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AKSAAM

A new Snapshot on Family Farming in the Brazilian Northeastern Semi-arid

through data from the 2017 Census of Agriculture

A new snapshot on Family Farming in the Brazilian Northeastern Semi-arid

Realization: AKSAAM – Adapting Knowledge for Sustainable Agriculture and Access to Markets

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AN ODE TO THE NORTHEAST

"Eita, Nordeste da peste,
Mesmo com toda seca
Abandono e solidão,
Talvez pouca gente perceba
Que teu mapa aproximado
Tem forma de coração.
E se dizem que temos pobreza
E atribuem à natureza,
Contra isso, eu digo não.
Na verdade temos fartura
Do petróleo ao algodão.
Isso prova que temos riqueza
Embaixo e em cima do chão.
Procure por aí a fora
"Cabra" que acorda antes da aurora
E da enxada lança mão.
Procure mulher com dez filhos
Que quando a palma não alimenta
Bebem leite de jumenta
E nenhum dá pra ladrão
Procure por aí a fora
Quem melhor que a gente canta,
Quem melhor que a gente dança
Xote, xaxado e baião.
Procure no mundo uma cidade
Com a beleza e a claridade
Do luar do meu sertão."

Luiz Gonzaga de Moura

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SUMMARY

PRESENTATION

In the Brazilian semi-arid region, public policies face an important challenge on promoting sustainable development, mainly in terms of poverty reduction, mitigation of climate changing impacts and ensuring food security. To this end, it is important to **focus on vulnerable groups and market failure situations**. In this context, this document was prepared to guide public agents and the civil society regarding the characterization, contributions, limits and challenges of family farming in the Semi-arid of the Brazilian Northeast. This booklet is part of the actions of the AKSAAM project (Adapting Knowledge for Sustainable Agriculture and Market Access), carried out by the Institute of Public Policies and Sustainable Development (IPPDS), linked to the Federal University of Viçosa (UFV), with the support and funding of the International Fund for Agricultural Development (IFAD). It is intended to create a space of **reflection and articulation of public policies aimed at family farming.**

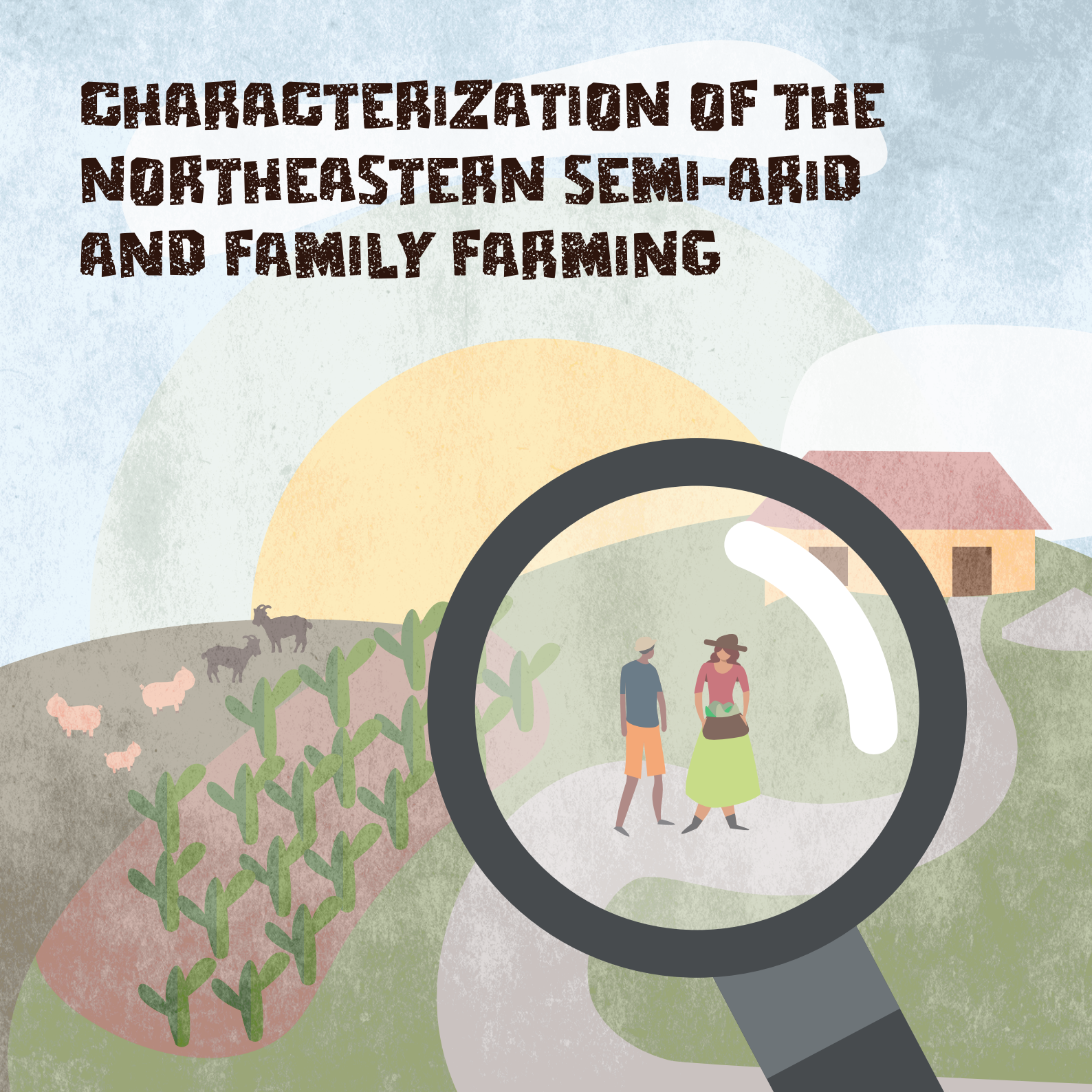
The Census of Agriculture constitute the most complete structural picture of the Brazilian rural environment, providing relevant information for integration and synergy between public and private policies and investments. In the following text, which is based on data from the 2017 Census of Agriculture, we seek to present a family farming information base at the municipality and state levels for the Northeastern Semi-Arid region. It should be noted here that at the 72nd session of the United Nations General Assembly, held in December 2017, the Decade for Family Farming 2019-2028 was declared. It is expected for this Decade to be recognized as a milestone for the promotion of better public policies aimed at family farming and to contribute to the eradication of both hunger and poverty, thus achieving some of the Sustainable Development Goals

This booklet is structured around 4 thematic axes: characterization of the Northeastern Semi-arid and family farming; agricultural production of family farming in the Northeastern Semi-arid; access to technologies and knowledge by family farmers in the Northeastern Semi-arid; and access to public policies for family farming in the Northeastern Semi-arid.

Thus, we invite you to read this document for a better understanding of the reality of family farmers in the Northeastern Semi-Arid, based on data from the 2017 Census of Agriculture, made available by the Brazilian Institute of Geography and Statistics (IBGE). We hope to contribute to foster the debate on possible solutions around the problems faced by family farmers in the Northeastern Semi-Arid.

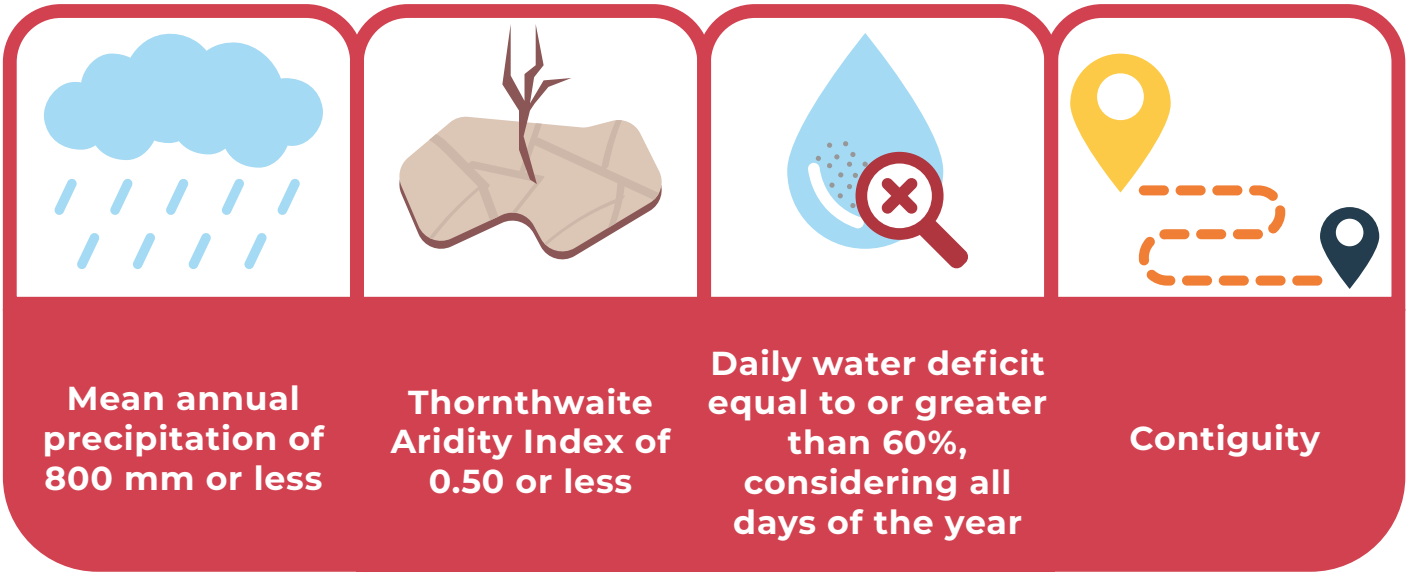
Good reading!

Characterization of the Northeastern Semi-arid and Family Farming



Defining and characterizing the Northeastern Semi-Arid

The Semi-Arid Region was created based on Federal Law No. 7,827, of September 27, 1989. It currently comprises 1,262 municipalities (until the 2021 revision), in the states of Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia and Minas Gerais. The criteria for delimiting the Semi-Arid were approved by the Resolutions of the Deliberative Council of Sudene nº 107, 07/27/2017 and nº 115, 11/23/2017



ESPECIFICALLY AT THE NORTHEASTERN SEMI-ARID

Area

The Northeast region covers 18.27% of the Brazilian territory, involving 1,561,177.8 km², of which 841,260.9 km² cover the Northeastern Semi-arid, that is, 53.9%

Coverage

The Northeastern Semi-arid comprises 9 Brazilian states: Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia

Number of municipalities

1171

Number of family farmers

1.364.983 (IBGE, 2017)

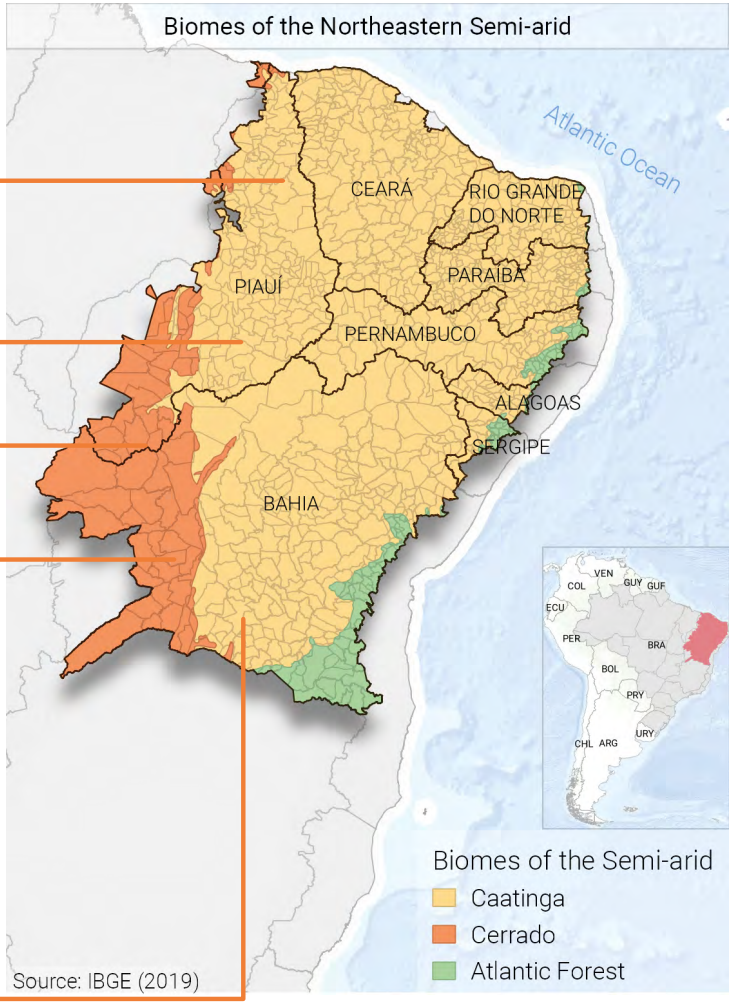
Biomes

The Northeastern Semi-Arid comprises 3 biomes:

Caatinga – Semi-arid climate with medium-sized shrub vegetation, twisted branches and leaves adapted for periods of drought. Cacti are characteristic (the only exclusively Brazilian biome);

Cerrado – Seasonal tropical climate. The vegetation is characterized by twisted log trees, grasses and shrubs;

Atlantic Forest - Tropical-humid climate, high temperatures and precipitation. Vegetation composed of large and medium trees that form a dense / closed forest.

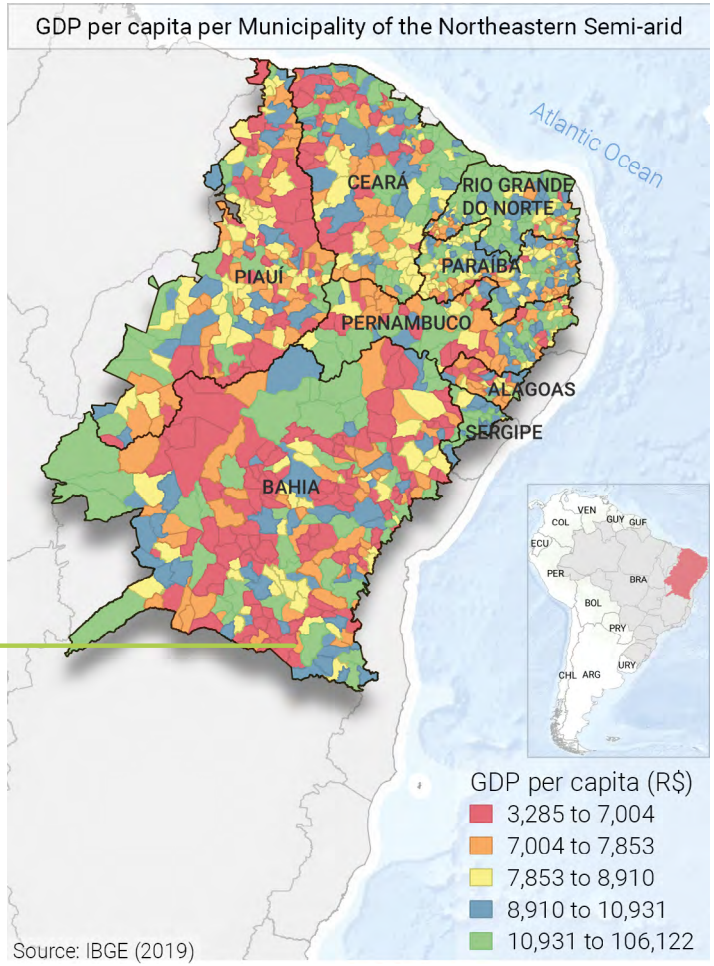


We focus on the Northeastern portion of the Brazilian Semi-arid because IFAD's operations are mainly conducted in this region. Moreover, the Northeastern Semi-arid has significant indicators of vulnerability and poverty while facing recurrent drought episodes, what allows locations to count on federal support on several fronts that stimulate regional development:

- Access to investments in more favorable conditions for job and income generation;
- Support in emergency actions to deal with drought;
- Specific public policies; etc.

GDP

- Brazil's average GDP per capita is R$31,702.25;
- The Northeastern Semi-Arid presents a concentration of municipalities whose GDP per capita are lower than the average Brazilian GDP per capita, especially in the smallest ranges from R$3,285.00 to R$10,000.00 and from R$10,000.00 to R$15,000.00;
- The joint participation of the municipalities that make up the Northeastern Semi-arid in the national GDP of 2017 was 4.98%.



IFAD IN THE BRAZILIAN NORTHEAST

Since it began collaborating with the federal and state governments of Brazil in the **1980s**, **IFAD** has invested in **rural development activities in the Northeastern Semi-arid region**, known as the *sertão*

All IFAD-funded projects in the country focus on **supporting and promoting family farming**. The objective is to increase family farmers' production and income by facilitating their access to essential services – training, rural credit and technical assistance, with special attention to climate adapted technologies –, strengthening their organizations and connecting them to markets.

DEFINING FAMILY FARMING

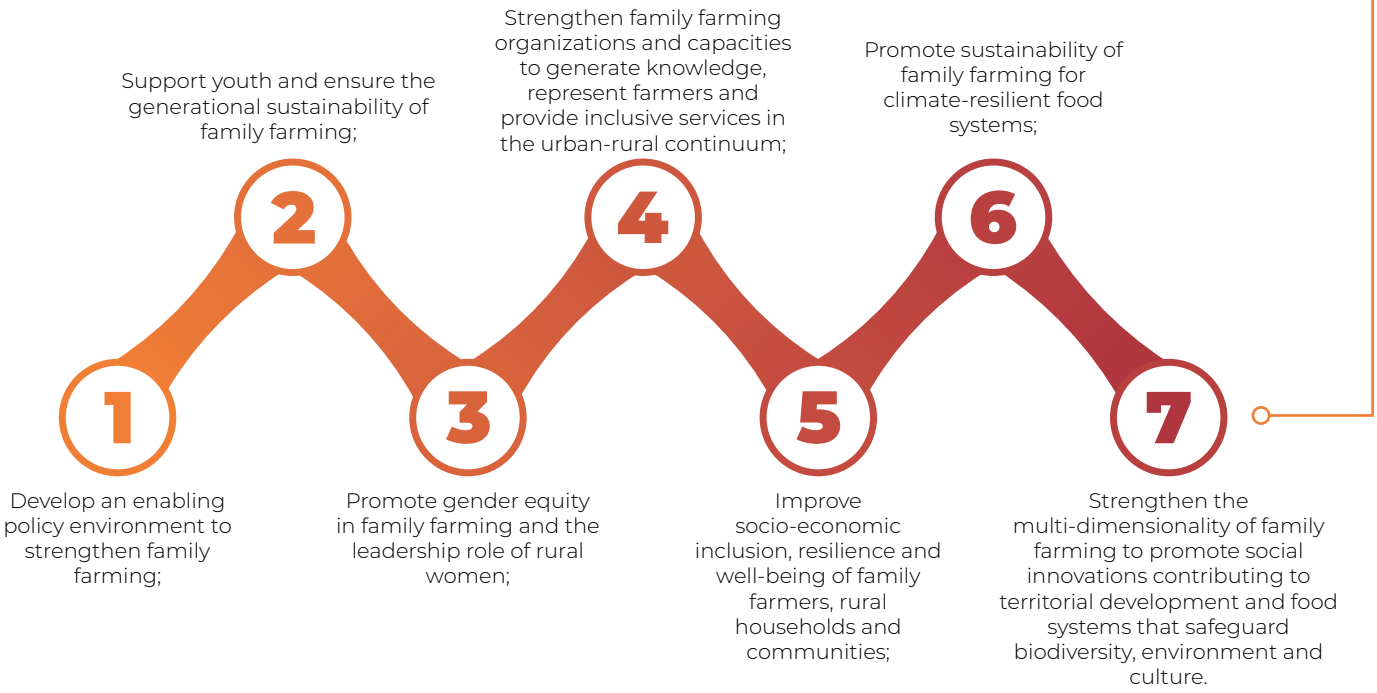
In September 2019, the 13th anniversary of the Family Farming Law (Law 11.326, of July 24, 2006) was celebrated in the plenary of the Chamber of Deputies. In the article 3 of the aforementioned law, a legal definition is presented in which it considers as a family farmer and/or rural family entrepreneur the individual who practices activities in the rural environment, simultaneously meeting the requirements:

- Use at least half of the family workforce in the production and income generation process
- To retain, for any reason, an area of up to 4 fiscal modules
- The management of the establishment or enterprise must be strictly familiar
- At least half of family income must come from economic activities of the establishment or rural enterprise

Note: This is the current legal definition of family farming in Brazil through Law No. 11,326 of July 24, 2006, regulated by Decree No. 9064 of May 31, 2017, and by supplementary ministerial ordinances. Compared to the original text of that Law, it is observed that there were modifications related to family labor and income.

In this same event, the Chamber of Deputies officially launched the 2019-2028 period as the Decade for Family Farming. The plan comprises ***seven pillars*** that aim to improve socioeconomic inclusion, resilience and well-being in family farming. In addition, it intends to encourage sustainability, multifunctionality and the ability to mitigate climate change.

The action is in line with the global action plan against hunger and poverty announced in May 2019 in Rome by the Food and Agriculture Organization of the United Nations (FAO). The aim is for this decade to serve as a landmark for the promotion of better public policies for family farming and for the achievement of the Sustainable Development Goals (SDGs).



