



PRONAF's costing of plantation in the Brazilian Northeast region: behavior of financed products in the 2013-2021 period

O custeio de lavouras pelo PRONAF no Nordeste: comportamento dos produtos financiados no período 2013-2021

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ABSTRACT

Family farming has been gaining a new look since the 1990's. A look that has sought to characterize it in a positive way, that is, to characterize it by what it's; and no longer define it in a negative way, that is, by what it's not, as if it were the destiny of family agriculture to become a great monocultural production. Thus, family farming began to be associated, among other factors, with food production; and has received its own rural credit policy, the Pronaf. However, there are questions about the capacity of Pronaf to meet the regional diversity of family agriculture and, above all, about the concentration of its resources in crops that reproduce the model of productive specialization associated with crops for export. In this sense, our article seeks to observe whether, for the case of the Northeast region, Pronaf has financed crops linked to local food, usually associated with diversified production. To this end, we analyzed the data of the agricultural costing credit for crops granted through Pronaf during the period from 2013 to 2021 for the Northeast region. We conclude that, although there is a diversity of crops financed by Pronaf in the Northeast, the growing participation of corn cultivation in the total resources requires attention.

RESUMO

A agricultura familiar vem ganhando um novo olhar desde os anos 1990. Um olhar que tem buscado caracterizá-la de forma positiva, isto é, caracterizá-la por aquilo que ela é; e não mais defini-la de forma negativa, isto é, por aquilo que ela não é, como se fosse destino da agricultura familiar se tornar grande produção monocultural. Assim, a agricultura familiar passou a ser associada, entre outros fatores, à produção de alimentos; e tem recebido uma política de crédito rural própria, o Pronaf. Contudo, há questionamentos quanto à capacidade de o Pronaf atender à diversidade regional da agricultura familiar e, sobretudo, sobre a concentração de seus recursos em cultivos que reproduzem o modelo de especialização produtiva associado às culturas para exportação. Neste sentido, nosso artigo busca observar se, para o caso da região Nordeste, o Pronaf tem financiado culturas vinculadas à alimentação local, geralmente associadas à produção diversificada. Para tanto, analisamos os dados do crédito de custeio agrícola para lavouras concedido através do Pronaf durante o período de 2013 a 2021 para a região Nordeste. Concluímos que, embora exista uma diversidade de culturas financiadas pelo Pronaf no Nordeste, a crescente participação do cultivo de milho no total de recursos requer atenção.

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Introduction

From the mid-1990s, the expression family farming acquired dominance in the union and institutional vocabulary, as well as becoming increasingly frequent in academic studies. Picolotto (2011, 2014a, 2014b) analyzes the political, social and economic recognition obtained by family-based agriculture in Brazil as a result of the action of different agents (academic, union and state) who undertook a work of reversal of the negative valuations, until then, attributed to this model of agriculture. These agents questioned the expressions (delayed, inefficient and inadequate) historically used to characterize Brazilian family farming, associating it with adjectives considered positive, such as: modern, efficient, sustainable, supportive and food producer (Picolotto, 2011, 2014b).

The creation of the National Program for the Strengthening of Family Agriculture (Pronaf) in 1995 is the result of this recognition process. Its creation marked the incorporation of this category by the Brazilian State (Grisa et al., 2014) and strengthened the movement to identify a portion of rural producers as family farmers (Picolotto, 2011, 2014a, 2014b). The program has become the main public policy for financing family farming in the country and has undergone several changes in its rules of operation. (Bianchini, 2015; Baccarin & Oliveira, 2021; Wesz Jr., 2021).

There is a consensus in the literature that, at the national level, the program has privileged the most capitalized family farmers in the South region and the financing of commodities, such as corn, soybeans and coffee, indicating that the program has reproduced, to a certain extent, the productivist and selective character of the National Rural Credit System (SNCR) (Grisa et al., 2014; Grisa, 2017; Black & Horn, 2020; Baccarin & Oliveira, 2021; Wesz Jr., 2021). However, when analyzing the data for the period 1999-2012, Grisa et al. (2014) point out that the productivism of Pronaf is territorialized, since in other regions of the country the participation of other crops is remarkable, which may be associated with the food and nutritional security of family farmers.

This would be the case of the North and Northeast regions and some states of the Southeast, in which the financing of crops such as cassava, beans, rice and “other crops” is relevant. Moreover, it would be possible to verify, in these cases, that Pronaf would be financing typical products of family farming, consumed by the family or destined for the domestic market, minimizing what the analysis of Pronaf nationally reveals.

The study by Grisa et al. (2014) led us to question whether, in fact, the main crops financed by Pronaf in the Northeast are of food usually consumed by the population of this region. Thus, the objective of this article is to know if the argument of Grisa et al. (2014) can be maintained for the period from 2013 to 2021. In addition, we can unravel which crops, with a large percentage of the funding of agricultural / crop funding in each state, may be hidden within the category “other crops”. This is possible because the Pronaf data available from 2013

present the name of the crops of the crops in a more disaggregated way, with the category “other crops”¹ has not shown significant participation and is even no longer used since 2019.

To this end, we analyzed the data on the main products financed by Pronaf agricultural / crop costing in the Northeast region in the 2013-2021 period. We seek to answer the following questions: 1) What are the main products financed in the region and in each of the states? 2) Do the data indicate concentration or diversification of financed products? 3) What trends in the productive profile of the region and the states can be observed?

Our research materials consists of: 1) Rural credit granting data by Pronaf, made available by the Central Bank of Brazil (*Banco Central do Brasil*) on its website through the Rural Credit Data Matrix (*Matriz de Dados do Crédito Rural*) (BCB, 2021/2022); 2) Data manipulation and analysis packages in Python language: “Pandas”, “Numpy” and “Matplotlib”; 3) Finally, some data manipulations were performed in “LibreOffice Calc.” spreadsheets.

