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Socioeconomic aspects of producers of artisanal sweets in the 'Baixada Cuiabana' lowland region of Mato Grosso

Aspectos socioeconômicos de produtores de doces artesanais da região da Baixada Cuiabana – Mato Grosso

Aspectos socioeconómicos de productores de dulces artesanales de la región de Baixada Cuiabana - Mato Grosso

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Abstract

The production of sweets and similar sugarcane products is an activity performed by smallholder farmers from Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio do Leverger, in Mato Grosso. Therefore, this study aimed to assess the socioeconomic and productive aspects of rural producers (individuals and/or families) that

work with the production of sweets and sugarcane derivatives in municipalities of the 'Baixada Cuiabana' region. 145 questionnaires were applied to rural producers in the period from March 2019 to January 2020. Among the main results, it was verified that the predominant profile is of rural producers with a low education level, with properties with a size smaller than a fiscal module (the size varies for each municipality), without DAP possession and/or access to sectorial public policies, such as PRONAF and ATER services. Furthermore, the main income source of the interviewees was the production of sweets and similar sugarcane-derived products, and the financial gain of most individuals was up to a minimum wage. Therefore, it is verified that the low education level and the absence of technical orientation might be conditioning for the permanence of farmers in situations of socioeconomic vulnerability.

Keywords: Family farming in Mato Grosso; Sugarcane; PRONAF.

Resumo

A produção de doces e similares oriundos da cana-de-açúcar é uma atividade explorada por agricultores familiares de Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento e Santo Antônio do Leverger, em Mato Grosso. Sendo assim, objetivou-se realizar uma avaliação dos aspectos socioeconômicos e produtivos dos produtores rurais (indivíduos e/ou famílias) que trabalham com a fabricação de doces e derivados da cana-de-açúcar em municípios localizados na região da Baixada Cuiabana. Para a obtenção das informações foram aplicados 145 questionários aos produtores rurais no período de março de 2019 a janeiro de 2020. Dentre os principais resultados encontrados, verificou-se que o perfil predominante é de produtores rurais com baixo grau de escolaridade, com propriedade rural com tamanho inferior a um módulo fiscal (o tamanho é diferente para cada município), sem a posse da DAP e/ou acesso as políticas públicas setoriais como o PRONAF e aos serviços de ATER. Além disso, a fonte de renda principal dos produtores entrevistados foi a produção de doces e similares derivados da cana-de-açúcar e o ganho financeiro da maior parte dos indivíduos foi de até um salário mínimo. Sendo assim, constata-se que o baixo nível de escolaridade aliado à ausência de orientação técnica podem ser condicionantes para a permanência dos agricultores em situação de vulnerabilidade socioeconômica.

Palavras-chave: Agricultura familiar; Cana-de-açúcar; PRONAF.

Resumen

La producción de dulces y similares de caña de azúcar es una actividad ejercida por agricultores familiares en los municipios de Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento y Santo Antônio do Leverger, en el estado de Mato Grosso. Por lo tanto, este estudio tuvo como objetivo realizar una evaluación de los aspectos socioeconómicos y productivos de los productores rurales (personas y/o familias) que trabajan con la producción de dulces y derivados de la caña de azúcar en municipios de la región de la Baixada Cuiabana, en el estado de Mato Grosso, Brasil. Para obtener las informaciones, 145 cuestionarios fueron aplicados a los productores rurales, de marzo de 2019 a enero de 2020. En medio a los principales resultados obtenidos, fue comprobado que el perfil predominante es de productores rurales con bajo nivel de escolaridad, con propiedades de tamaño inferior a un módulo fiscal (el tamaño es diferente para cada municipio), sin posesión del DAP y/o acceso a políticas públicas sectoriales, como el PRONAF, y los servicios de ATER. Además, la principal fuente de ingresos de los productores entrevistados fue la producción de dulces y similares derivados de la caña de azúcar, y las ganancias de la mayoría de los individuos fue de hasta un salario mínimo. De esa manera, resulta que el bajo nivel de escolaridad, junto con la ausencia de orientación técnica, puede ser condicionante para la permanencia de los agricultores en una situación de vulnerabilidad socioeconómica.

Palabras clave: Agricultura familiar; Caña de azúcar; PRONAF.

1. Introduction

Initially dedicated to sugar exportation, sugarcane planting is one of the oldest economic activities in Brazil. In the state Mato Grosso, the sugarcane industry emerged in the late 19th and early 20th century and was one of the main economic activities in the region. There were sugarcane mills scattered through several areas along the Cuiabá River, highlighting the 1897 Itaici Mill in Santo Antônio de Leverger (Póvoas, 2000). The entire production of sugar, alcohol, and aguardiente was destined for internal consumption in Mato Grosso, as there are no sale reports for other states or countries (Siqueira, Costa, & Carvalho, 1997).

Sugarcane planting has markedly grown in several Brazilian states, especially in the Southeast, Northeast, and South regions. The Central-West region is also highlighted as a producing center. The focus of sugarcane production in Brazil is primarily on the production

of alcohol and sugar. In the 2018/2019 crop year, sugar production in Brazil was equivalent to 29.48 million tons. According to data from the Sugarcane Industry Union of São Paulo (ÚNICA, 2020), Brazil is the largest sugarcane producer in the world, followed by India and Australia.

