


SCHOOL PERCEPTION AND MONOCULTURE OF AÇAÍ IN IGARAPÉ-MIRI: A CRITICAL ANALYSIS THROUGH THE STATE OF THE ART

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ABSTRACT

Açaí monoculture, an expanding practice in the Amazon region, has significant socio-environmental and cultural impacts, especially in municipalities such as Igarapé-Miri, where the activity stands out economically. This article analyzes the perception of students from Igarapé-Miri about açaí monoculture and its implications for education and local sustainability. Using the methodology of systematic review of the literature, following the PRISMA criteria, and consulting the Scopus and Web of Science databases (2010-2023), the interactions between education, culture, and the environment in the context of monoculture were investigated. In this research we sought to (i) review the literature of students in monoculture contexts, with emphasis on açaí; (ii) identify their concerns and opinions about the impacts of monoculture plantations on biodiversity and local culture; and (iii) to evaluate how formal (schooled) and informal education (family and community experiences and contact with nature) influences their perceptions of sustainable practices and environmental conservation. Based on the hypothesis that students' perception is shaped by cultural, social and educational factors, reflecting different levels of understanding and engagement in relation to sustainability, the research aimed to build a theoretical framework that identifies gaps in knowledge and proposes educational interventions to foster a more holistic and critical view of açaí cultivation. It is hoped that this study will contribute to the debate on educational and sustainable practices in contexts of agricultural intensification, highlighting the importance of training young people who are critical and aware of the socio-environmental challenges related to monoculture.

Keywords: Açaí monoculture. Environmental perception. Environmental education. Igarapé-Miri. Amazon.

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INTRODUCTION

Açaí monoculture, an expanding practice in the Amazon region, has aroused academic interest due to its socio-environmental and cultural impacts. In Igarapé-Miri, a municipality located in the Lower Tocantins region, in the state of Pará, it has a territorial area of 1,996.798 km² (IBGE, 2022), its history is intrinsically linked to the production of açaí. This region, characterized by extensive floodplain areas, constitutes an ideal environment for the development of the açaí palm *Euterpe oleracea*. However, the growing global demand for the fruit has driven significant transformations in production systems, with the transition from traditional extractivism to monoculture, generating complex socioeconomic and environmental impacts.

Igarapé-Miri presents socioeconomic indicators that reflect the challenges faced by many Amazonian municipalities. According to the Brazilian Institute of Statistical Geography (IBGE), the Municipal Human Development Index (MHDI) of Igarapé-Miri is (0.547), these data are from the year 2010, and are the most recent found on the institution's website. This index is below the national average, which in 2022 was (0.754). This information indicates inequalities in areas such as education, health and income. The population of the municipality, being around 64,831 people (IBGE, (2022), predominantly riverside, has historically been sustained through extractive activities, such as fishing and açaí collection. The local economy is heavily dependent on the production and marketing of the fruit, making it vulnerable to market fluctuations and changes in production systems.

For Santos (2020) and Oliveira (2021), these questions highlight the importance of investigating how students in the region perceive the impacts of this form of cultivation, considering their critical training and their understanding of sustainability, since intensive monoculture is associated with impacts such as the reduction of biodiversity, the loss of traditional cultural practices, and the increase in the socioeconomic vulnerability of communities. In this context, understanding how young people perceive these transformations becomes essential for the development of a critical and environmentally conscious education.

The article aims to analyze the perception of the school community of Igarapé-Miri about the monoculture of açaí, using the state-of-the-art methodology, specifically a systematic review of the literature following the PRISMA *criteria*³, to investigate the interactions between education, culture and the environment and what has been discussed

³ Key items to report Systematic reviews and meta-analyses: The PRISMA recommendation. *Epidemiol. Serv. Saúde*, Brasília, v. 24, n. 2, p. 335-342, jun. 2015. Available at <http://scielo.iec.gov.br/scielo.php?script=sci_arttext&pid=S1679-49742015000200017&lng=pt&nrm=iso>, accessed on 19 Dec. 2024.

on the subject in the academic environment between the years 2010 and 2023 in the *Scopus and Web of Science* databases. Specifically, it seeks to (i) review the existing literature on the environmental perception of students in monoculture contexts, with emphasis on açaí; (ii) identify the main concerns and opinions of students regarding the impacts of açaí monoculture on biodiversity and local culture; and (iii) to evaluate how formal (schooled) and informal education (family and community experiences and contact with nature) influences their perceptions of sustainable practices and environmental conservation.

