THE

VIVA O SEMIÁRIDO

PROJECT ITS CONTRIBUTION TO THE DEVELOPMENT OF

BEEKEEPING IN PIAUÍ

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The Viva o Semiarid Project its Contribution to the Development of Beekeeping in Piauí

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ABBREVIATIONS AND ACRONYMS

ABOMEL – Association of Boa Vista in Massapé do Piauí

ACMVR – Community Association of Jiboia in Vera Mendes

ADECOVA – Community Development Association of the Community of Vazante

ASCOMVER – Community Association of Vera Mendes

BNB – Bank of the Northeast

CASA APIS – Central of Beekeeping Cooperatives of the Brazilian Semiarid

CODEVASF – Development Company from the Valleys of São Francisco and Parnaíba

COMAPI – Mixed Cooperative of Beekeepers in the Microregion of Simplício Mendes

CONGEP – Project Management Board

COOPASC – Cooperative of Beekeepers and Rural Producers of the Territory of Serra da Capivara

EMATER – Institute of Technical Assistance and Rural Extension

EMBRAPA Meio Norte – Brazilian Agricultural Research Corporation

FBB – Bank of Brazil Foundation

FEAPI – Federation of Apicultural Entities of Piauí

FIDA - Fundo Internacional de Desenvolvimento Agrícola

IBGE – Instituto Brasileiro de Geografia e Estatística

IFAD – International Fund for Agricultural Development

IFPI – Federal Institute of Piauí

Kg – Kilogram

Km – Kilometer

MA – Maranhão

MDIC – Ministry of Industry, Foreign Trade and Services

MOP – Project Operational Manual

NGO – Non-governmental organization

PI – Piauí

PIPs – Productive Investment Projects

PROMEL – Honey Production Chain Development Program

PVSA – Viva o Semiárido Project

SAF – State Secretariat of Family Farming

SASC – State Secretariat of Social Assistance

SEBRAE – Brazilian Micro and Small Business Support Service

SEDUC – State Secretariat of Education

SENAR – National Service of Rural Learning

UEPAS – Bee Product Extraction Units

UESPI – State University of Piauí

UFPI – Federal University of Piauí

UN - Organization of the United Nations

USA – United States of America

PRESENTATION

In the context of beekeeping, Piauí stands out on the national scene due to the high potential for the production of honey of excellent quality from the Apis mellifera L. species. Most of the honey produced has organic certification, such as those produced by the COMAPI Cooperative, headquartered in Simplício Mendes, Territory of Vale do Canindé, and by the Casa APIS Central Cooperative, headquartered in Picos, Territory of Vale do Guaribas.

Beekeeping, that is, the rational creation of bees, has grown in the State of Piauí since the 1980s. Initially, it had a more ecological and organizational connotation, aimed at improving feeding. At the turn of the century, it took on a commercial connotation and occupied an ever-increasing space in the economy of producing municipalities. Currently, it plays an important role in the list of export products of the State, being among the five (5) largest export products in Piauí. The foreign market is, every day, signaling for healthier products of renowned origin. Recently, most honey producers in Piauí have joined the organic system to obtain better prices for their products and to align themselves with the world trend in food consumption.

The beekeeping activity is linked to one of the most organized Productive Chains in the State. A Cooperative Center (Casa Apis) and two Cooperatives (COMAPI and CODEVARP), which operate along the lines of a Central, house several Beekeepers' Associations. There are also several other Single Cooperatives and Associations of Beekeepers, in addition to Community Associations and Rural Workers that prioritize Beekeeping as their strongest commercial activity. Besides these organizational structures are various informal groups of beekeepers.

Through Law No. 7358 of 02/10/2020, the State Policy for the Development and Expansion of Beekeeping and Meliponiculture and the State Program for Incentive to Beekeeping and Meliponiculture -

Proamel, were created within the scope of Piauí, with the objective of promoting and strengthen the activity in the State. The Law, in addition to creating the Program, regulates all Beekeeping and Meliponiculture actions, which brought more security to investors in the area.

Beekeeping in Piauí involves, in its surroundings, a set of institutions that work and stimulate the promotion, training, financing, research and commercialization in the area. This network of institutions, such as EMBRAPA – Meio Norte, UFPI, IFPIs, SEBRAE, SENAR, CODEVASF, BNB, UESPI, EMATER, SAF and NGOs, acts as catalysts for actions aimed at Beekeeping and allow, in an integrated work and in partnerships, the potentialization of investments for the area. Many actions have already been developed and presented great results from the actions of the State Government, Codevasf, Senar, Sebrae, BNB and others.

As an example, the Viva o Semiarido Project (PVSA), by the State Government in partnership with IFAD (International Fund for Agricultural Development), operating in 5 of the 12 Development Territories, has, over the last 5 years, directly served almost 3,000 beekeepers, as well as distributing around 30,000 new hives, building or renovating more than 40 honey houses, in addition to helping to modernize the process of packaging and shipping honey for export.

These results led IFAD, in partnership with the Viva o Semiárido Project, to commission a work with the Federal University of Viçosa, through the AKSAAM Project, to identify the contribution of the Viva o Semiárido Project in the growth of Beekeeping in the State.

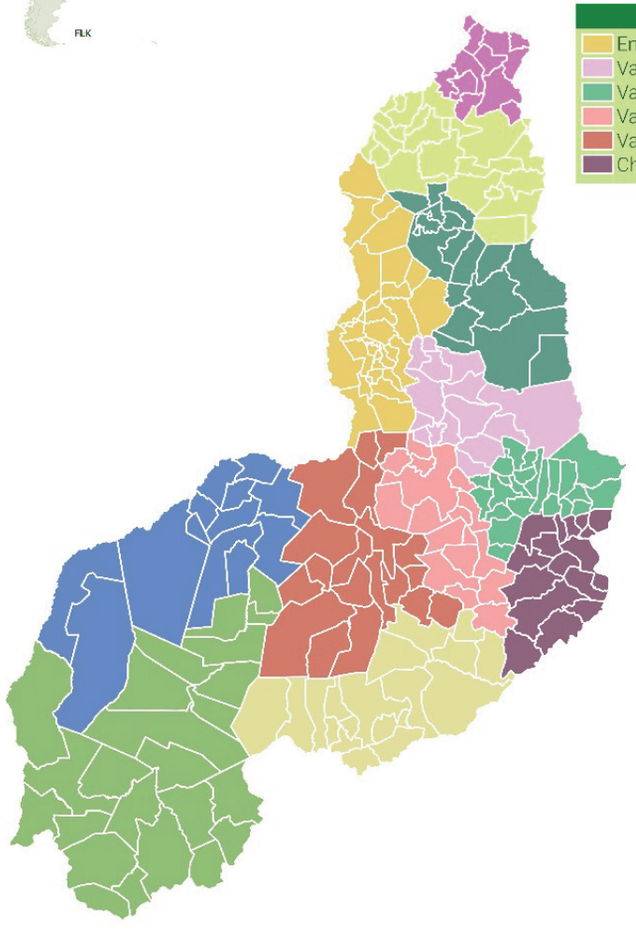
The main results are now published in this document, which presents the reports, information and results identified in the case studies of the Projects supported by the Viva o Semiárido Project.

Agronomist Francisco das Chagas Ribeiro Filho (Chicão)

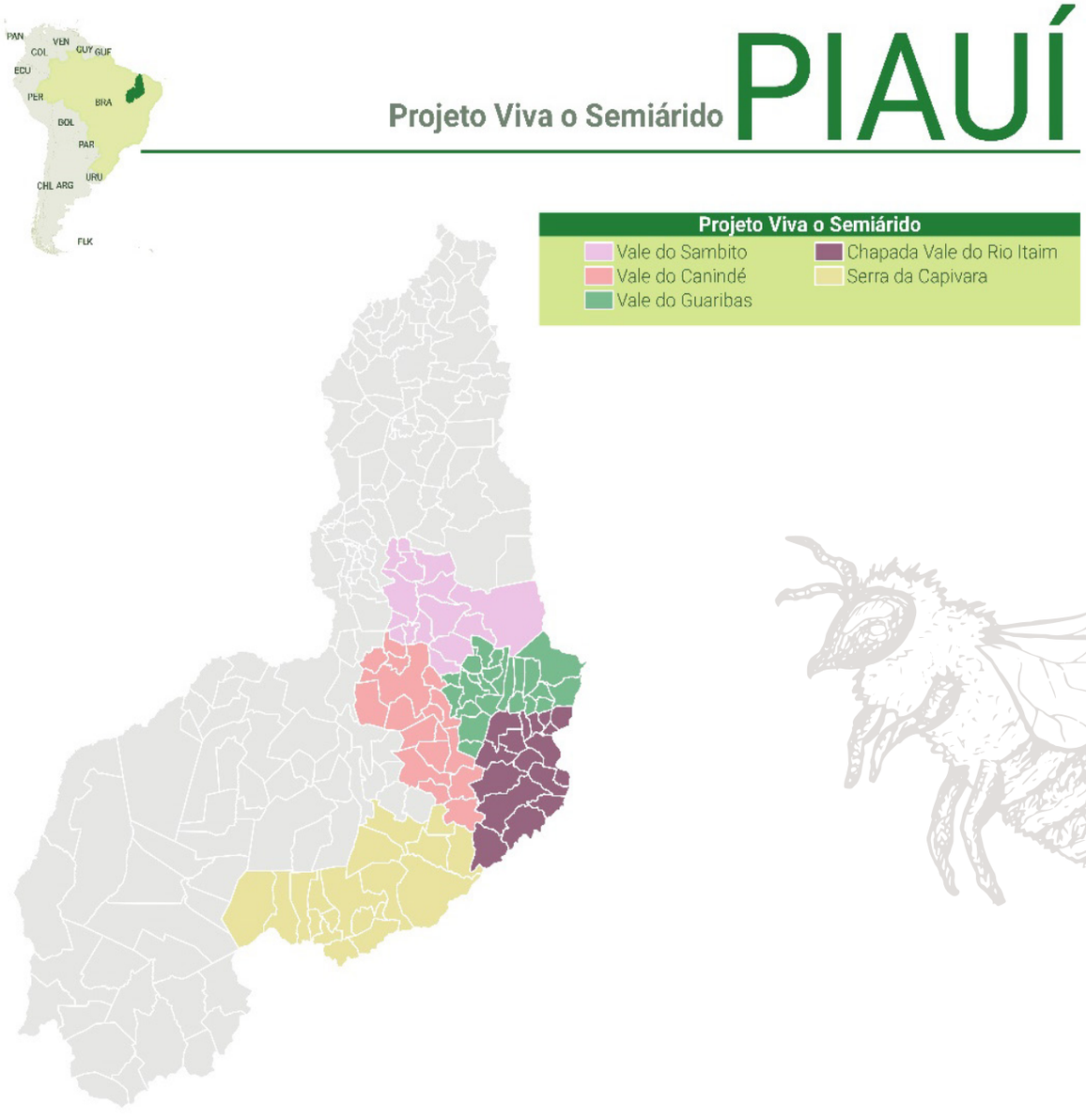
INTRODUCTION

The state of Piauí occupies a territorial area of approximately 251,000 km^2, making it the third largest state in the Brazilian Northeast region (behind the states of Bahia and Maranhão). The state is composed of 224 municipalities, distributed in four mesoregions and fifteen microregions. However, the State Government conducts its public policies according to the Development Territories division, which groups municipalities according to their own characteristics and potential. In total, there are twelve Development Territories, in accordance with Law 6,967, of April 3, 2017.

Development Territories PIAUÍ



Specifically, the semi-arid region of Piauí is made up of 89 municipalities distributed in five Development Territories: Vale do Sambito (15), Vale do Rio Guaribas (23), Vale do Rio Canindé (17), Serra da Capivara (18) and Chapada Vale do Rio Itaim (16).



In the period from 2013 to 2022, this semi-arid region received support from Projeto Viva o Semiárido as a result of Loan Agreement n° I-788-BR, signed by the Government of the State of Piauí with the International Fund for Agricultural Development (IFAD), on April 9, 2013.

The PVSA seeks to contribute to the reduction of poverty and extreme poverty levels in the rural population of the semi-arid region of Piauí by increasing predominant productive activities and strengthening the organization of rural producers. All these actions are also part of the Government of Piauí's sustainable and participatory territorial development strategy.