The Censuses of Agriculture carried out in 2006 and 2017 by IBGE gave special attention to family farming based on the application of the concept established by the Law No. 11,326/2016, generating official statistics on this segment. This was the result of the recognition, by the Brazilian State, of the economic and social importance of family farming as a source of occupation, income and food for the country. It is worth highlighting that the Census of Agriculture provides information on rural establishments and in-farm agricultural activities, covering characteristics of farm operators and rural establishments, rural economy and employment, agricultural and livestock production, and agro-industry. In addition, the rural establishment is considered as a unit of data collection and analysis, corresponding to any production unit dedicated, totally or partially, to agricultural, livestock, forestry or aquaculture activities, subordinated to a single operator (farmer or administrator), regardless of its size, its legal form or its location, with production destined for subsistence or for sale (IBGE, 2017a).

77%

Of farmers are classified as family farmers in Brazil

In Brazil, according to data from the 2017 Census of Agriculture, approximately 3.9 million rural establishments met the criteria and were classified as family farms.

Significantly representative in the Northeastern Semi-arid, family farming comprises 79% of farms in Brazil, which occupy 51% of the total area exploited by agriculture and livestock.

79%

Of farmers are classified as family farmers in the Northeastern Semi-arid

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Family Farms (%)

12% **in the proportion of family farms in the Northeastern Semi-arid**

Note: In **Appendix 1**, all tables of "Comparison between the Censuses of Agriculture of 2006 and 2017 for the Northeastern Semi-arid" are available with the absolute values used to calculate the variation in the proportion between the Censuses of Agriculture

After 11 years, the configuration of farmers has changed, reflecting the **decrease in the percentage of rural establishments classified as family farms** in the Northeastern Semi-Arid

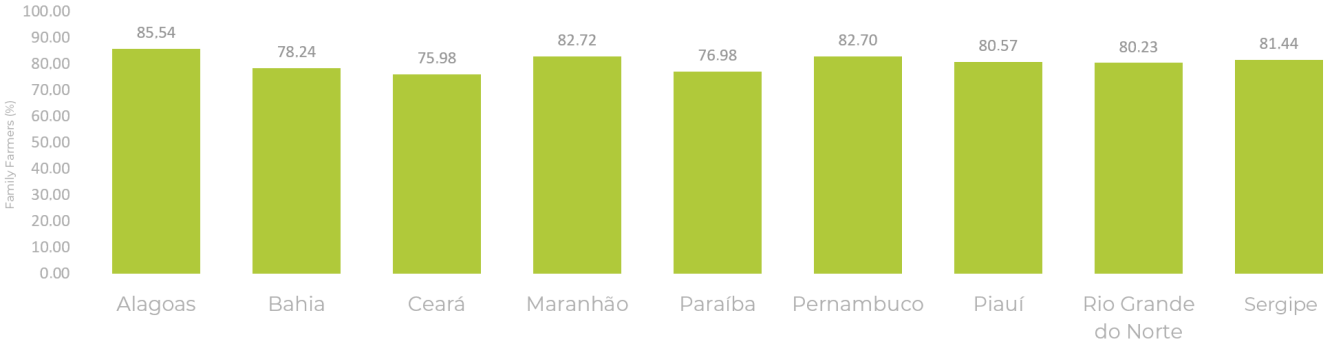
After consulting researchers in this area, such as Joacir Rufino de Aquino and Mauro DelGrossi, some possible explanations for this phenomenon are highlighted:

i) The **great drought** that occurred between the years **2012 to 2017**, hitting the Northeast region, may have led many economically vulnerable family farmers to leave the agricultural activity;

ii) **Horizontal extension of the urban perimeter** of the municipalities that absorbed part of the rural area and farms, especially during the real estate financing boom after 2006;

iii) **Methodological modifications i**n the 2017 Census of Agriculture regarding the definition of farms, as well as modifications in two criteria of the Family Farming Law that have led many rural establishments to no longer be considered as family farms: (a) predominance in family income from activities outside the familiar establishment; and (b) growth in the use of contracted labor.

PERCENTAGE OF FAMILY FARMS IN RELATION TO TOTAL FARMS PER STATE OF THE NORTHEASTERN SEMI-ARID

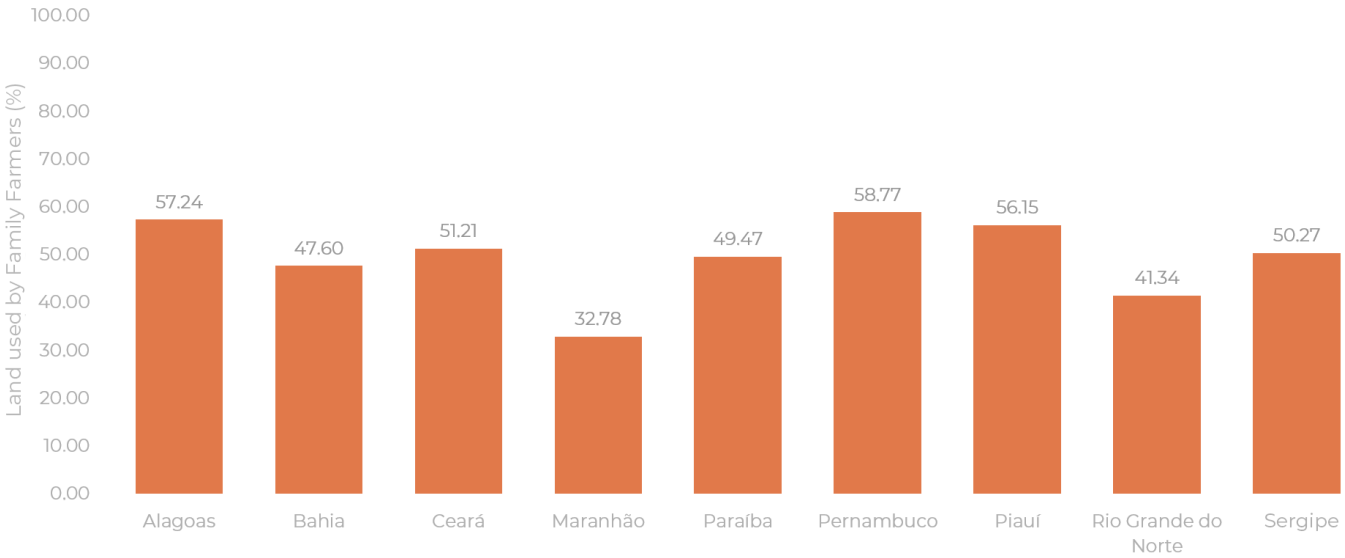


Source: IBGE, 2017 Census of Agriculture.

Family farming has a **very important role** in the sustainable development of the region, providing food on a local scale, in addition of being responsible for the conservation of natural resources and agro-biodiversity.

OCUPIED LAND

Percentage of area occupied by family farmers in relation to the total area of each state of the Northeastern Semi-Arid



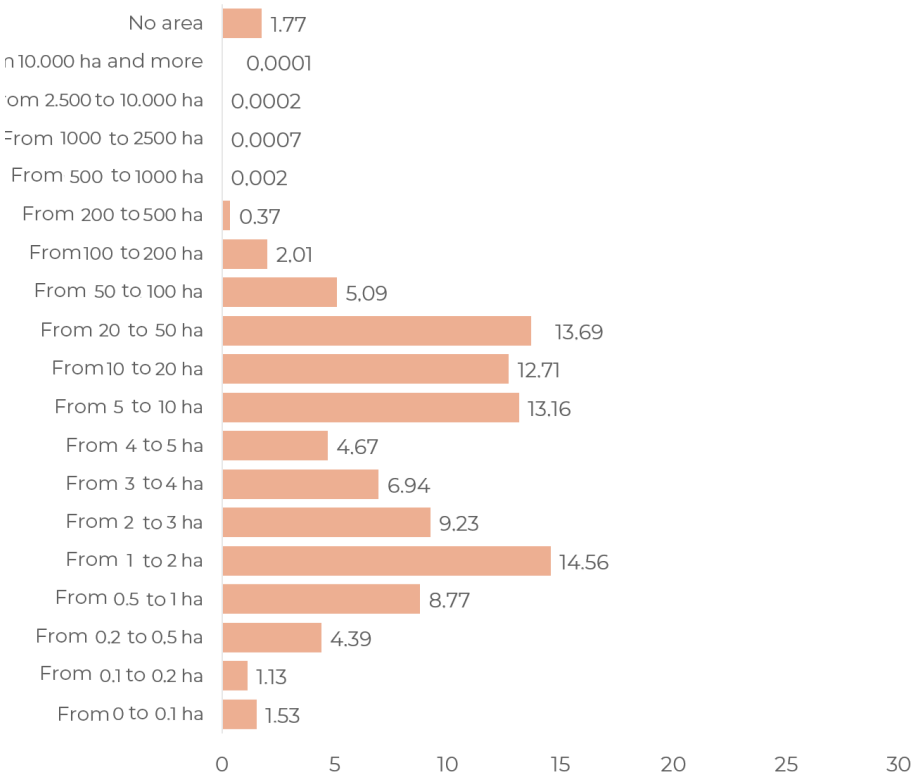
Source: IBGE, 2017 Census of Agriculture

Regarding the percentage of land occupied by family farmers in relation to the total land destined for agricultural activity in each state, it is observed that in Alagoas, Ceará, Pernambuco, Piauí and Sergipe, more than half of total farming area is occupied by family farmers. The opposite situation occurs in Bahia, Maranhão, Paraíba and Rio Grande do Norte.

AREA GROUPS

Observing the percentage of family farmers in the Northeastern Semi-arid in each of the area groups, attention is paid to the concentration in the group of 1 to 2 hectares and also in the area groups comprising properties from 5 to 50 hectares. Another fact that draws attention is the presence of a percentage, even if small, of family farmers in larger area groups. A possible explanation would be the presence of establishments that have plant extraction as their main economic activity and the extraction process is not carried out in a mechanized way. Therefore, the existence of family farmers in groups of larger areas is plausible, since there is no size limit for these types of establishments.

Percentage of family farmers in the Northeastern Semi-Arid, per area groups



Source: IBGE, 2017 Census of Agriculture.

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Variation in the proportion of family farms in each area group (%)

From 0 to less than 0.1 ha ↓**28.40%**
From 0.1 to less than 0.2 ha ↓**4.97%**
From 0.2 to less than 0.5 ha ↓**3.13%**
From 0.5 to less than 1 ha ↑**1.91%**
From 1 to less than 2 ha ↑**3.34%**
From 2 to less than 3 ha ↑**2.92%**
From 3 to less than 4 ha ↓**1.14%**
From 4 to less than 5 ha ↑**1.74%**
From 5 to less than 10 ha ↑**7.60%**
From 10 to less than 20 ha ↑**11.10%**
From 20 to less than 50 ha ↑**12.40%**
From 50 to less than 100 ha ↑**8.30%**
From 100 to less than 200 ha ↑**7.49%**
From 200 to less than 500 ha ↑**5.71%**
From 500 to less than 1000 ha ↓**60.00%**
From 1000 to less than 2500 ha ↓**69.57%**
More than 2500 ha ↓**57.14%**
Farmer with no area ↓**71.03%**

GENDER OF THE RESPONSIBLE MANAGER

76%

(male)

24%

(female)

Regarding the gender of the responsible manager of family farms, according to data from the 2017 Census of Agriculture, **the majority are men**. For all the states that make up the Northeastern Semi-arid, this fact is repeated, that is to say, there is a predominance of a male person as the responsible manager. However, **women are increasingly present** in the management of farms than in past years. This leads to **increased empowerment** through participation in decision-making.

Source: IBGE, 2017 Census of Agriculture.

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Gender of farm operator classified as family farmer (%)

↓ **9.38%** in the proportion of farms managed by men

↑ **48.52%** in the proportion of farms managed by women

PERCENTAGE OF FAMILY FARMS IN THE NORTHEASTERN SEMI-ARID ACCORDING TO THE COLOR OR RACE* OF THE RESPONSIBLE MANAGER

White

28.2%

385,316
farms

Black

10.3%

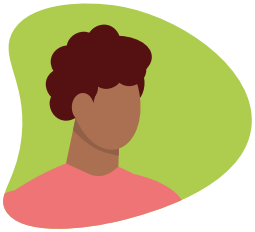
140,350
farms

Yellow

0.4%

5,838
farms

Brown



60.4%

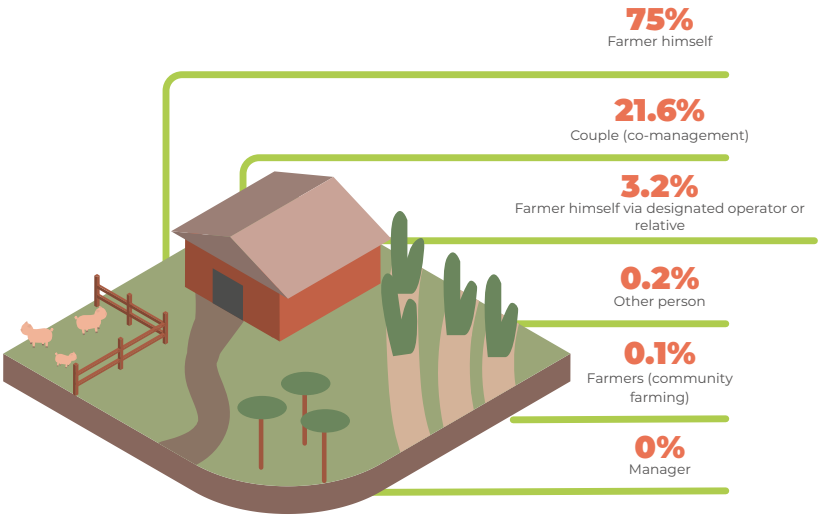
824,889
farms

Indigenous

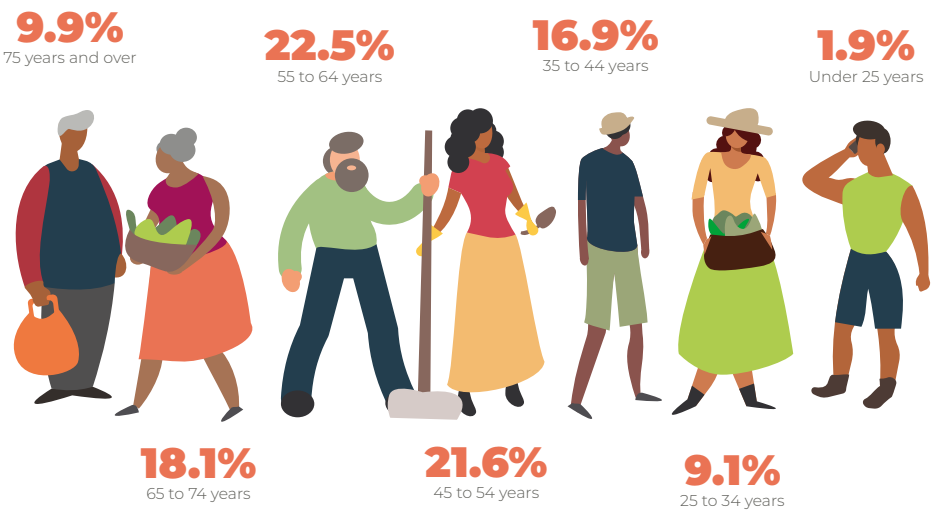
0.6%

8,590
farms

MANAGEMENT TYPE OF FAMILY FARMING OPERATIONS



AGE CLASSES OF FAMILY FARMERS



Source: IBGE, 2017 Census of Agriculture.

Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Variation in the proportion of family farms in each age group between 2006 and 2017 Censuses of Agriculture

Less than 25 years **↓47.33%**

From 25 to less than 35 years **↓37.28%**

From 35 to less than 45 years **↓18.20%**

From 45 to less than 55 years **↑6.40%**

From 55 to less than 65 years **↑10.21%**

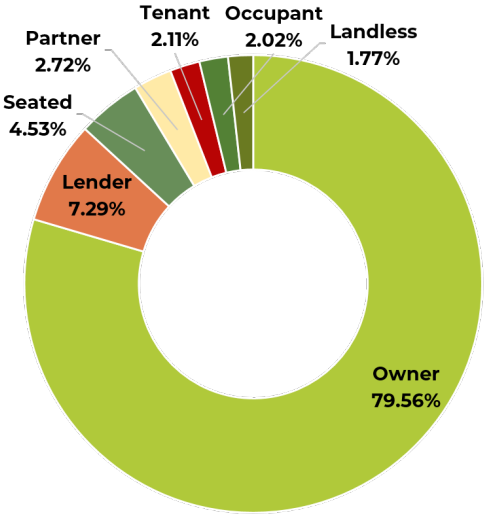
More than 65 years **↑37.00%**

Note: The ages correspond to the age of the person 'responsible' for the farm.

The comparison between the 2006 and 2017 Censuses confirmed **the increase in the percentage** of family farmers in the Northeastern Semi-arid with more than 65 years old and the **reduction in the number of young people** under 25 years old. This situation also had repercussions throughout Brazil, leading to a shrinking percentage of young people in the countryside while the rural population gets older. These data confirm what is observed in practice and leads to an apprehension due to the uncertainties regarding the succession in the management of the family farms, since **there is no generational renewal** in most cases.

Therefore, this is a cause for concern and one of the major **challenges for sustaining and strengthening family farming**, not only for the Northeastern Semi-Arid, but also for all Brazilian regions, and it is necessary to **expand existing policies** that seek to stimulate the settlement of young people in the countryside, in order to enable them to remain in the farm with quality of life.

FARMER'S CONDITION IN RELATION TO LAND



There is a **predominance of owners**, representing 80% of all family farmers in this region. For the other classifications, lender corresponds to 7%, settled to 4%, partner to 3%. Tenants, occupants and family landless farmers each represent 2% of the total number of family farmers in the Northeastern Semi-arid.

Source: IBGE, 2017 Census of Agriculture

DEFINITIONS OF EACH LEGAL CONDITION

Owner
when the area of the agricultural establishment is owned by the responsible farmer.

Settled
farmer with an area of land granted by a land agency, without a definitive title (including settlement and with the granting of a real right of use) until the reference date

Tenant
farmer who exploits third party land for payment of a fixed amount, previously adjusted, in cash or its equivalence in products.

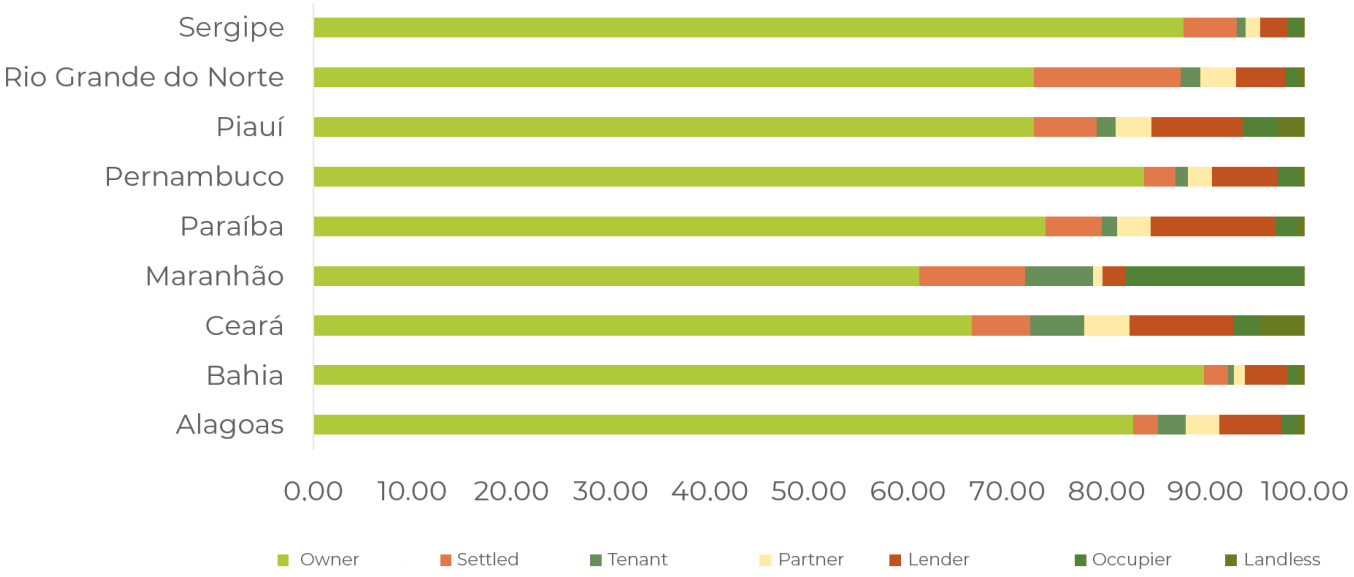
Partner
farmer who exploits third party land for payment of part of the production (half, third, fourth, etc.), previously agreed between the parties.

Lender
farmer who exploits third party land free of charge, under contract or agreement between the parties, in which only the lender assumes the obligations.

Occupant
farmer who explores land belonging to third parties (public or private), for which he/she, on the reference date, paid nothing for its use (occupation or possession).

Landless
farmer who performs agricultural exploitation for which there is no need to have a circumscribed area or a limited physical space. He/she takes advantage of the opportunities offered by local circumstances and the nature of the region to exercise his/her productive activities (beekeeper; forest extractivist (babassu, Brazilian nut, latex, firewood, etc.)); breeder of animals by the side of the road; farmer in river ebb, in itinerant fields, by the road; farmer who, in the reference period, produced on rented land, in partnership or occupied, but that, on the reference date, was no longer using these lands.

Extending the analysis to all states that are part of the Northeastern Semi-arid, it is observed that there is also a predominance of family farmers who are owners. In the states of Maranhão and Rio Grande do Norte, there is a higher percentage of settlers. In Paraíba, Ceará, Piauí and Pernambuco, there is a greater presence of lenders. Maranhão is the state with the highest percentage of family farmers who are tenants and also those who are occupiers. Farmers who are considered landless have a higher percentage in Ceará, compared to other states.