The methodology consisted of downloading the data from the Central Bank (*Banco Central*) website, using item “3.6. Quantity and Value of Costing Contracts by Region, UF and Product” and select the following parameters: a) Start Month / Start Year; End Month / End Year: according to the desired period; b) Activity: agricultural; c) Modality: plantation; d) Source of resources: all; e) Program: Pronaf; f) Subprogram: All.

Thus, we emphasize that the resources analyzed here refer strictly to the credits granted under Pronaf costing for agricultural activity in the farming modality (we will use the name Pronaf agricultural / crop costing).

Development

Pronaf was established by Resolution No. 2,191 of the Central Bank of Brazil on August 24, 1995. This Resolution also established the criteria for framing oneself as a beneficiary of the program². The following year, Decree No. 1,946 of June 28 created Pronaf, with the purpose of “promoting the sustainable development of the rural segment constituted by family farmers, in order to provide them with increased productive capacity, job creation and income improvement” (BRASIL, 1996, s.p.).

Since that moment there was, therefore, both a standardization of what would be considered a family farmer, as well as an emphasis on the purpose of productivism as a way to

¹The category “other crops” was included in the Statistical Yearbook of Rural Credit (*Anuário Estatístico do Crédito Rural*) in 2002, however, it was not specified which crops would be included in it. According to Grisa, Wesz Jr. and Buchweitz (2014, p. 336), it’s likely that the category incorporates less traditional crops for rural credit and with important regional variations such as fruits and vegetables.

²a) exploit parcel of land as owner, squatter, tenant or partner; b) does not keep a permanent employee, being allowed the possible recourse to the aid of third parties, when the seasonal nature of the agricultural activity requires it; c) does not hold, in any capacity, an area greater than four fiscal modules, quantified in the legislation in force; d) at least 80% (eighty percent) of its annual gross income comes from agricultural or extractive exploitation; e) resides on the property or in a nearby urban or rural agglomeration.

increase the income generated by family farming. And, in fact, Pronaf was created mirroring the guidelines of the Food and Agriculture Organization of the United Nations (*Organização das Nações Unidas para a Alimentação e Agricultura* - FAO) on public policies for family farming³, having as main target audience the family units in conditions to consolidate in the market.

In 2006, Law No. 11,326 was established. Known as the law of family farming, it expanded the concept of family farmer, because it allows to have permanent employment, provided that the predominant labor remained of the family (BRASIL, 2006). It also established that family income was predominantly originated from economic activities linked to the establishment or enterprise itself, and no longer the minimum of 80%. Finally, the law also included as beneficiaries foresters, fish farmers, extractivists, and fishermen. With the inclusion of these new segments, it was intended to meet the wide diversity of family farming in Brazil.

In 2011, changes were made to Law No. 11,326/2006 with the purpose of further expanding the target audience of public policies for family farming, advancing in the incorporation of the most impoverished family farmers (Wanderley, 2017). It was no longer required that income be predominantly originated from economic activities carried out in the establishment itself (BRASIL, 2006)⁴. Indigenous peoples and members of remaining communities of rural “quilombos” and other traditional peoples and communities were also added as beneficiaries of the law.

Representativeness of northeastern family agriculture and its participation in Pronaf

In the Northeast region, there is the highest concentration of family farming establishments in Brazil. In 2017, of the national total of family establishments, 1,838,846 (47.2%) were located in the Northeast region. Considering only the rural establishments of this region, family establishments represent 79.2% of the total, and are responsible for 73.8% (4.7 million people) of the workforce employed in rural areas. However, the percentage of area occupied by family agriculture does not correspond to the percentage of establishments.

³These guidelines resulted from the research carried out by the technical cooperation agreement between the Food Organization of the United Nations (*Organização das Nações Unidas para a Alimentação* - FAO) and the National Institute of Colonization and Agrarian Reform (*Instituto Nacional de Colonização e Reforma Agrária* - Incra) - FAO/Incra (1994) - under the coordination of economist and researcher Carlos Guanziroli.

⁴However, the Rural Credit Manual of the Central Bank of Brazil (*Manual do Crédito Rural do Banco Central do Brasil*) states, as a requirement for claiming resources from Pronaf: "at least, 50% (fifty percent) of the gross family income originates from the agricultural and non-agricultural exploitation of the establishment, also observing the provisions of paragraph 'h'". Available in: <https://www3.bcb.gov.br/mcr>. Accessed on: Apr. 6th 2022. The same is established by Circulars 23 and 24 of 2021 of the National Bank for Economic and Social Development (BNDES). Available in: <https://www.bndes.gov.br/wps/portal/site/home/financiamento/produto/pronaf>. Accessed on: Apr. 6th 2022.

Family farmers held only 36.6% of the area, while employer agriculture held 63.4% of the total area, revealing the persistence of marked inequalities in land tenure and the natural resources it entails (Aquino et al., 2020).

There is a consensus among Pronaf scholars that, throughout its existence, the application of its resources was concentrated in the South region, implying a low percentage of the resources destined to families in the Northeast. In 2018, the Northeast region was covered by 12.8% of the program's resources (Pretto & Horn, 2020). Another relevant indicator to understand this difference is the average value of the contracts. For the year 2018, the average value of contracts in the South region was R\$ 33,620.00, while in the Northeast region it was R\$ 5,281.00 (Pretto & Horn, 2020; Central Bank of Brazil [BCB], 2019).