Among the predominant productive agricultural activities in the state, beekeeping stands out, both in terms of quantity and quality of certified organic honey, with excellent acceptance in the national and international market. The state of Piauí has recognized beekeeping potential because it has several plant formations that favor the activity (Caatinga, Cerrado, Semideciduous Forest, Restinga and Mangrove), with appropriate characteristics for beekeeping and meliponiculture: high temperature, relative humidity of the air around 70%, in addition to good luminosity with rich and varied flowering.

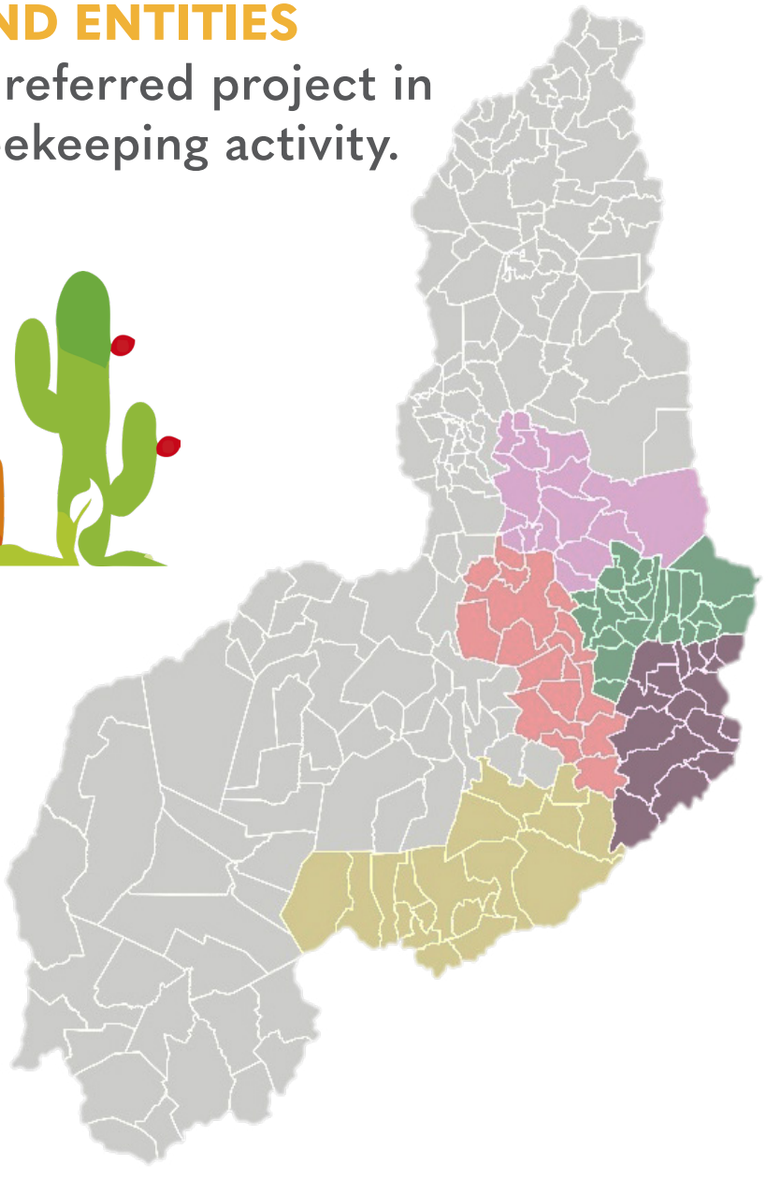
Therefore, despite the existing difficulties in the semi-arid region of Piauí, there is a range of opportunities in this region!

Given this context, the objective of this report is to present the empirical analysis of the contribution of PVSA to the strengthening of the productive chain of beekeeping in Piauí.

Specifically, it is intended:

- **To describe and analyze the PVSA INITIATIVES RELATED TO BEEKEEPING in the state of Piauí; and**
- **To present the case studies with the BENEFICIARIES AND ENTITIES BENEFITED by the referred project in the scope of the beekeeping activity.**

PROJETO viva o SEMIÁRIDO



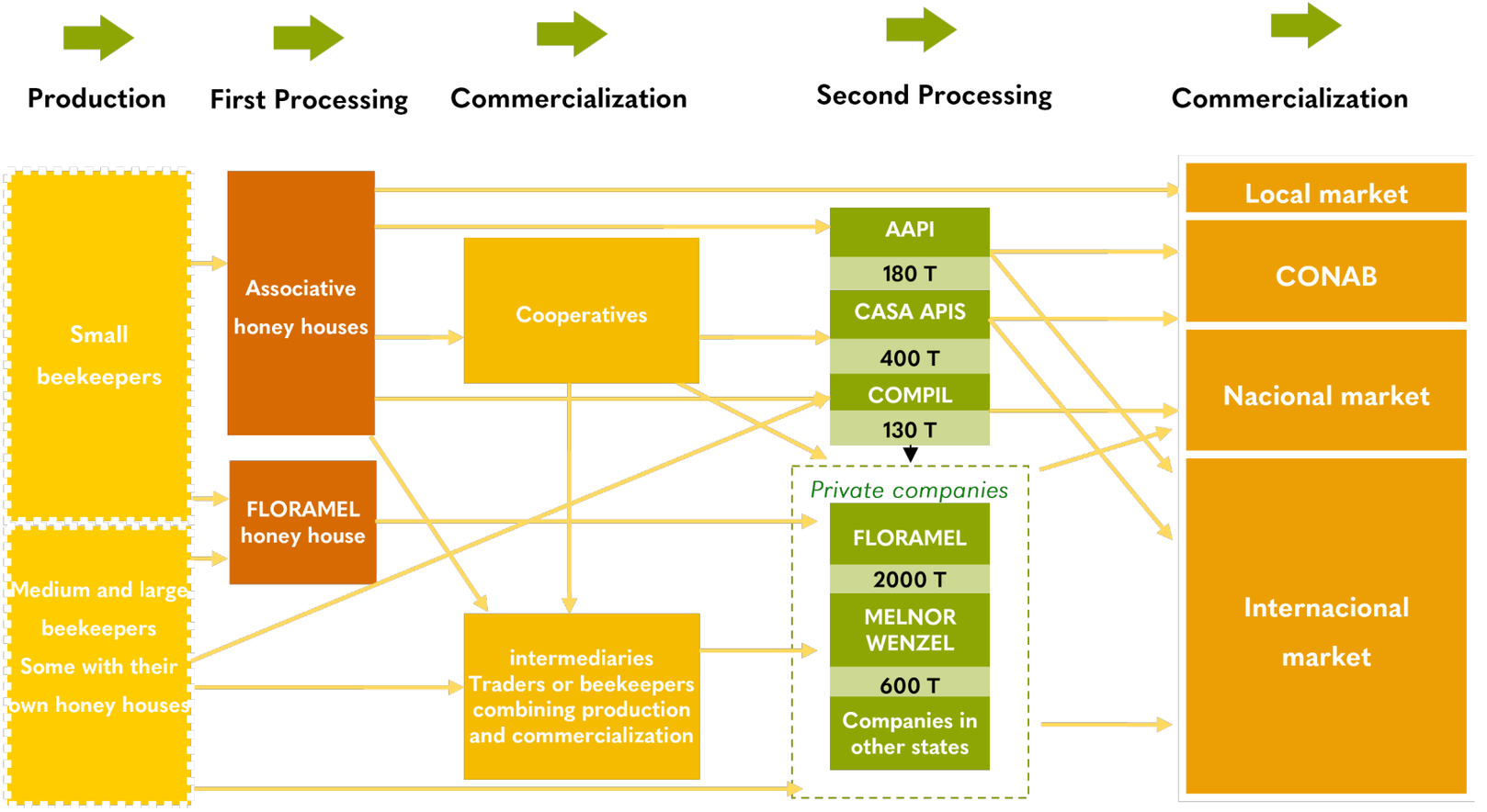
Characterization of the beekeeping production chain in Piauí: an overview of the activity

In the state of Piauí, the beekeeping production chain presents some specificities, which are listed in this section. After the first processing, the small beekeepers sell the honey to cooperatives and intermediaries. Producers are generally organized in rural associations that use the honey house, where honey is extracted under hygienic conditions (uncapping, centrifuging and decanting with stainless steel equipment). The product is then filled into 25 kg buckets and sold to the Casa Apis Cooperative Center, the Mixed Cooperative of Beekeepers in the Microregion of Simplício Mendes (COMAPI), or intermediaries. Beekeepers also trade in the local market.

Casa Apis and COMAPI collect honey from cooperative members in their own trucks at the associations, honey house and Bee Products Units (UEPAS). In relation to intermediaries, they purchase honey in their own rural households or in honey houses, providing transport logistics and working capital for the purchase of honey.

From Casa Apis, COMAPI and private companies, there is a second processing of honey. Next, the commercialization for the internal and external markets takes place.

Example of a beekeeping activity chain in Piauí



Note: This flowchart only represents the beekeeping activity chain of the Cooperative of Beekeepers and Rural Producers of the Territory of Serra da Capivara (COOPASC), and was prepared with the intention of exemplifying its operation.

At the state level, beekeepers are represented by the Federation of Apicultural Entities of Piauí (FEAPI). The beekeeping production chain is organized into two specific Sectorial Chambers for the activity: the State Beekeeping Chamber and the Sectorial Chamber of Beekeeping for the Territories of Carnaubais, Cocais and Planície Litorânea, operating further north of the State. The various segments of the Productive Chain are represented in these Chambers (beekeepers, producers of bee material, traders, exporters, financial agents, research and extension agencies, academies, NGOs, state, municipal and federal agencies, among others).

Recently, the Semi-Arid Honey Route was instituted, with the city of Picos as a reference and with the participation of practically all Entities linked to Beekeeping, adding to the strong participation of the Ministry of Regional Development. The articulation work is in progress with the Management Committee, which gathers and organizes the projects and actions.

Beekeepers in the state are periodically meeting and debating the main problems and opportunities in the sector. In addition to the discussion spaces of the Beekeeping Chambers and beekeepers' organizations, there is the Piauiense Beekeepers Seminar with 15 editions and the Beekeeping Business Meeting with six editions.

Beekeeping in Piauí involves in its surroundings a set of institutions that work and stimulate the promotion, training, financing, research and commercialization in the area. Among them are: EMBRAPA – Meio Norte, UFPI, IFPIs, SEBRAE, SENAR, CODEVASF, BNB, UESPI, EMATER, SAF and NGOs, which, together, catalyze actions aimed at beekeeping and allow, in a integrated work and in partnerships, the potentialization of investments destined for the area.

BEEKEEPING-RELATED INITIATIVES PROMOTED BY PVSA IN PIAUÍ

PROJETO
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- The PVSA is carried out by the SAF and the co-executors of the State Secretariat for Education (SEDUC), the Institute of Technical Assistance and Rural Extension (EMATER) and the State Secretariat for Social Assistance (SASC).

- The target public of the project is the poor rural population of the semi-arid region of Piauí that meets the eligibility criteria established in the Project Operational Manual (MOP), and the Community Associations of Family Farmers.

- The PVSA finances productive investments in rural and semi-urban establishments, technical assistance to beneficiary rural families, in addition to technical training actions, rural education contextualized countryside education for coexisting with the semi-arid region and professional qualification. The priority audience is made up of women, young people and quilombolas (afro descendants). **Access to productive investments takes place through Productive Investment Projects (PIPs), prepared and presented by groups of producers organized into legally constituted associations and/or cooperatives.**

Investments are earmarked for productive projects aimed at beekeeping, sheep and goat farming, cashew farming, fish farming, poultry farming, productive backyards, pig farming, cassava farming, irrigation and handicrafts.