Source: IBGE, 2017 Census of Agriculture.

The granting of land title, through land regularization, brings **benefits to the farmer**. First, it provides **access to rural credit policies** in the form of investment and costing, which allows planting, infrastructure improvements and an increase in productivity and income. In addition, with regularization, **there is a guarantee of legal security** through property right for future generations, which partially avoids the rural exodus.

PERSONS EMPLOYED IN FAMILY FARMS OF THE NORTHEASTERN SEMI-ARID

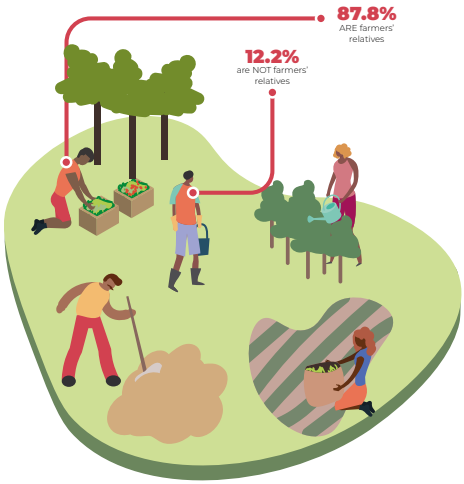
In the Northeastern Semi-Arid there are

4,546,527

persons employed in agricultural establishments:

24.3%
in non-family farming

75.5%
in family farming



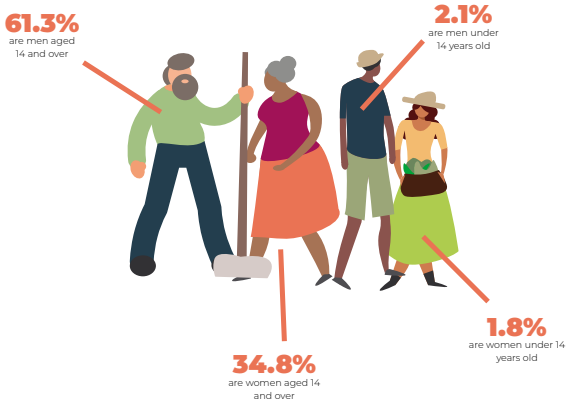
Among the persons employed WITHOUT kinship with the producer in the establishments of family farmers:

- 87.4% TEMPORARY
- 11.1% PERMANET
- 1.5% PARTNERS

Among the

3,020,495

workers with **ties of kinship** in the establishments of Family Farmers in the Northeastern Semi-arid



Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Variation in the proportion of personnel employed in family farms (%)

- ↓0.59% in the proportion of employed persons WITH family ties
- ↑4.35% in the proportion of employed persons WITHOUT family ties

Variation in the proportion of each type of personnel employed in family farms without family ties (%)

- ↓9.80% in the proportion of temporary personnel employed
- ↑291.31% in the proportion of permanent personnel employed
- ↑427.85% in the proportion of partner personnel employed

Source: IBGE, 2017 Census of Agriculture.

EDUCATIONAL ASPECTS OF FAMILY FARM OPERATORS

Reading

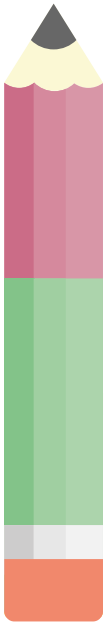
More than half of the family farmers in the Northeastern Semi-arid have some level of schooling

42.8%

of family farmers in the Northeastern Semi-arid DO NOT know how to read

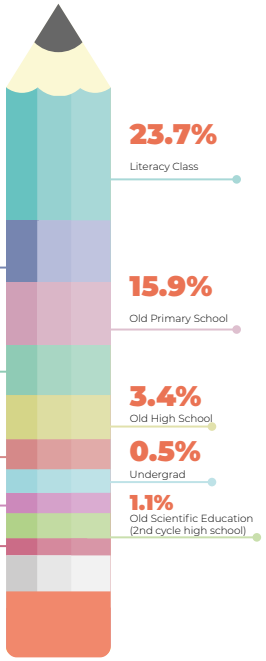
57.2%

of family farmers in the Northeastern Semi-arid know how to read



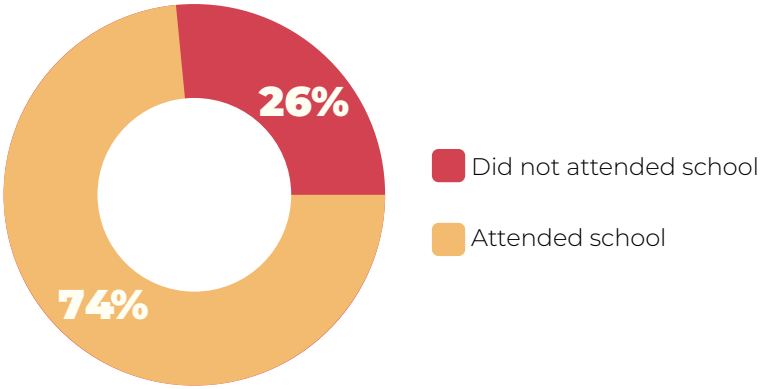
Schooling level

Of the 74% of family farmers in the Northeastern Semi-arid who claimed to have some kind of education:

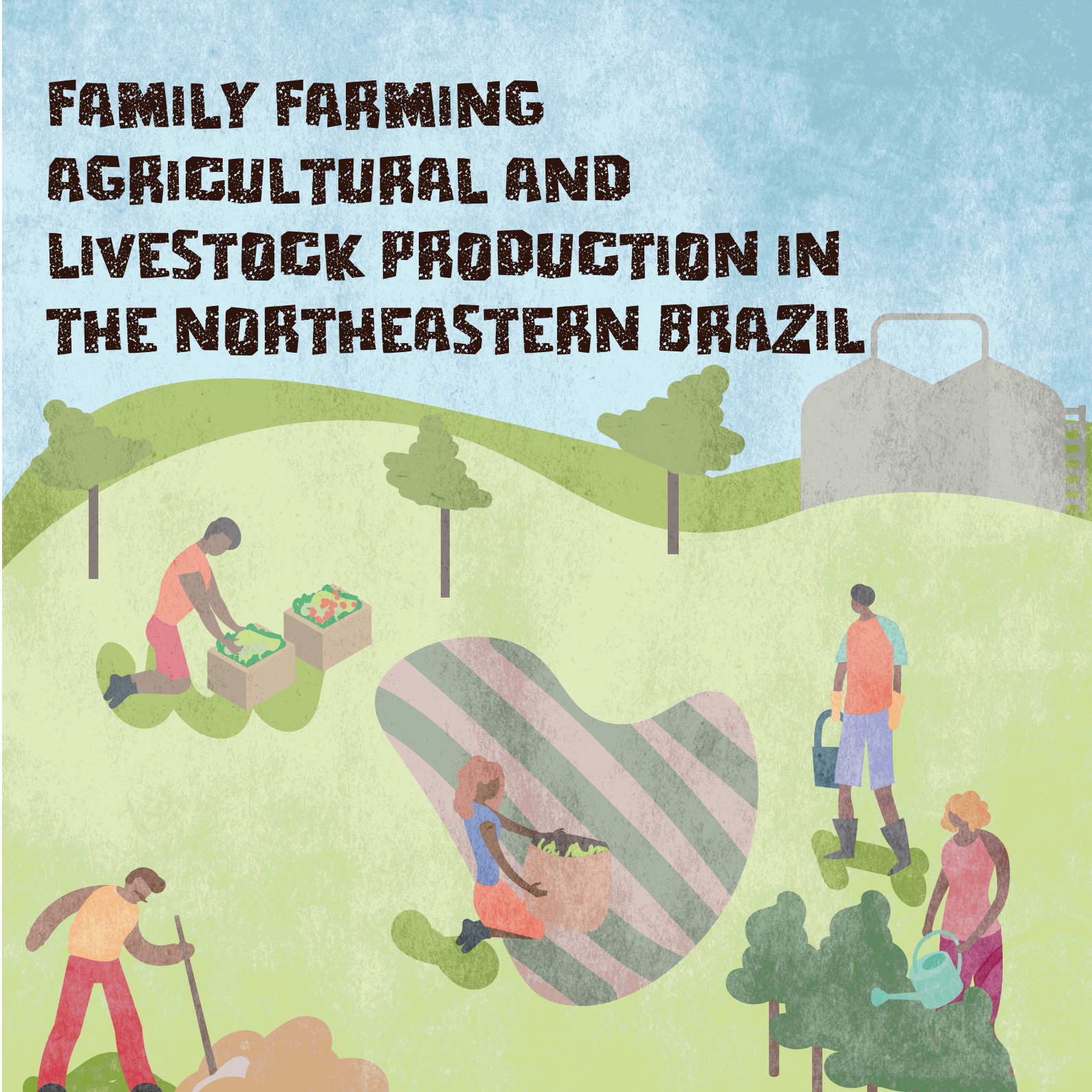


Attended school

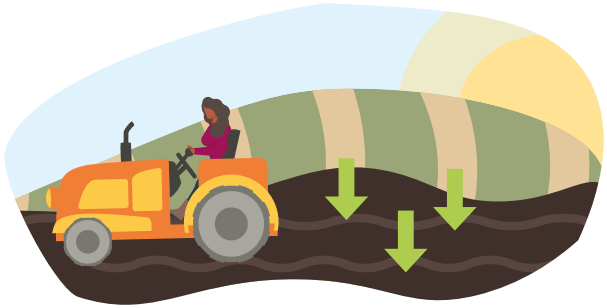
More than half of the family farmers in the Northeastern Semi-Arid had **some type of schooling**



FAMILY FARMING AGRICULTURAL AND LIVESTOCK PRODUCTION IN THE NORTHEASTERN BRAZIL



SOIL PREPARATION FOR PLANTING



63.31%

of family farms made soil preparation systems

2.10%

of family farmers from the Northeastern Semi-arid **applied limestone or other soil pH correctors**

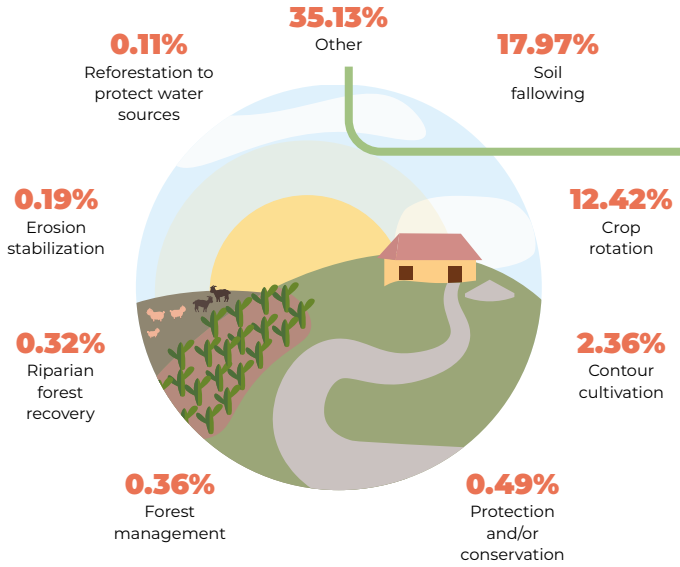
Source: IBGE, 2017 Census of Agriculture.

Of the family farmers that made soil preparation systems in their farms:

- **60.10% used conventional tillage**
- **40.77% used minimum tillage**
- **3.11% used no-tillage**

Note: Sum may surpass 100% because farmers can use more than one soil preparation system.

ADOPTION OF CONSERVATION AGRICULTURE PRACTICES



Fonte: IBGE, Censo Agropecuário 2017.

Other conservation agriculture practices:

- Use of terraces
- Use of crops to recover pastures
- Fire
- Soil drainage
- Green fertilization
- Manure use
- Use of vegetable compost
- Inoculant application
- Windbreak
- Grass-legume consortium

USE OF PESTICIDES

23.44%

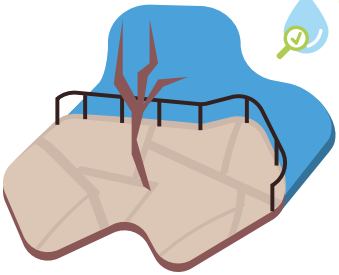
of family farmers used pesticides

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Use of pesticides (%)

↑17.63% in the proportion of farms that used pesticides

ENDOWMENT OF WATER RESOURCES



76.18%
HAVE water resources

23.82%
DO NOT HAVE water resources

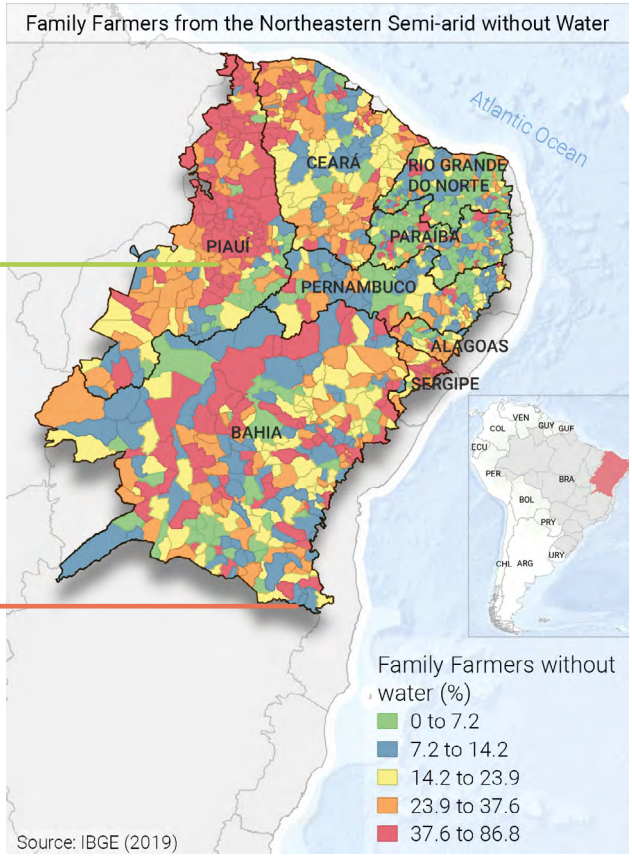
Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Water resources (%)

↑**105 %** in the proportion of farms that have some water resource

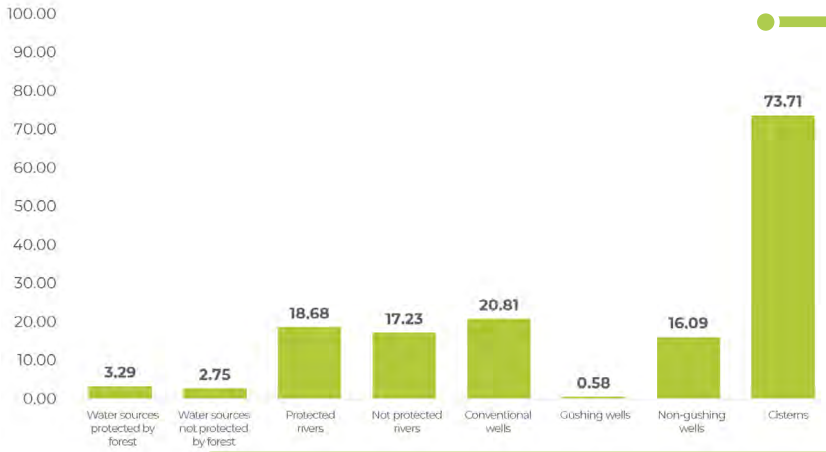
Considering that 1,102,204 of the 1,446,842 family farms from the Northeastern Semi-arid declared to have water resources, 346,638 farms remain without water resources. Because they are located in the Semi-Arid Region, where the supply of water resources is naturally low, this is an indication of the importance of investing even more in means of providing water to everyone.

There are some initiatives for the development and implementation of water technologies appropriate to the conditions of the region. These technologies, such as cisterns, provide high water catchment capacity and minimal loss through evaporation. Although this region is considered one of the rainiest semi-arid areas of the world, its evaporation rate is higher than precipitation's one. Therefore, technologies must be developed observing this condition.



Note: It is observed on the map that the highest percentage of family farmers' establishments without water are, for example, in municipalities crossed by the São Francisco River. Thus, these establishments may not have water sources in their territory, but they may be supplied by external sources.
The same reflection is valid for establishments that declare to have cisterns, this finding does not guarantee supply, since in times of scarcity of rain, they become dependent on water tankers and this question was not asked by the Census of Agriculture.

Percentage of family farmers from the Northeastern Semi-arid per type of water resource present in the farm



Source: IBGE, 2017 Census of Agriculture.
Note: Sum may surpass 100% because farmers can have more than a water resource in their farms.

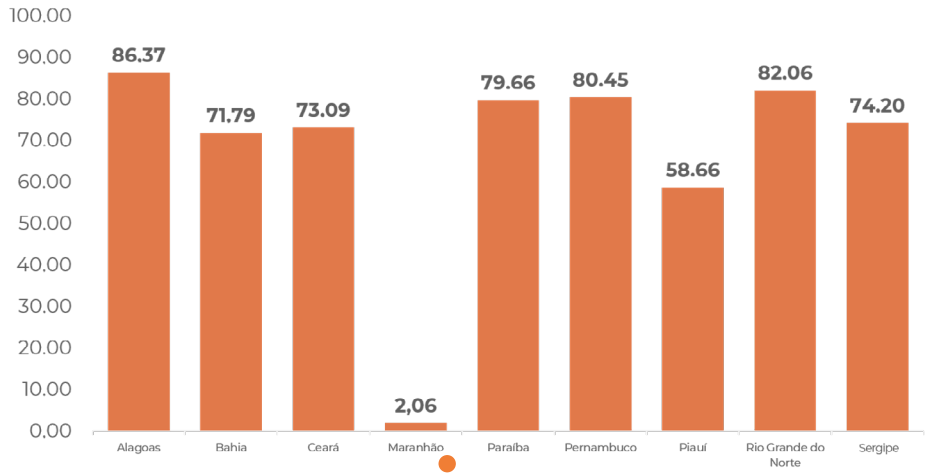
Among the family farmers who claimed to have some type of water resource in the farm, **73.71% had cisterns**. There is a low percentage of farmers with water sources protected or not by forests as well as gushing wells.

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Variation in the proportion of farms that declared to have water resources per type (%)

- ↓**40.48 %** *in the proportion of farms* with water sources protected by forests
- ↓**61.17 %** *in the proportion of farms* with water sources NOT protected by forests
- ↓**29.45 %** *in the proportion of farms* with rivers and streams protected by forests
- ↓**56.50 %** *in the proportion of farms* with rivers and streams NOT protected by forests
- ↓**26.89 %** *in the proportion of farms* with deep artesian or tubular wells
- ↑**94.09 %** *in the proportion of farms* with conventional wells
- ↑**12.71 %** *in the proportion of farms* with cisterns

PERCENTAGE OF FAMILY FARMS WITH CISTERNS PER STATE OF THE NORTHEASTERN SEMI-ARID

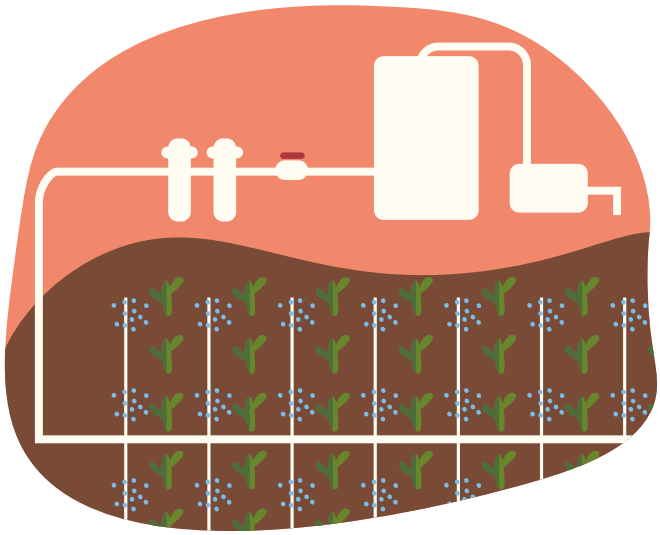


Source: IBGE, 2017 Census of Agriculture

As for the state percentage of farms with cisterns within the Northeastern Semi-Arid, it is noted that **Maranhão had the lowest proportion**. This is because only two of its municipalities (Araioses and Timon) were recently included in the official delimitation of the Brazilian Semi-Arid region due to rainfall and evapotranspiration conditions. Thus, these municipalities began to enjoy financing from the Constitutional Fund of the Northeast (FNE) and other specific benefits only as of 2018. In addition, due to the recent inclusion, there was no organization linked to the Articulation of the Brazilian Semi-Arid Region (ASA) in Araioses and Timon at the time of the execution of the Agricultural Census of 2017. ASA's main projects are related to living conditions in the semi-arid region, with emphasis on the construction of cisterns for water storage aimed at human consumption and agricultural production. This fact may explain the low percentage of cisterns installed in the state of Maranhão. In turn, it is observed that **Rio Grande do Norte, Alagoas, Paraíba, Pernambuco, Bahia and Ceará are among the states with the highest percentage of farms with cisterns**.

