a concern with existing soil conservation. Among the practices used are crop rotation with 28%, and 24% with the practice of letting the land rest, and only 12% are crop fertilization. A percentage of 36% of farmers interviewed makes no practice of planting to prevent soil degradation.

In Table 8, we observe a lower concern among producers about the use of pesticides, 68% of producers use it. It is observed that only 12% use the biological method, and 20% of these producers do not use any method of production control. The low percentage of use of biological control in the production unit, that fact must be the ignorance of these methods by producers.

Finally the producers still have a great tradition of using fire to burn crop residues for both cleaning at the time of pruning and after clearing certain area for planting. This action takes a series of consequences, such as the soil erodes very quickly, and this recovery takes place very slowly, a burned area takes about ten years to recover. It is observed that 36% of the total sample of producers

makes use of fire in agricultural activities. Those who make use of fire, use only 48% in the overthrow, while 52% use to clean leaves and rubbish, presenting but a share of 64% who do not use fire in their activities.

## FINAL CONSIDERATIONS

Considering the results obtained through interviews with the producers can come some final thoughts on the subject under study. The first is that almost all members of beekeepers studied originated from the community, if not; these are from the rural area of another municipality.

An interesting aspect was diagnosed that the level of education has to be reasonable when compared to other communities in the region, with an illiteracy rate very small, and even farmers with higher education, which becomes very important in quality of life the municipality and the development of COOBEE.

Although beekeepers mostly perform agricultural activities since they were a child, these activities represent on average only 32% of family income, and the non-agricultural sources of income most frequent retirement pension, reinforcing an economic profile characteristic of the region, ie dependence on government transfers to boost the local economy.

The productivity and credibility of beekeeping have grown considerably in recent years, and in some cases to almost equal the total family income, there is also an increase in diversity of products developed on site.

The institution currently more active in encouraging beekeeping is SEBRAE, in addition to others such as EMBRAPA and SENAR;

In assessing the sustainability of the activity in the communities were obtained reasonable values, but cannot be taken as satisfactory, being necessary measures of support and training to these producers especially in regard to preserving the environment.

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