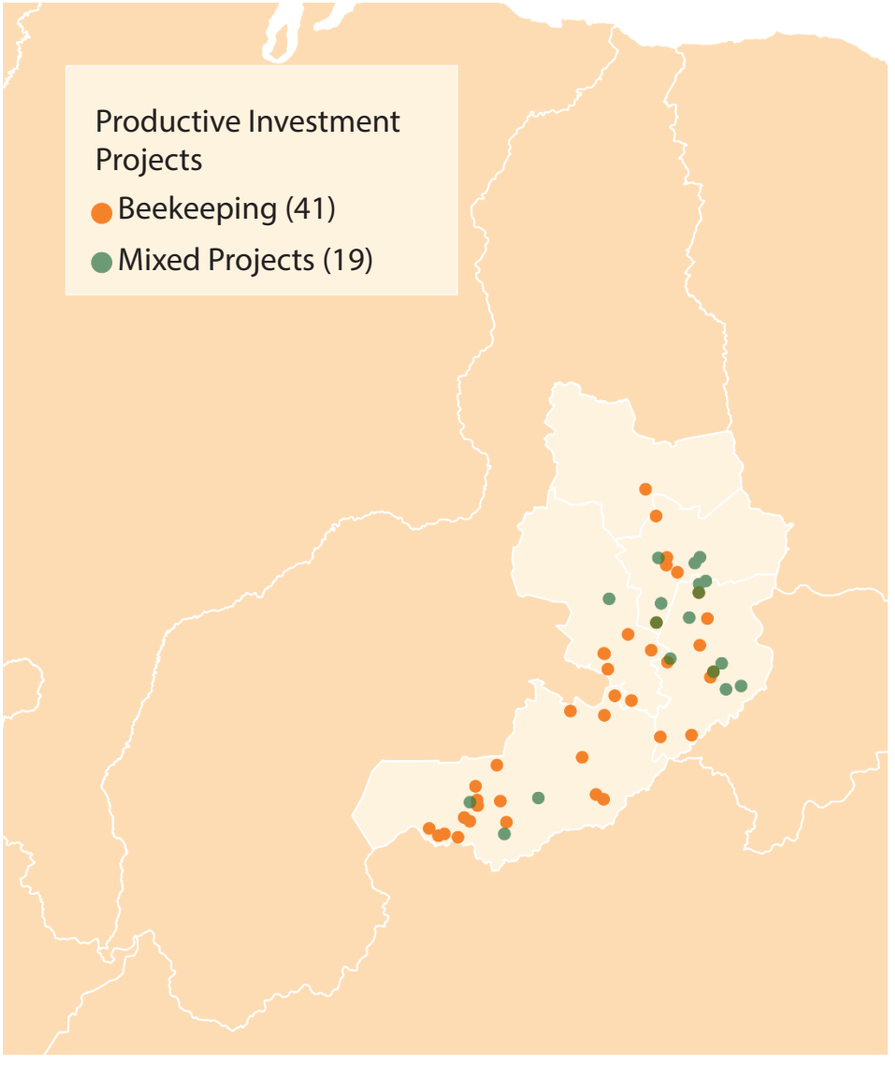
The PVSA supports

210

PIPs approved by the Project Management Council (CONGEP), financed with resources from IFAD, the Government of the State of Piauí and associations/ cooperatives (in return, through labor, equipment, finance and/or material).

Regarding their implementation and execution, all PIPs are monitored by Systematic Technical Assistance companies, whose objective is to promote the strengthening and consolidation of the activities foreseen in the work plan.

Of the total number of productive projects supported by the PVSA, **41 are exclusively focused on beekeeping**. In mixed activities (with more than one productive activity), **19 involve beekeeping**. The map below shows the geographic distribution of these projects in the area covered by PVSA.



Geographical distribution of PVSA's productive investment projects with beekeeping (exclusive or mixed)

Source: PMU

Within the scope of the PVSA, beekeeping is one of the most relevant activities, as shown in the table below. This is the activity with the largest number of families assisted. In addition, beekeeping is the activity with the second largest investment, second only to sheep and goat farming.

Table 1: Number of Business Plans, beneficiary families and volume of resources invested for each type of productive arrangement.

Productive Arrangement	Total of plans	No of families	Value (BRL)
Sheep and goat farming	72	2,439	BRL 20,317,156.79
Beekeeping	**41**	**2,789**	**BRL 12,519,848.04**
Mixed Activities	58	1,692	BRL 13,104,677.89
Poultry farming	11	314	BRL 2,390,805.86
Fish farming	5	104	BRL 894,528.49
Cassava farming	5	224	BRL 1,462,285.33
Productive backyards	10	333	BRL 2,483,491.94
Small irrigation	3	133	BRL 1,154,040.56
Umbu processing	1	21	BRL 163,712.47
Cashew farming	2	476	BRL 1,937,363.33
Pig farming	1	25	BRL 221,981.01
Handicraft	1	47	BRL 284,978.38
Total	210	8,597	BRL 56,934,870.09

Source: UGP.

MAIN RESULTS OF PVSA'S PERFORMANCE IN THE BEEKEEPING CHAIN OF PIAUÍ

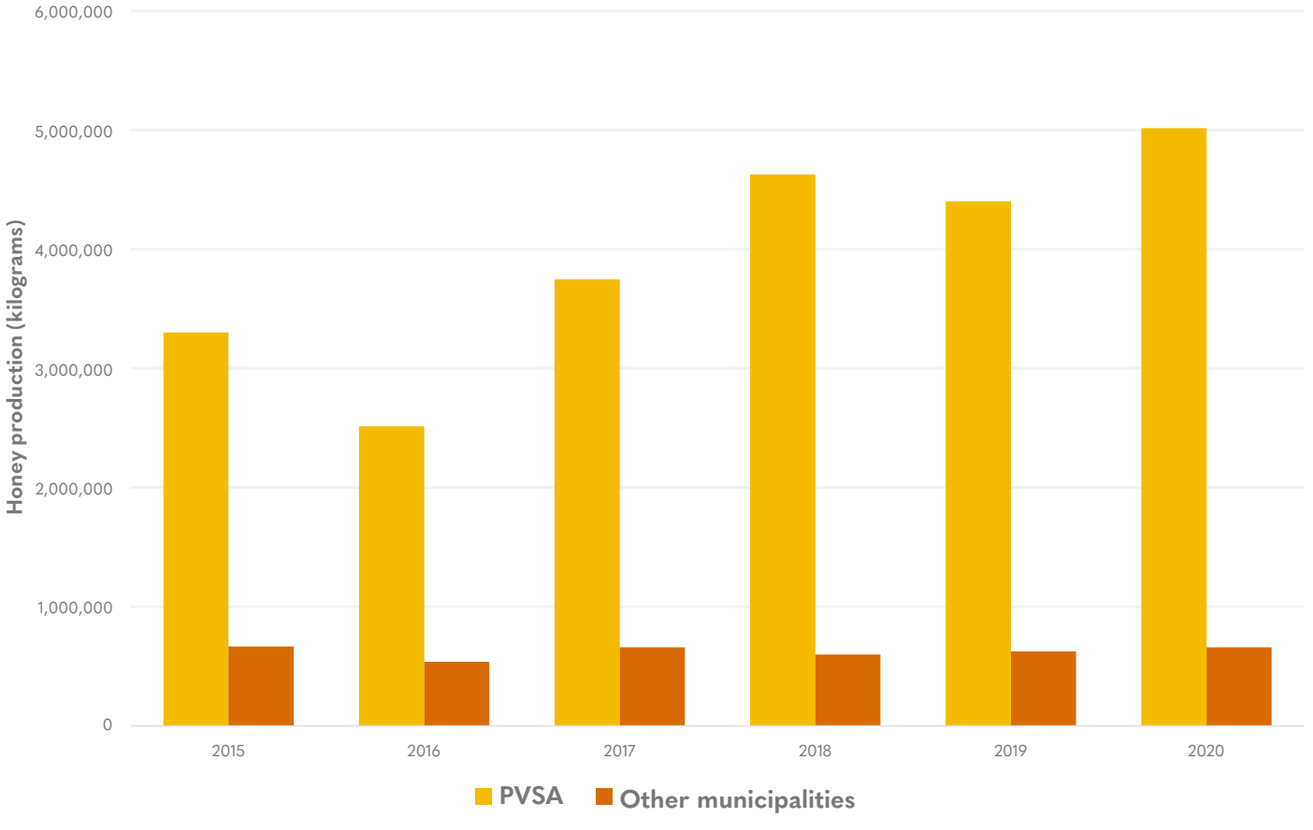
GENERAL INFORMATION

The PVSA developed activities aimed at strengthening beekeeping in the semi-arid region of Piauí. Among these activities are:

- Construction of **41 honey houses;**
- Acquisition of **27,000 hives**;
- Acquisition of **191 stainless steel centrifuges** and **uncapping tables**;
- **Modernization of the APIS and COMAPI House**, with the acquisition of **vehicles** (truck, tricycle and motorcycle) and **equipment** (drone, metal ramp, automatic filling machine, electric forklift, decanters, solar panels and fumigators);
- Technical Assistance, benefiting **58 rural associations and 03 cooperatives**; and
- **Training of beekeepers**.

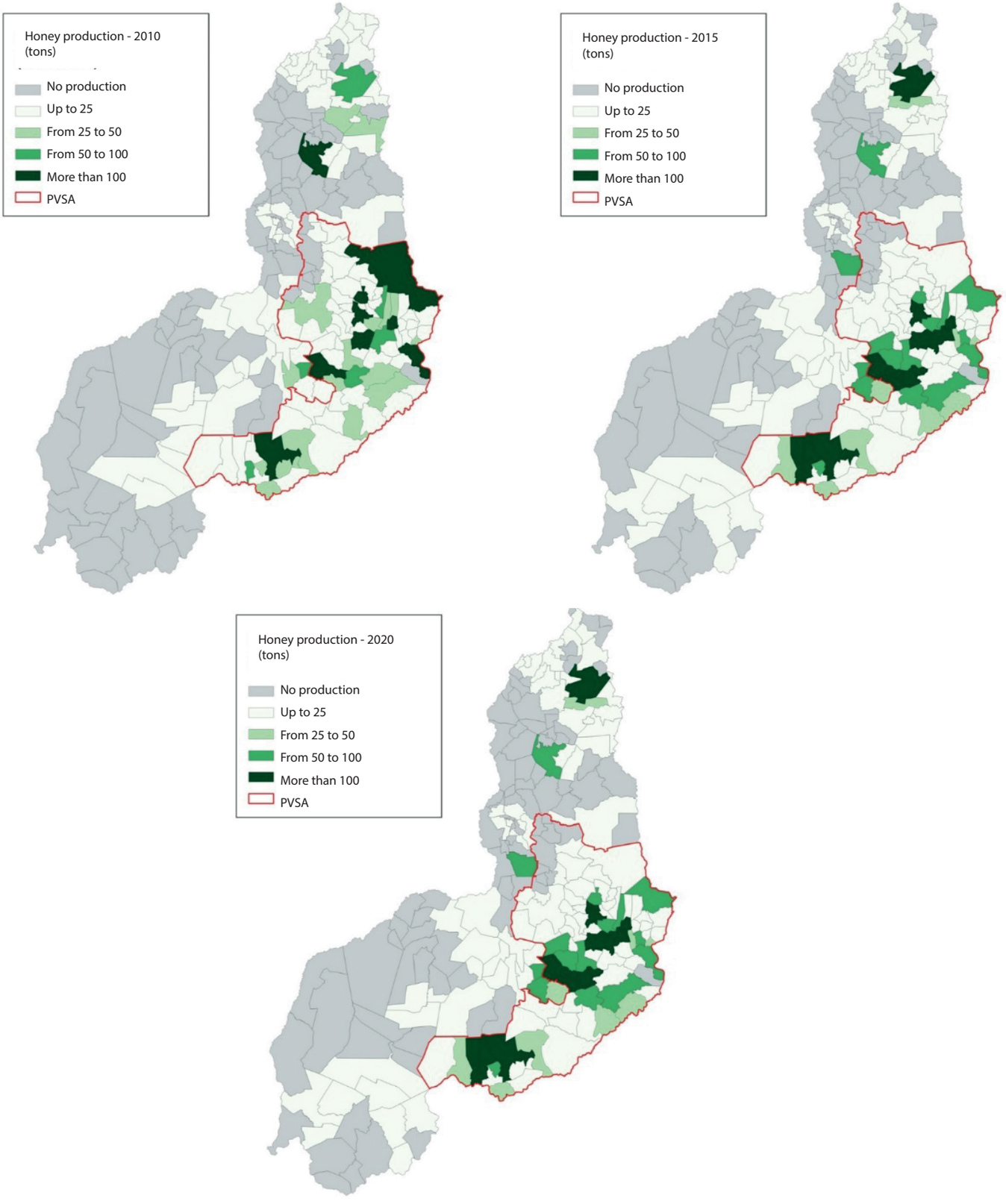
Such investment resulted in an increase of approximately 52% in honey production in the PVSA area. The set of municipalities served by the Project produced around 3,300 tons of honey in 2015, surpassing the mark of 5,000 tons produced in 2020. As a comparison, the other municipalities in Piauí maintained the production at a practically constant level over the same period of time. It is worth noting the relevance of the area covered by the PVSA in the state's production of honey, considering that the municipalities served by the project account for almost 90% of the beekeeping production in Piauí.