Despite having states with high percentages of family farmers who declared having cisterns in their farms, one could say that there is still demand to be met in the region, since this social technology is a source of water recommended to guarantee water access for the population of the Semi-arid region

IRRIGATION SYSTEMS



10.13%

dof family farmers apply some type of irrigation

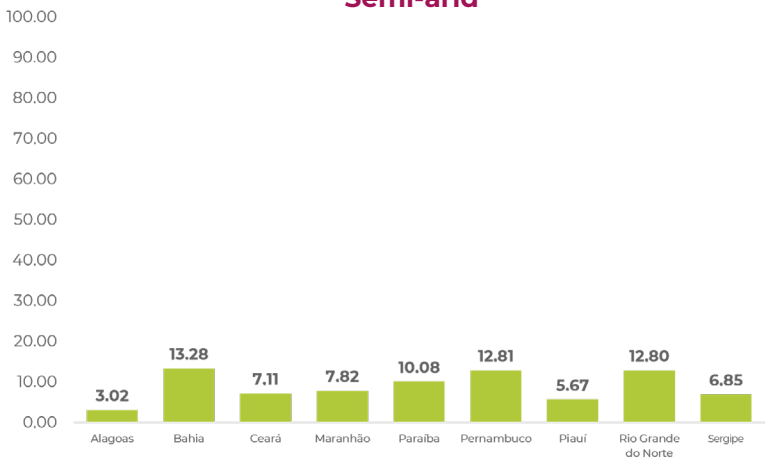
Comparison between the 2006 and 2017 Censuses for the Northeastern Semi-arid

Irrigation System (%)

↑**79.8%** in the proportion of farms that uses some irrigation systems

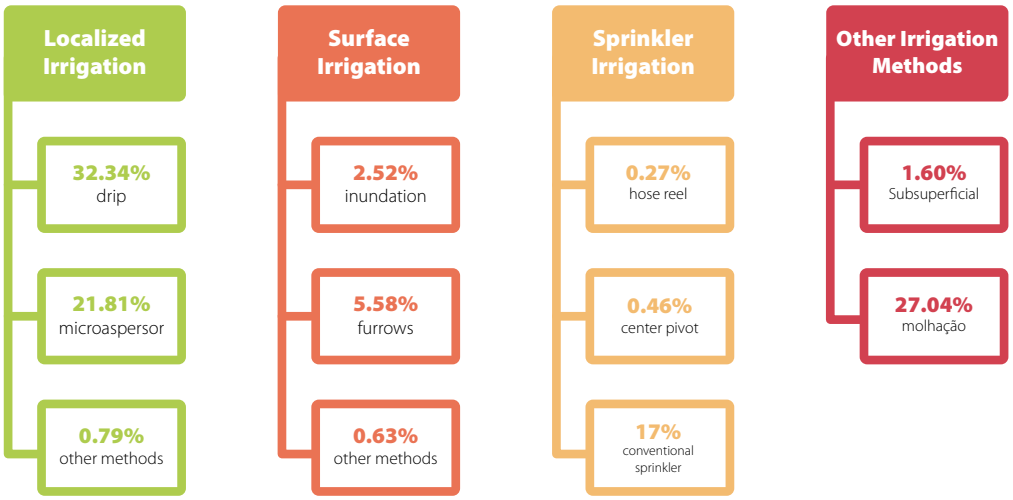
Among the states that comprise the Northeastern Semi-arid, **Alagoas is the one that has the lowest percentage (3.02%)** of family farmers with some irrigation system, followed by Piauí (5.67%). On the other hand, **Bahia has the largest percentage (13.28%)**.

Percentage of family farmers with some type of irrigation system in which state of the Northeastern Semi-arid



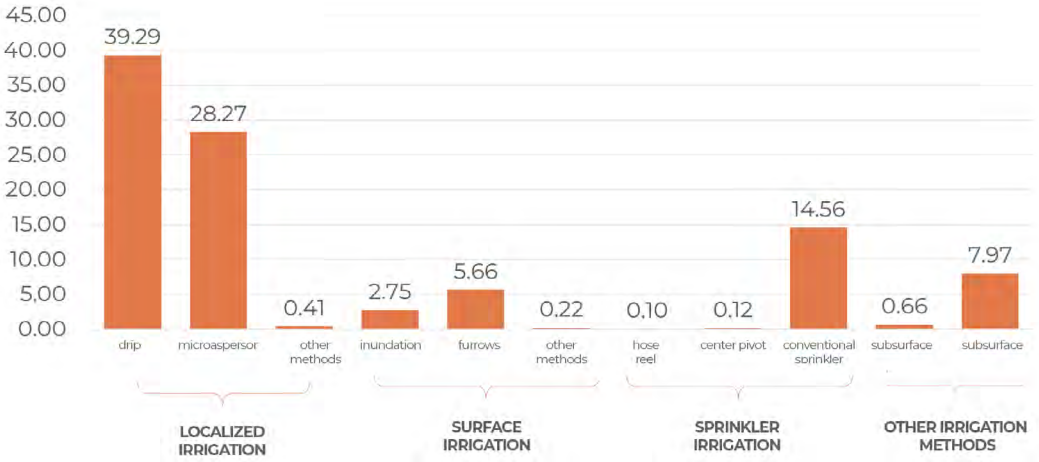
Source: IBGE, 2017 Census of Agriculture.

Percentage of family farmers from the Northeastern Semi-arid that apply irrigation, per type of method used



Source: IBGE, 2017 Census of Agriculture.
Note: Sum may surpass 100% because family farmers can adopt more than one irrigation system.

In terms of the proportion of land in which each type of irrigation system is applied:



Source: IBGE, 2017 Census of Agriculture

Analyzing the proportion of irrigated land per method in each state of the Northeastern Semi-Arid, it is observed that the highest percentages are in drip, microaspersor, conventional sprinkler and watering. In family farms, there is a lower percentage of area that makes use of center pivot, hose reel and surface irrigation methods (inundation, furrows, etc.) or subsurface.

Percentage of irrigated land in the states of the Northeastern Semi-arid, per irrigation method

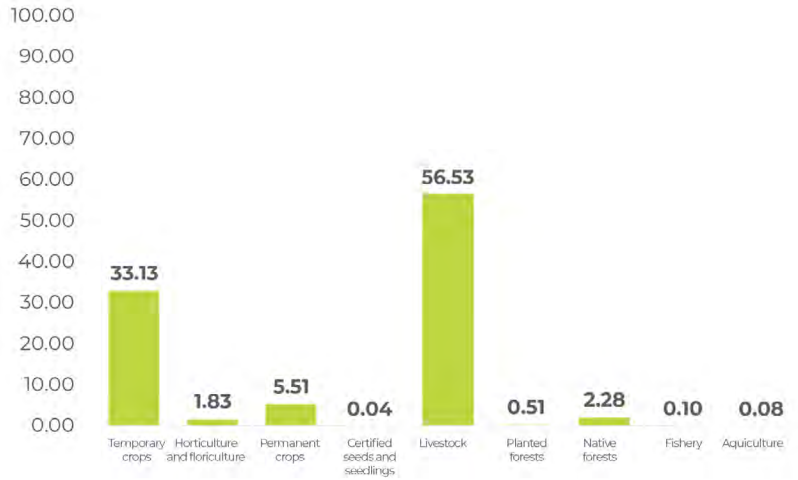
	Localized Irrigation			Surface Irrigation			Sprinkler Irrigation			Other Irrigation Methods	
	Drip	Mi-croasper-sor	Other methods	Inunda-tion	Furrows	Other methods	Hose reel	Center pivot	Convention-al sprinkler	Subsur-face	Watering
Alagoas	27.54	41.44	1.80	-	0.90	-	0.26	-	14.67	0.13	13.26
Bahia	44.39	32.07	0.83	0.19	8.76	0.38	-	0.14	5.22	1.13	6.89
Ceará	50.11	16.58	0.12	6.50	1.88	0.05	0.05	0.07	16.62	0.26	7.76
Maranhão	12.19	-	-	-	-	-	-	-	10.39	-	77.42
Paraíba	24.64	19.32	0.28	1.81	1.59	-	-	-	44.27	-	8.08
Pernam-buco	28.19	38.79	0.16	2.16	6.15	0.27	0.21	0.12	12.92	0.63	10.43
Piauí	20.60	10.36	0.25	2.64	6.02	-	0.06	-	48.54	0.10	11.45
Rio Gran-de do Norte	34.24	22.07	-	4.19	1.84	0.02	0.66	0.37	33.85	0.17	2.58
Sergipe	25.55	28.56	0.03	17.08	-	-	-	-	27.62	0.15	1.01

Source: IBGE, 2017 Census of Agriculture

In general, the recent advance in the adoption of irrigated agriculture in the Northeastern Semi-arid is undeniable. However, in a region that suffers from water deficiency, attention should be paid to the irrigation methods used, since some family farms still apply irrigation methods characterized by a high rate of water waste.

ECONOMIC ACTIVITY GROUPS

Most family farmers in the Northeastern Semi-arid have livestock production as their main activity. In addition, 33.13% of family farmers are mainly devoted to the production of temporary crops, while 5.51% focus on permanent crops.



Source: IBGE, 2017 Census of Agriculture

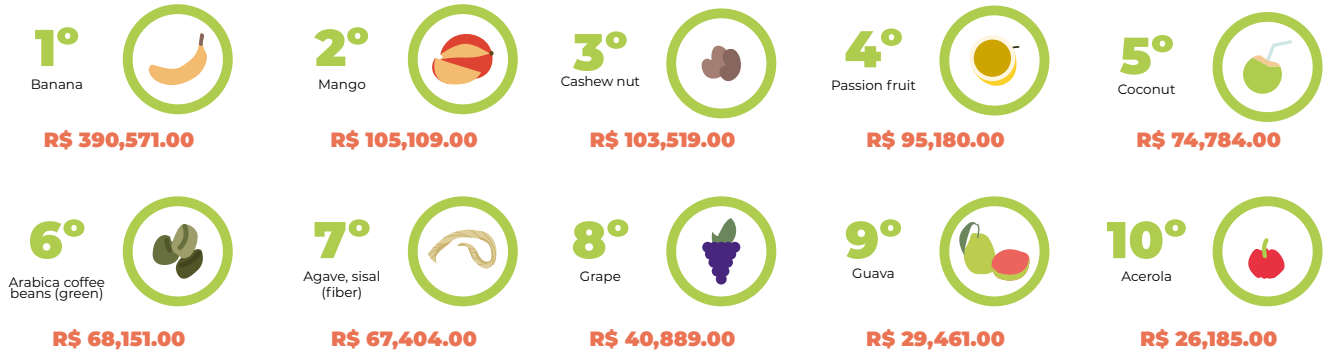
Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Variation in the proportion of family farms in each of economic activity groups (%)

- ↓**19.24%** in the proportion of farms with temporary crops
- ↓**2.70%** in the proportion of farms with horticulture and floriculture
- ↓**4.14%** in the proportion of farms with permanent crops
- ↑**29.23%** in the proportion of farms with certified seeds and seedlings
- ↑**12.76%** in the proportion of farms with livestock production
- ↓**58.96%** in the proportion of farms with planted forests
- ↑**46.16%** in the proportion of farms with native forests
- ↓**51.39%** in the proportion of farms with fishery
- ↑**13.90%** in the proportion of farms with aquiculture

TOP 10

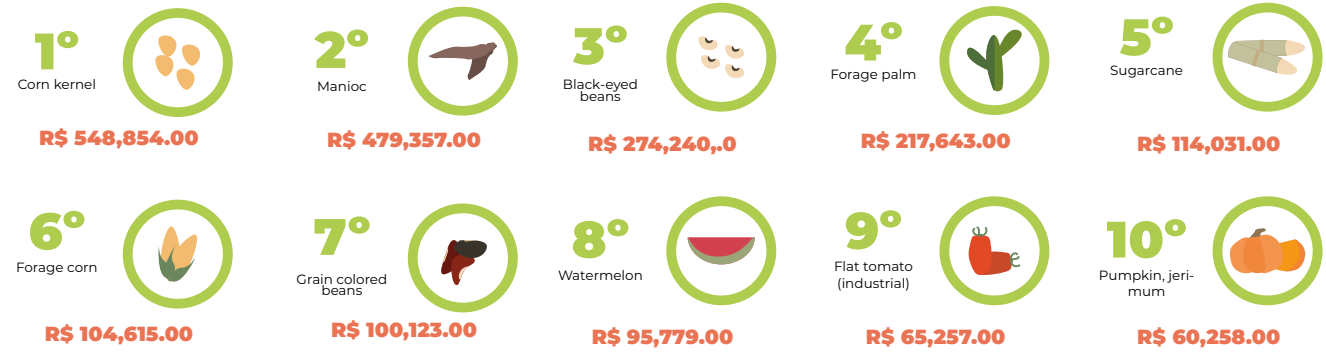
of the Production Value of PERMANENT Crops Produced in Family Farming Establishments in the Northeastern Semi-arid (Thousand Reais)



Note 1: The TOP 10 of Permanent Crops Grown by Family Farmers in EACH OF THE STATES from the Northeastern Semi-arid is available in Annex 2.
Source: IBGE, 2017 Census of Agriculture.

TOP 10

of the Production Value of TEMPORARY Crops Produced by Family Farming in the Northeastern Semi-arid (Thousand Reais)



Note: The TOP 10 of Temporary Crops Grown by Family Farmers in EACH OF THE STATES from the Northeastern Semi-arid is available in Annex 3.
Source: IBGE, 2017 Census of Agriculture.
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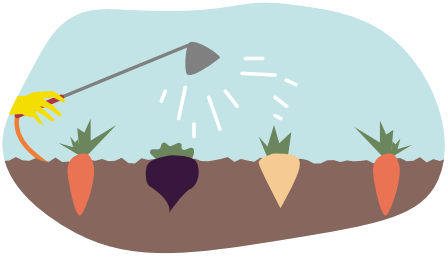
ORGANIC PRODUCTION

0.71%

of family farmers from the Northeastern Semi-arid **adopt organic production**

67.33%

of family farmers from the Northeastern Semi-arid **do not adopt organic production**



Note 1: Logically, the sum of the percentages should result in 100%. However, this sum, in fact, results in 68.04%. Therefore, the remaining 31.96% possibly refer to the cases in which the enumerators were instructed to ask first if the farmer used pesticides and, in the case of affirmative answer, the question about organic production was not asked (this information was clarified by technical area of IBGE).

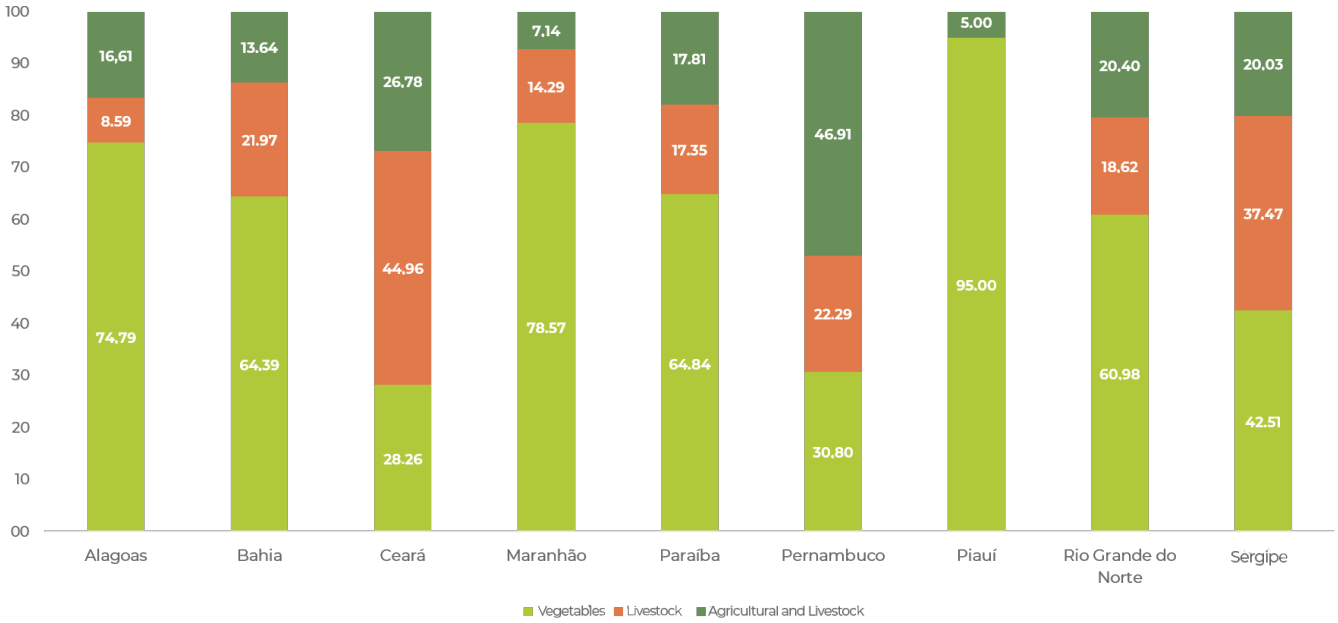
Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Organic production (%)

↑**2,266.67%** in the proportion of family farms with organic production

Note 1: In the 2006 Census of Agriculture, 1,604,015 family farmers from the Northeastern Semi-arid were interviewed, of which 5,450 (0.03%) had certified organic agriculture. Moreover, in the 2017 Census of Agriculture, 1,364,983 family farmers from the Northeastern Semi-arid were interviewed, of which 9,691 (0.71%) had certified organic agriculture. Therefore, the percentage change between Censuses is given by: [(0.71-0.03)/0.03]*100=2,266.67%. For Brazil, a percentage change of more than 1,000% was observed.
Note 2: Only the organic production that was CERTIFIED by an oversight agency is considered. In the 2006 Census pf Agriculture, the question was whether the farmer had organic production and later asked if it was certified.

Percentage of family farmers form the Northeastern Semi-arid that had organic production, per type and state

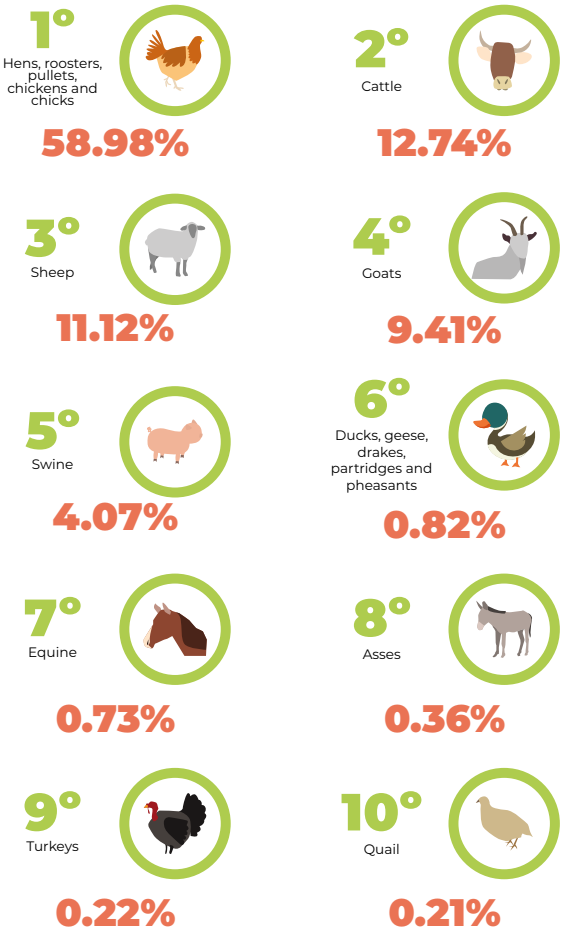


- For Alagoas, Bahia, Maranhão, Paraíba, Piauí, Rio Grande do Norte and Sergipe the **organic production of vegetables** stand out. In Ceará, organic livestock production predominates, unlike Piauí, where there is no **organic livestock**. In Pernambuco, there is a higher percentage of family farmers with **organic agricultural and livestock** production

Source: IBGE, 2017 Census of Agriculture.