Also unanimous among the researchers is the conclusion that the resources focus on financing crops associated with commodities for export. In 2018, the sum of the percentages absorbed by soybeans (40.4%), corn (22.7%) and coffee (10.5%) accounted for almost 74% of the total resources (Pretto & Horn, 2020). Meanwhile, the share of the combined percentages of wheat (7.9%), rice (2.6%), beans (1.3%) and cassava (1.3%) - crops associated with internal food consumption - was 13.1% of total resources (Pretto & Horn, 2020, 2020).

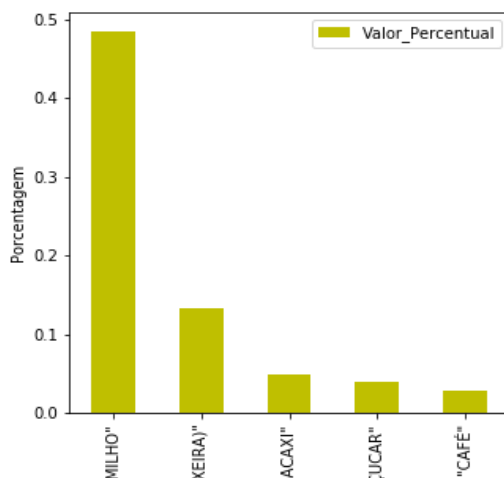
Crop products financed by Pronaf, agricultural costing in the NE and its states

Crop products financed by Pronaf, agricultural costing in the NE

Considering the total resources of Pronaf destined to the agricultural / crop costing during the entire period from 2013 to 2021, the products that received the highest percentage of these resources, according to Graph 1, were: corn, with 48.41%; cassava, with 13.34%; pineapple, with 4.90%; sugarcane, with 3.96%; and coffee, with 2.87%. However, it's important to note that the following six products were still in the region of 2% of the total resources (banana, yams, rice, beans and mangoes). In any case, the concentration of these resources for the cultivation of corn is evident (Graph 1).

Graph 1.

Percentage of each of the 5 crops that obtained the most credit Pronaf agricultural / crops costing in the Northeast during the period from 2013 to 2021.



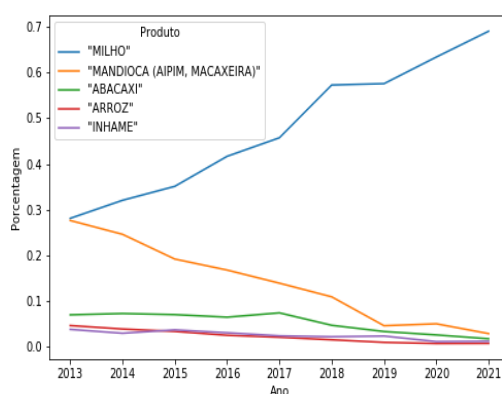
Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Percentage value: "Corn", "Macaxeira -Cassava", "Pineapple", "Sugar", "Coffee"

However, it's important to emphasize that the high participation of corn crops in the allocation of Pronaf resources for agricultural costing / plantation is a repercussion of the rise of this crop in the allocation of these resources in recent years. Through Graph 2, we can see how much the percentage of resources destined to the cultivation of corn was increasing in disfavor of the cultivation of cassava, which lost participation and began to distance itself more and more from the percentages of resources received by the cultivation of corn.

Graph 2.

Trend of each of the 5 crops that most obtained Pronaf credit for agricultural / crop funding in the Northeast in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Percentage, Product: "Corn", "Cassava", "Pineapple", "Rice", "Yam".

Therefore, the first conclusion is that the region has a diversity of cultures financed by Pronaf. However, the growing share of corn could pose a threat to this diversity.

Crop products financed by Pronaf agricultural costing in “Alagoas”, Brazil

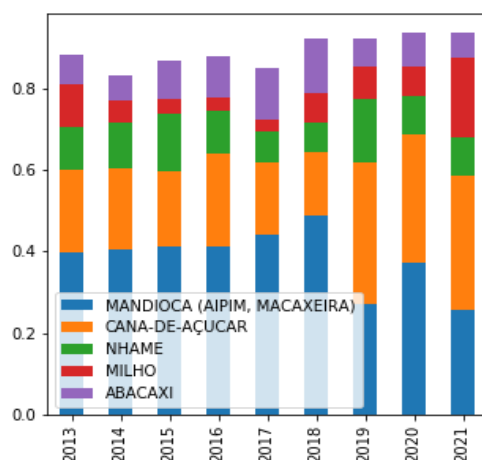
In the period from 2013 to 2021, the five products that received the most resources from Pronaf agricultural costing / plantation in Alagoas were: cassava, with 38.47%; sugarcane, with 23%; yams, with 10.44%; pineapple, with 8.87%; corn, with 7.37%. These products concentrate just over 88% of the total resources destined to the costing of crops. With the exception of sugarcane, the other products, especially cassava, yams and corn, are characteristic of the local diet. Together, those four products reach more than 65% of the total destined to the costing of crops in Alagoas.

It should be noted, however, that sugarcane occupies an important position in the allocation of resources. In Graph 3, we observed that from 2019 sugarcane cultivation exceeds 30%, a trend that is repeated in 2020 (31.46%) and 2021 (33.06%). In 2019 and 2021, sugarcane was the crop that obtained the most resources in the state. Although the participation of sugarcane in the resources of Pronaf in Alagoas is significant, Barbosa and Brandão (2020), based on data from the 2017 Agricultural Census, point out that only 5% of the total sugarcane production in Alagoas comes from family farming. They also point out that sugarcane is supplied to sugarcane mills and is also used for the artisanal production of cachaça and rapadura by family farmers. Another crop that also increased the share of resources obtained in Alagoas was corn, which went from 2.9% in 2017 to 19.49% in 2021.