Evolution of honey production in the state of Piauí, 2015-2020



Source: Municipal Livestock Production (IBGE)

Evolution of honey production in Piauí for the years 2010, 2015 and 2020, according to data from the Municipal Livestock Survey

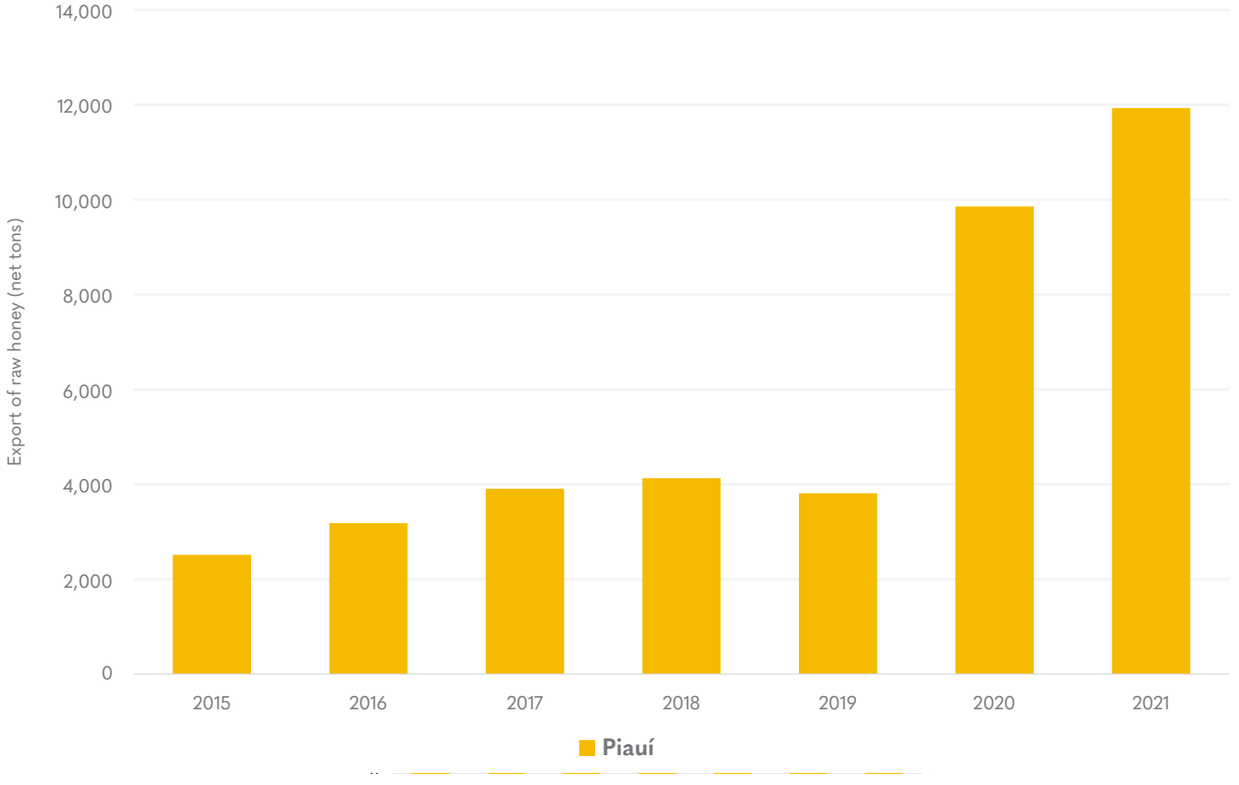


Source: Municipal Livestock Production (IBGE 2010; 2015; 2020)

Concomitantly with the evolution of honey production in the area served by the PVSA, the relevance of Piauí in terms of Brazil's exports of raw honey also increased. Data from the MDIC indicate that, in 2021, the state exported more than 11.9 thousand net tons, passing Santa Catarina and becoming the largest exporter of raw honey in Brazil.

As depicted in the graph below, raw honey exports from Piauí grew significantly during the period of implementation of the PVSA. Together with the data that highlight the expressive evolution of this production in the Project's area, it is possible to relate the increase in the export of raw honey from Piauí with the investments in the productive activity made by PVSA.

Evolution of honey exports in the state of Piauí, 2015-2021

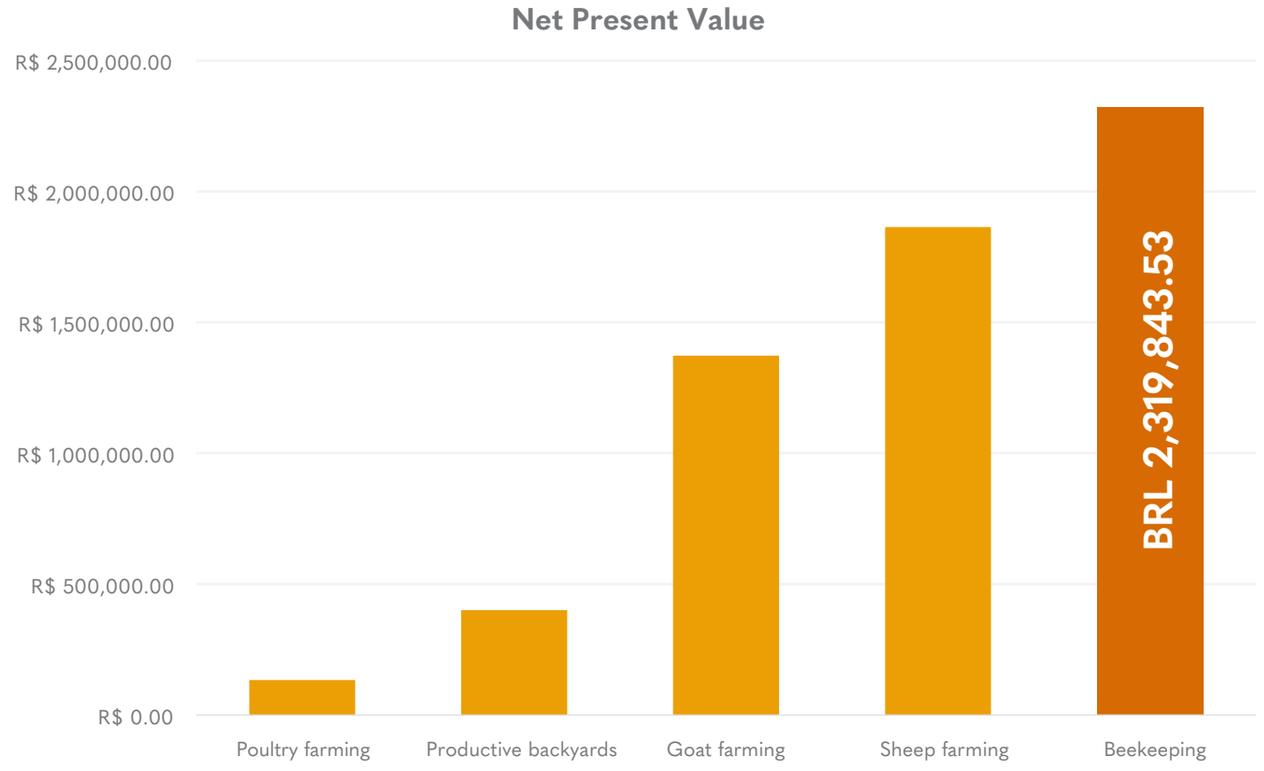


Source: Comex Stat (MDCI)

As a final stage of the PVSA, the Project Completion Report (PCR), in which the actions carried out by the Project and the results achieved were described, was drafted. Under the PCR, an Economic and Financial Analysis (EFA) of the activities supported by the PVSA via Productive Investment Projects (PIPs) was conducted.

The EFA was applied to a sample of all PIPs supported by the PVSA. For beekeeping in particular, 3 investment projects were analyzed, which correspond to 7.3% of the total of 41 PIPs exclusively related to this productive activity. Among the calculated indicators, the Net Present Value (NPV) and the Internal Rate of Return (IRR) stand out, which are used to determine the economic viability of the activity.

Among the productive activities supported by the PVSA, beekeeping was the one that presented the greatest economic viability, according to the results found through the EFA. In fact, the figures presented below portray that beekeeping obtained the highest and best values, both for the IRR and for the NPV. For example, in updated values, the value generated by investment projects in beekeeping exceeded BRL 2.3 million.

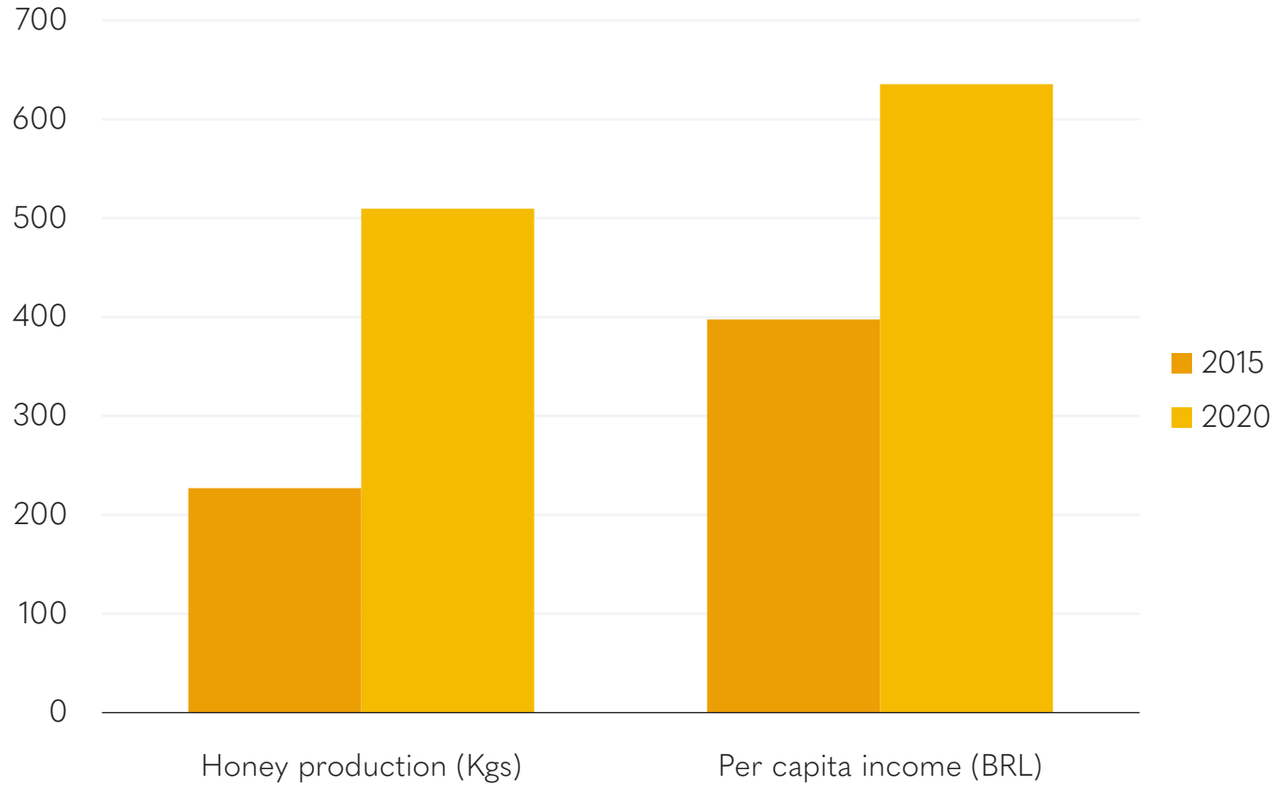


Net Present Value
R$ 2,500,000.00
R$ 2,000,000.00
R$ 1,500,000.00
R$ 1,000,000.00
R$ 500,000.00
R$ 0.00
BRL 2,319,843.53
Poultry farming
Productive backyards
Goat farming
Sheep farming
Beekeeping

Source: EFA/PCR (PVSA)

Within the scope of the PCR, the impact evaluation of the PVSA was also carried out. In this case, it was evaluated how the production and income of families benefiting from investment projects in beekeeping varied between the periods before and after the implementation of these projects. As depicted in the figures below, the honey production of beneficiaries of beekeeping PIPs grew considerably between 2015 and 2020, from 227 to 501 kilograms of honey on average. In addition, the per capita income of families benefiting from the PIPs also increased, going from approximately BRL 400.00 to approximately BRL 635.00, that is, an increase of almost 60% during the analyzed period.