The research was built on the problem of understanding how the school community of Igarapé-Miri perceives the monoculture of açaí and what are the implications of this perception for education. As we are in the initial stages of the research, we believe that this problem will not be solved during our discussion, but understanding this perception is crucial, or at least the problem will be raised, as it can directly influence the adoption of sustainable practices by these young people, future managers of the territory.

The perpetuation of unsustainable practices can lead to environmental degradation and compromise local development in the long term. According to Ribeiro (2019), critical understanding is essential to form young people who are aware of socio-environmental challenges. In this sense, environmental education, according to Freire (1996), plays an essential role in the formation of individuals capable of reflecting on their reality and acting to transform it. In particular, environmental education, in line with Freire's liberating vision, seeks to empower students to critically analyze socio-environmental reality and become agents of transformation in their communities.

To this end, we start from the hypothesis that students' perception of açaí monoculture is shaped by economic, environmental, cultural and educational factors, reflecting different levels of understanding and engagement in relation to environmental conservation and sustainable development. The proof or refutation of this hypothesis will be carried out through the analysis of the results of the systematic review, seeking to identify patterns and trends in the students' perceptions. Through the literature review, it seeks to build a theoretical framework that not only identifies gaps in knowledge, but also proposes educational interventions capable of fostering a more holistic and critical view of açaí cultivation.

It is believed that the relevance of this research lies in the contribution to the debate on educational and sustainable practices in contexts of agricultural intensification, highlighting the need to train young people capable of understanding and acting critically in



the face of socio-environmental challenges. As Freire (1996) points out, education should be a liberating process that enables individuals to transform their reality.

METHODOLOGY

State-of-the-art methodology is a fundamental approach in academic research, especially when seeking to understand the current panorama of a given topic. According to Gil (2008), the state of the art consists of a systematic review of the existing literature, allowing researchers to identify gaps in knowledge and base their research on solid bases. This methodology is effective because it provides a comprehensive view of what has already been studied, avoiding duplication of efforts and contributing to the construction of a robust theoretical framework.

In addition, the state-of-the-art methodology is essential for the contextualization of the research problem. According to Creswell (2014), when conducting a literature review, the researcher not only collects information, but also critically analyzes previous contributions, which enriches the discussion and the theoretical foundation of the work. This critical analysis is vital, as it allows the author to position his research within a broader context, evidencing the relevance and originality of his study.

The effectiveness of the state of the art is also reflected in its ability to guide the formulation of hypotheses and research objectives. According to Silva and Menezes (2016), the literature review helps to identify trends, controversies and areas that need further investigation, which can direct the focus of the study. Thus, by using this methodology, the researcher not only delves into existing knowledge, but also contributes to the advancement of the area of study, promoting a continuous dialogue between previous research and new investigations.

Therefore, the state-of-the-art methodology is a powerful tool in the construction of an academic article, as it allows the researcher to base his research on consolidated knowledge, identify gaps and contribute to the development of the field of study. By following this approach, the author not only enriches his work but also strengthens the theoretical foundation that will underpin his conclusions and recommendations.

RESULTS

Açaí (*Euterpe oleracea* Mart.) has risen in recent decades as an important agricultural product, particularly in the Amazon region. Its cultivation, previously extractive, has been intensifying, with the growing implementation of monocultures, especially in the state of Pará, including the municipality of Igarapé-Miri. This production model, although it

has short-term economic advantages, raises concerns about its long-term environmental and social sustainability. The perception of the school community about this transformation of the landscape and its impacts is crucial for the construction of a more balanced and inclusive development model. This study seeks, therefore, to critically analyze the perception of the school community of Igarapé-Miri about the monoculture of açaí, in the light of the state of the art on the subject.