The state of São Paulo is the largest national producer, with 18 million tons, whereas the state of Mato Grosso exhibits 370 thousand tons (ÚNICA, 2020). In regional terms, most of the sugarcane production in the country is concentrated in the Southeast region (68.14% of the national total), followed by the Central-West (19.28%), Northeast (6.50%), South (5.49%), and North regions (with 0.59%). In the period from 2012 to 2018, the highest production growth rates occurred in the North and Central-West regions, with values of 31.00% and 27.13%, respectively. As for the Northeast region, a 28.63% reduction is observed in the total amount produced in the same period (IBGE, 2020).

The use of sugar is a centenary tradition in the state of Mato Grosso and in several regions of Brazil that goes back centuries, being used for the production of sweets. This tradition remains in current days. The production of sweets and sugar preserves occurs almost exclusively through the application of sugar and/or molasse in the composition of syrups, jams, jellies, and other related products. Sugar is an important conservation agent for several foods, especially food derivatives. With thermal treatment, sugar reduces water availability for microbial proliferation due to the increase in osmotic pressure in the interior of the product (Silva, 2000). Gava (1984) reports that jams, fruit pastes, pickled fruits, candied fruits, and glacé fruits are examples of products conserved by sugar.

The artisanal producers of this segment work informally in Mato Grosso, almost not relying on productive and financial information about the activity, as well as facing issues in meeting the regulations demanded by regulatory agencies. For Carvalho, Prévot, and Machado (2014), the difference in the organizational performance among rural producers is due to the limited rationality of individuals, the asymmetric access to information in the agricultural sector, differences at the production level among rural companies, and the different manners of perception and cognition.

For Jeronimo (2018), the production of sweets and other sugarcane-derived products may represent a profitable activity for sugarcane industrialization in the context of smallholder farmers. The process involves simple machinery and operations that can be safely performed, as long as the proper technical orientations are adopted, which are also not complicated compared to the context of the processing industry. In this perspective, the

investigation of this theme is justified since it becomes an indicator for the elaboration of public policies towards rural reality.

The marketing of products from smallholder farmers is a complex process involving a series of variables that increase the difficulty in the outflow of production to consuming centers. Redin (2013) points out some factors that contribute to increasing the difficulty of smallholder farmers in marketing production, namely: (a) market instability; (b) weathering; (c) structural problems (access infrastructure to the property, etc.); (d) environmental and sanitary regulations; (e) absence of public technical assistance; and (f) impossibility of a regular product offer or productive scale.

Therefore, this study aimed to assess the socioeconomic and productive aspects of rural producers (individuals and/or families) that work with the production of sweets and sugarcane derivatives in municipalities located in the 'Baixada Cuiabana' region, in the state of Mato Grosso.

2. Methodology

This research employed a quantitative methodology using questionnaires. For Malhotra (2006), the quantitative research has the central objective of collecting data to obtain general information on a specific sample. Gil (2008) defines the questionnaire as an investigation technique composed of a large number of questions whose purpose is to gather the general knowledge of opinions, beliefs, situations, and realities of a specific population.

The study was conducted in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio do Leverger, which are located in the 'Baixada Cuiabana[1]' region of the state of Mato Grosso. The interviewing period lasted from March 2019 to January 2020, with 145 interviewees (rural producers). It is worth noting that preliminary assays were performed in open-air and municipal markets, in 2018, to gather information on the theme and assist in elaborating the questionnaires.

The distribution of the 145 interviewees in the municipalities was as follows: 30 interviews in Acorizal (ACZ), 25 in Cuiabá (CBA), 25 in Jangada (JGD), 35 in Nossa Senhora do Livramento (NSL), and 30 in Santo Antônio de Leverger (SAL). A questionnaire

[1] The 'Baixada Cuiabana' is a lowland region formed by 14 municipalities, namely: Acorizal, Barão de Melgaço, Campo Verde, Chapada dos Guimarães, Cuiabá, Jangada, Nobres, Nossa Senhora do Livramento, Nova Brasilândia, Poconé, Rosário do Oeste, Santo Antônio do Leverger, Várzea Grande, and Planalto da Serra (Cócaro, Cardoso, & Pereira, 2016).

directed towards rural producers aimed at obtaining information on the education level, number of people involved in the study, income sources, size of the property, access to financing lines, access to technical assistance services, possession of the PRONAF Declaration of Aptitude (DAP), and types and quantities of sweets produced monthly.

In the visited municipalities, the producers were recognized through information obtained in rural unions, associations or cooperatives, open-air markets, and people who lived in the areas. Every producer interviewed was informed on the research, its finality, and the anonymity of the interviewee, preserving ethic and community knowledge questions. For the organization of the data, percentage charts were developed in electronic sheets to assist in visualizing the results.