While sugarcane expands its participation in the last three years of the series, Graph 3 also points out that cassava has its participation reduced. In 2018, cassava accounted for 48.66% of resources, reducing to 27.17% in 2019. In 2020, cassava recovers the position of main financed crop, but does not reach the levels prior to 2019, getting 37.33% of the resources. In 2021, cassava is again in second place, accounting for 25.54% of resources.

Graph 3.

Trend of each of the 5 crops that most obtained credit Pronaf agricultural costing / crop in the state of Alagoas in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Cassava, Sugar Cane, Yam, Corn, Pineapple.

Therefore, Alagoas presents a concentration of Pronaf financing in two products: cassava and sugarcane, since these two products together add up to about 60% of the financing each year. The high participation of cassava contributes to the diversification of production in the Northeast region, especially when considering typical products of local food. However, the decrease in the participation of this crop in the last three years is worrying, especially because it's due to the increase in the shares of sugarcane and corn.

Crop products financed by Pronaf agricultural costing in "Bahia", Brazil

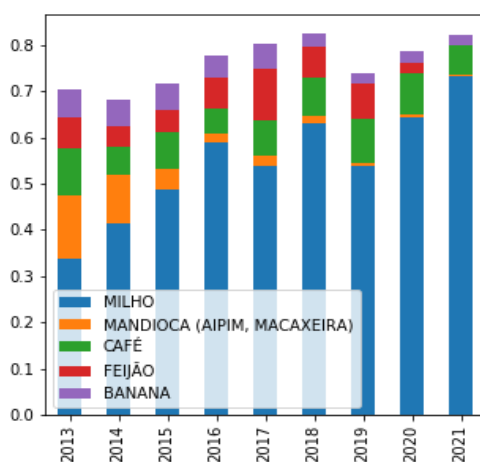
In Bahia, the data reveal a concentration of resources from the costing of Pronaf crops in corn, which accounted for 56.57% of the resources for the entire period of 2013-2021. Next comes coffee, with 8.05%; mango, with 5.22%; beans, with 4.4%; cocoa, with 3.98%. Other products presented percentages close to beans and cocoa, such as bananas, with 3.97%, and cassava, with 3.3%. This shows that, in the period in question, more than half of the resources of Pronaf agricultural / crop funding in Bahia were concentrated on the financing of corn, while the other half was absorbed by a diversity of products. When compared with the study by Grisa et al. (2014), the vertiginous drop in the share of bean cultivation is noteworthy. For the period 1999-2012, the authors observed that this culture received 22.7% of the resources (Grisa et al., 2014).

When we look at the annual evolution of the products in this time interval, according to Graph 4, what stands out is the behavior of cassava, which has been progressively losing space among the main financed crops. In 2013, cassava accounted for 13.77% of the resources

and was the second main product financed in the state. This percentage is reducing year by year (with the exception of 2017, in which the percentage practically remains in relation to 2016), until it becomes tiny in 2021, accounting for only 0.026% of the resources. Another crop that also decreases its share of resources is beans: from 11.11% in 2017 to 0.03% in 2021. This drop occurred in favor of corn cultivation, which jumped from 33.73% in 2013 to 73.18% in 2021.

Graph 4.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Bahia in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Corn, Cassava, Coffee, Bean, Banana

Bahia ceased to be a state with a concentration in two products to be concentrated only in one product, corn. The counterpart was the near disappearance of the financing of cassava and beans. Thus, the state has had a strong contribution to reduce diversification in the Northeast region. This is even more remarkable when we consider that Bahia has a large share in financing when compared to other states in the region.

Crop products financed by Pronaf agricultural costing in “Ceará”, Brazil

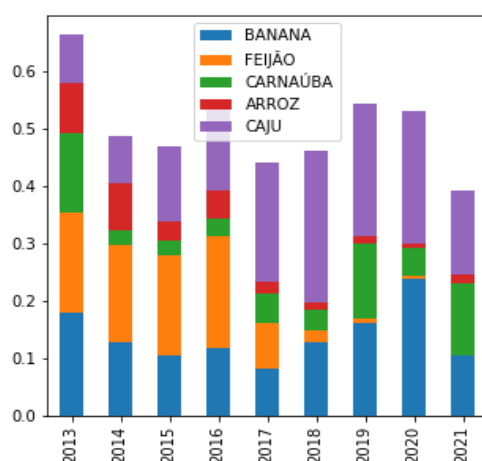
The state of Ceará presents a very equitable distribution regarding the five main crops that receive resources from Pronaf agricultural costing / crop. The five main crops are: cashew, with 15.48%; banana, as 13.21%; corn, with 11.61%; passion fruit, with 11.39%; beans, with 10.17%. In addition to these five, the following two are: cassava, with 9.58% and carnauba, with 6.7%.

These percentages for the entire period of 2013 and 2021, however, do not allow us to analyze some trends that seem salient to us and that are illustrated in Graph 5. The first of these refers to the shares of rice and bean crops, which decreased throughout the period, and more sharply for the case of beans: rice leaves an initial participation of 8.68% in 2013 and

ends in 2021 with a share of 1.6%; beans fall from 17.39% of total resources in 2013 to, precipitously, 0.14% in 2021. This downward trend in beans had also been observed for the period 1999-2012 (Grisa et al., 2014). The crop that obtained the largest share in the total resources was cashew, from 8.5% in 2013 to reach the maximum participation in 2018 (with 26.53%). Cashew cultivation has been maintaining the first position in participation in resources since 2017.

Graph 5.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Ceará in each year of the period from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Banana, Bean, Carnauba, Rice, Cashew

Ceará has been a very diverse state, since, when we add its main cultures, they rarely reach, together, 50% of the total funding of Pronaf for the state.