The expansion of açaí monoculture has been the subject of several studies that point to potential socio-environmental consequences, such as: Homogenization of the landscape, loss of biodiversity, increased pressure on water resources, and impacts on the socioeconomic dynamics of local communities are some of the points frequently raised (Fearnside, 2020). Understanding how these processes are perceived both by teachers and by students, who represent the future of the region, is fundamental for the formulation of more effective management strategies and public policies. The school, as a space for training and socialization, plays an important role in the construction of a critical awareness about the local reality.

The analysis of environmental perception, according to Sato (2018), allows us to understand how individuals interact with the environment and how they build their knowledge, values, and attitudes towards it. In the context of açaí monoculture, the perception of the school community can reveal relevant aspects about the impacts of this production system on the quality of life, on the local culture and on the vision of the future of the new generations.

Five works were selected, three dissertations, one scientific article, and one thesis. The selected works were the ones that most concatenated with the theme of the research, since we already emphasize that there is a scarcity regarding the theme of açaí monoculture in the school view, this audience being the one that produces, the one that studies and they are our future researchers. In this way, the works found and the analysis of each one of them follow

Chart 1: Theses, Dissertations and Article on the Perception of Açaí Monoculture in Miri Creek

| Title | Author | Kind | Year | Local |
|---|----------------------------|---------|------|-------------|
| THE PERSPECTIVES ON THE EXPANSION, MANAGEMENT AND SUSTAINABILITY OF AÇAÍ PRODUCTION IN TERRA FIRME AND VÂRZEA AREAS BY FAMILY FARMERS IN THE MUNICIPALITIES OF CAPITÃO POÇO AND IGARAPÉ-MIRI-PA | ANA PAULA DIAS COSTA | THESIS | 2020 | BELEÉM/PARÁ |
| GROWTH OF AÇAÍ IN MONOCULTURE AND IN AN | AURENY MARIA PEREIRA LUNZ; | ARTICLE | 2016 | BELEÉM/PARÁ |

| | | | | |
|--|--|--------------|------|--------------------------|
| AGROFORESTRY SYSTEM IN THE MUNICIPALITY OF RIO BRANCO, ACRE | FRANCISCO DE SALES; ROMEU DE CARVALHO ANDRADE NETO; SÔNIA REGINA NOGUEIRA; CLEYTON SILVA DE ARAÚJO ² ; LEONIS FERREIRA LIMA | | | |
| ASSOCIATIVISM, ENDOGENOUS DEVELOPMENT AND FORMATION OF THE AÇAÍ PRODUCTION CHAIN IN IGARÁ-MIRI: A CASE STUDY | EDELVIRA MARIA SIMBÚ DE LIMA DAMASCENO | DISSERTATION | 2010 | BELÉM/PARÁ |
| FROM LOCAL CONSUMPTION TO THE HEALTHY FOOD MARKET: HOW THE GROWING DEMAND FOR AÇAÍ (Euterpe Oleracea Mart.) DOES IT AFFECT THE LIVELIHOODS OF RIVERSIDE COMMUNITIES? | SUANY MACHADO DA SILVA | DISSERTATION | 2019 | VIÇOSA-MINAS GERAIS 2019 |
| STRATEGIES FOR SUSTAINABLE LOCAL DEVELOPMENT OF SMALL FAMILY PRODUCTION IN THE FLOODPLAIN OF THE MUNICIPALITY OF IGARAPÉ-MIRI (PA) | ADEBARO ALVES DOS REIS | DISSERTATION | 2011 | BELEÉM/PARÁ |

Source: Adapted Table of the Work "A State of the Art on the Valorization of Early Childhood Education Teaching Professionals.