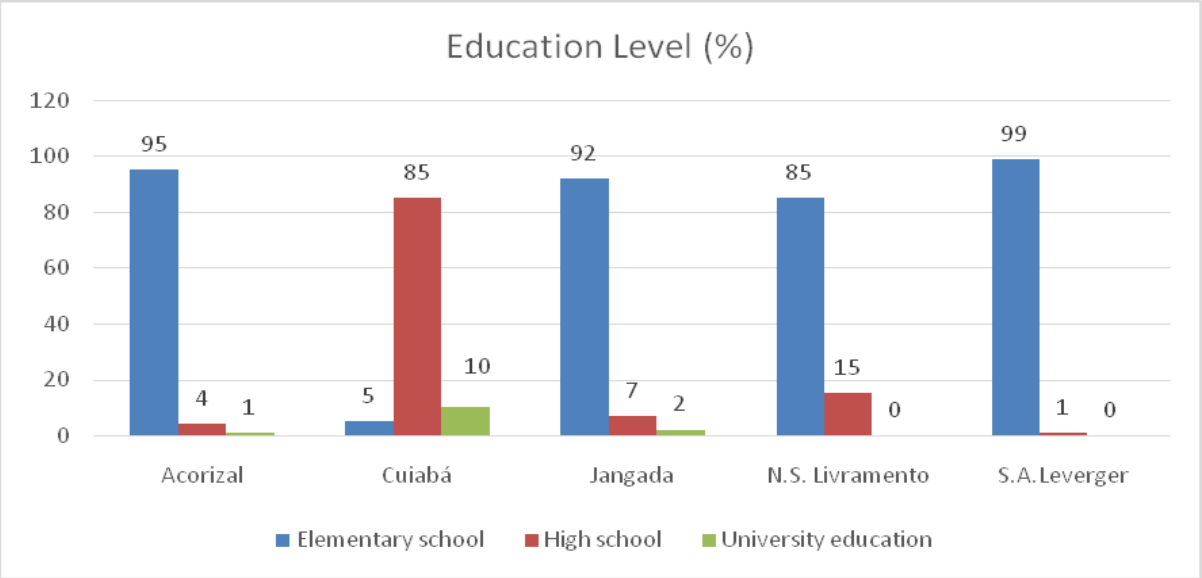
3. Results and Discussion

This topic presents the socioeconomic data of the rural producers interviewed and the access of these individuals to sectorial public policies, such as PRONAF and ATER services.

3.1 Profile of the rural producers

The profile characterization of the producer evaluated questions related to the education level, the main income sources of the family, and the number of people involved in the activity. Regarding the education level, most interviewees in ACZ, JGD, NSL, and SAL had finished elementary school (Chart 1).

Chart 1. Education level of rural producers interviewed in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger from March 2019 to January 2020.



Source: Results of the research.

In the municipality of CBA, most interviewees had secondary education. Furthermore, low participation was verified in the education level corresponding to postsecondary education, with a maximum of 10% in CBA and no case identified in NSL and SAL (Chart 1).

These results reflect the Brazilian reality depicted in the Agricultural Census performed by IBGE in 2017, which identified 5.05 million agricultural establishments in the country, of which 3.89 million are classified as smallholder farms (about 77.07% of the total). In 2017, there were 118,017 agricultural establishments in the state of Mato Grosso, of which 81,635 are smallholder farms (about 69.17% of the total).

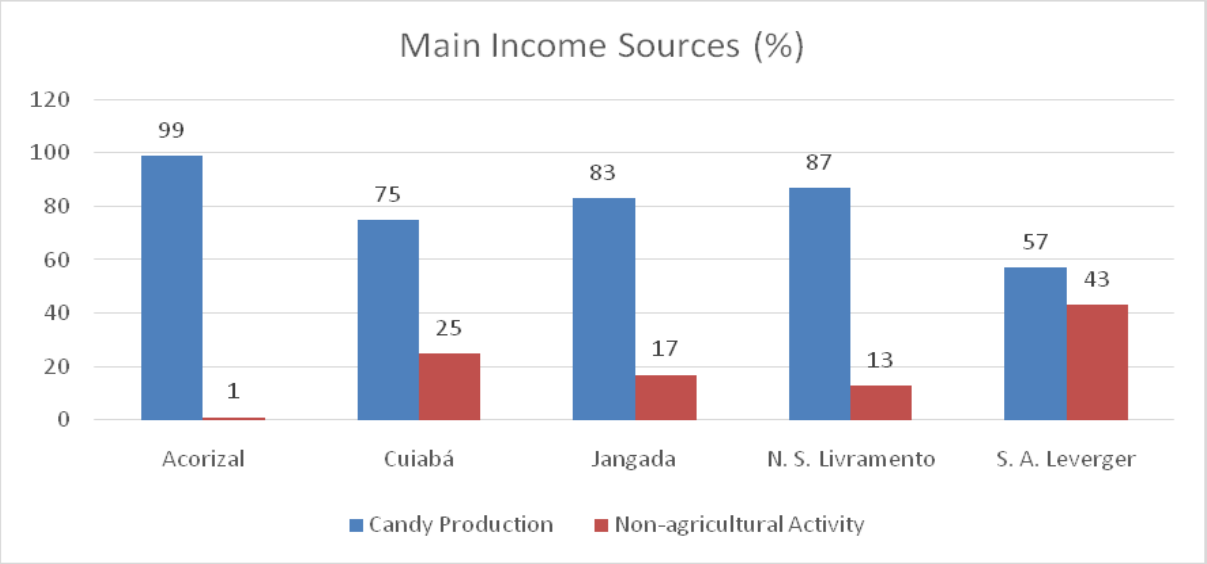
Regarding the education level, about 1.02 million smallholder farmers could not read or write (about 26.38% of the total), and 699,519 had never attended school (about 17.94% of the total). In Mato Grosso, about 10,057 smallholder farmers could not read or write (representing 12.31% of the total), and 9,953 had never attended school (about 12.19% of the total) (IBGE, 2017).