Crop products financed by Pronaf agricultural costing in “Maranhão”, Brazil

In the sum of the 2013-2021 period, the five main crops financed in the state of Maranhão were: cassava, with 54%; corn, with 18.89%; rice, with 11.13%; pineapple, with 10.48%; cashews, with 0.16%. More than a half of the resources, therefore, were concentrated in cassava, while the other half was distributed among a diversity of crops. The concentration of resources in cassava cultivation for the 2013-2021 period remained, therefore, very close to the levels of the 1999-2012 period, when it concentrated 58.4% of the resources (Grisa et al., 2014).

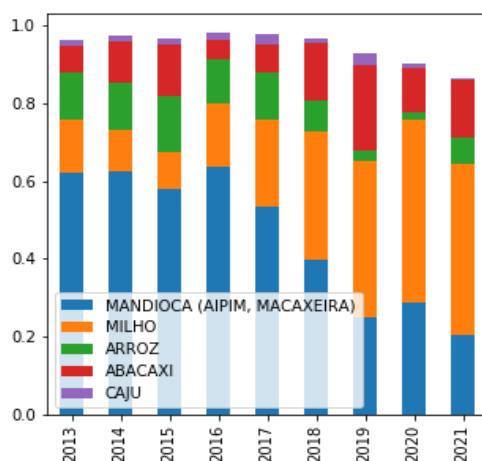
In the sum of the period 2013-2021, the five main crops financed in the state of “Maranhão” were: cassava, with 54%; corn, with 18.89%; rice, with 11.13%; pineapple, with 10.48%; cashews, with 0.16%. More than a half of the resources, therefore, were concentrated in cassava, while the other half was distributed among a diversity of crops. The concentration

of resources in cassava cultivation for the period 2013-2021 remained, therefore, very close to the levels of the period 1999-2012, when it concentrated 58.4% of the resources (Grisa et al., 2014).

Graph 6 indicates that, as of 2017, there is a decrease in the share of cassava, which contrasts with the growth trajectory of corn that began in 2016. In 2013, cassava accounted for 61.93% of resources, falling to 20.45% in 2021. Corn accounted for 13.92% of the resources at the beginning of the series, ending it with 43.84%. Another trajectory that deserves to be highlighted is that of rice. Until 2017, this crop had a share of resources between 10% and 11% (with the exception of 2015, when it reached 14.45%), but lost space in the last four years of the series, not reaching 10%.

Graph 6.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Maranhão in each year of the period from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Cassava, Corn, Rice, pineapple, Cashew

In the total of the period, Maranhão appears as concentrated in a single product, cassava. However, for each year, the state has gone from being concentrated in a single culture to being concentrated in two cultures. At the beginning of the period, cassava was responsible for more than 50% of the financing. At the end of the period, cassava became the second product with the largest share in financing, losing the first position to corn. These two cultures together participate, at the end of the series, with more than 50% of the funding. Once again, the growing participation of corn is significant, suggesting that Maranhão has had a smaller contribution to the diversification of production in the Northeast region. This is even more alarming when we consider that, along with Bahia, Maranhão is one of the two main recipients of Pronaf funding.

Crop products financed by Pronaf agricultural costing in “Paraíba”, Brazil

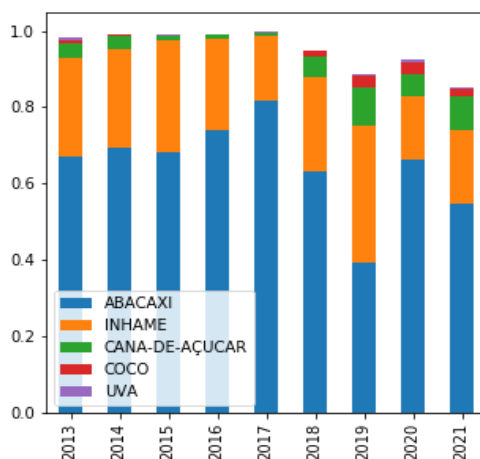
For the state of Paraíba, pineapple (67.75%) and yam (24.18%) were the two main products financed in the period of 2013-2021, concentrating more than 90% of the resources. Thus, subsequent crops reach a very small percentage: sugarcane, with 0.35%; coconut, with 0.08%; the banana, with 0.06%.

When we compare with the period 1999-2012, the disappearance of cotton cultivation in the share of resources stands out, since, in that interval, this cultivation obtained 16.3% of the resources. It seems to us, therefore, to be the result of a trend already observed by Grisa et al. (2014) in the previous period.

Despite this predominance of pineapple and yam crops, it's possible to verify in Graph 7 that, added to the two crops, their share in the total has been decreasing (from 92.89% in 2013 to 74.02% in 2021). This reduction was, in part, occupied by the cultivation of sugarcane, which had its percentage increased from 4% in 2013 to 8.85% in 2021, more than doubling its share. Still, it's possible to verify in Graph 7 that the space left by the cultivation of pineapple and yams has also been filled by a diversity of products that historically have a low percentage of participation in the total of resources destined to the credit of agricultural costing / crop in the state.

Graph 7.

Trend of each 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Paraíba in each year from 2013 to 2021



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).
Pineapple , Yam, Sugar Cane, Coconut, Grape

In Paraíba, there is concentration in a single product, pineapple. However, the second position is occupied by the yam crop. Both products are typical of family production in the region. Thus, despite the concentration, the data suggest that the state has contributed to the productive diversification in the Northeast region.