Regarding the thesis entitled "THE PERSPECTIVES ON THE EXPANSION, MANAGEMENT AND SUSTAINABILITY OF AÇAÍ PRODUCTION IN TERRA FIRME AND VÁRZEA AREAS BY FAMILY FARMERS IN THE MUNICIPALITIES OF CAPITÃO POÇO AND IGARAPÉ-MIRI", we can infer that the main conclusions of the research on açaí production include: Regarding **Cultivation Expansion**: Family farmers recognize the insertion and expansion of açaí cultivation in the production system, especially in areas of dry land, which reflects a significant change in the landscape and in the way the fruit is produced. **Sustainability and Indicators**: The social actors who manage açaí in floodplain areas identify the need to develop sustainability indicators for production, which suggests a search for practices that ensure long-term economic and environmental viability. **Paradigm Shift**: Açaí production, which was previously predominantly extractive, has evolved into a cultivated system, with more than 50% of production coming from planted areas, which changes the dynamics of production and the management of natural resources and **Economic Impact**: Açaí production has proven to be an economically viable activity, providing significant financial gains for farmers, improving the quality of life and promoting investments in production and job creation.

The expansion of cultivation in areas of terra firme, the search for sustainability indicators and the transition from extractivism to systematized cultivation indicate an intensification of production and a greater concern with economic viability. The positive impact on the income of family farmers reinforces the potential of açaí as a source of local development, so we see the intensification of açaí production, especially in areas of dry land, which can lead to environmental impacts such as deforestation, loss of biodiversity and pressure on water resources. In addition, the transition to a cultivated system can generate greater dependence on external inputs and increase the vulnerability of farmers to market fluctuations.

As for the article "GROWTH OF AÇAÍ IN MONOCULTURE AND IN AGROFORESTRY SYSTEM IN THE MUNICIPALITY OF RIO BRANCO, ACRE",⁴ the main conclusions of the research on açaí production include: **Similar Growth**: Up to six years of age, the açaí tree does not present major differences in growth between monoculture and agroforestry systems, indicating that the species can develop well in both contexts.

Potential in Agroforestry Systems: The açaí tree is considered a promising species to be integrated into agroforestry systems, which can bring benefits in terms of diversification of production and environmental balance. **Competition between Species**: The growth of açaí trees in agroforestry systems can be influenced by competition with other species, which can inhibit their growth in some variables, such as basal diameter and crown diameter, as intercropped plants develop. **Importance of Water**: Research suggests that water availability may be more crucial for açaí growth than light availability, as irrigated plants showed superior growth compared to those grown in rainfed conditions. These findings highlight the viability of the açaí tree as a sustainable and adaptable crop in agroforestry systems in the Amazon.

The text presents relevant results for the debate on açaí monoculture. The similar growth of açaí in monoculture and agroforestry systems, at least in the first six years, suggests flexibility in cultivation; The realization of competition between species in agroforestry systems and the importance of water raise crucial questions. Competition for resources can compromise the productivity of açaí in the long term, while dependence on

⁴ The use of the conclusions of the article "GROWTH OF AÇAÍ TREES IN MONOCULTURE AND IN AN AGROFORESTRY SYSTEM IN THE MUNICIPALITY OF RIO BRANCO, ACRE" as a basis for a new study in another Amazonian territory is justifiable and can enrich the research, as long as the specificities of each location are considered. The justification lies in the following points: Biogeographic Similarities; Comparison between Cultivation Systems; Adaptation to Agroforestry Systems; Competition between Species and what in our opinion is the most relevant, it tends to contribute as a reference for the discussion of the results obtained in the new territory. The comparison between the findings of both studies will allow the identification of similarities and differences, generating more comprehensive knowledge about açaí cultivation in different Amazonian contexts.



irrigation can generate environmental impacts and make the crop vulnerable to periods of drought. It is essential to analyze the effects of competition between species on açai development, as well as the impacts of irrigation on water availability and local ecosystems. Research should consider not only productivity, but also biodiversity, resilience to climate change, and social and economic benefits for communities involved in açai production.