These data are relevant since they reveal a harsh reality of family agriculture in the country and in Mato Grosso, which is the low education level of rural producers. For Dias, Pedrozo, Silva, and Rosa (2008), the education level of the producer is a variable that can

influence the performance of the economic activity. For example, it may result in the difficulty of accessing information and using proper management control mechanisms.

Regarding the income of the rural producers, there are some classifications developed by Perondi (2007), namely: (a) agricultural, or resulting from the practice of agricultural activities; (b) para-agricultural, resulting from the transformation of foods and other products; (c) external transference, resulting from retirement and pensions and/or public policies such as the 'Bolsa Família' income program; (d) non-agricultural, resulting from occupations outside the production unit; (e) services, obtained with temporary work; and, (f) other sources, such as interests, donations, and rents. The income of most rural producers interviewed comes from the production of sweets (Chart 2).

Chart 2. Income sources of artisanal sweet producers in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.



Source: Results of the research.

The highest proportions of rural producers whose income comes mostly from the production of sweets are identified in ACZ, NSL, and JGD, with values of 99%, 87%, and 83%, respectively. There is also more expressivity in SAL (57%) and CBA (25%) since the income of the interviewed producers is complemented by other sources than sweet production, such as job opportunities in the city or daily paid work in sporadic services. These numbers are explained by the greater availability of jobs and services in the region: there is an offer in the fishing segment in SAL, whereas the local commerce and industry offer jobs in

CBA. When any member of the rural family is already inserted in another economic segment, the family is defined as pluriactive.

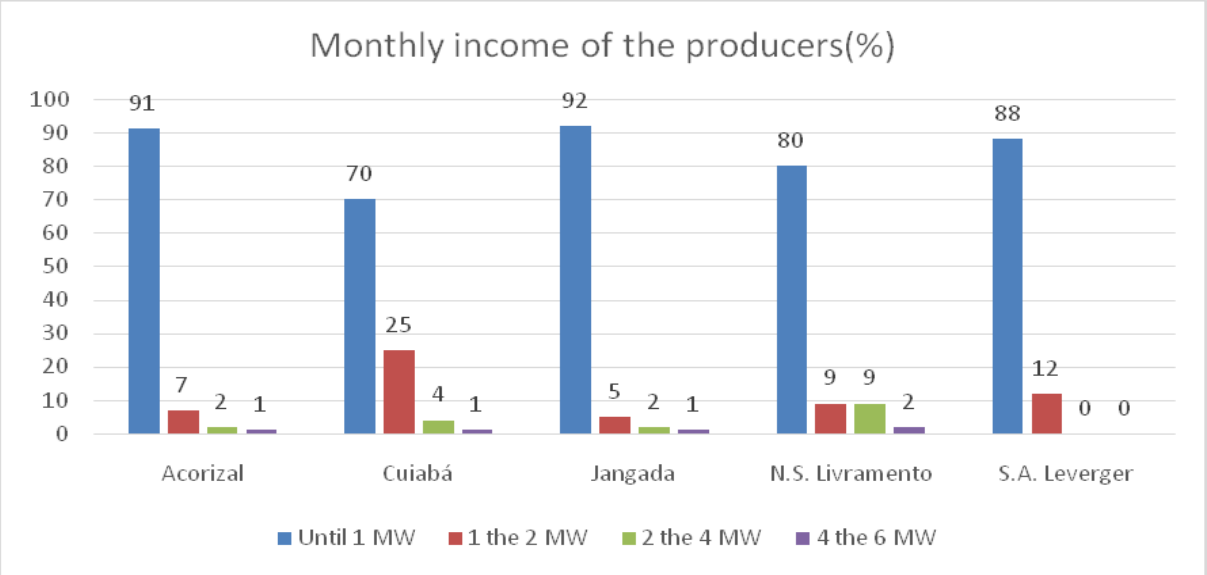
In this aspect, Sakamoto, Nascimento, and Maia (2016) report that the existence of pluriactive rural families may occur due to the proximity of the rural property to urban centers and the presence of adult children residing at home. Families that live in isolated rural areas, with little service structure, have few insertion opportunities in the labor market.

Lazaroto and Raiher (2013) defined pluriactive activity as that in which the worker performs an agricultural activity and any other activity, within the same week. Kageyama and Hoffmann (2000) verified that the average income in pluriactive households is usually higher than in those that rely exclusively on agriculture. Mikulcak, Haider, Abson, Newig, and Fischer (2015) highlight that rural producers explore several income-generating mechanisms, including the diversification of production. For Schneider (2003), the different activities and interests of individuals and families that live in the production unit, with a broader vision of the whole, give origin to pluriactivity.