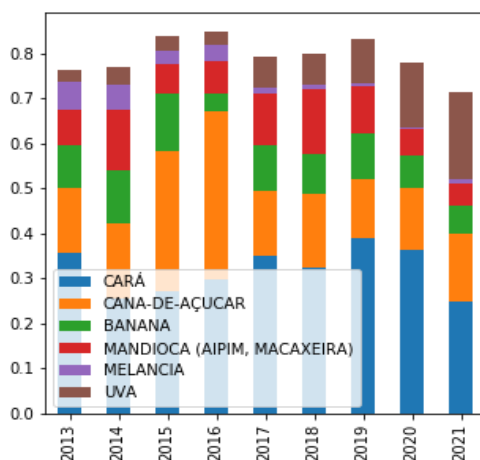
Crop products financed by Pronaf agricultural costing in “Pernambuco”, Brazil

In Pernambuco, the five products that received the highest percentage of resources from Pronaf agricultural costing / plantation in the period of 2013-2021 were: the yam, with 31.35%; sugarcane, with 20.61%; bananas, with 8.74%; grapes, with 8.29%; cassava, with 8.16%. The first two products account for almost 52% of the resources, while the others have an equal share percentage.

When we analyze the trends highlighted in Chart 8, we notice that grape cultivation has significantly increased its share of the resources that have been allocated to this state: from an initial percentage of 2.55% in 2013 to an astonishing 19.35% in 2021. Another trend, more recent, was the decrease in the share of cassava cultivation in the total resources: from 14.41% in 2018 to 5.04% in 2021. The share of watermelon cultivation in total resources also decreased, causing it to lose the position of fifth crop that received more resources from Pronaf agricultural costing / crop in the state.

Graph 8.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Pernambuco in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).
Yams, Sugar cane, Banana, Cassava, Watermelon, Grape.

In the total of the period, there is concentration in two products in Pernambuco, cará and sugarcane, since the two together add up to more than 50% of the total financing of Pronaf in the state. However, the reduction in the share of sugarcane in the last years of the series allowed for a diversified production in 2021, with grapes as the third crop with the largest share. Thus, the state has contributed to the diversification of production in the Northeast region.

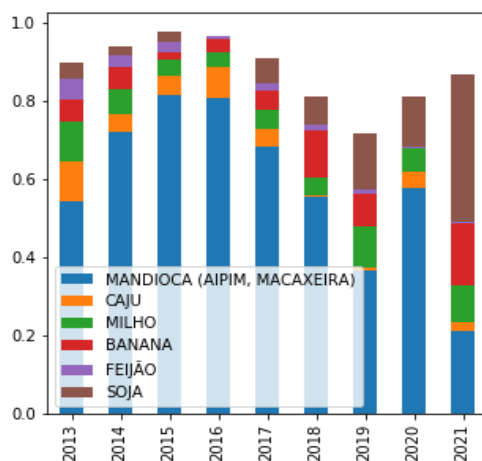
Crop products financed by Pronaf agricultural costing in “Piauí”, Brazil

In Piauí, cassava accounted for 66.47% of the total resources of Pronaf agricultural / crop costs applied in the state in the period of 2013-2021. Meanwhile, the other four most financed crops showed a fairly equal share: corn, with 6.48%; cashew, with 5.31%; soybeans, with 5.27%; the banana, with 5.20%.

These participations for the whole period, however, do not allow us to perceive the advance that the cultivation of soybeans had on the use of Pronaf resources agricultural / crop funding in the state. In Graph 9, we noticed that, at the beginning of the series, soybean cultivation had a share of 4.25%, but ends the period with a percentage of 37.58% of the resources. Other crops that also had an increase in the share of resources allocated to this state, but much less expressive than the case of soybeans, were banana and corn, both from 2017: bananas go from 3.4% in 2016 to 15.95% in 2021; corn goes from 3.72% in 2016 to 9.18 in 2021. These increases in resources for the cultivation of soybeans and bananas occurred, to a large extent, to the detriment of cassava cultivation, which had its share reduced from 81.57% in 2015 to 21.27% in 2021. The percentage of resources obtained for the cultivation of beans was also reduced, pointing to the continuity of a trend that has been going on since the period 1999-2012 (Grisa et al., 2014).

Graph 9.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Piauí in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Cassava, Cashew, Corn, Banana, Bean, Soy

Piauí is concentrated in a single product, cassava, since it reaches more than 50% of the financing in the total of the period and has participated with about 50% in practically every year, with the notable exception of the year 2021. That year, cassava lost the first position to soybeans. Thus, we can say that Piauí has contributed to the diversity of crops financed by Pronaf in the Northeast. However, the data of the last year are worrying, since soybeans are not a crop usually linked to a commercial network of shorter distance and are not directly intended for the feeding of the region.

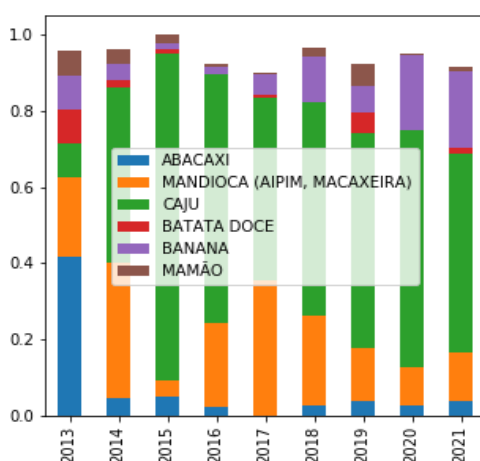
Crop products financed by Pronaf agricultural costing in “Rio Grande do Norte”, Brazil

The five main products financed by Pronaf agricultural / crop costing in Rio Grande do Norte in the period of 2013-2021 were: cashew, with 55.38%; cassava, with 18.88%; bananas, with 9.9%; pineapple, with 5.70%; papaya, with 2.28%. Cashew and cassava accounted for 74.26% of the resources. Sugarcane and sweet potatoes presented percentages close to that of papaya, accounting for 2.08% and 1.76% of the resources, respectively.

