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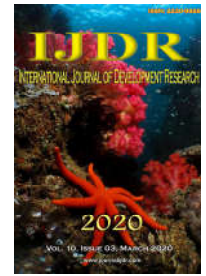
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CASSAVA'S (*MANIHOTESCULENTACRANTZ*) PRODUCTION CHARACTERIZATION IN THE PARAÍSO QUILOMBOLA COMMUNITY, ACARÁ, PARÁ STATE, BRAZIL

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ABSTRACT

The production and consumption of cassava and its derivatives is part of the productive and food culture of the traditional populations of the Brazilian Amazon and, particularly, in the State of Pará. Cassava cultivation is widely disseminated throughout state; and, Acará municipality is an important producer, standing out in the cassava flour production and commercialization. The article's objective was to evaluate socioeconomic and technological characteristics of cassava production and to identify cultivation practices in the Paraíso quilombola community, Acará municipality, Pará state. Data collection was performed through application of a semi-structured questionnaire. The identified result shows that the average cultivated area is only 0.30 hectares of cassava per production unit. Cassava production is carried out in capoeira areas with rudimentary practices without mechanization use and modern inputs. The community cultivates predominantly for family consumption, selling only surplus. Tasks' social division does not make a gender distinction, counting on the family's participation in the production process.

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INTRODUCTION

Cassava (*ManihotesculentaCrantz*) is grown in more than 100 countries in tropical and subtropical regions (FAO, 2013). It is an ancient culture and food basis for low-income populations, especially in rural areas, being widely cultivated by family farmers, using low technology (RÓS et al., 2011). It is cultivated throughout Brazil, with Amazon region standing out as the largest producer in the country (IBGE, 2018). Despite being a culture with multiple use possibilities, from which several by-products are obtained, cultivation is mainly aimed at flour production, almost always by hand and for families' subsistence (SILVA et al., 2009).

The largest cassava production, within Amazon region, is found in Pará state, representing 20.55% of the country's production. The largest production concentration occurs in Acará municipality, which produced 356,000 tons in the 2017 harvest (EMBRAPA, 2018). Acará is a municipality with essentially rural characteristics, with approximately 40% of population residing in these areas (IBGE, 2010), including traditional communities such as indigenous and quilombolas, whose economic base involves growing a variety of products for basic food such as cassava. This product plays a fundamental role in food security, since, according to the Ministry of Health (2016), it is one of the main energy foods used in Brazil. Currently, Acará municipality has 32

quilombola communities duly registered or in land regularization process (ITERPA, 2018), these communities were formed out of resistance to slavery regime installed in Brazil between the 16th and 19th centuries. Until today, they are ethnic groups that share an identity that distinguishes them from others and that forms the basis for their organization, mobilization and political action, especially in their relationship with other groups and with Public Power (ANDRADE, 2011). The Paraíso community is characterized by cassava family production for families' subsistence purpose and produced surplus commercialization. Thus, the article's objective was to identify and characterize the practices related to cassava cultivation in the community, also evaluating producers' socioeconomic characteristics, as well as knowing productive structure linked to cassava cultivation.

MATERIALS AND METHODS

The research reference area is the Paraíso quilombola community, located in Acará municipality, Pará state, 114 km from the capital, Belém. According to data from the Brazilian Institute of Geography and Statistics (IBGE, 2019), the municipality has a demographic density of 12.33 inhab./km², with an estimated population in 2019 of 55,591 people. In the municipality, several quilombola communities stand out, among them, Paraíso community, which currently has 60 families, where data collection was carried out as a reference in cassava culture farming among Acará quilombola communities. The access to the community is via river or land through km 18 of PA-483 highway (Alça Viária do Pará), access via Paraíso branch line. The community is located in the region known as Baixo Acará, so it is closer to Belém city, Pará state capital (about 30 km) than to municipal headquarters. According to information from the 2016 agricultural census, in the Acará municipality, produced cassava amount was 277,000 tons, in a planted area of 18,350 hectares. This corresponded to a productivity of 15.09 tons of roots per cultivated hectare. The survey involved ten cassava producers in the community through the questionnaire application. This contingent represents 17% of producers in the Paraíso community. Information about socioeconomic, productive and social organization was obtained. Then, data were submitted to descriptive statistical analysis.