Evolution of honey production (kgs) and per capita household income (BRL), beneficiaries of PVSA beekeeping PIPs, 2015-2020



Fonte: Impact Evaluation/PCR (PVSA).

CASE STUDIES

From another perspective, the PVSA also contributes to the expansion of technical knowledge by family farmers based on the guidance provided by technical assistance and the courses offered. In turn, the beneficiaries developed the capacity to produce new items, new ways of managing production and increased the productive capacity as a whole. New equipment were also used, enhancing the activity.

Reports on the experiences of associations assisted by PVSA

I) COOPERATIVE OF BEEKEEPERS AND RURAL PRODUCERS OF THE TERRITORY OF SERRA DA CAPIVARA (COOPASC)

The cooperative was founded by 27 members in 2007 and today has 234 members. The headquarters are installed in the municipality of Anísio de Abreu, which comprises an area of 354.98 km^2 and is 560 km away from Teresina, capital of Piauí.

COOPASC operates in the neighboring municipalities of Várzea Branca, Jurema, São Braz, Campo Alegre and Caracol, where five UEPAS are located. The value invested by the project in the cooperative was of BRL 1,049,751.18 and served 234 families that were distributed in 29 communities in its area of operation in the municipality of Anísio de Abreu.

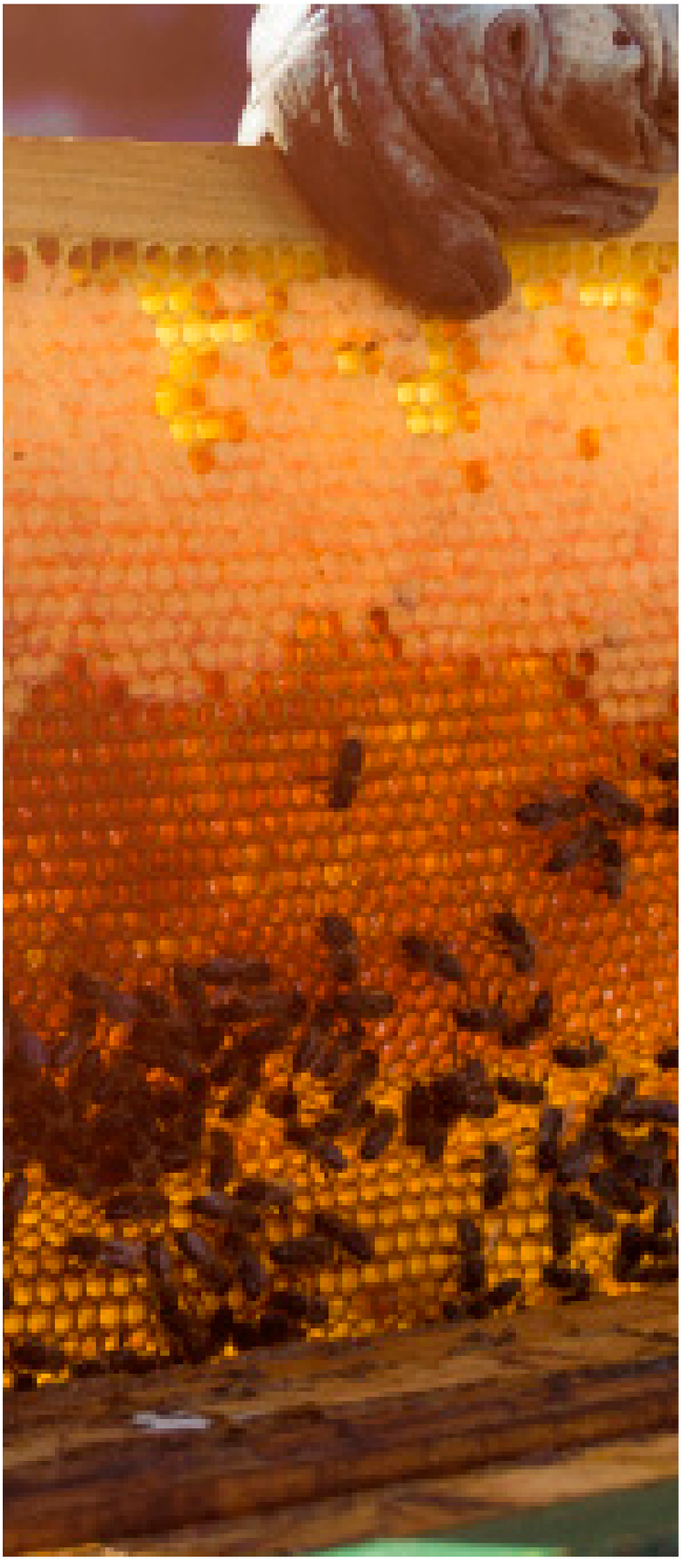
> *"It was an opportunity for young people to start beekeeping: it reached young couples, women and even widows."*

Ijail da Rocha

Achievements and difficulties

In terms of achievements, PVSA provided COOPASC with the acquisition of:

- **2340 hives;**
- **Appropriate stainless steel equipment;**
- **Adaptation of the building and renovation of UEPAS;**



Honey production in tons and number of COOPASC colonies

The production before the PVSA was 50 to 60 tons of honey in 2019 and 2020 respectively. In 2021, production jumped to 150 to 180 tons.

The cooperative jumped from 900 to 3140 hives in total, which contributed to the increase in honey production.

Regarding the difficulties faced, there was a report of a lack of equipment, since only 56 fumigators were purchased for the 234 families. In addition, in the first year of PVSA in 2019, there was not enough swarm capture, which limited production.

"There was no fumigator. The solution was sharing."

The swarmflame was bad."

Report made by Vanilson Santos (member of the Council of COOPASC).

Report made by Jean Cavalcante (member of the financial part of COOPASC).

"There are eight foreign companies buying honey in the region."

Another reported difficulty is the presence of middlemen in the region, who buy honey before arriving at the cooperative.

Report made by Sidnei da Rocha (president of COOPASC).

The winter of 2022 was marked by irregular and insufficient rainfall, resulting in a bad year for local beekeeping. This situation was reflected in the drop in honey production, which corresponded to 80 tons, of which only seven shipments of honey, "carradas", were sent to Casa Apis.

"The problem of 2022 was the bad winter. In 2012, with the drought, production was zero."

Report made by Vanilson Santos (member of the Council of COOPASC).

Prospects for the future

For the future, it is expected

- **To become independent from Casa Apis for the commercialization or even the export of products.**
- **There is also concern with the bee pasture and, with that, they are already preparing seedlings of moringa olerifera and leucaena for the winter, and should start planting. However, they point to the need for technical guidance.**
- **To loyalize associated beekeeper,s making them aware of the importance of the cooperative.**

> *"The result will come in 2 or 3 years."*

Report made by Vanilson Santos (member of the Council of COOPASC).

Arnaldo Ferreira, Jean Cavalcante e Weyder Santana. Photo: Andrea Simone.

Photo: Andrea Simone.

II) VAZANTE COMMUNITY DEVELOPMENT ASSOCIATION (ADECOVA).

The community of Vazante is located in the municipality of Dom Inocêncio, approximately 597 km from Teresina - PI. Before founding the Association, in the late 1980s, people in the community helped each other and worked together, thus the idea of founding an association came up.

From this initial core, in July 1996, the Vazante Community Development Association was founded by 25 small local producers. The objective was and continues to be to promote productive activities, social infrastructure and services to improve the living conditions of the community and region. In the beginning, 24 families participated and, currently, 35 families make up the association.

In 2008, the PCPR project brought benefits, such as the first honey house, the 16,000-liter cistern, equipment for extracting honey, clothing for beekeeping and individual equipment, as well as courses in beekeeping, management and associations, and the acquisition of the first standardized hives. In 2016, through President Ramiro José, a beekeeping project was prepared with the company SEMEAR for the PVSA project, which benefited 27 associated families with a total amount of BRL 235,909.51. The amount was invested in the construction of six cisterns, in the purchase of 648 hives, beekeeping equipment suitable for honey and wax, in addition to beekeeper clothing and a computer kit.

The organizational capacity of the Association was stimulated through the workshops, improving the productive capacity. In 2022, for ADECOVA's administrative expenses, an own apiary was implemented with 45 hives, whose maintenance is carried out by the partners.

Achievements and difficulties

- **The collective work at PVSA is a feature of this small community. The whole family participates in the productive activity.**

> *"The men, their wives and young people work in honey processing. It's a collective work."*

Report made by Geovane (President of ADECOVA).

> *"The construction of the headquarters was a joint effort."*

Report made by beneficiary Mr. Antenor (80 years old).

> *"There are seven women associated with their bees."*

Report made by Ramiro José (Secretary of Agriculture of the municipality and former president of ADECOVA).

> *"It is a collective work in the apiaries. Everyone helps each other."*

Report made by Relata Valdemiro (Vice-presidente da ADECOVA).

Agricultural Production Units (UPA) standardized honey room. Collective work on honey uncapping and centrifugation at ADECOVA. Photo: PVSA.

An example of the involvement of young people in the community is the case of Mateus Constâncio de Sousa Silva, just 16 years old, one of the three young people who collaborate with the work in the beekeeping project, who likes beekeeping. He has his own apiary, from 10 boxes he received from his mother, who is also a beekeeper covered by the PVSA project. As a result of the work done in previous years, he has already bought a cell phone and five new boxes, intending to buy a motorcycle in the 2022/2023 harvest.

In terms of achievements, the PVSA:

- **It strengthened ADECOVA, since everyone gathered around ADECOVA. The community was mobilized to prepare the query letter, the project and accountability – reported the president of ADECOVA;**
- **It helped in the economic and social aspects, considering that the it is a free trade and, normally, the companies SAMEL, NECTAR BRASIL and middlemen buy it directly at the community.**

"There were some difficulties in finding jobs before the projects in the last 10 years. Today, young people do not need to go out to work in São Paulo. They go out to study and come back to the community."."

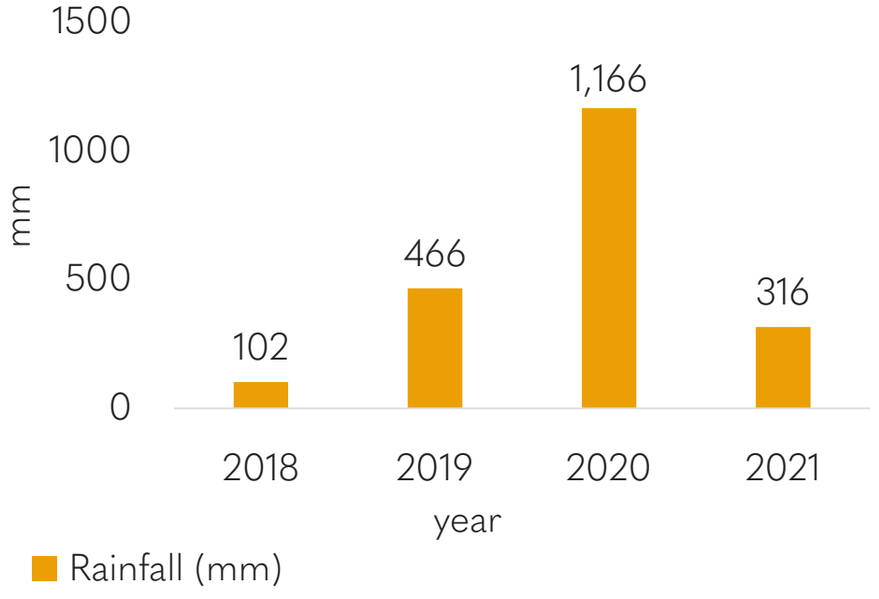
Reported by Raimundo.

"PVSA woke us up. It helped us."

Reported by Sr. Joaquim.