TOP 10

OF FAMILY FARMING LIVESTOCK PRODUCTION IN THE NORTHEASTERN SEMI-ARID



Note 1: The values represent the percentages of heads of each livestock product in relation to the total of livestock heads raised by family farmers in the Northeastern Semi-arid.
Note 2: The TOP 10 of family farming livestock production for each state in the Northeastern Semi-arid in available in the Annex 4

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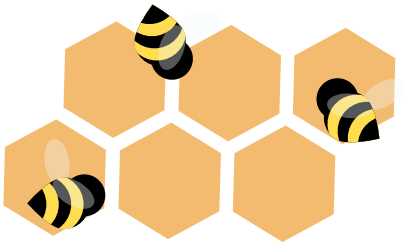
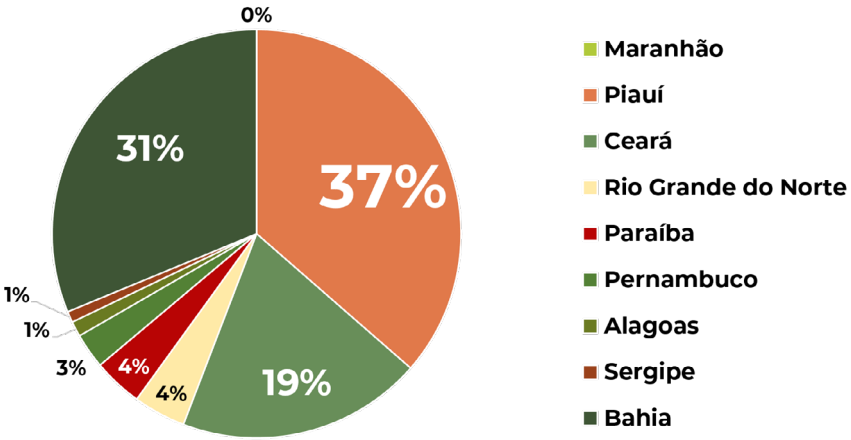
BEEKEEPING



17,963

family farms from the Northeastern Semi-arid **conducted beekeeping**. This corresponds to 1.3% of all family farms from the Northeastern Semi-arid

Percentage of family farms from the Northeastern Semi-arid that conducted beekeeping, per state



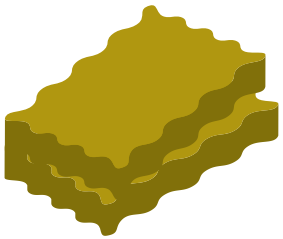
Source: IBGE, 2017 Census of Agriculture

80%

of family farms form the Northeastern Semi-arid that conducted beekeeping stated that they **sell honey**

1.3%

of family farms form the Northeastern Semi-arid that conducted beekeeping stated that they **sell royal jelly, propolis and pollen**



8.5%

of family farms form the Northeastern Semi-arid that conducted beekeeping stated that **they sell besswax**

EXTRACTIVISM

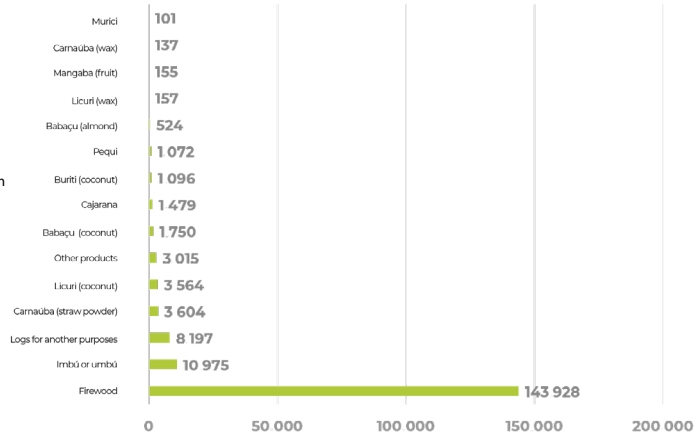
179,973

family farms from the Northeastern Semi-arid made PLANT EXTRACTION. This corresponds to 13% of all family farms from the Northeastern Semi-arid

R$ 490,050.00

Family farming production value (R$ 1,000) of plant extraction in the Northeastern Semi-arid for the reference period from October 1st, 2016 to September 30, 2017.

Number of family farms from the Northeastern Semi-arid, per type of plant extraction product



Source: IBGE, 2017 Census of Agriculture.

In the Census of Agriculture, extractivism refers to the extractive plant production carried out in the reference period, from non-planted (native) plant species. It is observed that, among the products of plant extraction, firewood has greater prominence in the region. This is because firewood is easily available for manual collection, and practically free of charge by farmers, being widely used in homes to cook on wood stoves and in small businesses (such as in potteries, bakeries, etc.). There is, among other native plants used in extraction, the imbuzeiro, which contributes as an alternative source of income for farmers and for the absorption of labor, especially during periods of drought.

AGRO-INDUSTRY

R$ 807,214.00

Gross value of agro-industrial production of family farmers in the Northeastern Semi-arid region for the reference period from October 1st, 2016 to September 30, 2017

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Value of Agro-industrial Production (%)

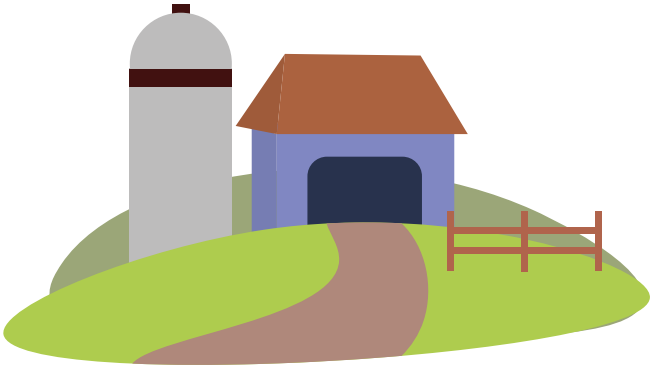
↑**123.73%** the value of agro-industrial production

The term **rural agro-industry** used in the analyzes follows the classification used by IBGE for the collection and tabulation of Census data. The gross production value of rural agro-industry in the Northeastern Semi-arid appears to be low, since in the Census of Agriculture only allows for the verification of data related to agro-industrial processing **carried out inside farms**. In other words, the Census of Agriculture considers farms where there is some industrial activity, in which the farmer declared that this activity is complementary to his agricultural activities.

Thus, the definition of agro-industry production refers to "products of the farm that have been benefited or transformed into their own, community or third party facilities, from raw material that has been produced in the farm itself or that has acquired from other producers, provided **that the final destination of the product has been given by the farmer**" (IBGE, 2017a, p. 118). Therefore, the production from farm's facilities in the form of services to third parties is not considered as agro-industry production; as well as the production acquired in third-party facilities, using raw material from the farm, whose final destination has not been given by the farmer.

In addition, the methodology adopted by IBGE incorporates the products of rural agro-industry destined for self-consumption and other purposes. In particular, production for self-consumption is linked to the cultural characteristics of a social group, such as cassava flour in the Northeast. When linked to family farming, production is small and medium-scale and can be directed both to self-consumption and to local marketing, being sale mainly to short chains. Since the requirements for legalization (inspection of agricultural health, differentiation stamps, certification mechanisms, etc.) and formalization make it impossible for family farmers to access institutional markets and other markets

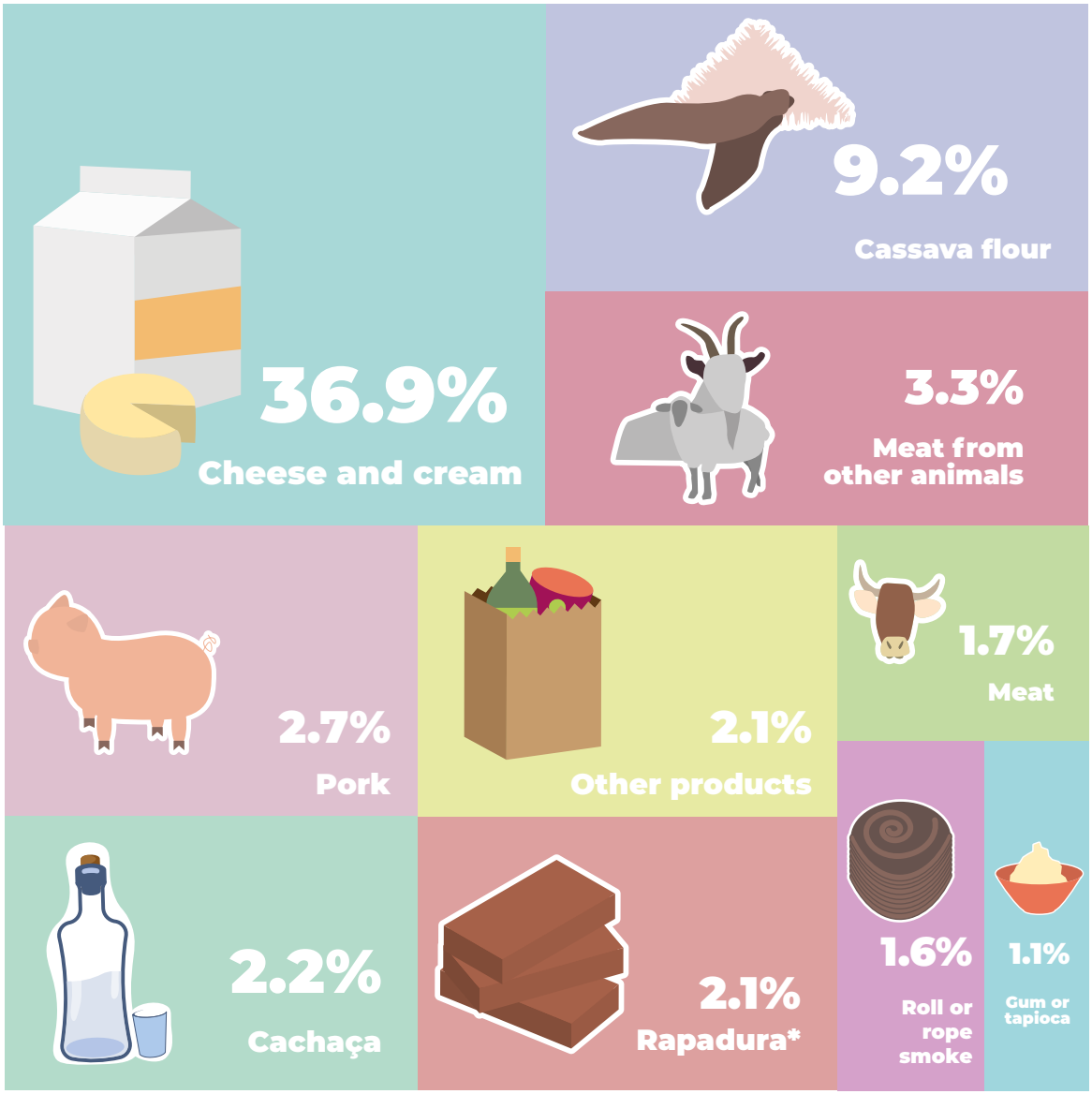
Proportion of family farms from the Northeastern Semi-arid, per type of installation



- **7.08%** — Installation from the own farm
- **2.20%** — Installation belonging to another farm (third party)
- **0.53%** — Public installation of community use
- **0.20%** — Private installation of community use (cooperatives, unions, etc.)

Source: IBGE, 2017 Census of Agriculture
Note: The difference to 100% refers to family farmers that do not use processing installations.

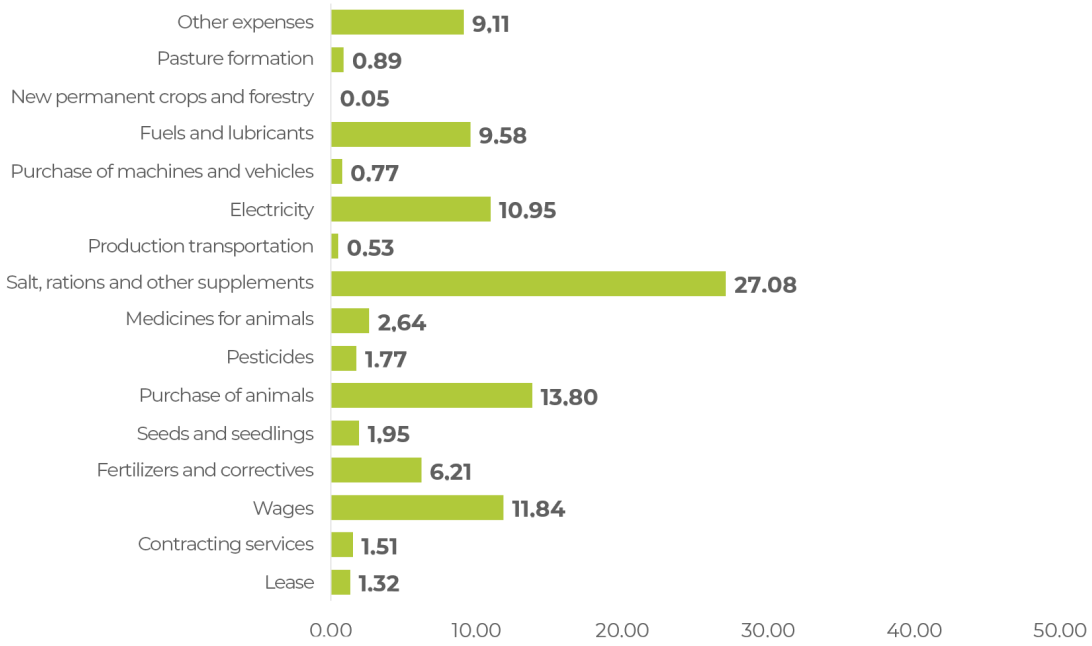
Percentage of sales value in relation to the whole Northeastern Semi-arid for the 10 largest products from family farming agro-industry



Source: IBGE, 2017 Census of Agriculture.
*Note: Rapadura is unrefined whole cane sugar

FARM'S FINANCE

Proportion of each expenditure item in relation to family farming total expenditure in the Northeastern Semi-arid



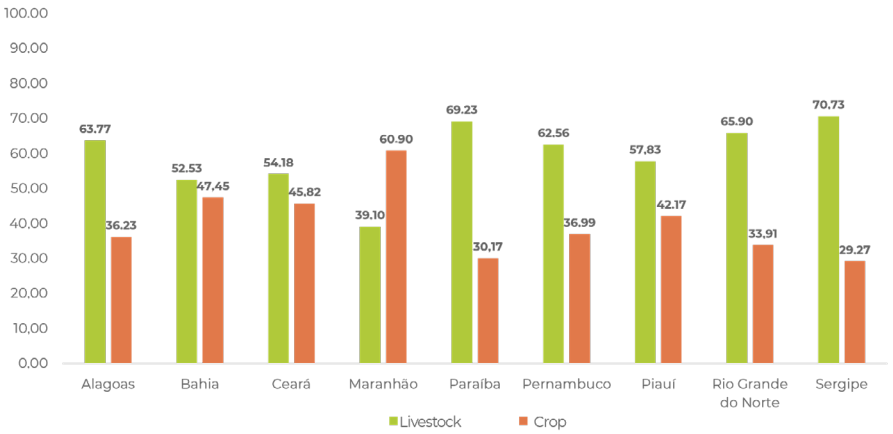
Source: IBGE, 2017 Census of Agriculture

Production Value of Family Farming in the Northeastern Semi-arid

R$10.8 billion

is the gross production value of family farming in the Northeastern Semi-arid

Proportion of livestock and crop production in relation to total gross production value of family farming in the Northeastern Semi-arid



Source: IBGE, 2017 Census of Agriculture

41.73% come from **crop production**

58.27% come from **livestock production**

Crop Production

24.16%

temporary crops

47.87%

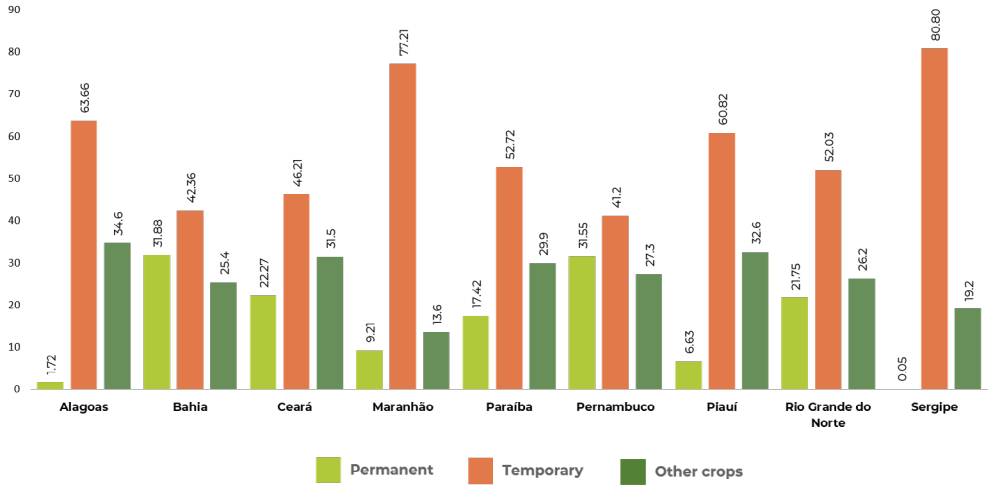
permanent crops

27.97%

other products

Note: The percentage of “other products” comes from the sum of horticulture, floriculture, forestry and plant extraction.

Proportion of temporary and permanent crop production in relation to total crop production for each state of the Northeastern Semi-arid

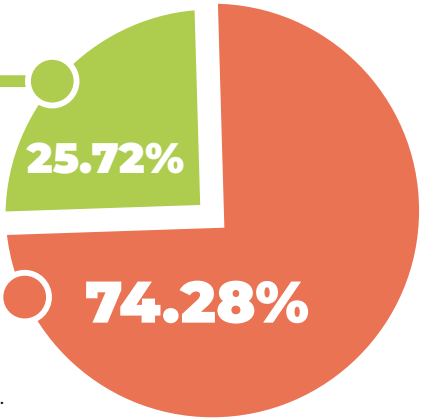


Source: IBGE, 2017 Census of Agriculture

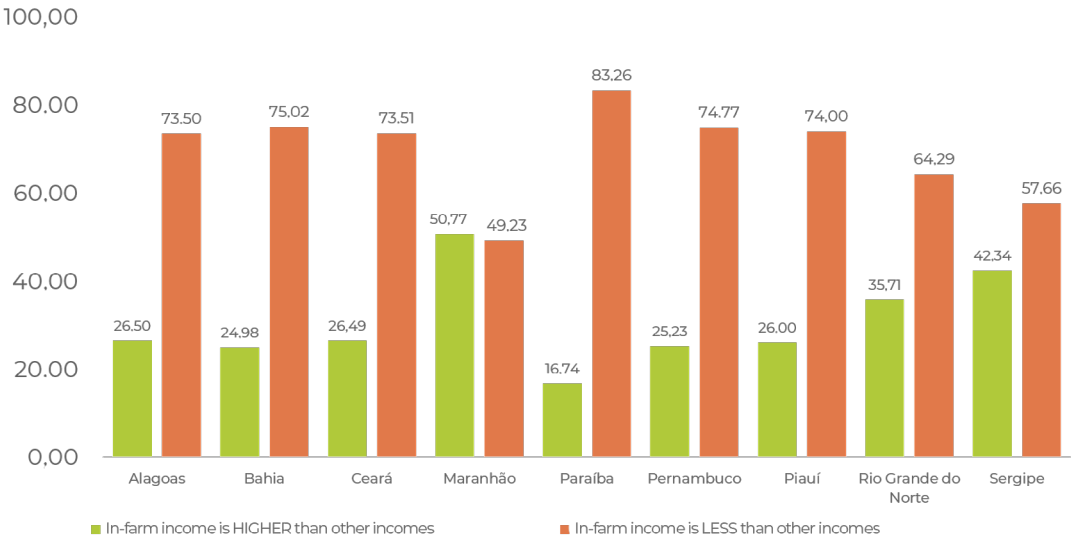
Family farming income generated from in-farm activities in the Northeastern Semi-arid

The income generated from in-farm activities is **HIGHER** than other incomes obtained by the farmer

The income generated from in-farm activities is **LESS** than other incomes obtained by the farmer



Note: The percentage reflects the proportion of farms that made these statements.



Source: IBGE, 2017 Census of Agriculture

Family Farming Revenues in the Northeastern Semi-arid

Of all family farmers from the Northeastern Semi-arid:

64.68%

Type I
Revenues from farm production

- Crops
- Livestock
- Agro-industry products

7.43%

Type II
Other farm revenues

- Divestment
- Rural tourism activities
- Mineral exploration
- Crafts, weaving, etc.
- Other revenues

83.35%

Type III
Other farmer revenues

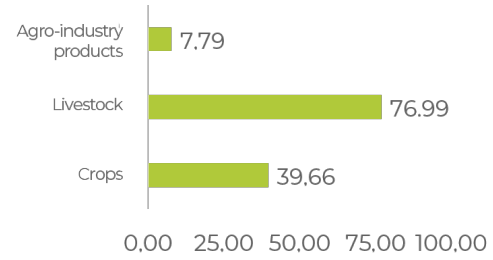
- Pensions
- Off-farm activities
- Indemnities from Garantia Safra
- Indemnities from PROAGRO Mais
- National Rural Housing Program
- Payment for Environmental Services (Green Grant and State Programs)
- Other government programs (federal, state or municipal)

Source: IBGE, 2017 Census of Agriculture.
Note 1: The percentage sum surpasses 100% because the family farmer may have more than one revenue.
Note 2: PROAGRO Mais - Programa de Garantia da Atividade Agropecuária da Agricultura Familiar

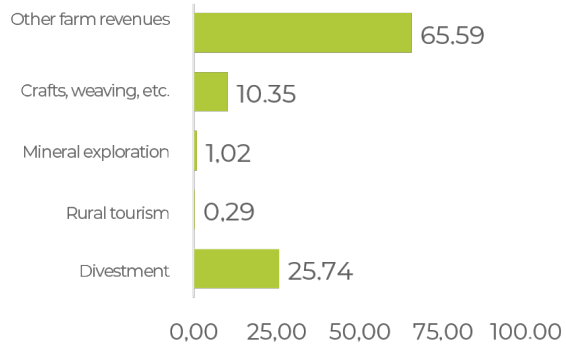
It is noteworthy that a higher percentage of family farmers claimed to have other types of revenues (such as those from government programs). In addition, most of farms (74.28%) claimed that income from in-farm activities are LESS than other incomes obtained by them.

This is due, in part, to the fact that since the 1990s the Brazilian Government has helped family farmers in the Northeastern Semi-Arid through social compensation policies. However, for the agricultural sector of this region to become competitive, it is essential to have targeted public policies that go beyond welfare policy.