RESULTS AND DISCUSSION

Socioeconomic characteristics: Interviewed producers were mostly men (80%), most are married (40%) or in a stable relationship (40%). Age ranged from 35 to 84 years with an average of 56 years. It was found that they are old. This issue was justified by producers who claimed the local residents' aging while the youngest have not been dedicated to agriculture and/or have left the community. All interviewees are from Acará municipality, having a connection with quilombola territory since they have lived in the community since birth and received the land by inheritance from their ancestors. Regarding education, there is a low education level, as 60% of respondents have only incomplete primary education and the other part was not literate (40%). This data is worrisome, as individuals with low education have greater difficulty in participating in decision-making in their community and; in addition, these producers are often unable to obtain more information about access to public policy instruments (RAMBO and MACHADO, 2009). Regarding religion, most of them are Catholic (60%) and Protestant (30%). Only 10% said

they belong to African origin religions, indicating that community religious base has been interfered by other religions.

Table 1. Socioeconomic characteristics of farmers in the Paraíso community, Acará, Pará state, Brazil.

General characteristics		N	%
Genre			
	Women	2	20
	Men	8	80
Marital status			
	Married	4	40
	Stable union	4	40
	Widower	1	10
	Not married	1	10
Education			
	Illiterate	4	40
	Incomplete elementary school	6	60
Religion			
	Catholic	6	60
	Protestant	3	30
	Afro	1	10
Other activity			
	Yes	9	90
	No	1	10
Social benefits			
	Family Grant	6	60
	Retirement (BPC)	4	40

Source: Research data.

Table 2. Characteristics of producers' homes

Wall type	Frequency	Percentage (%)
Masonry	8	80
Mixed	2	20
Total	10	100
Coverage type		
	Frequency	Percentage (%)
Clay tile	7	70
Brasilit	3	30
Total	10	100
Floor type		
	Frequency	Percentage (%)
Cement	8	80
Ground	2	20
Total	10	100

Source: Research data.

Table 3. Activities' items carried out by rural producers for cassava production

Activity	Yes %	No %
Burned	100	0,00
Mechanization	0,00	100
Fertilizers	30	70
Pesticide	40	60

Source: Research data.

Table 4. Tasks' distribution by gender for cassava production

Activity	Men %	Women %	All %
Area cleaning (Drill and Felling)			100
Area cleaning (Coivara)			100
Manivas' preparation		20	80
Pit opening	20		80
Weeding			100
Harvest			100
Collection and transport	90		10
Scraping, peeling and mass production		30	70
Roasting	40		60
Bagging			100
Commercialization	50		50

Source: Research data.

This result reflects the national and regional scenario with 60% Catholic representation demonstrated in the last demographic census (IBGE, 2010); which in turn, results from a historical process, in which, the slave passes and incorporates Portuguese religiosity, a process of religious syncretism (ROMÃO, 2018). Regarding children number, the average, which in the past was 5 children, reduced to a current configuration of 2 children. This fact reinforces the higher percentage of older people who are performing cultivation activity in the community. This scenario reflects a tendency towards a decrease in rural families' size and a reduction in family labor (BUAINAIN; ROMEIRO; GUANZIROLI, 2003) and these conditions influence cassava production. In general, most producers develop other activities (90%). This is a relevant strategy, as diversification plays an important role in generating income and reducing rural exodus (BEZERRA; SCHLINDWEIN, 2017). All respondents receive some type of social benefit, such as a family allowance (60%) or retirement in the form of continuous benefit (Benefício de Prestação Continuada - BPC) (40%) (Table 1). As noted in Table 2, the producers' homes are mostly masonry (80%) and mixed (20%), which are homes that have a part of masonry and another part of clay or wood. Similar results were found by Ferreira and Torres (2015) in a quilombola community in northeastern Brazil, where 79% of the houses were made of masonry. The houses' roofs are made of clay tile (70%) or asbestos tile (30%) with cement floor (80%), but without ceramic coating. The community has had access to electricity since 2014. Producers' homes do not have piped water and drinking water source and other types of use come from Jacarequara stream that supplies the community, and the only treatment is the hypochlorite inclusion donated to residents by the community health post. Among producers, 70% have a bathroom inside house and another 30% have bathrooms outside residences, with the waste being sent to river without any type of treatment. Basic sanitation lack poses risks to human health. In 2007, the National Basic Sanitation Law, No. 11,445 (BRAZIL, 2007) was enacted; this law offers guidelines and emphasizes basic sanitation importance in promoting public health, environment protection and other relevant social issues for improving population life quality. However, in this type of community basic sanitation lack is a predominant characteristic. The community has a health post and a health agent who carries out the community's records lives in the locality.