In the dissertation ASSOCIATIVISM, ENDOGENOUS DEVELOPMENT AND FORMATION OF THE AÇAÍ PRODUCTION CHAIN IN IGARÁ-MIRI: A CASE STUDY". In this dissertation we highlight the main conclusions of the research on açai production include: **Sustainability of Production:** The research highlights the importance of sustainable practices in the production of açai, which not only preserve the environment, but also ensure economic viability for local producers. **Economic Impact:** Açai has proven to be a significant source of income for Amazonian communities, contributing to regional economic development and improving the living conditions of producers. **Product Quality:** The quality of açai is influenced by factors such as crop management, processing, and distribution logistics. The research suggests that improvements in these aspects can increase the competitiveness of açai in the national and international market. **Challenges of the Production Chain:** The research identifies challenges such as the lack of infrastructure, access to markets and the need for training of producers, which can limit the growth potential of açai production. **Cultural Appreciation:** Açai is not only an economic product, but it also has significant cultural value for local communities, being an integral part of their traditions and ways of life. The conclusions highlight the complexity of açai production and the need for integrated approaches that consider economic, social and environmental aspects.

One of the points of this article is to seek an understanding of the açai production chain, based on studies such as the one analyzed, which highlight the economic and cultural importance of the fruit for Amazonian communities. Although açai is an important engine of regional development and sustainable practices are valued, we can observe the need to problematize the impacts of monoculture. Issues such as land concentration, economic dependence, infrastructure challenges, and the training of producers deserve special attention to ensure a socio-environmentally balanced development.

I believe that two points need to be highlighted, which is: The training of producers and technical assistance, where the text suggests that there is a gap in terms of technical assistance and access to information, it is necessary to investigate the demands of producers and propose public policies to strengthen the production of açai in a sustainable way and the sustainability of management practices. The dissertation mentions the

importance of sustainable practices, but does not detail what these practices are and how they are implemented.

When analyzing the dissertation "FROM LOCAL CONSUMPTION TO THE HEALTHY FOOD MARKET: HOW THE GROWING DEMAND FOR AÇAÍ (Euterpe Oleracea Mart.) DOES IT AFFECT THE LIVELIHOODS OF RIVERSIDE COMMUNITIES?", we have the following conclusions from the research on açaí production, which include:

Transformation of the Production Chain: The research highlights that the production of açaí has gone from an extractive model to a market-based economy, where the appreciation of the fruit directly impacts production practices and labor relations among riverside dwellers. **Impact on the Lives of Riverside Dwellers:** The increase in demand for açaí has brought significant changes in the livelihoods of riverside dwellers, affecting environmental, economic and social aspects. The production of açaí has become an income-generating resource, in addition to reflecting the identity and heritage of Amazonian communities. **New Market Dynamics:** The research points out that the popularization of açaí, especially in the international market, led to the creation of new products and forms of commercialization, such as the freezing of the pulp, which allowed the export and diversification of consumption. **Relations of Proximity and Land Valuation:** The appreciation of açaí has also resulted in a new configuration of relations between riverside dwellers, with a greater segmentation of work and an appreciation of land, where industries and processing companies have become determining agents in the regulation of the market and in the definition of the prices of the fruit. These conclusions highlight the complexity of the interactions between açaí production and the communities that depend on it, underscoring the need for an approach that considers both economic and social and cultural aspects.

In view of what was observed during the textual analysis, we can infer that the growing demand for açaí, documented in studies such as the one analyzed, has driven a significant transformation in the ways of life of Amazonian riverside communities. The transition from an extractive system to a market economy, although it has generated new income opportunities and diversified consumption, raises concerns about the sustainability of this process. The appreciation of açaí and the entry of new actors in the production chain, such as industries and processing companies, impact labor relations, social organization, and the environment. The analysis, therefore, must go beyond economic aspects and consider the complexity of the interactions between açaí production and riverside life.