Regarding the difficulties, the interviewees reported that the rains were decisive for production. In the 2020/2021 harvest, there were around six honey harvests, however, in the 2021/2022 harvest, a maximum of three harvests took place. This fact is directly related to the winter with little rainfall and excessive heat, which makes the swarms go away.

Accumulated precipitation in the community between 2018 and 2021 (values in mm of rain)



Currently, there is a difficulty in feeding the swarms in the off-season. To improve the productive performance and maintenance of the swarms, water stations were used for the bees and the assembly of the melter for wax extraction and cleaning of the frames, which constituted an innovation.

Innovation with the use of a water station for bees in the field. Photo: PVSA.

Prospects for the future

Some goals for the future are:

- **To plant trees such as mastic, cashew and umbu to hold the swarms in the off season, since there is a concern with flowering for the bees.**
- **Acquire a sachet machine to fractionate the honey and make it possible to sell it to the municipality.**
- **To have a UPA with adequate hygienic characteristics in order to obtain the sanitary inspection seal of the municipality (SIM), state or even federal (SIE or SIF).**
- **To commercialize fractional products, as well as other bee products.**
- **To improve the transport from the apiaries to the UPA and buy more equipment, such as fumigators.**

Some members are already diversifying bee products, like Mr. Geovane, president of ADECOVA, who is starting the production of pollen from the caatinga and dividing his honey for local commercialization.

Fractionated products produced by Mr. Geovane, own pollen and honey. Bee boxes stocked during the off season. Decanters, stainless steel centrifuge and bulk honey storage drums at ADECOVA headquarters. Photos: Weyder Santana.

III) COMMUNITY OF SANTO EUGÊNIO IN CHAPADA DO PAPAGAIO – CAMPO ALEGRE DO FIDALGO

The quilombola community of Santo Eugênio is approximately 541 km from Teresina - PI. By participating in the PVSA project, the community received financial support for beekeeping in the amount of BRL 492,895.93, which benefited 63 families, two of which were headed by women.

With that money, the honey house and the cistern were built in a joint effort; and 1,260 hives and other adequate equipment for beekeeping and honey processing were purchased.

In total, there are five centers of quilombola settlements in the region that are affiliated with COMAPI.

Santo Eugênio Community Association headquarters for meetings. Photo: Weyder Santana.

Achievements and difficulties

> *"The chapada project encouraged new beekeepers. With the honey money I bought a used truck."*

Reported by Oseas, son of Sidão.

> *"Before the PVSA, there were only five beekeepers in the community, with approximately 72 hives."*

Repported by the community members

According to the beneficiaries' reports, beekeepers with more technical experience made up to six honey harvests. The others got one or two harvests of honey. Thus, they emphasized that the training workshops were fruitful, as many reached high productivity rates in some colonies.

Agapito, a beneficiary with 39 swarms, produced 96 buckets of 25 kg, totaling 2,400 kg of honey, reaching a productivity of 62 kg per hive. Agapito also revealed in conversations that he feeds the bees in the off season, trying to keep the swarms.

> *"It's the bee region [...] 99% of the people started working with beekeeping". "Those who were not contemplated bought it on their own."*

Reported Sebastião Rodrigues dos Reis, President of the Association, known like Sidão.

Regarding the production of the 2020/2021 harvest, which passed through the association's honey house, 655 buckets of 25 kg of honey (total of 16,385 kg) were registered. In the 2021/2022 harvest, production reached 687 buckets of 25 kg, totaling 17,175 kg of honey.

The best honey productivity per hive

Continuing with the reports of the beneficiaries of the PVSA, regarding the benefits obtained with the development of beekeeping, there are:

> *"I thank God and the bees for what I have today.."*

Reported by Agapito, beneficiary of PVSA.

> *"The 'oropa' (European) bee arrived to solve the income problem."*

Report by Sidão, President of the Association.

Most of the beneficiaries invested the money in the well-being of the family. For example, the beneficiary Sidão reported that he lived in a simple house, close to the honey house. However, with the positive financial results obtained from honey production, it was possible to move to a house in the village, providing a better quality of life for his family. Sidão also built a biodigester to generate gas to use for cooking.

Sidão showing the biodigester he built with the money earned from the honey commercialization.
Photo: Weyder Santana.

In addition, with the profits from the beekeeping activity, many of the beneficiaries reinvested in the beekeeping activity itself, buying, for example, new boxes. Tales, 22 years old, son of one of the project's beneficiaries, helped his father and now owns around 100 beehives. Oseas, Sidão's son, started with 20 hives for the project and today owns more than 100 boxes in production.

Boxes stocked during the honey off-season in Comunidade de Santo Eugênio. Photo: Weyder Santana.

The climatic factor was reported by beneficiaries as one of the main difficulties faced and total precipitation totaled 600 mm in 2021, a below-average amount. As a result, many bees abandoned the boxes.

Another issue reported is the fact that many beekeepers sell honey to middlemen, who collect the product in the community. This happens as the lack of transportation is an additional difficulty faced by beekeepers and renting a car to take the honey to the cooperative is not a good alternative due to the high cost. Some of the beekeepers also cited the cooperative's delay in paying for honey as a major issue.

Logging and criminal deforestation are also seen as a difficulty faced by benefiting beekeepers, considering that it directly harms the beekeeping activity..

View of a subsistence cassava swidden, with the Caatinga vegetation in the background, during the dry season, Community of Santo Eugênio. Photo: Weyder Santana.

Prospects for the future

For the future, beneficiaries expect:

- **With the earnings from the next harvest, install a water well pump powered by a solar photovoltaic system to benefit the community.**
- **Having a honey house with SIF (federal inspection seal) to obtain high-quality honey, so that they have their own cooperative to sell products directly to final consumers.**
- **Obtain more boxes to distribute among young people so that they can start beekeeping.**
- **Promote actions that guarantee the preservation of the native forest.**

IV) COMMUNITY OF CARAÍBAS – ISAIAS COELHO

The quilombola community of Caraíbas has 118 families. The association is located near downtown Isaias Coelho, 421 km from Teresina.

The Association has 75 members, but only 44 families were benefited by the PVSA. They were granted with BRL 342,576.02 for the construction of a honey house and a cistern, the purchase of 855 hives – 19 standard boxes for each benefiting family – and adequate equipment for beekeeping, as well as a computer kit and rain gauge. Each associate pays a fee of BRL 2.00 per bucket produced in the honey house.

Meeting at the headquarters of the Community Association of Caraíbas. Photo: Weyder Santana.

Achievements and difficulties

The headquarters and the honey house were built in a joint effort by the associates. There is mutual assistance from all members throughout the process, from field operations to honey extraction.

> ***"We work collectively. It involves the whole community"***

As stated by Manoel da Silva, PVSA beneficiary and president of the Association

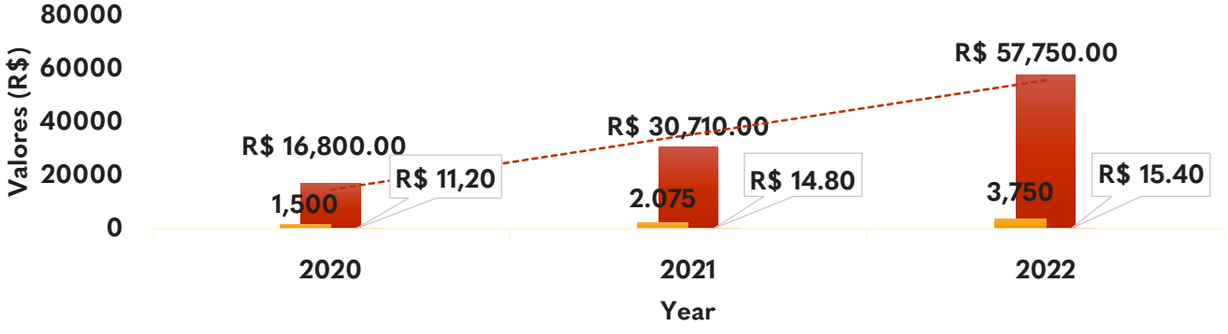
Honey Room from the Community of Caraíbas: Decanter, uncapping table and stainless steel centrifuge. Photo: Weyder Santana.

View of the Community of Caraíba during the dry season. Photo: Weyder Santana.

Three honey harvests were carried out, starting in 2020, with the production of 60 buckets of 25 kg of honey, which generated an income of BRL 16,800.00 (BRL 280 per bucket). The second harvest was in 2021, with the production of 83 buckets, generating BRL 30,000.00 (BRL 370 per bucket). In 2022, 150 buckets were collected, which generated BRL 59,675.00 (BRL 385 per bucket).

It is noted that the quality of the honey extracted at the Association's honey house has improved, given the increase in the amount paid per bucket. In addition, production had a large increase in productivity. The production of honey by the community more than doubled in the three years evaluated.

Honey production, production value and price of honey, Community of Caraíbas



During interviewees' report, one detail caught their attention: the members decided that another 10 families, who could not initially participate in the PVSA, should be awarded five boxes of bees each, from the project's income.

In the view of the interviewees, the good results are related to better skills and experiences acquired by beekeepers with the practice, as in the reports below:

> *"Neem kills bees and also lacks shade."*

Said Eva, beneficiary of the PVSA

> *"The bees are gone. Let's try, you can't give up."*

As told by Jorge de Lima, PVSA beneficiary

> *"The bees will indicate the location. Just wash it with cinnamon and wild rosemary, which attracts bees."*

Pondered Márcia, beneficiary of PVSA

The difficulty pointed out by interviewees was the problem of competition with migratory beekeeping. This particular activity places a lot of "bait boxes" in the surroundings and decreases the swarms that populate associates' boxes. However, it was pointed out by all interviewees that the biggest problem is the difficulty of transportation during the harvest and the handling of colonies.

Prospects for the future

Para o futuro, os beneficiários esperam:

- **More workshops and training to improve production capacity.**
- **Get more swarms at the onset of rains.**
- **Solving the problem caused by neem[1] by cutting them, as it kills bees.**
- **The suggested solution was to plant native species for the bees, but the ones the provide shade.**
- **Include new families in the community in the beekeeping activity, as already started with part of the profits achieved.**

1 *Note: Neem (or Nim), whose scientific name is Azadirachta indica, is a plant originating in Southeast Asia and the Indian subcontinent. There is no way to know if this information was passed on by technicians, groups of beekeepers or obtained on the internet. However, there are scientific articles that claim that this plant has an impact on the development of bee hives.
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V) COMMUNITY ASSOCIATION OF VERA MENDES (ASCOMVER)

The association is located in the municipality of Vera Mendes, 383 km from Teresina. ASCOMVER is made up of 31 families, three of which are young members (two girls and one boy). Among these families, 11 are women-headed.

The association was granted with a transfer of BRL 223,499.57 from PVSA for the construction of the honey house, acquisition of 465 hives, adequate equipment for beekeeping, computer kit and rain gauge. In total, 15 boxes were passed on to the 31 families to start beekeeping.

Community Association of Vera Mendes. Photo: Weyder Santana.

- **FYI: the anthem of Vera Mendes was recently composed and it mentions the honey that is now produced in the municipality, thus demonstrating how important this activity is for the residents.**

> *"The beekeeping supply chain is a landmark in the municipality. It produces without deforesting. We are concerned about planting bee flora and having a greater involvment of women in the activity."*

Said the Municipal Secretary of Agriculture, Geane.

> *"What was beautiful was the construction and the collective decision on how to use the money. There was work and cost for each one."*

Pondered Genival, (former president of ASCOMVER).

Achievements and difficulties

The construction of the honey house was a joint effort. Everyone in the community collaborated with the construction work, harvesting and also extracting honey.

The statements of the associates reinforce the importance of the PVSA beekeeping project for the community, which saw itself with no alternative to grow.

> *"PVSA has made changes in people's lives."*

Genival, (former president of ASCOMVER).

> *"There are only three ways to survive in the caatinga: first, the bee, second, the sheep, and third, the chicken."*

As stated by José Filho.

> *"My daughter-in-law goes to the apiary to check on the bees."*

As reported by Cabrino, the most experienced beekeeper.

ASCOMVER honey house, Vera Mendes. Photo: Weyder Santana.

Based on the training received, associates produced 24,634 kilograms of honey in 2021, while only 8,323 kilograms were produced in 2022, due to the unusually dry winter. Many swarms left during the off season. Productivity was 32 and 27 kg per hive in the apiaries of José Filho and Ênio Vera, respectively. All honey from the association was sold to the COMPAI cooperative, in Itainópolis.