Characterization of cassava production: Cassava flour production in the community is done by hand and is practiced as a subsistence way, and it is aimed at family consumption and with surplus sale, since 90% of producers have other activities such as coal and açaí production. Regarding the decision to plant, the option of what is planted come from a family head, respecting the need for flour production for family consumption. According to Silva *et al.* (2009) many producers use genetic materials that were cultivated by their grandparents and that are often not very productive and susceptible to diseases. This has a negative effect on production and reduces the income from the activity. Soil use occurs from cutting and burning process, with plantations being carried out in capoeira areas. This practice of slash-and-burn agriculture involves an important issue, since it corresponds to one of deforestation direct vectors (ALENCAR *et al.*, 2016). In a paper entitled Reducing Deforestation in the Amazon: Agricultural or Environmental Policy? Homma *et al.* (1998), points out that cutting and burning practices by small farmers occurs due to economic and technological variables and, states that, these

practices' reduction can occur through appropriate agricultural policies. The activities carried out by the producers are area clearing, called a drill, and, subsequently, they cut down, burn the vegetation and compute it, and then plant it. Burning practice is used by all consulted producers who do not use any type of mechanization in production and with few modern inputs such as fertilizers and pesticides (Table 3). Fertilizers and pesticides are normally purchased in other municipalities due to the distance from Acarámunicipality center. All farmers reported that the greatest difficulty for production development is labor availability, as most producers are already old and the youngest have sought alternatives such as professionalization, especially after the rights' conquest that guarantees vacancies in universities for quilombola populations within special entrance exam at federal universities in the state.

Young people discouragement in the countryside directly impacts cassava production in the community, as it is a culture that requires a lot of labor in cultivation and processing. On the other hand, young people departure or part of them to continue with professionalization can be part of family strategies to guarantee family establishment continuity and also future goals for better structuring of the quilombola community, since the quilombola territory is a right guaranteed for present and future generations (MATTE; MACHADO, 2016). Despite labor scarcity, the relationship established among community farmers is predominantly of an exchange nature, that is when someone in the community needs help in their production and other community members work in exchange for contributions in other opportunities. It is a type of mutual collaboration quite common in traditional communities in which family groups seek an autonomous and free production, based on cooperation (CARVALHO; LIMA, 2013). On average, cassava production is carried out in small areas of up to 0.30 hectares, with productivity around 15 tons of roots per hectare. This guarantees a production of approximately 112.5 kg of flour per month, with household consumption of approximately 52.5 kg per month. The work for cassava production is distributed throughout the year, but the harvesting activities are concentrated in the second semester. Producers claim that cassava production is no longer as it was in the past, 80% of them guarantee that the soil is worn out and that the cassava roots have reduced in size.

Task division among family has involved both men and women and there is no exclusive activity, but it is clear that collecting and transporting activity has been attributed mainly to men (90%) (Table 4). When producers come to trade surplus production, 90% of them usually establish trade relations with the middleman and only 10% trade in the community itself, selling the product to the final consumer. Producers argue that transportation cost to sell the product in other locations does not compensate for production volume; therefore, it is preferable to pass the production on to a trusted middleman who frequents the community. This relationship profile is constructed in most of the territory in an informal way with a clear control lack on the part of the producer. In addition, the technical and infrastructure precariousness of municipal departments of agriculture and competent organs make it difficult to count production amount, origin place, as well as the established relationships 'value (NAHUM, 2011). The flour produced in the community is traded on average at R\$ 45.00 per 30 kg bag, with each producer selling an average of one bag per month guaranteeing an income of R\$ 45.00 with flour production and the value is paid in cash for them. This