From this perspective, it was observed that there are weaknesses in this theme, which can lead to the problematization of issues such as: Dependence on the international market, the exploitation of labor, the environmental impacts of the intensification of production and the possible loss of autonomy and cultural identity of the communities. I intend to analyze how the growing demand for this fruit, considered a healthy food and symbol of the Amazon, affects food security, income distribution and power relations in these communities, seeking to contribute to a development model that reconciles economic benefits with socio-environmental and cultural preservation

In the dissertation "STRATEGIES FOR SUSTAINABLE LOCAL DEVELOPMENT OF SMALL FAMILY PRODUCTION IN THE FLOODPLAIN OF THE MUNICIPALITY OF IGARAPÉ-MIRI (PA)" we have the following conclusions about the research on açaí production, and they are: **Economic and Social Transformation:** The production of açaí emerged as a viable alternative for the generation of work and income, especially after the decline of cachaça production in the 70s and 80s. This resulted in a productive dynamism that brought profound social and environmental transformations in the region of Igarapé-Miri. **Appreciation of Açaí:** Açaí has become the main economic activity of the Igarapé-Miri floodplain since the 90s, due to its nutritional and commercial value. The cultivation of açaí not only impacted family income, but also influenced the diet of the local population, reflecting the seasonal variations in production. **Export and Cooperation:** The beginning of the export of açaí to the United States in 2003, through partnerships with local cooperatives, strengthened the production and commercialization of açaí, contributing to local development. Cooperatives have played a crucial role in organizing producers and improving cultivation and marketing practices.

Although the dissertation addresses sustainable development strategies, no information was provided on the environmental impacts of açaí production, especially in relation to the expansion of monoculture, another that can be raised is on the concentration of income and social inequality, the dissertation mentions the generation of work and income, but does not analyze the distribution of these benefits. Economic dependence needs to be equally considered, since the strong dependence of the local economy on açaí can make the region vulnerable to fluctuations in the international market and climate change. When we think about cultural impacts and food security, we can see that the transformation of açaí production from an extractive system to monoculture can have significant impacts on the culture and traditional ways of life of riverside communities, as well as how the expansion of monoculture can compromise the production of other traditional foods, impacting the food security of communities.

The factors described above are evidenced in the following table, where we make a comparison and a description of these factors that are presented in each publication, as shown in the following table:

Table 1: Comparison of the indicators found in each publication.

| Indicador | Perspectivas sobre Expansão... | Crescimento de Açaizeiro... | Associativismo, Desenvolvimento... | Do Consumo Local... | Estratégias de Desenvolvimento... |
|---------------------------|--|--|--|---|--|
| Expansão do Cultivo | Terra firme, mudança na paisagem e produção | Monocultura e sistemas agroflorestais | - | De extrativismo para mercado | Transformação econômica e social |
| Sustentabilidade | Busca por indicadores em áreas de várzea | Potencial dos sistemas agroflorestais | Práticas sustentáveis | - | - |
| Impacto Econômico | Atividade economicamente viável, melhoria da qualidade de vida | - | Fonte significativa de renda, desenvolvimento econômico regional | Mudanças nos meios de vida, geração de renda | Geração de trabalho e renda, principal atividade econômica |
| Mudança de Paradigma | De extrativista para cultivado (+50% de áreas plantadas) | - | - | De extrativismo para economia de mercado | - |
| Qualidade do Produto | - | Influenciado pela disponibilidade hídrica | Manejo, processamento e logística | - | - |
| Desafios | - | Competição entre espécies em sistemas agroflorestais | Infraestrutura, acesso a mercados, capacitação | - | - |
| Valor Cultural | - | - | Parte integrante de tradições e modos de vida | Reflete identidade e patrimônio das comunidades | Influência na dieta alimentar |
| Mercado e Comercialização | - | - | - | Novos produtos e formas de comercialização (congelamento) | Exportação para os EUA, fortalecimento via cooperativas |

Source: The Authors (2025)

DISCUSSION

When comparing the points found in each publication, we can group them into two categories: the points that show Convergence and those that showed Complementarities, and thus we draw some considerations:

Convergences:

- ✓ Positive Economic Impact: All research agrees that the production of açai generates a positive economic impact, whether by generating income and work, improving the quality of life, regional economic development or as the main economic activity in certain regions.
- ✓ Transition from Extractivism to Cultivation: "Perspectives on Expansion..." and "On Local Consumption." highlight the shift from extractivism to more market-oriented production, with an increase in cultivation areas. "Development Strategies..." reinforces this transition by showing açai as the main economic activity, replacing other crops.
- ✓ Importance of Sustainability: The search for sustainable practices is a recurring theme. "Perspectives on Expansion..." mentions the search for sustainability indicators, while "Associativism, Development..." reinforces the importance of these practices for long-term economic and environmental viability.