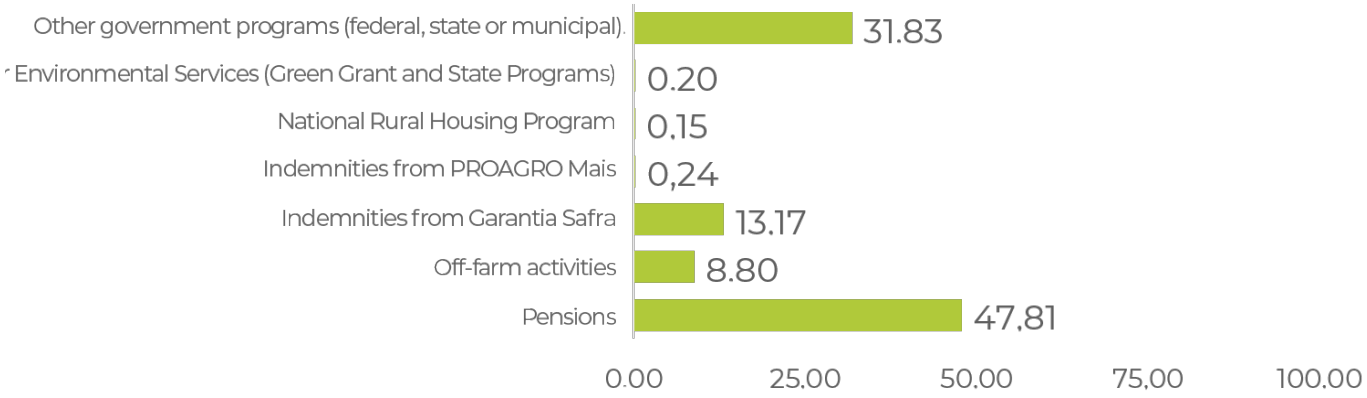
In relation to family farmers that received Type I revenues (%)



In relation to family farmers that received Type II revenues (%)

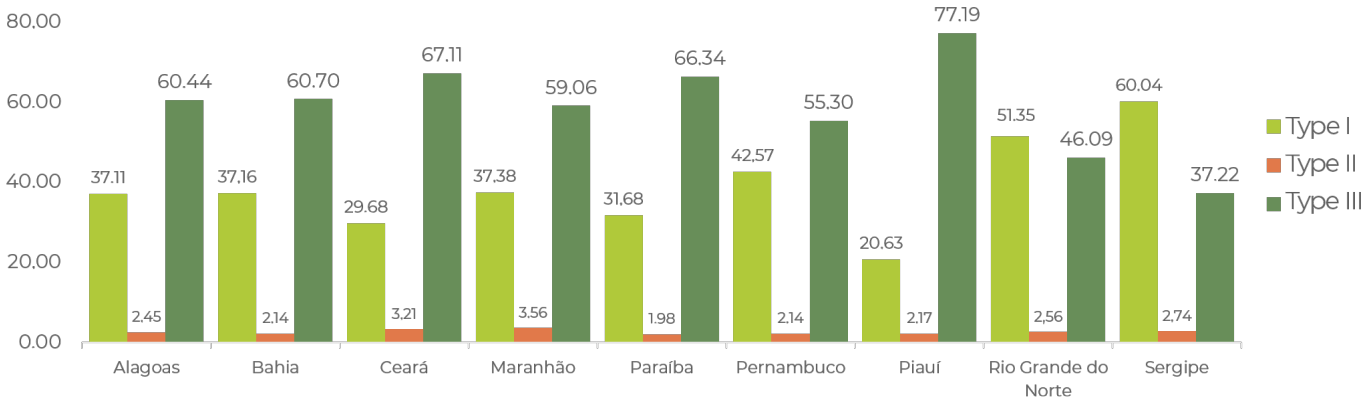


Proportion of family farmers from the Northeastern Semi-arid in each Type III revenues subtype (%)



Source: IBGE, 2017 Census of Agriculture.

Proportion of Type I, II and III revenues from family farming in relation to total revenue in the states of the Northeastern Semi-arid

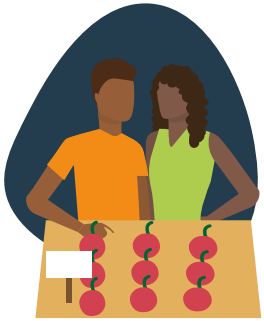


Source: IBGE, 2017 Census of Agriculture.

Main Purpose of Production

68.51%

Its main purpose is to allocate production for **self-consumption** and for people with family ties to the farmer

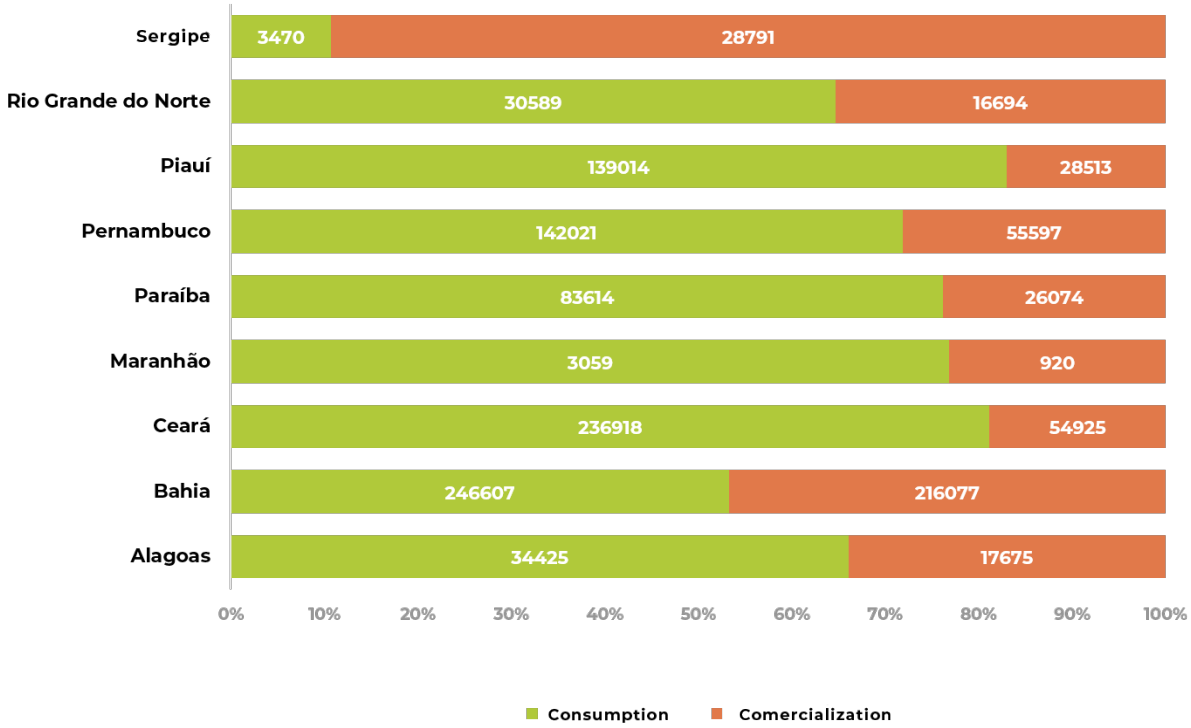


31.49%

TIts main purpose is to allocate part of the production for **commercialization**

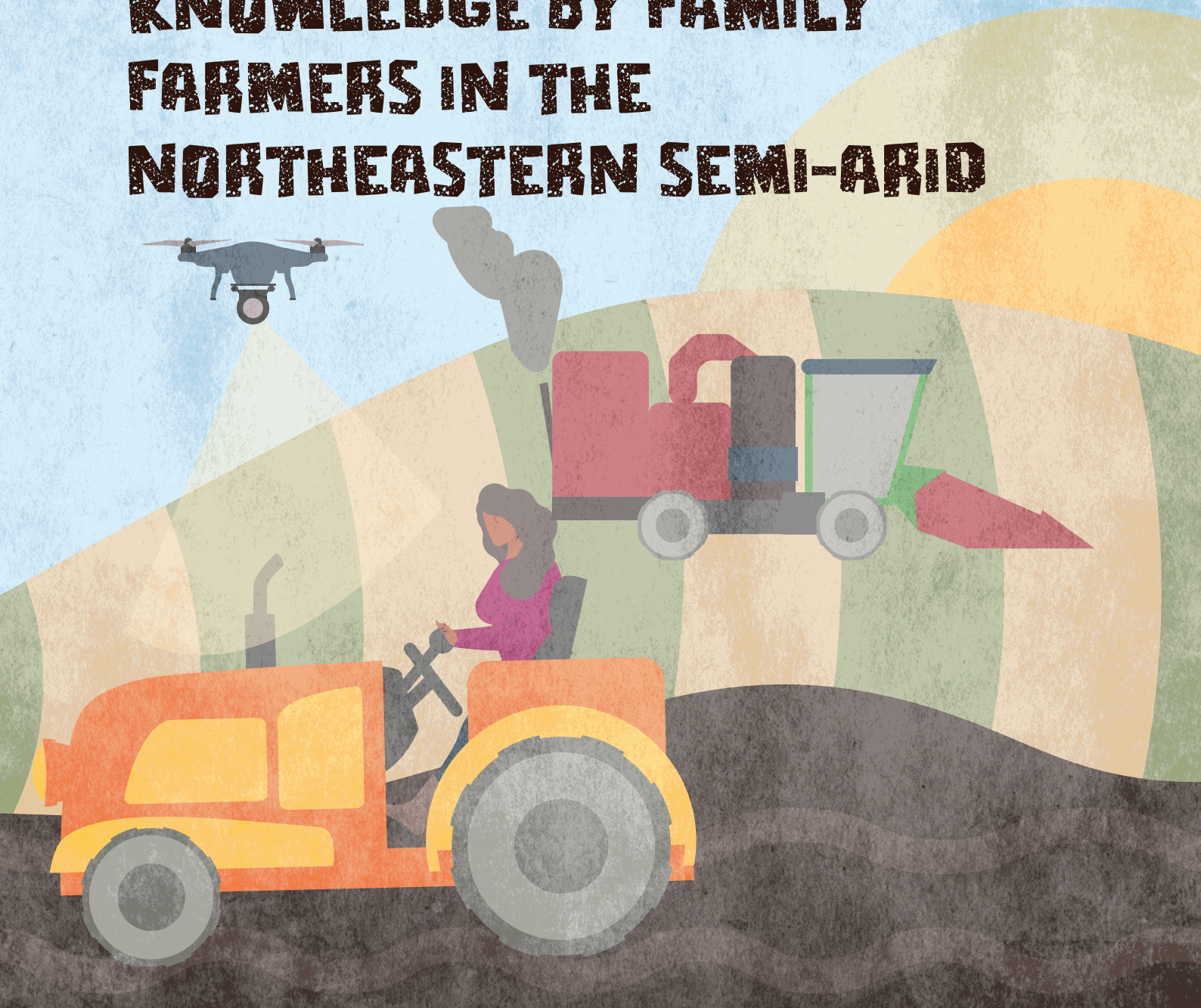
Considering all the states in the Northeastern Semi-Arid, it is observed that in Rio Grande do Norte, Piauí, Pernambuco, Paraíba, Maranhão, Ceará and Alagoas, family farmers **allocate production for self-consumption**. In particular, **Piauí** has the highest percentage of family farmers who self-consume the production (82.93%). In **Sergipe**, in turn, there is a higher percentage of family farmers for whom the main destination of production is commercialization (89%).

Number of family farmers in each state that comprises the Northeastern Semi-arid per main purpose of production



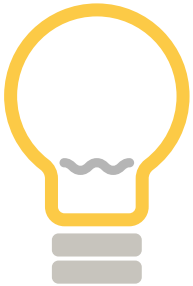
Source: IBGE, 2017 Census of Agriculture

Access to technology and knowledge by family farmers in the Northeastern Semi-arid



ACCESS TO ELECTRICITY

82.21%
Have access to electricity



17.48%
Have no access to electricity

Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

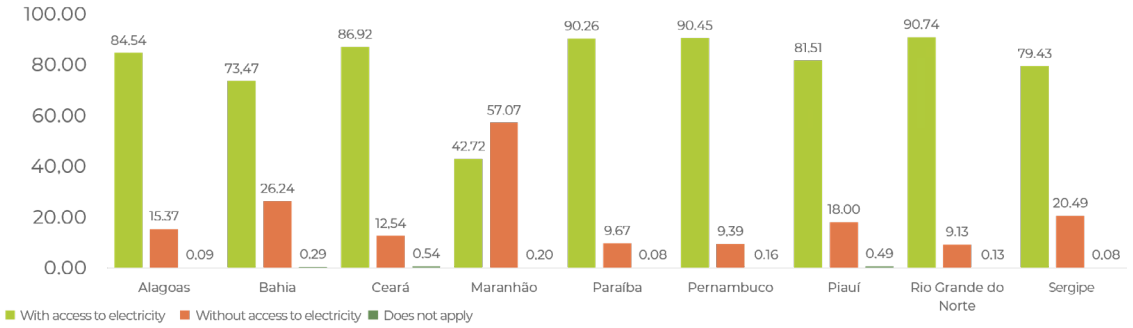
Electricity (%)

↑**27.39%** in the proportion of family farms that have access to electricity

↓**50.72%** in the proportion of family farms that do NOT have access to electricity

Source: IBGE, Census for Agriculture 2017.
Note: Does not apply for 0.31%.

Percentage of family farmers in each state in the Northeastern Semi-Arid region, by availability or not of electricity in the farm

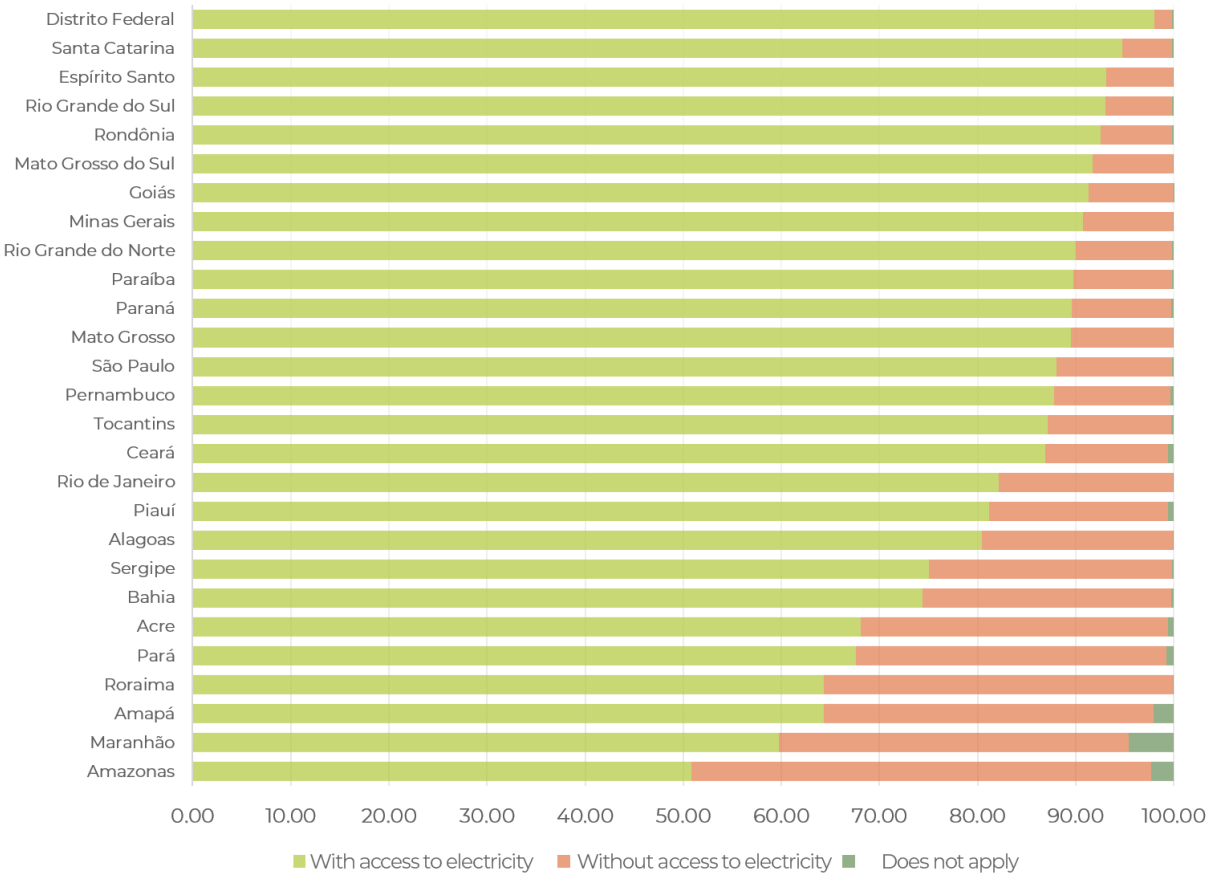


Source: IBGE, Census for Agriculture 2017.
Note: Only two municipalities (Araioses and Timon) in the State of Maranhão are part of the Northeastern Semi-arid.

When analyzing all the states that that make up the Northeastern Semi-arid, it is noted that in Maranhão most of the family farms **still do not have access to electricity**.

According to data from the 2017 Census of Agriculture, in Brazil, among the establishments classified as familiar, there are **still 16.55% that do not have access to electricity**

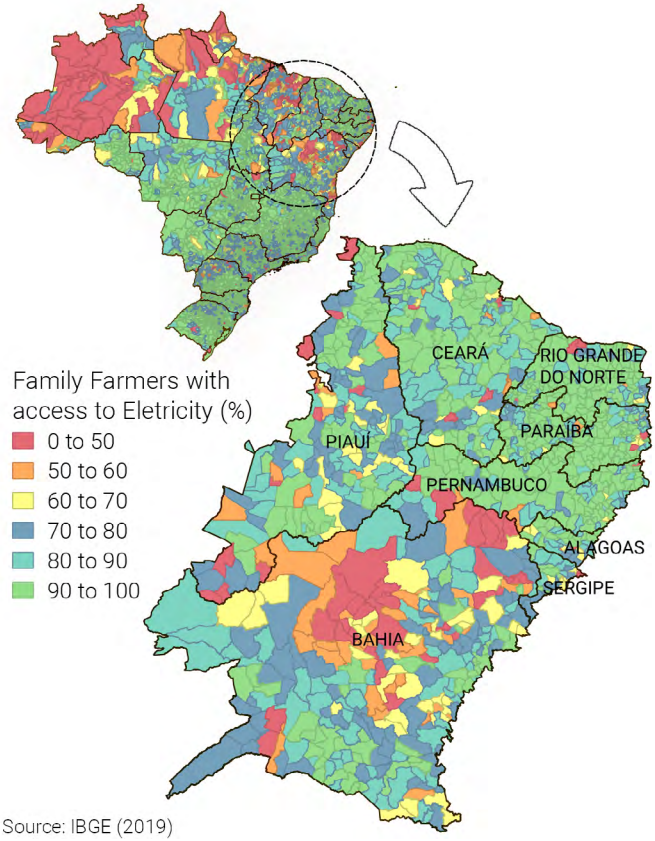
Percentage of family farmers in each state of Brazil by availability or not of electricity in the farm



Source: IBGE, 2017 Census of Agriculture.

In terms of productive infrastructure, it is indisputable that the energy issue has a fundamental role because, in addition to being essential to human activities, electricity is an indispensable element in the development process of the production system. Access to energy allows, among several purposes, **adding value to agricultural production** through pre-processing, carrying out extra productive activities at dusk and **increasing the quality of life** of this public.

Percentage of family farmers with availability of electricity in the farm in each Brazilian municipality



Source: IBGE (2019)

TECHNICAL ASSISTANCE

Most family farmers in the Northeastern Semi-arid claimed that they **did not receive any technical assistance.**

8%

Receive technical assistance

92%

Do not receive technical assistance

Source: Source: IBGE, 2017 Census of Agriculture.
Note: The reference period for the information collected in the 2017 Census of Agropecuary, as with the technical assistance received, runs from October 1, 2016 to September 30, 2017.

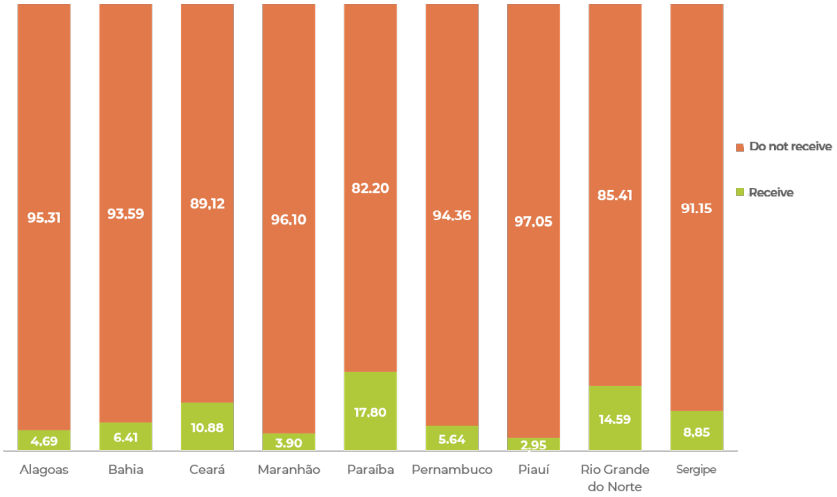
Joacir Rufino de Aquino and Marcus Peixoto were consulted for a better understanding of the reasons for the low percentage of family farmers in the Northeastern Semi-arid who reported having received the Technical Assistance and Rural Extension (ATER) services. Joacir Rufino de Aquino, pointed out the following points that led to the critical situation portrayed in the 2017 Census of Agriculture:

- Small number of professionals from Northeastern Technical Assistance and Rural Extension Companies (EMATERs). To illustrate, Joacir Rufino de Aquino use information from EMATER/RN (2016) for the case of Rio Grande do Norte state, which has 93% of its territory in the Semi-arid and 50,680 family farms. Given that in 2015, on the eve of the last Census of Agriculture, the state EMATER, one of the most structured in the Northeast, had a staff of 534 civil servants, divided between candidates (370), scholarship holders (144) and interns (20). Of this contingent, 156 (29.2%) worked in bureaucratic activities at the Institution's headquarters and 378 (70.8%) worked directly in the Field Units providing assistance to farmers and assisting in the implementation of programs and projects. This portrays the lack of professionals in the public ATER that has been facing a process of restructuring since the 1990s. A significant portion of the municipalities has only one technician who has to handle the bureaucracy of the office and serve all producers, something almost impractical;
- "Private ATER contracts", resulting from public calls made until 2015 in the expansive phase before the crisis and the dismantling of some rural development policies, have low coverage. Due to its discontinued feature, contracts are unable to solve the problem.