Thus, in addition to the difficulty related to climate issues, it was identified, through the reports, that despite all the support, there was still a lack of resources for the acquisition of fumigators for all associates. Therefore, there is a need for sharing between them. At the moment, transport is solidary, with mutual help, but it is considered a bottleneck for the association.

Prospects for the future

For the future, beneficiaries expect:

- **Buy more boxes and thereby introduce more families in beekeeping. With the good performance of the association, there are more young people interested in participating in the beekeeping project.**
- **Improve logistics and have own transport for the association's honey production.**
- **Obtain more training, especially to face the off-season. For example, in relation to feeding practices with appropriate feed and water for the bees.**
- **Maintenance of native vegetation, which serves as food for bees.**
- **Create a cooperative in the municipality to sell the honey produced or sell them to Casa Apis.**

"Income was good last year. It has to have continuity and give opportunity for other people to participate."

"We need to raise awareness not to deforest."

Complemented José Filho.

VI) ASSOCIAÇÃO COMUNITÁRIA DE JIBOIA EM VERA MENDES (ACMVR)

The association is headquartered in the district of Jiboia, from the municipality of Vera Mendes, in the Vale do Guaribas territory. The city is 386 km away from the Capital Teresina and is 58 km from the municipality of Picos. It is a community of family farmers whose main economic activities are rainfed agriculture and small animal husbandry, in addition to beekeeping. It was founded in 2004.

Meeting under the shade of two neem trees. Photo: Andrea Simone.

The Jiboia community was supported by the PVSA beekeeping project with the amount of BRL 223,701.46, which reached 24 families. The Honey House was built in a joint effort, and 360 hives were purchased, as well as appropriate equipment for beekeeping, a computer kit and a rain gauge.

"The honey house was an important achievement."

Reported Rufino (President of ACMVR).

Achievements and difficulties

The Association was founded prior to the PVSA project and, in the words of the president, it was not going well.

> *"A lot of people were discouraged by the association and it was like that for 2 years, until the arrival of the PVSA."*

> *"Some already worked with beekeeping on an improvised basis. They harvested honey anywhere. They produced 10 buckets of honey a year."*

Rufino (President of the ACMVR)

Initially, 24 were contemplated and, currently, there are 34 families that joined beekeeping in the Association. This was due to the yield of honey, since, in a collective decision, two hives were purchased for each member, increasing from 15 to 17 colonies. Some associates already have 25 hives. As for technical support and training, the reports were positive:

Jiboia Association honey house in Vera Mendes. Rufino and his son Lucas. Photo: Weyder Santana.

"Improving the activity I was already doing... Holy Mother, it was too good! We learned about the queen and working techniques, things I didn't know."

Josenilda, PVSA beneficiary.

"I am passionate about beekeeping. The project arrived at the right time. It has only grown and improved, thank God. Things are getting better".

Rufino (President of the ACMVR).

In this sense, the project's technical assistance generated the strengthening of beekeepers. The Association is carrying out production accounting and commercialization, which was not done before the PVSA. The project has also provided learning about the environmental issue, with the management and care of animals, prevention of possible damage to the environment, acquisitions and accountability, among others.

Honey production in 2021 increased from 12,200 kg to 14

14.825 kg em 2022.

Even little Lucas, six years old, who also has six hives given by his father Rufino, helps out in the honey house after school activities.

"We help each other in the harvest. We help with transport. It is a place where we lost few swarms in the drought, because it rained well."

Reported Júnior (Former President of ACMVR).

"It is a place where we lose few swarms."

Reinforced Rufino (President of ACMVR).

Commercialization is carried out individually and through intermediaries, who resell products in the region.

Regarding the difficulties, it was reported that the biggest one is the lack of rain. In addition, the concern of associates with other members of the community was pointed out. This happens because, of the 44 young people, six have already left. Currently, there has been an increase in the participation of women and young people in the Association, directly involved in beekeeping..

Jiboia Association honey house in Vera Mendes. Stainless steel equipment. Photo: Weyder Santana.

Prospects for the future

For the future, beneficiaries expect:

- **The planting of bee pasture in the rainy season, since they are already producing cashew, moringa, juá, umbu and jurema seedlings.**
- **A new project, which association is already preparing, as stated by them.**

> *"It was a beneficial thing in life with beekeeping. The goal is to grow more and more in beekeeping."*

Reported João Pereira, beneficiary of the PVSA.

> *"I look forward to participating in the new project, increasing the boxes and swarms, increasing honey and family income. I can only thank you and hope that may more come!"*

Reported Juciana, beneficiary of the PVSA.

VII) ASSOCIATION OF BOA VISTA IN MASSAPÉ DO PIAUÍ (ABOMEL)

The ABOMEL Association is located in the municipality of Massapé, 376 km from Teresina. The Boa Vista community was supported by the PVSA beekeeping project with the amount of BRL 122,396.20, which included 21 families, four of which were headed by young women.

The Honey House was built in a joint effort and 60 hives were purchased, in addition to appropriate equipment for beekeeping, a computer kit and a rain gauge. The Association supplemented so that each family had five hives to start with.

Members of the meeting at ABOMEL headquarters. Photo: Weyder Santana.

Achievements and difficulties

According to the reflection of José Erenildo, President of ABOMEL, the PVSA provided an opportunity of structuring the activity and showing the work, effort and commitment of the partners. The project helped with procurement, tendering, resource savings and financial management. Leftovers and income were invested in new equipment, ATs (Technical Assistance) and in partnership with EMATER.

> ***"Before, little production and resources. After 2019, with the PVSA, there was an increase. Very good group, committed, conscious and hardworking."***
>
> Reported Ailton, beneficiary of the PVSA.

> ***"We were able to build a honey house with a joint effort."***
>
> Reported José Erenildo, President of ABOMEL.

The involvement of young people and women in the activity of the association was highlighted:

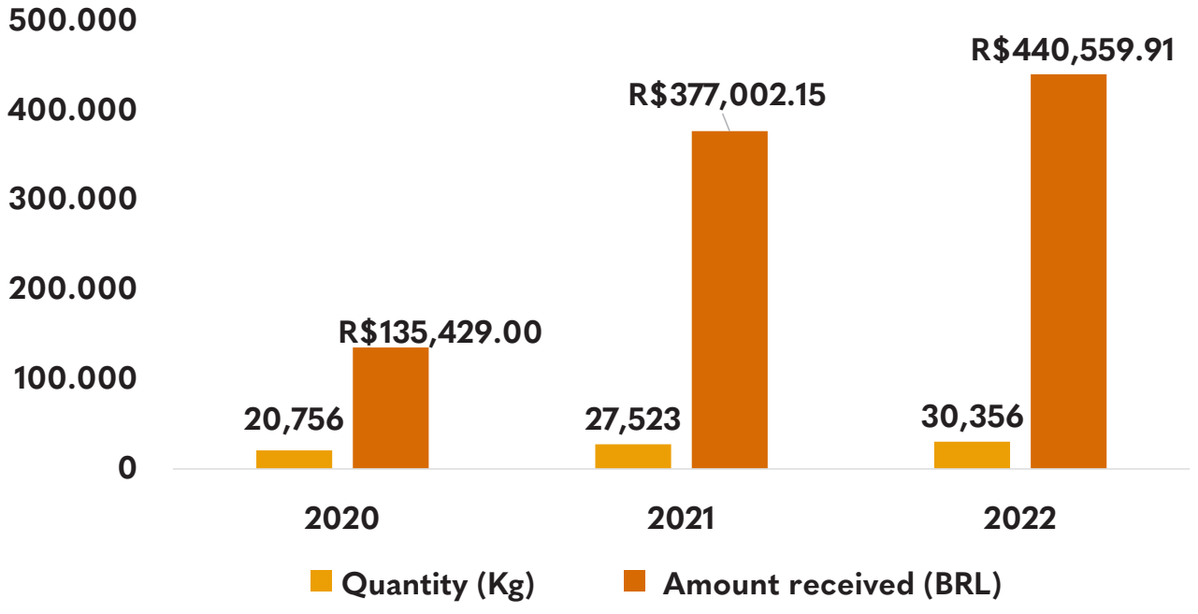
> ***"There are young people involved in the activity, but they are not in the association".***
>
> Informed José Erenildo, President of ABOMEL.

> ***"We entered beekeeping without a course, without knowing anything well. Beekeeping, today, lifted us up."***
>
> Said Feliciano, beneficiary of the PVSA.

> ***"We all work together. I'm thankfull to my wife for helping me."***
>
> Reported Feliciano, beneficiary of the PVSA.

A ABOMEL está vinculada à CASA APIS e produziu, em 2020, 20.756 kg, em 2021, 27.523 kg e em 2022, 30.356 kg de mel.

Honey production and ABOMEL billing



The difficulties faced were reported by the president of the Association, José Erenildo, through a presentation at ABOMEL. In his speech, especially regarding the honey house, he pointed out that there were extra costs for installing electricity. Also, transport and infrastructure issues could be better. Today, the community has grown and the Association's honey house is within the urbanized area of the district, constituting a new challenge.

Presentation of ABOMEL by President José. Photo: Weyder Santana.

Prospects for the future

For the future, beneficiaries expect:

- **To participate in new projects and partnerships with SEBRAE, CODEVASF and SDR to increase production and reach more members.**
- **To conduct some actions to attract young people to ABOMEL**

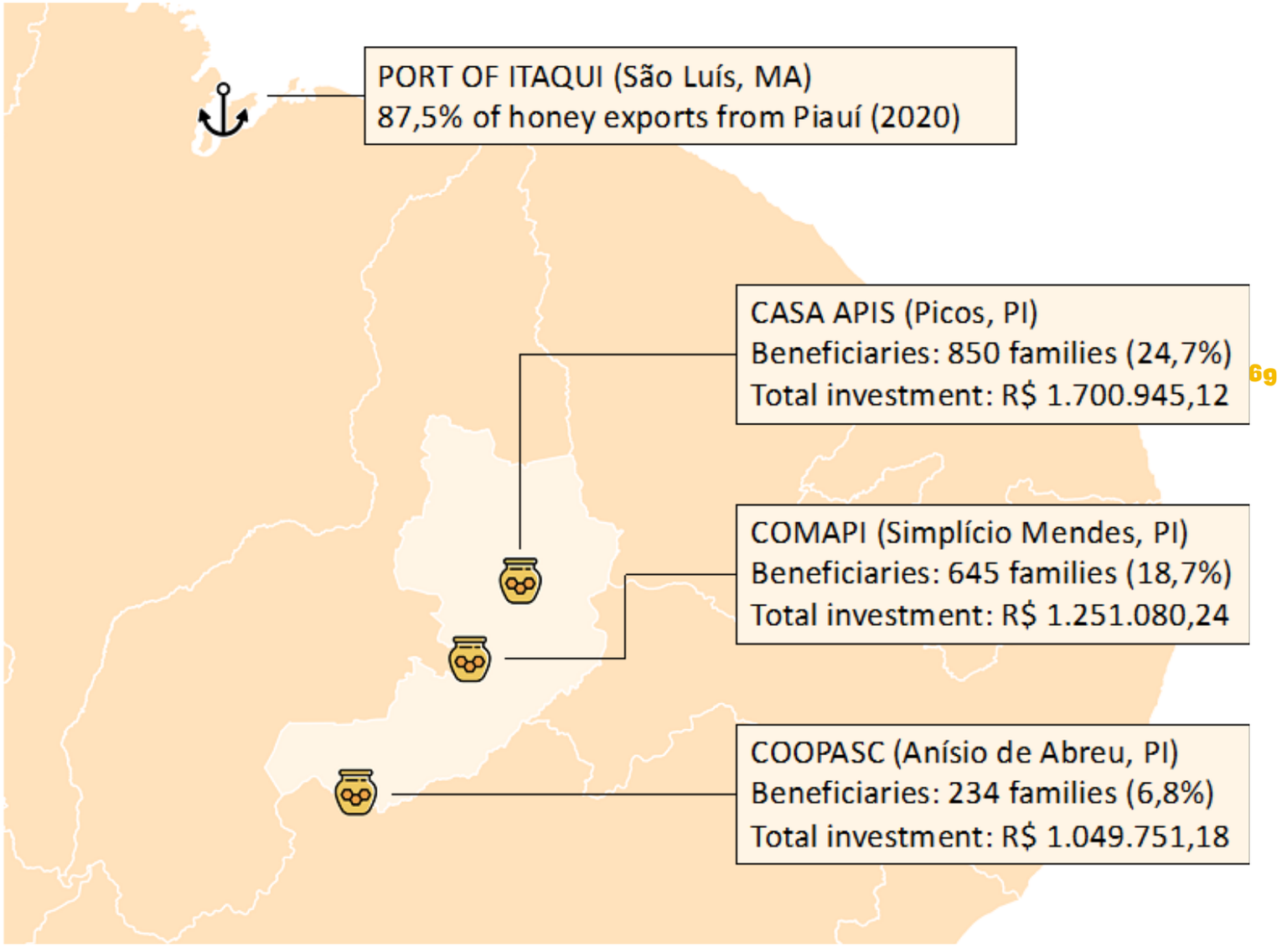
> *"Within the municipality, most young people are involved in beekeeping, not formally."*

Reported Joseph Erenildo (President of ABOMEL).