commercialization process is the best alternative due to the logistical difficulties to transport the product to other sale points; with that 80% of producers answered that the middleman is the biggest beneficiary, as he has the option to bargain higher prices when marketing the product. The participation of intermediaries within cassava flour commercialization channel reflects a high disorganization in the product commercialization, and harms producers, since, they are paid lower values and the effective gains pass into the hands of these intermediary agents (MACIEL; JUNIOR. All producers are linked to the zombie children quilombola association of rural producers, this association was necessary for all community members for region inclusion in regularizing land process as quilombola, which is still in process. As a result, all producers responded that this link is important as a way of recognizing quilombolas and guaranteeing the rights of these traditional communities. Despite this, there is no flour commercialization through association, which could facilitate production flow, with a view to a greater production and commercialization scale.

The producers informed that they had never received any type of technical assistance, but 80% of them recognize that technical assistance is important to structure production and obtain higher quality of products; another 20% did not know how to answer on the subject. Professional courses has already been offered in the community through the National Rural Apprenticeship Service (Serviço Nacional de Aprendizagem Rural - SENAR), but only 40% of respondents have participated, with the flour production course being offered in the community. Also, 70% of the producers are interested in participating in other training courses such as handling açai, producing cupuaçu and vegetables. Among producers, 50% responded that they had accessed some type of financing for production. According to the interviewees, financing is a good alternative to improve production, especially at the beginning of crops' installation. However, information lack and bureaucracy to access credit were some of reasons for the difficulty of obtaining this resource. Some community members participated in the flour production cooperative in processing unit installed in the baby Jesus quilombola community that worked strongly in the region in 2014. But, after that first year of work, it was deactivated by poor management and even by repetitive losses producers who were discouraged by the project. It appears that flour production is still promising in the region; however the deficiency in communities' social organization maintains this activity with low technological level and on subsistence threshold.

Final considerations: The research results allowed to identify the traditional characteristics of the *Paraíso* quilombola community that have a strong relationship with the territory as an inheritance from their ancestors. Cassava production is carried out in the community without inclusion of technological innovations and aimed at families' subsistence and this characteristic is linked not only to the families' desire to have a small production, but also due to labor limitations to develop rural work and also due to the logistical difficulties involved in selling the product in other regions. Thus, the surplus production ends up being passed on to intermediary marketing agents. The difficulty in accessing information and bureaucratization in the credit-taking process were conditioning factors for producers' discouragement to expand their production practices. In addition, the aging and disinterest of youngest has reduced production in the community; and,

finally, it is perceived that income transfer policies, which place quilombola populations as a priority, have generated a certain income stability for these producers who count on this resource as something permanent and security for their family, and, therefore, the production and trade in agricultural products seems to have been in the background. Social organization through quilombola association was a governmental requirement for inclusion of the community in recognition process that is aimed at guaranteeing access to public policies for quilombola populations; however, in terms of productive organization the association is still in structuring process and it needs to strengthen the community's associative culture and social capital.