Marcus Peixoto reinforces the last point raised by Joacir Rufino de Aquino. For Peixoto, this situation is a result of states' fiscal restrictions, which were aggravated by the recession that occurred between 2015 and 2016. In addition to the huge drop in the federal budget destined to funding public calls from the National Agency for Technical Assistance and Rural Extension (ANATER), which is an expressive source of funds for many state entities.

Peixoto also points out that there may be flaws in the Census of Agriculture questionnaire, which inquires only for receiving technical assistance. Many of ATER's actions are not only of technical assistance, but of rural extension, which, as many advocates, transcends technical assistance and extends to social assistance, health, home economics, organization, infrastructure, basic sanitation, among other actions.

Percentage of family farms from the Northeastern Semi-arid that received technical assistance or not, by state



Source: IBGE, 2017 Census of Agriculture.

When analyzing all the states of the Northeastern Semi-arid, it is noticed a repeating behavior, that is, there is a predominance of family farms in the Northeastern Semi-arid that did not receive technical assistance in the reference period of the Census of Agriculture (October 1st 2016 to September 30, 2017).

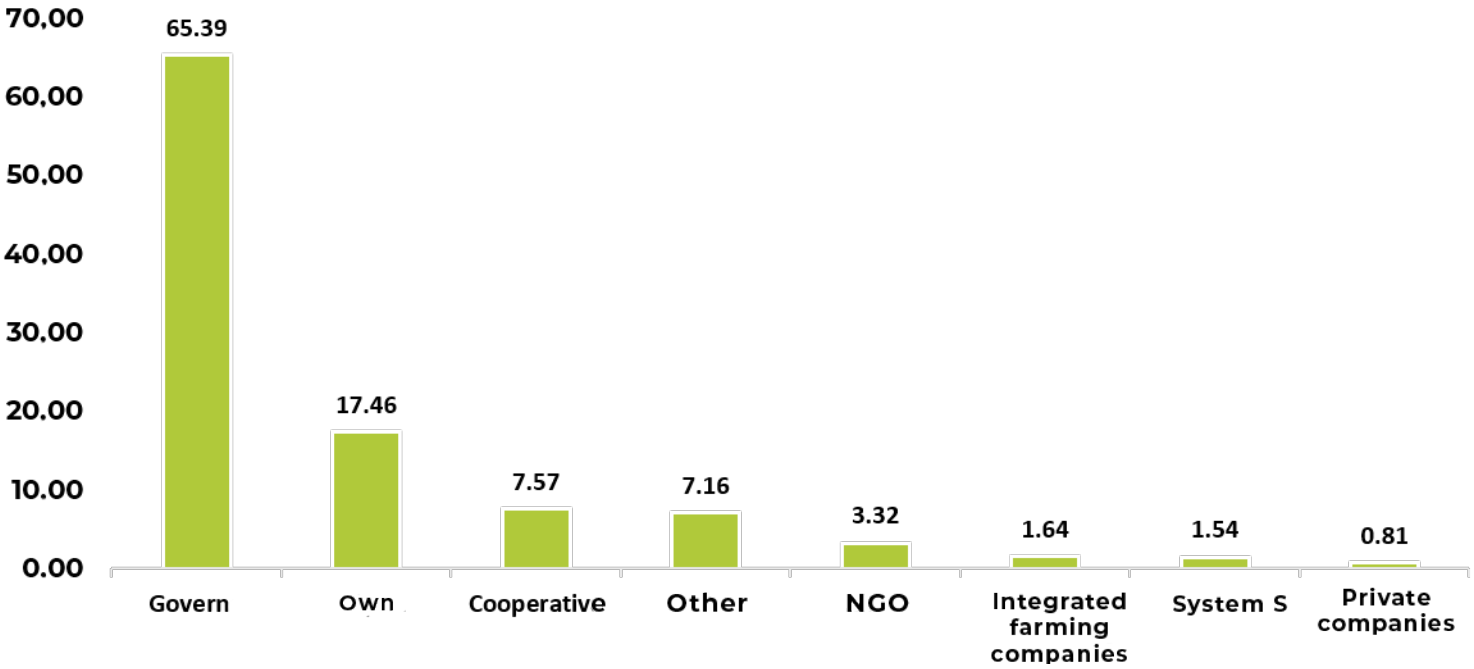
Comparison between the Censusses of Agriculture 2006 and 2017 for the Northeastern Semi-arid

Technical Assistance (%)

↑**4.2 %** in the proportion of family farms that received technical assistance

↓**0.3 %** in the proportion of family farms that did not receive technical assistance

The origin of technical assistance among those family farmers in the Northeastern Semi-arid who received (%)



Source: IBGE, 2017 Census of Agriculture.

Note 1: The percentages represent the variation in the proportion of family farmers in each type of technical assistance.

Note 2: Integrated farming company is when an agro-industry (for example), to meet market demands, forms a contractual partnership with a farmer that has a physical structure to generate the production needed. Thus, the farmer is responsible for part of the production process, such as the production of fruit or fattening chicken and pigs, selling this production to the agro-industry, as raw material to be processed and transformed into the final product. The integrating company must provide the farmer with the inputs and services necessary for production.

Note 3: Guidance and technical assistance from integrated farming companies occurs when these are provided by qualified technicians from the companies with which the farmer has an integration contract.

Note 4: Guidance and technical assistance from private companies occurs when provided by technicians from private companies hired by the farmer.

Note 5: System S is a joint system of social contributions paid by private companies to fund the so-called Autonomous Social Services.

Note 6: There is no specification in the Census of Agriculture Manual of what other types of technical assistance origin would be.

Note 7: 'Own' refers to guidance and technical assistance provided by a professional hired by the farmer or the case where the farmer himself or the farm operator has the necessary qualification or legally authorized professional training to provide assistance to farm activities.

Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Type of Technical Assistance (%)

↓**6.20 %** in the proportion of family farms that received technical assistance from the government

↓**7.39 %** in the proportion of family farms that received technical assistance from own technical assistance

↑**137.65 %** in the proportion of family farms that received technical assistance from cooperatives

↓**22.45 %** in the proportion of family farms that received technical assistance from integrated farming companies

↓**77.52 %** in the proportion of family farms that received technical assistance from private companies

↑**61.38 %** in the proportion of family farms that received technical assistance from NGOs

↑**253.66 %** in the proportion of family farms that received technical assistance from other types of technical assistance

MACHINERY IN ESTABLISHMENTS

0.32%

Sowing/planting machines

1.29%

Tractors

0.09%

Fertilizing machines

0.12%

Combine harvesters

It is observed that **mechanization** is still a restricted reality to a **small percentage** of family farmers in the Northeastern Semi-arid.

Source: IBGE, 2017 Census of Agriculture.

Note: This information refers to the machinery in the farms, which is not the same as the use of machinery. It is possible that family farmers have access to a certain machinery via a service provision (usually for a fee).

Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Type of Machinery (%)

- ↑**34.72 %** in the proportion of farms that have tractors
- ↑**68.00 %** in the proportion of farms that have sowing/planting machines
- ↓**33.84 %** in the proportion of farms that have combine harvesters
- ↓**96.34 %** in the proportion of farms that have fertilizing machines

Note: Variation in the proportion of farms that use machines and implements between 2006 and 2017.

STORAGE UNITS

3.28%

of family farms have **storage units**

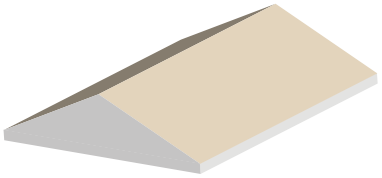
The storage techniques help family farmers to **cope with the Semi-arid climate**. On the one hand, they allow, in the period of abundance, production in general to be stored. Therefore, during drought or even in years of extreme drought, livestock production systems can be maintained at low additional costs. Thus, allowing livestock food autonomy in the farms themselves.

55.20%

Conventional warehouses

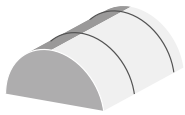
44.50%

Silos



1.50%

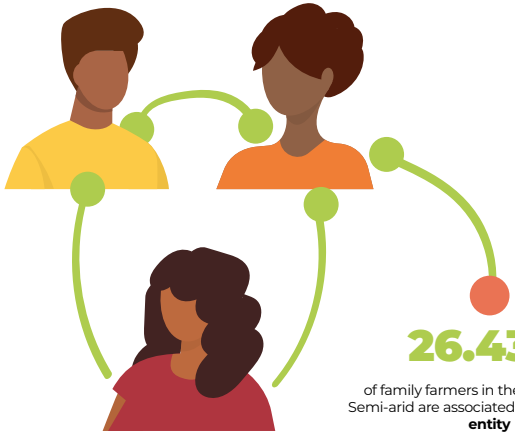
Bulk carriers



0.83%

Inflatables

CLASS ENTITIES



26.43%

of family farmers in the Northeastern Semi-arid are associated with **some class entity**

Comparison between the 2006 and 2017 Census of Agriculture for the Northeastern Semi-arid

Association with some class entity (%)

↓**36.74 %** in the proportion of farmers that are associated

↑**88.66 %** in the proportion of farmers that are cooperative

Among family farmers who are associated in the Northeastern Semi-arid, what are the proportions in each type of association?

39.66%

Associated with some farmers' movement

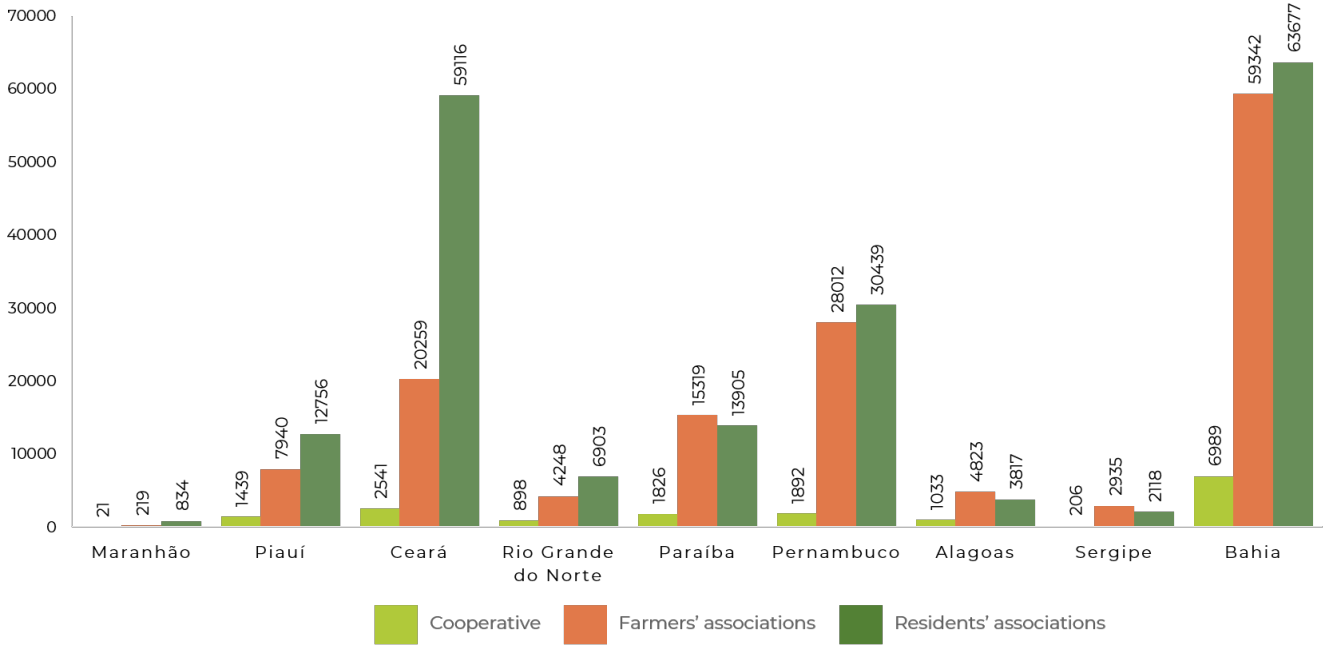
4.67%

Associated with some cooperative

53.65%

Associated with some residents' movement

Among family farmers who are associated, what is the number of farms by type of association and by state?



Source: IBGE, 2017 Census of Agriculture.

It is noted that the **productive associativism** needs a greater diffusion, since the tradition of participating in agricultural cooperatives in the region is small. Family farmers can benefit from this in several aspects, such as buying inputs at a better price and selling production in better conditions, as well as accessing credit and technical assistance.

ACCESS TO PUBLIC POLICIES FOR FAMILY FARMING IN THE NORTHEASTERN SEMI-ARID

FUNDING

13.81%
Received funding

86.19%
Did not receive funding

A better access to funding by family farmers contributes to a **greater dynamism** of the agricultural sector in the Northeastern Semi-arid. The high percentage of family farmers without an efficient funding system, both in terms of the amount of financial resources and the quality of technical projects, shows **how public policies need to evolve** to reach universal access to funding.

Note 1: The reference period for the information collected in the 2017 Census of Agriculture, like funding, is from October 1st, 2016 to September 30, 2017.

Note 2: In the Census of Agriculture, this part focused on funding obtained from finance companies, banks, cooperatives, individuals, etc. This shows that funding agricultural activity is not restricted to rural credit nor to PRONAF alone.

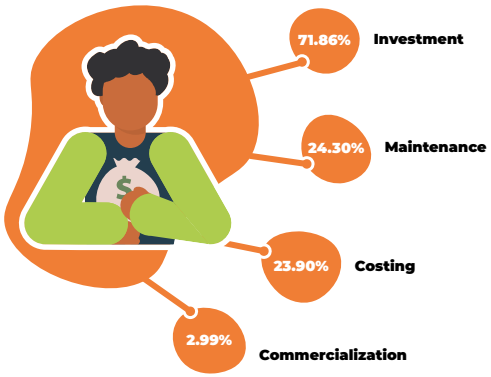
Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid

Funding (%)

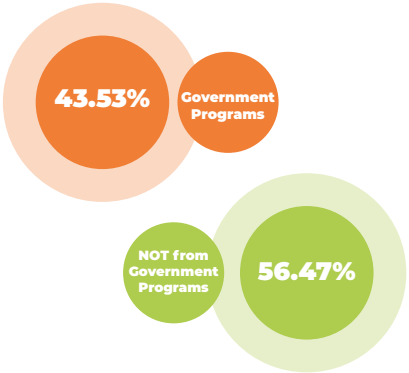
↓**5.60 %** in the proportion of family farms that received funding

Among the family farmers from the Northeastern Semi-arid that received funding:

Funding Purpose

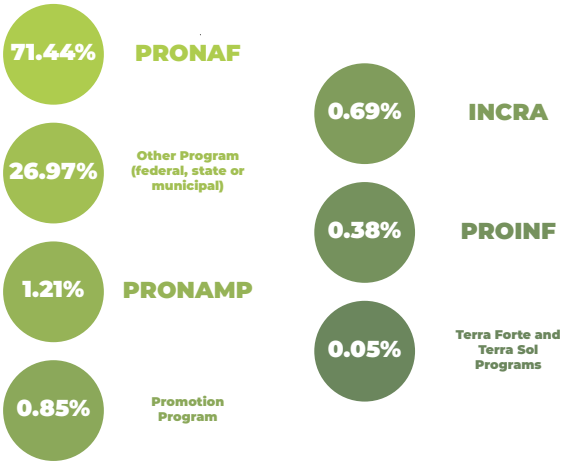


Funding Source



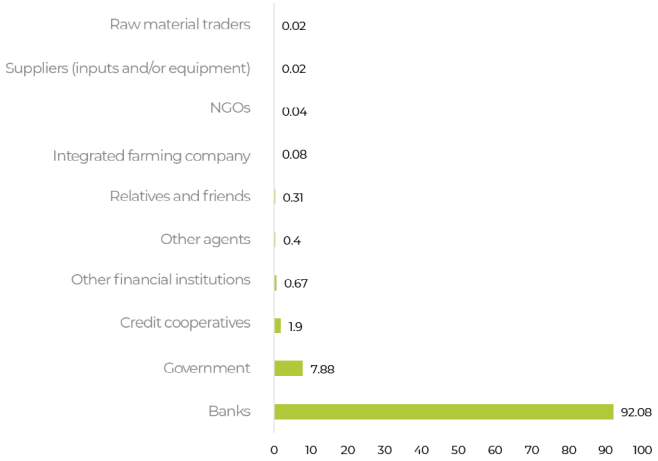
Source: IBGE, 2017 Census of Agriculture

Considering only family farmers from the Northeastern Semi-arid that received funding FROM government credit programs, the percentage of each of these programs is



Source: IBGE, 2017 Census of Agriculture.
Note: Percentage sum surpass 100% because family farmers may be funded by more than one source.

Financial agent responsible for the funding



Source: IBGE, 2017 Census of Agriculture.
Note: Percentage sum surpass 100% because family farmers may have more than one financial agent.

TYPE OF FAMILY FARMER

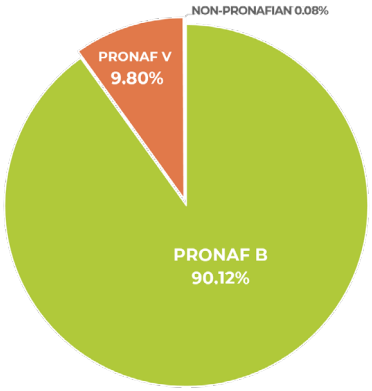
Classification criteria of family farms per PRONAF type according to IBGE

Gross annual family income less than or equal to R$ 20,000 – **Pronaf B;**

Gross annual family income greater than R$ 20,000 and less than or equal to R$ 360,000 – **Pronaf V;**

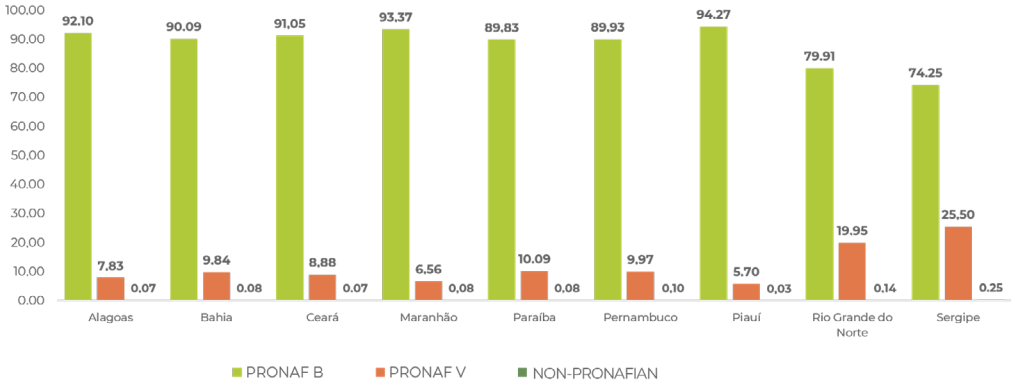
Gross annual family income greater than R$ 360,000 – **Non-pronafian**

Proportion of each type in relation to family farmers from the Northeastern Semi-arid



Source: IBGE, 2017 Census of Agriculture.

Proportion of each type of family farmer in the states of the Northeastern Semi-arid



Source: IBGE, 2017 Census of Agriculture.

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ANNEx 1

The tables shown here contain the absolute values of each of the variables that were used to elaborate the tables regarding the "Comparison between the 2006 and 2017 Censuses of Agriculture for the Northeastern Semi-arid" throughout this document. In these tables, the variation in the proportion of variables between the 2006 and 2017 Censuses of Agriculture was calculated, since the absolute data of these Censuses cannot be directly compared. Firstly, because the period and date of reference are different between Censuses. In addition, the total number of farmers interviewed is different in each of them.