The income obtained outside the property is already a quite old and common reality in family agriculture, in which producers began to acquire the flexibility to find new ways to earn their living, thus combining the work in the field with the work outside it (Shanin, 2008). Schneider (2003) indicated that pluriactivity is an alternative for job and income generation for rural families. For that purpose, the author presented suggestions of public policies to implement this mechanism as a strategy for the promotion of rural development.

Regarding the monthly income quantitative obtained by rural producers with the sale of sweets and similar products, it was verified that most individuals earn up to a minimum wage, with estimations of 92%, 91%, 88%, 80%, and 70% for JGD, ACZ, SAL, NSL, and CBA, respectively (Chart 3).

Chart 3. Estimation of the monthly income obtained with the sale of artisanal sweets and similar products by producers in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.



Note: MW – minimum wages. Source: Results of the research.

In the municipality of Cuiabá, a larger number of rural producers earn a monthly average sum from 1 to 2 minimum wages with the sale of sweets, which is 25% of the total of interviewees in that location (Chart 3). Generally, it is verified that most rural producers obtain a low income with the sale of sweets and similar products. For Mocelin (2010), one of the aggravating factors for rural poverty in Brazil is the low education level of rural producers.

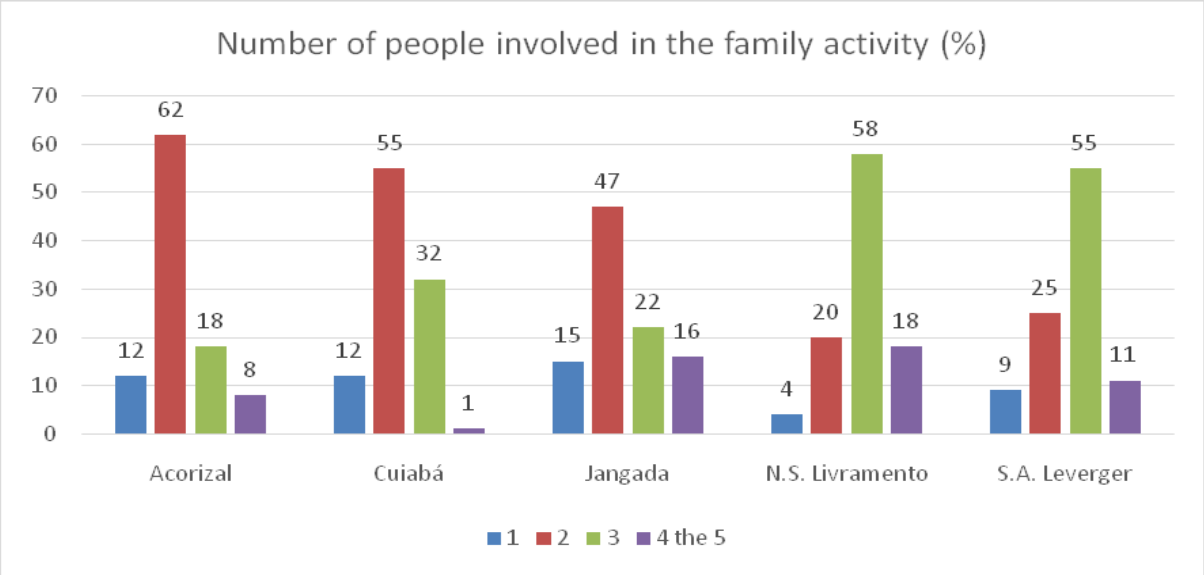
This low education level can damage the management process of the activity. Mugera and Bitsch (2005) report that poor management may lead to competitive disadvantages for the rural property. In turn, Llewellyn (2007) and Matzdorf and Lorenz (2010) report the importance of the service or rural extension as a public policy directed towards training and knowledge diffusion in the field.

Therefore, the importance of the access of these individuals to ATER services (Technical Assistance and Rural Extension) is highlighted as a mechanism to obtain productive and financial information to improve the management of the business and to assist in the development of alternatives to allow commercialization. Wossen, Berger, and Falco (2015) highlight the importance of the participation of rural producers in associations or

social groups (contact networks) to obtain information/knowledge for the management of the property

Chart 4 presents data on the number of family members that are involved in the production of sweets and similar sugarcane products in the rural properties assessed.

Chart 4. Number of family members involved in the production of artisanal sweets and similar products in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.



Source: Results of the research.

In the municipalities of ACZ, CBA, and JGD, the rural properties assessed present a higher occurrence of two family members directly involved in the activity, with values of 62%, 55%, and 47%, respectively. As for the municipalities of NSL (58%) and SAL (55%), most of the interviewees reported the participation of three family members involved in the production of sweets and similar products (Chart 4).