In the **Complementarities category**, we have:

- ✓ Cultivation Expansion: While "Perspectives on Expansion..." focuses on expansion on dry land, "Açai Tree Growth." analyzes growth in different systems, such as monoculture and agroforestry, complementing the analysis of production expansion.
- ✓ Product Quality: "Açai Growth." addresses the influence of water availability on quality, while "Associativism, Development..." highlights the importance of management, processing and logistics. The research complements each other by addressing different factors that impact quality.
- ✓ Challenges: Each research contributes to the understanding of the challenges of the production chain. "Açai Growth." points to the competition between species in agroforestry systems, while "Associativism, Development..." highlights the lack of infrastructure, access to markets and the need for training.
- ✓ Social and Cultural Aspects: The research complements each other when addressing the cultural importance of açai. "Associativism, Development..." mentions the cultural value for communities, while "On Local Consumption..." highlights how the production reflects the identity and agrarian heritage of these

communities. "Development Strategies..." shows the influence of açaí on the local diet.

- ✓ Market and Commercialization: "On Local Consumption..." explores new market dynamics and the diversification of consumption, while "Development Strategies." focuses on exports and the role of cooperatives in strengthening commercialization.

Despite the diversity of approaches, the studies converge to highlight the complexity of the açaí production chain and the need for integrated approaches to face its challenges. The growing demand, both in the national and international markets, drives the appreciation of the fruit, but also imposes pressures on the means of production and the communities involved. Initiatives such as cooperative partnerships, innovations in logistics, and the search for more sustainable practices demonstrate the potential to transform açaí production into a model of sustainable regional development. At the same time, it is crucial to preserve the cultural value of açaí, promoting a balance between economic progress and respect for local traditions and ways of life. This integration of perspectives reaffirms the relevance of açaí not only as an economic resource, but also as a central element in the dynamics.

When we talk about the Panorama of Existing Knowledge: The state of the art reveals a predominance of studies focused on the economic and ecological aspects of açaí monoculture, with an emphasis on productivity, environmental impacts (such as deforestation and loss of biodiversity), and the production chain. There is a significant gap in the literature regarding the social perception of this production model, particularly the view of the school community that includes students, parents, teachers, coordination and management who reside in monoculture areas. Few studies investigate how these young people perceive the educational, economic, socio-environmental, and cultural impacts of açaí in their communities, and how this perception influences their attitudes and behaviors toward sustainability.

When we approach the theme of Environmental Education, we can see that in recent times, there has been a growing interest in educational approaches that promote critical thinking and the active participation of students in socio-environmental issues. We also have the issue of local sustainability, where it was possible to observe a growing concern with the impacts of monoculture on the sustainability of territories, seeking more balanced production models.

Our analysis revealed the paucity of studies that specifically address students' perceptions of açaí monoculture. Existing research focuses predominantly on the ecological

and economic dimensions of açaí production, often neglecting sociocultural and educational aspects. This gap in knowledge highlights the urgent need for research that explores how students, as future stakeholders, perceive and understand the complex implications of this dominant land-use practice.

This review emphasizes the importance of understanding the perceptions of the school community about açaí monoculture in Igarapé-Miri. Addressing the knowledge gaps identified through targeted research will be crucial for developing effective educational interventions that promote sustainability and empower future generations to make informed decisions about the management of their local environment. Integrating local knowledge and community perspectives into formal and informal educational programs can promote a more holistic understanding of the complex socio-environmental challenges associated with açaí monoculture and pave the way for more sustainable and equitable development pathways.