EXPERIENCE REPORTS

from **marketing entities** served by the PVSA

Main marketing entities and main port for honey production destined for export



Source: UGP.

1) Central of Beekeeping Cooperatives of the Brazilian Semiarid

The Central of Beekeeping Cooperatives of the Brazilian Semiarid, also known as Casa Apis, is located in the region of Picos, territory of Vale do Rio Guaribas, 313 km from Teresina. This cooperative was founded on July 2, 2005 and represents an economically profitable, environmentally correct and socially inclusive model of cooperative and business entrepreneurship, based on the principles of solidarity economy, as materialized in its statute.

Its structuring and constitution was carried out within the framework of the Honey Production Chain Development Program (PROMEL), which is based on the methodological framework for operating in production chains involving poor populations. The operating system is built jointly by the Bank of Brazil Foundation (FBB), with the support of the Federal and State Governments, constituting an innovative and role-model proposal of social organization that involves family farmers.

Currently, Casa Apis is composed of five (5) singular cooperatives, based in five (5) municipalities, bringing together 40 municipalities throughout the State, as well as 52 associations, comprising 850 family beekeepers. The cooperative complex is composed of 38 houses for honey extraction (UEPAS), to receive, uncap, centrifuge and filter honey together with beekeepers – located in rural communities. The

center also has an industrial unit (honey warehouse) located in the industrial district of Picos.

Casa Apis was supported by the PVSA beekeeping project with the amount of BRL 1,700,945.12, which benefited 329 families with the acquisition of 3,000 hives.

Meeting at the headquarters of CASA APIS. Photo: Weyder Santana.

Achievements and results

Beekeepers are satisfied with access to this new equipment, as well as materials and technical assistance that are making them better prepared and more excited about the prospect of good results.

- **The 4-axle truck** with a body made it possible to reduce costs with honey collection in the communities. As this truck has the capacity to collect 68 drums, compared to only 18 drums for smaller trucks (3x4), as is more commonly the case, it was possible to increase the quantity and commercialization at a lower cost.

- **The drone** made it possible to capture images of the bee pasture area and the apiary surveillance area, facilitating their installation, as it allows identifying the presence of nearby water sources and location risks, improving the performance of the analysis and inspection of apiaries for certifications.

- **The sealing machine and the automatic filling system** reduced production costs, improved product quality through process automation, increased the production volume of fractionated products and made products available to meet customer demand, which allowed for an increase in sales in the domestic market by approximately 28%, with an increase in revenues of approximately 61% between 2015 and 2020.

- **The acquisition of equipment and the renovation of the two honey houses,** in Simões and Wall Ferraz, enabled improvements in the production infrastructure in two communities, reducing labor time in the extraction process and increasing their processing capacity.

- **The 100 pollen** collectors provided the production of natural and quality food for the swarms, to be fed during the dry season.

- Another major gain was the **implementation of the photovoltaic energy system**, carried out with leftovers and financial income from the Project. This technological innovation is contributing to the reduction of gas emissions, as the plant started to produce and use renewable energy.

- Before the implementation of the Business Plan, Casa Apis had the United States (USA) as its main market for selling its raw production. After the implementation of the PVSA, it was possible to **increase its production capacity and access new markets** in countries such as Canada, United Kingdom, Germany, France and Belgium.

- With the acquisition of the **filling system**, Casa Apis was also able to increase sales to the national market and today sells its fractionated products to Walmart, Sencosude, and distributors in the Federal District, Ceará and Pernambuco.

CASA APIS products: Fractionated honey for the domestic market and barrels for export in bulk. Photo: Andrea Simone.

Prospects for the future

For the future, it is expected:

- **Produce 70,000 seedlings this year, 60,000 of which are native plants to be supplied to members of Casa Apis.**
- **Diversify products, such as: propolis, pollen, apitoxin, etc. However, further studies are still needed.**
- **Incorporate young people, especially in new technologies.**

CASA APIS products: Fractionated honey for the domestic market and barrels for export in bulk. Photo: Andrea Simone.

Native plant seedling bed at CASA APIS headquarters. Photo: Weyder Santana.

II) Mixed of Beekeepers of the Microregion of Simplício Mendes (Cocooperativemapi)

The Mixed Cooperative of Beekeepers of the Microregion of Simplício Mendes is an entity created by family beekeepers that has in its origin a basis of religious formation, since, in 1989, the Catholic Diocese of Oeiras/Floriano started to encourage the rational creation of bees in the microregion. The entity believes in the organization as an instrument for overcoming problems. The cooperative's headquarters are 387 km from Teresina, the state capital

From a functional point of view, it has an operational organization chart to meet the demand of its members, an organizational structure in the Bee Product Extraction Units (UEPAS), which operates in an integrated manner in all production processes. Its staff is formed by 645 associates, of which 352 are benefited by the PVSA, 23% women and 43% are young people, numbers that encourage the continuity of the beekeeping activity, as well as featuring women as managers.

The PVSA invested BRL 1,251,030.85 in the cooperative and benefited 352 families with the acquisition of 1,740 hives. The cooperative has already certified 775 beekeepers for the production of organic and quality honey through training. In the locations where it operates, there are 42 local coordinators, where 41 UEPAs are installed for honey processing.

Achievements

The main innovation of the partnership between PVSA and COMAPI was the focus on technological modernization of the honey processing process. The construction and renovation of Honey Extraction and Processing Units and the acquisition of equipment, such as electric centrifuges, represent the greatest innovation of the UEPA/ Honey Houses, since they increased the volume of honey harvested, reduced losses and processing time, thus impacting the reduction of labor and optimization of effort in honey processing and economic results.

- Priority was given to workshops for young people, with a total of 1,500 participants, of which 800 were women.
- Acquisition of tricycle-type vehicles to transport the apiary boxes to the UEPAs, which reduced transport costs for families.
- Support for "recaatingamento" initiatives, with the production of seedlings intended for reforestation of the caatinga with native species, introduced the Cooperative as a whole to discuss the need for permanent and systematic work on preservation, recovery and environmental conservation, which is a central activity in the sustainability of the beekeeping activity. **"Without flowering, there is no honey."**
- With the acquisition of an electric forklift and a metallic ramp for loading trucks, there was a reduction of 1.5 hours in container loading time

> ***"At the beginning of the 2021/2022 harvest, we start paying BRL 14.00 per kilogram of honey. The middleman came and offered BRL 15.00. COMPAI covered the amount. However, the middleman started offering BRL 16.00 and we couldn't compete anymore".***

Reported Janete Dias, administrative manager at COMAPI.

In 2021, 11 containers were exported, each containing 19,200 kg of honey, totaling 211,200 kg. However, in 2022, due to adverse weather conditions, only seven containers were exported, totaling 134,400 kg of honey, which impacts the entire strategic planning of the cooperative and working capital, especially for the purchase of honey at the beginning of the next harvest.

Difficulties and challenges

- **Of the 41 UEPAs registered, only 39 are in operation due to lack of maintenance given by local Associations;**
- **Today, the great challenge for COMAPI is to compete with the middleman, as there is little working capital due to the high operating cost.**

200 kg barrels of honey from different locations stored for export. Photo: Weyder Santana.

Prospects for the future

For the future, it is expected:

- To overcome this deficit, the cooperative seeks to train new beekeepers, especially young ones, with the aforementioned training courses.

- Increase the availability of floral resources to bees. To this end, together with the São Francisco de Assis Fraternity, production of seedlings of native species has already been started for planting during the rainy season.

- Make it possible for all producers who supply the cooperative to be certified, since COMAPI has five certificates of organic, quality and origin of the honey produced by the cooperative members, in which 775 beekeepers participate.

- Working with other bee products, but keeping honey as the flagship. In an attempt to diversify the products offered on the market, such as the sachet and the Gota de Mel (Honey Drop) brand, new premium organic honey brands, "Purane" and "Mel Mesmo" (Real Honey), were recently created for sale in national and international markets.

COMAPI fractionated products. New premium brands Purane and Mel Mesmo. Photo: Weyder Santana.

RECAATINGAMENTO:

a commitment to the preservation and benefit for the beekeeping activity in Piauí

One of PVSA's greatest contributions to the beekeeping activity in the benefited region was its support for the "RECAATINGAMENTO" initiatives, with the production of seedlings destined for the reforestation of the Caatinga, with native and beneficial species for the production of honey.

In this sense, a discussion was introduced about the need for a permanent and systematic work for the preservation, recovery and environmental conservation, being this activity central in the sustainability of the beekeeping activity.

No flowering,

NO HONEY!

FINAL REMARKS

The PVSA leveraged the beekeeping activity in the semi-arid region of Piauí through the investments made. In rural community projects, investments were directed to productive infrastructure for associations that did not have a Honey House, equipment (the most diverse), beehives, cisterns, rain gauges, information kits and technical assistance. For the cooperatives, COOPASC, COMAPI and CASA APIS, investments were also made in larger infrastructure, such as drones, metal ramps, tricycles, vehicles, automatic filling machines, automatic sealers, renovation of units and construction of new units. Cooperatives are important for the flow of production from cooperative members and associations.

It should be noted that the presence of middlemen in the commercialization of honey, working with the beekeeper, interfere in the results as they divert production to private companies. Another difficulty faced by cooperatives, especially the small ones, is the lack of working capital, especially at the beginning of the harvest to buy honey from cooperative members and associations.

With the main actions of the PVSA investments, such as the training carried out and technical assistance, there was an increase in production. However, this result was not as expressive due to production breaks caused by climatic phenomena, such as little or excessive rainfall at flowering times.

There was a greater participation of women and young people in the activity, especially the latter, who sought beekeeping as their main source of income, which contributed to their permanence in the community. There is a growing concern with the environmental issue, notably in recomposing with native species, providing more beekeeping pasture for the production and maintenance of swarms during the off-season.

Families that were not directly benefited from the project via association, by choice, are benefiting from the facilities already built and with the possibility of entering the productive activity due to the good results reaped by the project's beginner beekeepers. The experience acquired by the members of the associations in the early years of the PVSA will be able to help the good progress of the others. The training enabled the production of quality honey, adding value to the product. Also, some are seeking to obtain organic certifications. Others want to diversify the bee products produced, such as pollen, for example, and even the health inspection record for the honey house, so that they can sell the fractionated products on the local market, adding value.

Some administrative practices were implemented and could demonstrate the gains and bottlenecks of beekeeping. Examples are the communities that recorded the amount of rainfall to evaluate the performance of the activity. Another good practice adopted was the recording of beekeepers' production and the number of productive hives, which showed the financial return of the work carried out in beekeeping.

The commitment of communities and small producers from the different Territories to the project stands out, as they embraced beekeeping with enthusiasm and dedication. The admirable involvement of community members, especially women, young people and even children, is relevant, since they participated actively and collectively in decisions, getting involved in activities, collaborating mutually in field work, handling and harvesting honey in apiaries, transport, extraction and processing of honey. The incentive for beekeeping, provided by the PVSA, generated financial returns that had a decisive impact on the quality of life of families, by guaranteeing food security, especially in periods of drought. In addition, it generated well-being,

such as, for example, the construction of cisterns, a biodigester, the acquisition of cell phones and even vehicles for work and personal transport.

In general, the families are very satisfied with the results obtained with beekeeping supported by the PVSA. They feel prepared for new projects, and would like to further expand production and improve productivity, reinvesting part of the profits in this growth.

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