3.2 Charactersitics of the agricultural establishments

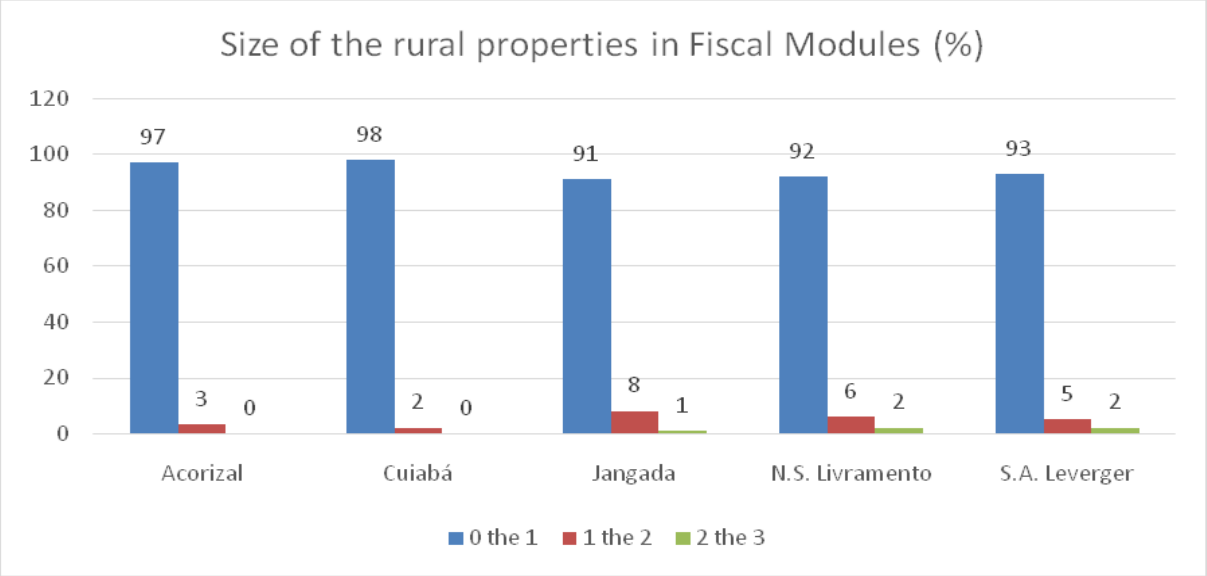
The fiscal module is an area measure in agriculture representing the minimum area required for the rural properties to be considered economically viable. The size of each fiscal module can vary from 5 to 110 hectares, according to the municipality. The regulation of the

fiscal module in Brazil occurred by the Law 6,746 of December 10, 1979 (Landau et al., 2012).

The definition of the fiscal module in Brazil takes into account the following factors: (a) the predominating activity in the municipality; (b) the income obtained by the predominating activity; (c) other types of activities existing in the municipality, which possess relevance in terms of generated income or occupied area; and (d) the concept of family property (Landau et al., 2012). The values of the fiscal module in the studied municipalities are the following: Cuiabá (30 hectares), Santo Antônio do Leverger (70 hectares), Acorizal, Jangada, and Nossa Senhora do Livramento (80 hectares) (INCRA, 2013).

According to the mean values obtained in Chart 5, 94.2% of the properties studied have a size smaller than 1 fiscal module, and 4.8% are within 1 and 2 fiscal modules.

Chart 5. Size of the rural property of the interviewees, in fiscal modules, in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.

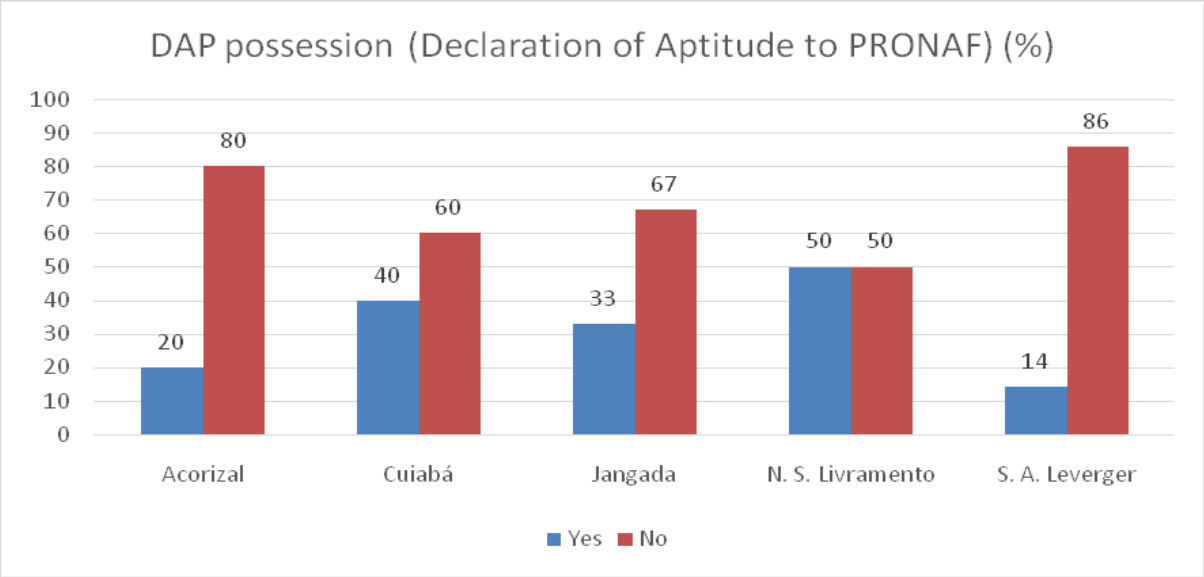


Source: Results of the research.

