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Family farming: The importance of growing beans in the state of Paraíba as a sustainable alternative for rural people.

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Abstract. Family farming is increasingly gaining prominence by constantly reflecting on its benefits, whether in social or economic terms. The development of family farming is not something recent, but has been gaining strength by promoting an interaction of multiple interest between rural classes, scientific research and public policies. It is revealing a new way of looking at small producers. In addition, this activity provides environmental sustainability, improving the quality of life of the farmer and his production. Bean production is closely linked to family farming and is cultivated by a wide range of farmers with the most varied profiles. In this sense, this study aims to highlight the importance of family farming and its relationship with bean cultivation in the state of Paraíba - PB, since this activity is one of the bases of production for rural people. The study relied on a search and compilation of results from the database of the Instituto Brasileiro de Geografia e Estatística (IBGE) for the period from 2017 to 2021, in addition to a thorough review of academic papers on the respective area of study on the platform "google academic". In this context, it is necessary to take a thorough look when it comes to agricultural production, and it is clear that the area planted and harvested in 2021 had a considerable drop compared to 2020, but when checking the quantity produced and the average yield compared to 2017, the year 2021 was superior, since technologies and new methodological practices constantly optimize the agricultural sector. Family farming is a strong basis for the rural man's conquest of a dignified and fair life, allowing him to live with the conditions imposed by nature.

Keywords: Family farming, bean cultivation, sustainability.

Introduction

Family farming is increasingly gaining prominence as it constantly reflects its benefits, whether in social or economic terms. According to Niederle et al. (2014), family farming in Brazil has been gaining strength by promoting an interaction of multiple interest between rural classes, scientific research and public policies. Revealing a new look at the small producer.

For a more comprehensive view of the importance of family farming, according to Santos and Mitja (2012) this activity is responsible for 70% of Brazil's food production, as well as being the economic base of approximately 90% of the country's municipalities. However, it is worth pointing out that this activity is constantly trying to overcome the most diverse challenges, since precision agriculture and the incessant search to supply the world's food base

encourages competitiveness. The authors also stress that from an internal point of view, the challenges are reflected in the quest to increase food production, generate new job opportunities, income and keep people in the countryside.

The development of family farming is not something recent, but an ancient practice that has adapted over the years. According to Oliveira et al. (2021), it is possible to see family farming and precision agriculture from a positive perspective in relation to agribusiness and production. Because the interaction of these activities provides environmental sustainability combined with the use of technologies, improving the quality of life of farmers and their production. Petronas (2020) adds that in modern times, rural people are beginning to share space with artificial intelligence. However, it is always necessary to emphasize the importance and protection of the environment, the type of crop used and the quality of the soil, knowledge and technical knowledge to be employed.

Beans are grown by a wide range of farmers, with the most varied profiles. According to the Food and Agriculture Organization of the United Nations - FAO (2010), Brazil stands out on the international stage, being the largest producer and consumer of beans in the world. In this context, bean production is closely linked to family farming and is one of the world's basic foodstuffs. Gliessman (2000) adds that family farming pays special attention to sustainability, establishing resilience, stability, productivity and balance. The authors Durojaye et al. (2019) also point out that 12 million hectares of the "caupi" variety are cultivated worldwide, with an average annual production of 6,9 million tons. Awika and Duodu

(2017) emphasize that beans are a great source of protein, making them an excellent source of food.

In this sense, this study aimed to analyze the importance of family farming, as well as bean production in the state of Paraíba - PB, since this activity is one of the bases of production for rural people.

Material and Methods

To this end, this study relied on a search for and compilation of data on bean production in the state of Paraíba, based on the database of the Instituto Brasileiro de Geografia e Estatística - IBGE, in which the data is public. In addition, the reflections of this data were supported by responses from scientific research, in which papers were selected on the "google acadêmico" platform using the terms "family farming", "sustainability" and "bean production in Paraíba". The papers were carefully analyzed and their compatibility with the proposal of the respective study was subsequently observed.

Results and discussion

According to table (1), 2018 was the most significant year in terms of planted area, reaching 96.393 ha, but over the following years its planted area fell dramatically, with a 22% reduction in 2021. In terms of harvested area, 2020 leads the way with 92.963 ha, but with a drastic drop of 32% for the following year. In terms of quantity produced, 2020 also showed the best figures compared to the 2017 to 2021 period, with production of 31.106 tons. In terms of average yield, which determines the amount produced per area harvested, 2020 was also the most significant year, with 388 kg/ha.

Table 1. Bean production in Paraíba (PB) over the last 5 years. Area planted in hectares (ha), area harvested (ha), quantity produced in tons (t) and average yield (kilograms - kg per hectare - ha)¹.

Period	Planted Area (ha)	Harvested Area (ha)	Quantity Produced (t)	Average Income (kg/ha)
2017	82.159	72.639	20.527	283
2018	96.393	90.713	33.878	373
2019	89.014	77.085	21.143	274
2020	93.063	92.963	36.103	388
2021	74.946	62.810	21.366	340

¹ Fonte: Adaptação de IBGE - Produção Agrícola Municipal, 2023.

If you look at table (1), you can see that there has been a great deal of variation in the figures over the last five years. It is clear that there has been a significant drop in the respective variables (area planted, harvested, quantity produced and average yield) shown in the table for the year 2021. According to the National Supply Company - Conab (2023), over the last 12 years the bean crop has faced challenges, with a loss of 1,2 million hectares, due to its response to profitability compared to other crops. The company also points out that the Northeast region saw a 33% drop in the harvest.

When it comes to agricultural production, we need to take a close look. According to table (1), it is clear that the area planted and harvested in 2021 fell considerably compared to 2020, but when checking the quantity produced and the average yield compared to 2017, the year 2021 was superior. This result is corroborated by Varian (2006) when he points out that technical efficiency allows for a better quantity of product to be produced with a smaller physical amount of soil, since technology can optimize the efficient use of the space in which the crop is planted.

When it comes to agricultural activity, the availability of water is closely related to successful production, especially in the semi-arid region, as the rainy season is scarce and often irregular, requiring a constant search for alternatives to reduce the negative effects of such circumstances imposed by nature (MATA, 2013). According to Pilevneli et al. (2023), climate change directly affects agricultural activities, affecting their production. In addition, the authors point out that the global scenario in the face of climate effects is worrying, since a drop in water availability affects not only agricultural production, but all life on earth.

In recent years, the availability and quality of water in agriculture has had a direct impact on bean production in Paraíba. In addition, factors such as the use of technology, technical practices and soil quality are also determining factors for the success of the crop. Even so, the use of tolerant crops and the constant search for knowledge help rural people to produce beans in the most diverse environments.

Conclusion

Family farming is a strong basis for rural people's quest for a dignified and fair life. In addition, agricultural activity is constantly undergoing new technological adaptations, thus allowing man to live with the conditions imposed by nature.

It is also possible to conclude that the bean crop is highly dependent on water, and it is necessary to overcome climatic factors such as water scarcity or irregular precipitation in the municipalities of the state of Paraíba. Given this scenario, it is necessary to develop strategies such as water harvesting and the implantation of species that are resistant to stressful conditions, as well as constantly seeking to improve technical and methodological knowledge.

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