Table 1: Family farmers in the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Family Farming in the Northeast	Family Farming in the Northeastern Semi-arid	(%)
2006	1,794,802	1,604,015	89.37%
2017	1,729,143	1,364,983	79.00%

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 2: Gender of family farmers from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

CA	Male	Female	Male(%)	Female(%)	Family Farming in the Northeastern Semi-arid
2006	1,344,485	259,530	83.82	16.18	1,604,015
2017	1,036,978	328,005	75.97	24.03	1,364,983

Table 3: Age classes of family farmers from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

Age classes	Number of family farmers		(%)	
	2006	2017	2006	2017
Less than 25	59,918	26,822	3.74	1.97
From 25 to less than 35	233,377	124,460	14.55	9.12
From 35 to less than 45	330,596	230,157	20.61	16.86
From 45 to less than 55	325,572	294,836	20.30	21.60
From 55 to less than 65	326,915	306,510	20.38	22.46
More than 65	327,637	382,198	20.43	28.00
Total	1,604,015	1,364,983	100.00	100.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 4: Family farms from the Northeastern Semi-arid with organic agriculture in the 2006 and 2017 Censuses of Agriculture

	Organic agriculture	(%)	Family Farming in the Northeastern Semi-arid
2006	5,540	0.03	1,604,015
2017	9,691	0.71	1,364,983

Table 5: Area groups of family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Número de estabelecimentos		(%)	
	2006	2017	2006	2017
More than 0 to less than 0.1	34,163	20,818	2.13	1.53
From 0.1 to less than 0.2	19,023	15,382	1.19	1.13
From 0.2 to less than 0.5	72,655	59,897	4.53	4.39
From 0.5 to less than 1	138,013	119,681	8.60	8.77
From 1 to less than 2	225,972	198,782	14.09	14.56
From 2 to less than 3	143,778	125,928	8.96	9.23
From 3 to less than 4	112,554	94,735	7.02	6.94
From 4 to less than 5	73,639	63,749	4.59	4.67
From 5 to less than 10	196,171	179,593	12.23	13.16
From 10 to less than 20	183,462	173,538	11.44	12.71
From 20 to less than 50	195,334	186,844	12.18	13.69
From 50 to less than 100	75,516	69,447	4.71	5.09
From 100 to less than 200	30,003	27,415	1.87	2.01
From 200 to less than 500	5,607	5,000	0.35	0.37
From 500 to less than 1,000	76	33	0.005	0.0024
From 1,000 to less than 2,500	37	10	0.002	0.0007
From 2,500 to more	12	4	0.001	0.0003
Farmer with no area	98,000	24,127	6.11	1.77
Total	1,604,015	1,364,983	100.00	100.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 6: Personnel employed in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Personnel employed		(%)		
	With family ties	Without family ties*	With family ties	Without family ties	Total number of employees in family farms
2006	4,096,902	543,500	88.29	11.71	4,640,402
2017	3,020,495	420,604	87.77	12.22	3,441,262

*Note: In 2006, the personnel employed without family ties were subdivided in temporary, permanent, partner and others. In 2017, there were only temporary, permanent and partner.

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 7: Type of personnel employed without family ties in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Personnel employed without family ties			(%)			Total number of employees without family ties
	Permanent	Temporary	Partner	Permanent	Temporary	Partner	
2006	15,228	521,043	1,572	2.83	96.88	0.29	537,843
2017	46,600	367,515	6,489	11.08	87.38	1.54	420,604

Note: The total number of employees WITHOUT kinship with the farmer presented in Tables 6 and 7 are different. This is because, in 2006, the employees WITHOUT kinship with the farmer were divided in temporary, permanent, partner and others, whilst in 2017 they were classified only in temporary, permanent and partner. Therefore, in order to compare the figures of the two years analyzed, Table 7 does not consider the category “others” in the total number of employees WITHOUT kinship with the farmer for 2006.

Table 8: Family farms that used pesticides from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Pesticide		(%)*		Family farming in the Northeastern Semi-arid
	Used	Did not use	Used	Did not use	
2006	319,636	1,239,971	19.93	77.30	1,604,015
2017	319,949	1,040,660	23.44	76.24	1,364,983

Note: The amount necessary to complete 100% refers to those who answered that they use pesticides, but did not need to use them in the reference period.

Table 9: Water resources in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Water resources		(%)		Family farming in the Northeastern Semi-arid
	Had	Did not have	Had	Did not have	
2006	594,984	1,009,031	37.09	62.91	1,604,015
2017	1,039,923	325,060	76.19	23.82	1,364,983

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 10: Type of water resources in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number		(%)	
	2006	2017	2006	2017
Water sources protected by forest	32.888	34.214	5.53	3.29
Water sources not protected by forest	42.182	28.625	7.09	2.75
Protected rivers or streams	157.563	194.295	26.48	18.68
Not protected rivers or streams	235.720	179.206	39.62	17.23
Conventional wells	169.353	216.397	28.46	20.81
Artesian, semiartesian or tubular wells	51.090	173.315	8.59	16.67
Cisterns	389.128	766.561	65.40	73.71

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 11: Irrigation in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Irrigation		(%)		Family farming in the Northeastern Semi-arid
	Did	Did not	Did	Did not	
2006	90,339	1,513,676	5.63	94.37	1,604,015
2017	138,217	1,226,766	10.13	89.87	1,364,983

Table 12: Economic activity groups in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number		(%)	
	2006	2017	2006	2017
Temporary crops	721,857	496,068	45.00	36.34
Horticulture and fruticulture	30,321	25,107	1.89	1.84
Permanent crops	105,998	86,469	6.61	6.33
Certified seeds and seedlings	652	717	0.04	0.05
Livestock	741,339	711,378	46.22	52.12
Planted forests	20,441	7,139	1.27	0.52
Native forests	28,906	35,952	1.80	2.63
Fishery	2,838	1,174	0.18	0.09
Aquiculture	1,010	979	0.06	0.07

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 13: Agricultural production and Agro-industry production values in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	2006	2017
Agro-industry production value	360,792	807,215
Production value	3,650,316	10,821,501

Table 14:Expenses that had the largest proportional changes in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture, in R$ 1,000.00

	Value		Percentage in relation to total expense value	
	Wages	Corrective fertilizers	Wages	Corrective fertilizers
2006	289,381	119,649	13,18	5,45
2017	842,369	441,622	11,84	6,21

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 15: Electricity in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)		Family farming in the Northeastern Semi-arid
	Have not	Have	Have not	Não tem	
2006	1,035,103	568,912	64,53	35,47	1,604,015
2017*	1,122,154	238,542	82,21	17,48	1,364,983

* Note: 0.31 corresponds to the answer “does not apply

Table 16: Technical assistance in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)		Family farming in the Northeastern Semi-arid
	Received	Did not receive	Received	Did not receive	
2006	123,563	1,480,452	7.70	92.30	1,604,015
2017	109,357	1,255,626	8.01	91.99	1,364,983

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 17: Types of technical assistance obtained by family farmers from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)*	
	2006	2017	2006	2017
Government (federal, state or municipal)	86,147	71,514	69.72	65.39
Own or from the farmer himself	23,299	19,097	18.86	17.46
Cooperatives	3,936	8,279	3.19	7.57
Integrated farming companies	2,620	1,798	2.12	1.64
Private planning companies	4,452	886	3.60	0.81
NGOs	2,543	3,632	2.06	3.32
Other	3,039	9,512	2.46	8.70

*Note: Surpass 100% because the farmer can received more than one type of technical assistance.

Table 18: Machinery in family farms from the Northeastern Semi-arid in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)*	
	2006	2017	2006	2017
Tractors	15,375	17,626	0.96	1.29
Sowing/planting machines	16,167	4,403	1.01	0.32
Combine harvesters	2,819	1,587	0.18	0.12
Fertilizing machines	723	1,208	0.05	0.09

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 19: Family farmers from the Northeastern Semi-arid that were associated to class entities in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)		Family farming in the Northeastern Semi-arid
	Association*	Cooperative**	Association	Cooperative	
2006	670,088	16,551	41.78	2.47	1,604,015
2017	360,779	16,812	26.43	4.66	1,364,983

* Note: Farmers associated to some class entity in relation to all family farmers from the Northeastern Semi-arid.
** Note: Number of cooperative farmers in relation to all family farmers that are associated to some class entity

Table 20: Funding of family farmers from the Northeastern Semi-arid that were associated to class entities in the 2006 and 2017 Censuses of Agriculture

	Number of farms		(%)		Family farming in the Northeastern Semi-arid
	Yes	No	Yes	No	
2006	234,650	1,369,365	14.63	85.37	1,604,015
2017	188,585	1,176,398	13.82	86.18	1,364,983

ANNEx 2

TOP 10
of the Value of Production of Permanent Crops Produced by Family Farming FOR EACH STATE of the Northeastern Semi-arid (THOUSAND REAIS)

Table 21: Maranhão

Ranking	Type of crop	Value of crop
1	Cashew nuts	R$ 708.00
2	Cashew	R$ 542.00
3	Banana	R$ 132.00

Table 22: Piauí

Ranking	Type of crop	Value of crop
1	Cashew nuts	R$ 12,630.00
2	Cashew	R$ 10,591.00
3	Banana	R$ 6,359.00
4	Acerola	R$ 1,989.00
5	Coconut	R$ 492.00
6	Other crops	R$ 277.00
7	Passion fruit	R$ 266.00
8	Mango	R$ 171.00
9	Orange	R$ 164.00
10	Papaya	R$ 144.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 23: Ceará

Ranking	Type of crop	Value of crop
1	Cashew nuts	R$ 70,085.00
2	Banana	R$ 67,064.00
3	Coconut	R$ 22,166.00
4	Passion fruit	R$ 14,870.00
5	Other crops	R$ 10,260.00
6	Cashew	R$ 6,153.00
7	Acerola	R$ 4,311.00
8	Lime	R$ 3,454.00
9	Guava	R$ 2,755.00
10	Papaya	R$ 2,513.00

Table 24: Rio Grande do Norte

Ranking	Type of crop	Value of crop
1	Banana	R$ 18,938.00
2	Cashew nuts	R$ 14,052.00
3	Papaya	R$ 4,899.00
4	Cashew	R$ 4,289.00
5	Passion fruit	R$ 3,820.00
6	Coconut	R$ 3,231.00
7	Mango	R$ 1,121.00
8	Earl fruit	R$ 979.00
9	Acerola	R$ 574.00
10	Guava	R$ 215.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 25: Paraíba

Ranking	Type of crop	Value of crop
1	Banana	R$ 33,253.00
2	Tangerine	R$ 3,497.00
3	Passion fruit	R$ 2,995.00
4	Coconut	R$ 1,449.00
5	Orange	R$ 981.00
6	Grape	R$ 898.00
7	Urucum (seed)	R$ 728.00
8	Agave, sisal (fiber)	R$ 496.00
9	Lime	R$ 395.00
10	Papaya	R$ 350.00

Table 26: Pernambuco

Ranking	Type of crop	Value of crop
1	Banana	R$ 73,271.00
2	Grape	R$ 31,220.00
3	Mango	R$ 22,462.00
4	Guava	R$ 18,917.00
5	Acerola	R$ 15,966.00
6	Coconut	R$ 11,678.00
7	Passion fruit	R$ 5,636.00
8	Papaya	R$ 2,352.00
9	Lime	R$ 2,282.00
10	Orange	R$ 1,689.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 27: Alagoas

Ranking	Type of crop	Value of crop
1	Banana	R$ 1,456.00
2	Other crops	R$ 1,298.00
3	Earl fruit	R$ 283.00
4	Cashew	R$ 116.00
5	Passion fruit	R$ 86.00
6	Orange	R$ 84.00
7	Papaya	R$ 51.00
8	Coconut	R$ 32.00
9	Cashew nuts	R$ 28.00
10	Mango	R$ 18.00

Table 28: Sergipe

Ranking	Type of crop	Value of crop
1	Banana	R$ 2,461.00
2	Acerola	R$ 1,194.00
3	Guava	R$ 700.00
4	Passion fruit	R$ 304.00
5	Mango	R$ 279.00
6	Coconut	R$ 255.00
7	Orange	R$ 92.00
8	Cashew	R$ 10.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 29: Bahia

Ranking	Type of crop	Value of crop
1	Banana	R$ 152,779.00
2	Mango	R$ 78,396.00
3	Agave, sisal (fiber)	R$ 66,771.00
4	Passion fruit	R$ 66,051.00
5	Arabica coffee beans (green)	R$ 62,922.00
6	Coconut	R$ 34,970.00
7	Cocoa (almond)	R$ 20.207.00
8	Orange	R$ 12,115.00
9	Agave, sisal (leaves)	R$ 11,059.00
10	Earl fruit	R$ 8,483.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

ANNEx 3

TOP 10 of the Value of Production of Temporary Crops Produced by Family Farming FOR EACH STATE of the Northeastern Semi-arid (THOUSAND REAIS)

Table 30: Maranhão

Ranking	Type of crop	Value of crop
1	Manioc	R$ 9,052.00
2	Corn kernel	R$ 1,408.00
3	Watermelon	R$ 894.00
4	Paddy rice	R$ 853.00
5	Black-eyed beans	R$ 542.00
6	Green beans	R$ 438.00
7	Sugarcane	R$ 403.00
8	Pumpkin, jerimum	R$ 265.00
9	Cutting forage	R$ 231.00
10	Color beans	R$ 88.00

Table 31: Piauí

Ranking	Type of crop	Value of crop
1	Corn kernel	R$ 81,493.00
2	Black-eyed beans	R$ 55,341.00
3	Manioc	R$ 41,311.00
4	Paddy rice	R$ 22,050.00
5	Watermelon	R$ 18,684.00
6	Sugarcane	R$ 8,206.00
7	Pumpkin, jerimum	R$ 7,336.00
8	Forage corn	R$ 1,472.00
9	Grain beans	R$ 890.00
10	Melon	R$ 865.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 32: Ceará

Ranking	Type of crop	Value of crop
1	Corn kernel	R$ 160,687.00
2	Black-eyed beans	R$ 119,859.00
3	Manioc	R$ 88,655.00
4	Paddy rice	R$ 11,272.00
5	Grain beans	R$ 11,133.00
6	Forage sorghum	R$ 9,516.00
7	Sugarcane	R$ 9,447.00
8	Watermelon	R$ 9,123.00
9	Pumpkin, jerimum	R$ 7,879.00
10	Green beans	R$ 7,115.00

Table 33: Rio Grande do Norte

Ranking	Type of crop	Value of crop
1	Manioc	R$ 41,853.00
2	Corn kernel	R$ 17,142.00
3	Black-eyed beans	R$ 16,154.00
4	Green beans	R$ 7,486.00
5	Watermelon	R$ 7,017.00
6	Cutting forage	R$ 6,343.00
7	Pineapple	R$ 6,324.00
8	Sugarcane	R$ 4,622.00
9	Forage sorghum	R$ 3,582.00
10	Forage palm	R$ 3,511.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 34: Paraíba

Ranking	Type of crop	Value of crop
1	Corn kernel	R$ 30,232.00
2	Forage palm	R$ 26,796.00
3	Pineapple	R$ 18,895.00
4	Black-eyed beans	R$ 18,364.00
5	Manioc	R$ 12,974.00
6	Sugarcane	R$ 5,936.00
7	Grain colored beans	R$ 4,729.00
8	Pumpkin, jerimum	R$ 3,950.00
9	Cutting forage	R$ 3,859.00
10	Grain beans	R$ 3,826.00

Table 35: Pernambuco

Ranking	Type of crop	Value of crop
1	Manioc	R$ 57,554.00
2	Corn kernel	R$ 52,644.00
3	Forage palm	R$ 34,363.00
4	Black-eyed beans	R$ 23,241.00
5	Watermelon	R$ 17,292.00
6	Forage corn	R$ 16,404.00
7	Grain colored beans	R$ 12,493.00
8	Pumpkin, jerimum	R$ 10,220.00
9	Black beans	R$ 9,933.00
10	Flat tomato (industrial)	R$ 7,184.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 36: Alagoas

Ranking	Type of crop	Value of crop
1	Corn kernel	R$ 21,243.00
2	Dry leaf smoke	R$ 19,105.00
3	Forage palm	R$ 16,521.00
4	Grain colored beans	R$ 13,082.00
5	Manioc	R$ 11,168.00
6	Forage corn	R$ 8,929.00
7	Black-eyed beans	R$ 2,639.00
8	Pineapple	R$ 1,651.00
9	Pumpkin, jerimum	R$ 1,462.00
10	Green beans	R$ 1,381.00

Table 37: Sergipe

Ranking	Type of crop	Value of crop
1	Milho forrageiro	R$ 50,349.00
2	Corn kernel	R$ 47,647.00
3	Forage palm	R$ 26,825.00
4	Manioc	R$ 7,426.00
5	Grain colored beans	R$ 4,243.00
6	Paddy rice	R$ 3,900.00
7	Pineapple	R$ 3,217.00
8	Pumpkin, jerimum	R$ 1,246.00
9	Flat tomato (industrial)	R$ 2,266.00
10	Green beans	R$ 972.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 38: Bahia

Ranking	Type of crop	Value of crop
1	Manioc	R$ 149,487.00
2	Corn kernel	R$ 113,844.00
3	Forage palm	R$ 108,070.00
4	Grain colored beans	R$ 54,022.00
5	Flat tomato (industrial)	R$ 52,588.00
6	Sugarcane	R$ 51,625.00
7	Onions	R$ 38,539.00
8	Watermelon	R$ 37,567.00
9	Black-eyed beans	R$ 32,980.00
10	Castor	R$ 20,431.00

Source: IBGE, 2006 and 2017 Census of Agriculture.

ANNEX 4

TOP 10 OF FAMILY FARMING LIVESTOCK PRODUCTION IN THE NORTHEASTERN SEMI-ARID (number of heads)

Table 39: Maranhão's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	110,701
Swine	36,112
Cattle	8,546
Goats	6,258
Sheep	3,951
Ducks, geese, drakes, partridges and pheasants	2,921
Equine	769
Asses	516
Turkeys	313
Mules	220

Table 40: Piauí's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	3,709,225
Goats	1,294,506
Sheep	1,226,655
Cattle	729,464
Swine	679,217
Equine	40,468
Ducks, geese, drakes, partridges and pheasants	36,444
Asses	36,146
Mules	10,130
Turkeys	3,229

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 41: Ceará's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	5,484,759
Sheep	1,228,453
Cattle	1,184,828
Goats	572,443
Swine	545,430
Ducks, geese, drakes, partridges and pheasants	155,564
Equine	49,427
Asses	41,761
Mules	25,781
Turkeys	25,674

Table 42: Rio Grande do Norte's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	1,678,726
Cattle	355,899
Sheep	311,641
Goats	167,721
Swine	70,627
Ducks, geese, drakes, partridges and pheasants	39,754
Equine	20,590
Asses	10,002
Mules	5,606
Turkeys	5,261

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 43: Paraíba's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	4,011,520
Cattle	572,495
Goats	328,273
Sheep	300,103
Swine	106,377
Ducks, geese, drakes, partridges and pheasants	46,863
Equine	27,637
Turkeys	25,156
Asses	22,564
Quails	10,263

Table 44: Pernambuco's top 10

Type of livestock	Quantidade de cabeças
Hens, roosters, pullets, chickens and chicks	7,973,290
Goats	1,008,994
Sheep	799,146
Cattle	736,650
Swine	178,926
Equine	46,619
Ducks, geese, drakes, partridges and pheasants	37,118
Quails	26,392
Turkeys	24,468
Asses	19,444

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 45: Alagoas' top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	657,085
Cattle	216,350
Sheep	122,821
Quails	65,546
Swine	25,080
Goats	18,361
Ducks, geese, drakes, partridges and pheasants	17,521
Equine	15,665
Turkeys	7,814
Asses	5,835

Table 46: Sergipe's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	656,412
Cattle	291,831
Sheep	70,414
Swine	32,041
Equine	17,807
Ducks, geese, drakes, partridges and pheasants	11,913
Goats	6,105
Asses	5,104
Mules	2,361
Perus	1,938

Source: IBGE, 2006 and 2017 Census of Agriculture.

Table 47: Bahia's top 10

Type of livestock	Quantity of heads
Hens, roosters, pullets, chickens and chicks	8,025,453
Cattle	2,879,834
Sheep	2,031,751
Goats	1,747,082
Swine	574,703
Equine	180,132
Ducks, geese, drakes, partridges and pheasants	102,519
Asses	58,243
Mules	30,425
Turkeys	23,226

Source: IBGE, 2006 and 2017 Census of Agriculture.

Explanatory note on the data source:

For the preparation of this booklet, data from the 2006 and 2017 Censuses of Agriculture were used. This is a survey conducted by IBGE in order to present the Brazilian agricultural scenario. Its unit of analysis comprises any farm dedicated, totally or partially, to agricultural, forestry and aquaculture exploration, regardless of its size. The questionnaire is its main data collection instrument through which it is obtained detailed information about farmer's characteristics (such as age, income and education level, among others), farm's characteristics, economy and employment in rural areas, production, livestock, farming, agro-industries, among other points (IBGE, 2018).

IBGE, through the Census of Agriculture, endeavors to interview all farmers in Brazil. However, due to the difficulty of access, absence or refusal of the farmer, such a wide range is not always possible. It should be noted that the answers to the questionnaire of the Census of Agriculture are self-declared. Researchers using this database should be aware of this, as respondents may omit some information or bring it in incompletely.

The data from the Census of Agriculture are made available by IBGE in different ways as well as diverse levels of aggregation and detailing. First, after carrying out the Census, a plan for the dissemination of results is prepared, covering two sets of tabulations: (i) preliminary disclosure of data and information that does not include variables related to monetary values or specific typologies, making data available at the state and municipal levels; and (ii) it comprises more detailed information about the definitive results that are disclosed in a later period (which were accessed to the preparation of this booklet).

Both sets of tabulations are available for consultation and download in the IBGE Automatic Recovery System (SIDRA) through the IBGE Portal. The Census of Agriculture database made available at SIDRA stores previously aggregated data in a system of table retrieval that allows the researcher to gather information in order to meet specific needs. In this environment, its smallest disaggregation level is the municipality one and, in addition, not all variables collected in the Census of Agriculture are made publicly available.

Another detail is the reference date, which is September 30, 2017 for the 2017 Census of Agriculture, and the reference period is between October 1, 2016 and September 30, 2017. In this sense, the Censuses of Agriculture, like the ones conducted in 2006 and 2017, are not directly comparable, because the reference periods are different and because the various issues raised are not part of the current census questionnaire compared to the previous one and vice versa.

This is because the Censuses of Agriculture occur every decade and there are usually changes in the theoretical method of research among them, in order to adapt the questions to the current year's scenario. In addition, the last Census of Agriculture, carried out between 2016 and 2017, underwent several budget restrictions that reflected in the reduction of some questions in the questionnaire, reducing, in part, the scope of investigation.


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