The limitation of productive areas is a reality in the Brazilian rural sector. In the 2017 Agricultural Census, of the 5.05 million agricultural establishments, approximately 2.54 million had an area smaller than 10 ha, which corresponds to 50.13% of the national total (IBGE, 2017). The limitation of the productive area may compromise the expansion of the production of sugarcane sweets and similar products or even the practice of another economic activity for the diversification of income sources for the families. Chart 6 presents information

on rural producers, regarding whether they possessed the DAP (Declaration of Aptitude to PRONAF).

Chart 6. DAP possession by producers of artisanal sweets interviewed in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.

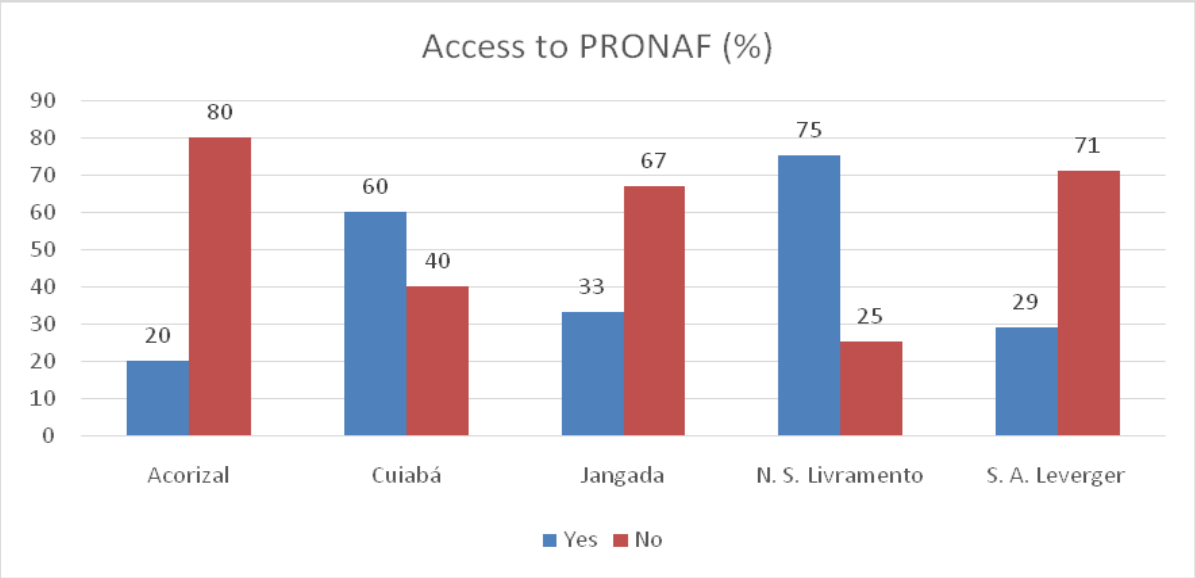


Source: Results of the research.

The DAP ins an instrument used to identify and qualify agrarian production units of family agriculture and associations organized as legal entities. Through this document, it is possible to access sectorial public policies, such as the financing lines of PRONAF (National Program for the Strengthening of Family Agriculture) (MAPA, 2019).

Most producers did not possess the DAP, especially in the municipalities of SAL and ACZ, with the participation of 86% and 80% of the total of interviewees, respectively. Furthermore, for the remaining municipalities, the percentages were 67% for JGD, 60% for CBA, and 50% for NSL (Chart 6). Chart 7 presents the data on the access of rural producers to the financing lines of PRONAF.

Chart 7. Access of interviewed rural producers to PRONAF resources in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.



Source: Results of the research.

In Brazil, in 2017, of the 3.89 million family agriculture establishments, only 601.19 thousand (about 15.43% of the total) had access to some form of financing. Of the 81.63 thousand family agriculture enterprises in Mato Grosso, only 12.99 thousand (about 15.91% of the total) had access to financing (IBGE, 2017). Among the municipalities evaluated, most interviewees reported that they had no access to PRONAF in ACZ (80%), SAL (71%), and JGD (67%) (Chart 7).