When we observe the behavior of the percentages of each product in the different years, according to Graph 10, the case of cashew stands out, which, in 2013, accounted for 9% of the resources and, in 2014, jumped to 46.11%. Since then, their percentage has never decreased. It’s also noteworthy the decreasing trend of cassava from 2017. This year, cultivation accounted for 35.55% of the resources and, in 2021, this percentage was reduced to 12.48%.

Graph 10.

Trend of each of the 5 crops that obtained the most credit Pronaf agricultural costing / crop in the state of Rio Grande do Norte in each year from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Pineapple, Cassava, Cashew, Sweet potato, Banana, Papaya

In Rio Grande do Norte, there is a concentration of financing in a single product, cashew, since it has received about 50% of the total funding in the state. In addition to cashew being typical of the region, the other products with significant participation have been cassava and banana. Thus, the state, despite its concentration, has contributed to the diversification of crops financed by Pronaf.

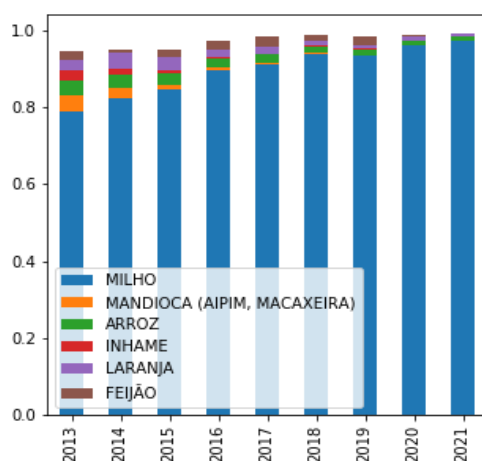
Crop products financed by Pronaf agricultural costing in “Sergipe”, Brazil

In Sergipe, the resources of Pronaf agricultural costing / plantation in the interval in question were strongly concentrated in corn, since this crop absorbed 91.5% of the total resources applied. Thus, the following four products, in participation, had tiny percentages: rice, with 2%; orange, with 1.6%; beans, with 1.2%; cassava, with 0.79%.

From Graph 11, we observed that the participation of corn cultivation in the resources has increased over the years, increasing the concentration of resources in this crop. It's noteworthy the almost disappearance of resources from Pronaf agricultural costing / plantation to finance the cultivation of cassava and beans.

Graph 11.

Trend of each of the 5 crops that most obtained credit Pronaf agricultural costing / crop in the state of Sergipe in each year of the period from 2013 to 2021.



Source: Central Bank of Brazil / Rural Credit Matrix (2013-2021).

Corn, Cassava, Rice, Yam, Orange, Bean

Sergipe is the state that presented the highest concentration in the total funding of Pronaf. Basically, Pronaf finances the corn crop in this state. Although corn is an important food in the region and has the possibility of being grown together with other crops, this high

concentration can mean a productive specialization of agriculture financed by Pronaf in the state.

Final considerations

The first consideration to be made refers to the large share of corn cultivation in the total resources of Pronaf agricultural / crop costing in the Northeast region in the period of 2013-2021. This consideration becomes even more salient when we observe the trend of growth in the share of resources for this cultivation.

Corn has appeared as the main funded crop since the beginning of the series. Added to this is its growing annual share of resources throughout the series. On the other hand, there is a reduction in the share of cassava (the second crop that obtains the most resources).

This trend for the Northeast also unfolds in several states in the region. When we analyze the annual behavior of the financing of each crop, we observed that the participation of cassava cultivation decreased in Alagoas, Bahia, Maranhão, Pernambuco, Piauí, Rio Grande do Norte and Sergipe. While the share of corn cultivation increased in the states of Alagoas, Bahia, Maranhão, Piauí and Sergipe, highlighting the increases in the states of Maranhão and Bahia.

It's worth mentioning the reduction in the participation in the resources for the cultivation of rice in the states of Ceará and Maranhão, and the reduction of the participation in the resources for the cultivation of beans in the states of Ceará, Piauí and Bahia.

Despite these trends for corn and cassava, the Northeast region has presented a diversity in the products financed, and it's important to point out that some of the main products financed are related to local food. In the first position of each state, appear corn, cassava, yams, pineapple and cashew (it should be noted that, in the latter case, the chestnut is also used).

Regarding the frequency with which a given product appears among the five most financed in each state, we obtained the following result: cassava and corn are among the five most financed in six states; banana in five states; pineapple in four states; sugarcane, cashew and beans in three states; rice and yams in two states; coffee, mango, cocoa, passion fruit, orange, coconut, yam, grape, and soybeans in one state.

Regarding the diversification of the crops financed in each state in the sum of the years of 2013 to 2021, we suggest the following classification:

(a) Diversified state:

i) Ceará - cashew, banana, corn, passion fruit and beans.

(b) State concentrated in two products:

i) Alagoas - cassava and sugarcane;

ii) Pernambuco - cará and sugarcane.

c) State concentrated in a product:

- i) Bahia - corn;
- ii) Maranhão - cassava;
- iii) Paraíba - pineapple;
- iv) Piauí - cassava;
- v) Rio Grande do Norte - cashew;
- vi) Sergipe - corn.

From these general conclusions, we are led to agree with the argument of Grisa et al. (2014) that when we leave the analysis of the general plan of Brazil and start to territorialize it, we can observe another face of Pronaf that consists of financing crops more typical of family farming, that is, a diversified production.

However, the increasing concentration of corn raises the question of the extent to which maize in the Northeast continues to be cultivated in the most characteristic way of family farming, that is, in consortium with other products, or whether there has been a productive specialization in the family units that are dedicated to the cultivation of this crop. It weighs for this questioning the fact that two states that had great growth in the financing of this culture (Maranhã and Bahia) are also the main recipients of Pronaf funding in the region. In addition, Maranhão and Bahia belong to Matopiba, a region of expansion of monocultures.