REFERENCES

- Alencar, A. *et al.* 2016. Desmatamento nos Assentamentos da Amazônia: Histórico, Tendências e Oportunidades. IPAM, Brasília, DF, 93p.
- Andrade, L. 2011. Terras Quilombolas em Oriximiná: pressões e ameaças. (1. Ed). São Paulo.
- Bezerra, C. J., Schlindwein, M. M. 2017. Agricultura familiar como geração de renda e desenvolvimento local: uma análise para Dourados, MS, Brasil. *Interações*, 18(1), pp. 3-15.
- Buainain, A.M., Romeiro, A.R; Guanziroli, C. 2003. Agricultura Familiar e o Novo Mundo Rural. *Sociologias*, 5(10), pp. 312-347.
- BRASIL. Ministério da Saúde. 2016. Alimentos regionais brasileiros (2. ed.). Brasília: Ed. MS.
- BRASIL. Presidência da República. Casa Civil. 2007. Lei no 11.445, de 5 de janeiro de 2007. Estabelece diretrizes nacionais para o saneamento básico; altera as Leis nº 6.766, de 19 de dezembro de 1979, 8.036, de 11 de maio de 1990, 8.666, de 21 de junho de 1993, 8.987, de 13 de fevereiro de 1995; revoga a Lei nº 6.528, de 11 de maio de 1978 e dá outras providências. *Diário Oficial da União*, 8 jan. 2007 [retificado no DOU de 11 jan. 2007].
- Carvalho, R. M. A., Lima, G.F.C. 2013. Comunidades Quilombolas, Territorialidade e a Legislação no Brasil: uma análise histórica. *Revista de Ciências Sociais – Política e Trabalho* (online), 39, 329-346. Available at: <<http://www.periodicos.ufpb.br/ojs/index.php/politicaetrabalho/article/view/12745>>. Access: July 07, 2018.
- Empresa Brasileira de Pesquisa Agropecuária – EMBRAPA. 2018. Mandioca em números. Available at: <<https://www.embrapa.br/congresso-de-mandioca-2018/mandioca-em-numeros>>. Access: Jun10, 2018.
- Ferreira, H.S., Torres, Z.M.C. 2015. Comunidade quilombola na Região Nordeste do Brasil: saúde de mulheres e crianças antes e após sua certificação. *Revista brasileira saúde materno infantil*, 15 (2), pp. 219-229.
- Homma, A. K. O. *et al.* 1998. Redução dos desmatamentos na Amazônia: política agrícola ou ambiental. In: HOMMA, A. K. O. (Ed.). *Amazônia: meio ambiente e desenvolvimento agrícola*. Brasília, DF: Embrapa/SPI.
- IBGE. 2010. Sistema IBGE de recuperação automática - SIDRA. Available at: <https://sidra.ibge.gov.br/home/pms/brasil>. Access: Jun 15, 2018.
- IBGE. 2018. Levantamento Sistemático da Produção Agrícola. Available at: <<https://sidra.ibge.gov.br/tabela/6588>>. Access: Jun 12, 2018.
- IBGE. 2019. População de Acará. Available at: <<https://cidades.ibge.gov.br/brasil/pa/acara/panorama>>. Access: Jun22, 2019.

- ITERPA. 2018. Quilombolas. Available at: <<http://www.iterpa.pa.gov.br/content/quilombolas>>. Access: Jun14, 2018.
- Matte, A; Machado, J. A. D.2016. Tomada de decisão e a sucessão na agricultura familiar no sul do Brasil. *Revista de Estudos Sociais*, 18(37), pp. 130-151.
- Maciel,R.C.G., Junior, F.B.L.2014. Inovação e agricultura familiar rural na Amazônia: O Caso da Mandioca no Estado do Acre. *Revista do Desenvolvimento Regional*, 19(2), p. p. 202 – 223.
- Nahum, J.S. 2011. De ribeirinha a quilombola: dinâmica territorial de comunidades rurais na Amazônia paraense. *Campo-Território: Revista de geografia agrária*, 6 (12), pp. 79-103.
- Organização das Nações Unidas para Alimentação e Agricultura- FAO. 2013. Produzir mais com menos: Mandioca um guia para intensificação sustentável da produção. Available at: <http://www.fao.org/3/a-i2929o.pdf>. Access: Jun 13, 2018.
- Rambo, A.G., Machado, J.A.D.2009. Tomada de decisão em questões relativas ao desenvolvimento territorial: capital social, empoderamento e governança na agricultura familiar. *Anais de congresso da Sociedade Brasileira de Economia, Administração e Sociologia Rural – SOBER, RS, Brasil, 47*. Available at: <<http://www.sober.org.br/palestra/13/655.pdf>>.
- Romão, T.L.C.2018. Sincretismo Religioso como Estratégia e Sobrevivência Transnacional e Translacional: Divindades Africanas e Santos Católicos em Tradução. *Trabalhos em Linguística Aplicada*, 57(1), pp.353-381.
- Rós, A.B.*et al.* 2011. Crescimento, fenologia e produtividade de cultivares de mandioca. *Pesquisa Agropecuária Tropical*, 41(4), pp.552-558.
- Silva, A. F.*et al.* 2009. Produção de diferentes variedades de mandioca em sistema agroecológico. *Revista Brasileira de Engenharia Agrícola e Ambiental*, 13(1), pp.33–38.