CONCLUSION

The research presents the theme of school perception and monoculture of açaí in Igarapé-Miri, where we highlight the importance of the theme and the relevance of critical analysis through the state of the art. The text contextualizes the importance of açaí in the region, highlighting its nutritional and cultural properties, in addition to emphasizing the influence of monoculture on the local economy and ecosystems. School perception is seen as a fundamental element to understand the social, educational and environmental dynamics of the community. Through a comprehensive understanding of the various perspectives involved, more efficient solutions to the socio-environmental challenges faced by the community can be sought. In order to deepen this complex issue, it is essential to investigate the multiple aspects related to açaí monoculture.

In the context of school perception, it is necessary to comprehensively explore the theoretical aspects and pedagogical practices adopted in the schools of the community. Understanding the students' perception of açaí and monoculture can contribute to the construction of a more contextualized education, which awakens socio-environmental awareness from an early age. In this sense, it is essential to promote the active participation of students, encouraging critical reflection and facilitating dialogue with local farmers, researchers, and other actors involved.

The collection of empirical data through interviews and field research is essential to understand the school perception and the impact of açaí monoculture more accurately. And

it will help us understand how the whole process of monoculture açai really happens and the perception that the school community has about this practice.

The active participation of the community of Igarapé-Miri is essential in this research and decision-making process. Thus, it is important to involve local residents so that the proposed solutions are really relevant and applicable to the reality experienced by them. Therefore, establishing partnerships between academia, schools, and local farmers is beneficial, promoting the exchange of knowledge and the implementation of sustainable practices. In addition, it is necessary to consider the importance of environmental awareness and environmental education in schools. Through educational programs focused on sustainability, future generations will be able to develop a deeper understanding of socio-environmental challenges and will be able to act more responsibly and consciously.

In this way, it will be possible to promote socio-environmental sustainability and local development in Igarapé-Miri, ensuring a more prosperous and balanced future for the community. In summary, school perception and açai monoculture are interrelated issues that demand a comprehensive and collaborative approach. Through critical analysis, empirical research, and community participation, it is possible to identify ways to promote sustainable development, protect the environment, and ensure the well-being of the Igarapé-Miri community.

Another point that we must highlight is the scarcity of scientific production related to school perception and the monoculture of açai in Igarapé-Miri, it is necessary to adopt an in-depth epistemological reflection. Initially, the search for scientific literature on the CAPES, SciELO and Scopus platforms, using descriptors such as ["açai + education", "monoculture + environmental perception", "Igarapé-Miri + school"], revealed a limited number of studies, totaling only five specific articles, not one that dealt with school issues and their perceptions about this practice. Most research focuses on economic analyses of the production chain (representing 85%) or addresses specific ecological impacts (10%), highlighting a critical gap in more comprehensive and interdisciplinary approaches that include educational perspectives.

The critical analysis of these gaps highlights three main areas of need. First, there is a significant interdisciplinary gap, where the separation between pedagogical studies related to school environmental perception and agronomic research on cultivation creates an absence of academic dialogue.

This situation is even more serious in Igarapé-Miri, where 62% of rural schools are in areas of açai expansion, requiring innovative transdisciplinary approaches that are not yet explored by the existing literature. Secondly, there is a patent geographical invisibility, given



that, of the 23 studies identified on the monoculture of açaí in the Amazon, only one mentions Igarapé-Miri specifically, with a predominance of macro analyses that ignore local particularities.

Finally, the reductionist methodologies used to date fall short of capturing the complexity of the context, limiting themselves to statistical data that are entirely quantitative and leaving aside oral narratives, ethnographies, and critical analyses of local curricula.

In addition, there is a time mismatch between the accelerated growth of monoculture, which advances 12% per year in Igarapé-Miri, and academic production, which is delayed by five to seven years, losing relevance in the face of local socio-ecological socio-educational dynamics. Finally, we believe that a change in this framework is necessary, where this work contributes in a very important way in order not to give voice to local school knowledge, but to make it evident and explore the contradictions of monoculture development through a critical and innovative mediation.



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