A suggestion for a future study, which would help in understanding this issue, would be to verify what was the modification of the production of family agriculture in the states of the Northeast region between the Agricultural Censuses (*Censos Agropecuários*) of 2006 and 2017 and to analyze whether there has been a tendency to productive specialization in the corn and soybean crop. And finally, if this trend has occurred, check if it's correlated with the changes in Pronaf's funding.

REFERENCES

- Aquino, J. R. De, Alves, M. O. & Vidal, M. de F. (2020). Agricultura familiar no Nordeste do Brasil: um retrato atualizado a partir dos dados do Censo Agropecuário 2017. *Revista de Econômica do Nordeste*, Fortaleza, v. 51, suplemento especial, p. 31-54, agosto.
- Baccarin, J. G. & Oliveira, J. A. de. (2021). Avaliação da distribuição do Pronaf entre as regiões geográficas do Brasil. *Grifos*, Chapecó, v. 30, n. 51, p. 114-140, jan./abr.
- Barbosa, L. C. B. G & Brandão, T. F. B. (2020). Agricultura familiar e desenvolvimento rural em Alagoas: um olhar a partir do Censo Agropecuário de 2017. *Revista de Econômica do Nordeste*, Fortaleza, v. 51, suplemento especial, p. 173-194, agosto.
- Banco Central do Brasil. (2022). Matriz de Dados do Crédito Rural. Disponível em: <https://www.bcb.gov.br/estabilidadefinanceira/micrrural>. Acesso em: outubro 2021-janeiro de 2022.
- Banco Central do Brasil. (2022). Manual de Crédito Rural. Disponível em: <https://www3.bcb.gov.br/mcr>. Acesso em: abril de 2022.
- BRASIL. (1996). Decreto nº 1.946, de 28 de junho de 1996. Cria o Programa Nacional de Fortalecimento da Agricultura Familiar – PRONAF, e dá outras providências.

- Disponível em: <https://www2.camara.leg.br/legin/fed/decret/1996/decreto-1946-28-junho-1996-435815-publicacaooriginal-1-pe.html>. Acesso em: 11 abr. 2022.
- BRASIL. (2006). Lei nº 11.326, de 24 de junho de 2006. Estabelece as diretrizes para a formulação da Política Nacional da Agricultura Familiar e Empreendimentos Familiares Rurais. Disponível em: http://www.planalto.gov.br/ccivil_03/ato2004-2006/2006/lei/l11326.htm. Acesso em: 11 abr. 2022.
- Bianchini, V. (2015). *Vinte anos do PRONAF, 1995-2015: avanços e desafios*. Brasília: SAF/MDA.
- Organização das Nações Unidas para a Alimentação e a Agricultura/Instituto Nacional de Colonização e Reforma Agrária. (1994). Diretrizes de política agrária e desenvolvimento sustentável. Brasília, 1994. (Versão resumida do Relatório Final do Projeto UTF/BRA/036).
- Grisa, C. (2017). A agricultura familiar nas políticas para a agricultura familiar. In: Delgado, G. C. & Bergamasco, S. M. P. P. (Org.) *Agricultura familiar brasileira: desafios e perspectivas de futuro*. Brasília: Ministério do Desenvolvimento Agrário (MDA), p. 292-213.
- Grisa, C., Wesz Jr., V. J. & Buchweitz, V. D. (2014). Revisitando o Pronaf: velhos questionamentos, novas interpretações. *Revista de Economia e Sociologia Rural*, Brasília, v. 52, n. 2, p. 323-346.
- Instituto Brasileiro de Geografia e Estatística. (2017). Censo Agropecuário de 2017. Rio de Janeiro: IBGE. Disponível em: <https://sidra.ibge.gov.br/pesquisa/censo-agropecuario/censo-agropecuario-2017>. Acesso em: 11 abr. 2022.
- Picolotto, E. L. (2011). As mãos que alimentam a nação: agricultura familiar, sindicalismo e política. 289f. Tese (Doutorado) – Programa de Pós-Graduação de Ciências Sociais em Desenvolvimento, Agricultura e Sociedade da Universidade Federal Rural do Rio de Janeiro (UFRRJ), Rio de Janeiro. Disponível em: <http://institucional.ufrrj.br/portalcpsda/teses-doutorado-2011/>. Acesso em: 04 abr. 2013.
- Picolotto, E. L. (2014a). A formação de um sindicalismo de agricultores familiares no Sul do Brasil. *Sociologias*, Porto Alegre, v. 16, n. 35, p. 204-236, jan/abr.
- Picolotto, E. L. (2014b). Os atores da construção da categoria agricultura familiar no Brasil. *Revista de Economia e Sociologia Rural*, Brasília, v. 52, p. 63-84.
- Pretto, J. M. & Horn, C. H. (2020). Uma avaliação do PRONAF no período 1995-2018. *Colóquio-Revista do Desenvolvimento Regional*, v. 17, n. 1, p. 35-49.
- Wanderley, M. D. N. B. (2017). "Franja Periférica", "Pobres do Campo", "Camponeses": dilemas da inclusão social dos pequenos agricultores familiares. In: Delgado, G. C. & Bergamasco, S. M. P. P. (Org.) *Agricultura familiar brasileira: desafios e perspectivas de futuro*. Brasília: Ministério do Desenvolvimento Agrário, p. 66-83
- Wesz Jr., V. J. (2021). O Pronaf pós-2014: Intensificando a sua seletividade? *Grifos*, Chapecó, v. 30, n. 51, p. 89-113, jan./abr.