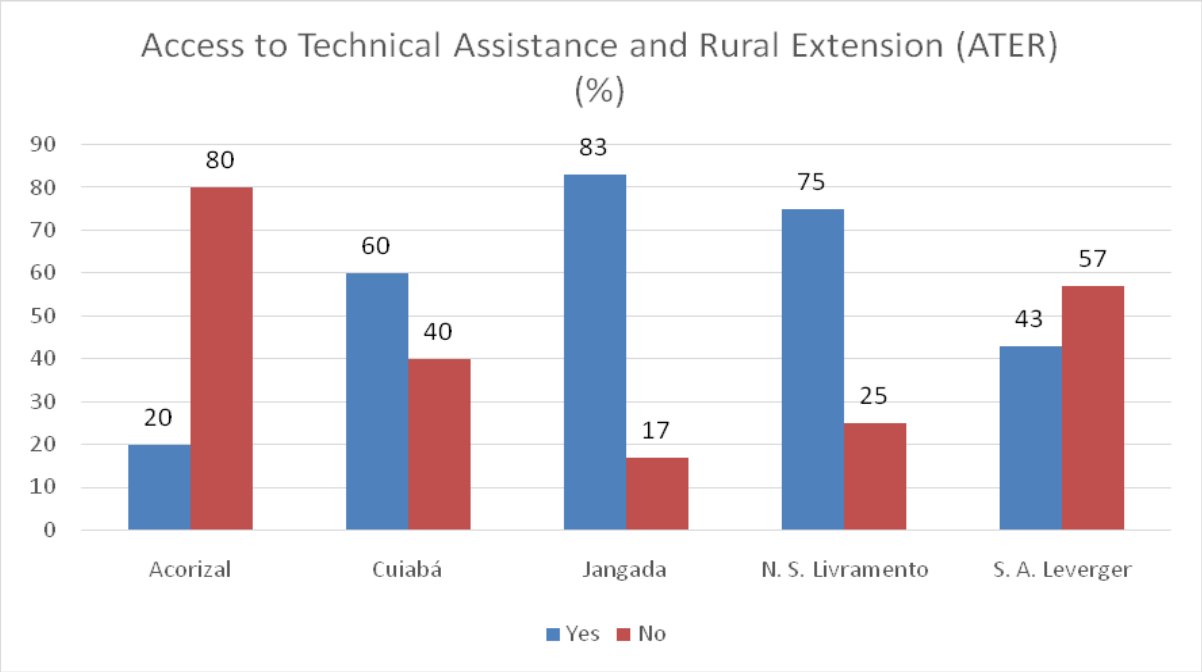
In turn, in the municipalities of NSL and CBA, most of the interviewees reported having access to PRONAF resources, with percentages of 75% and 60%, respectively (Chart 7). The access to the financial resources of PRONAF is important to finance operational activities of the enterprise, or even to make investments. Corcioli and Camargo (2018) report that one of the main obstacles that complicate the access of smallholder farmers to PRONAF resources is the bureaucracy imposed by financial institutions to release the resource.

Aquino and Schneider (2011) report that the distribution of PRONAF resources is mainly concentrated in the South and Southeast regions of the country. Medina and Novaes (2014) observe that one of the factors for the imbalance of access to PRONAF resources between Brazilian regions is the uneven education level of rural producers. The North and Northeast regions concentrate a large proportion of smallholder farmers who did not finish elementary school. The low education level is a factor that makes it difficult for the rural

producer to properly understand the access mechanisms to public policies, which demand a set of technical and financial information on the activity.

Access to ATER services is important to promote training. Such data are presented in Chart 7.

Chart 7. Access to ATER services by producers of artisanal sweets in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio de Leverger, in a study conducted from March 2019 to January 2020.



Source: Results of the research.

In the municipalities of JGD, NSL, and CBA, most rural producers interviewed had access to ATER services, with percentages of 83%, 75%, and 60%, respectively. For ACZ (80%) and ASL (57%), in turn, the situation was inverse, as the largest group of producers had no access to ATER services ATER (Chart 7).

In 2017, there were approximately 3.89 million family rural properties in Brazil. Out of this total, about 700.31 thousand received some technical instruction, which corresponds to 18.17%. In the state of Mato Grosso, in turn, of the 81.63 thousand family establishments, approximately 10.21 thousand (about 12.51% of the total) received some technical orientation (IBGE, 2017).

For Dias et al. (2008), the main administrative skills that differentiate the performance of rural producers consist of the proper selection of innovations and investments, the implementation of innovations in the property, the incremental improvement of the

production system, and the technical and economic monitoring. Through technical orientation, rural producers can incorporate innovations in the productive process and improve the management of the activity.

Rogers (2003) observes that innovation can be characterized as an idea, practice, or object that an individual perceives as new. For Laforga and Vieira (2008), the difficulties of smallholder producers to access information on public policies, innovations, and management control mechanisms of the activity contribute to the increase of poverty in the field.

4. Final Considerations

This study aimed to evaluate the socioeconomic and productive aspects of rural producers that work with the production of sugarcane sweets and derivatives in the municipalities of Acorizal, Cuiabá, Jangada, Nossa Senhora do Livramento, and Santo Antônio do Leverger. The predominating profile is of rural producers with a low education level, with rural properties with a size smaller than a fiscal module (whose size is different for each municipality), and without DAP possession and/or access to sectorial public policies, such as PRONAF and ATER services.

The main income source of the interviewed producers was the production of sugarcane sweets and similar products, and the average financial gain of most individuals was up to one minimum wage. This type of study is important to evaluate the context of smallholder farmers in the state of Mato Grosso regarding agricultural production and access to public policies. The low education level allied to the absence of technical orientation might be a conditioning factor for the permanence of farmers with socioeconomic vulnerability.

This type of study is recommended for the same profile of smallholder rural producers specialized in the production of sugarcane sweets and derivatives in other Brazilian locations. This type of research is important to assist governmental entities in elaborating and implementing public policies to fight rural poverty.

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