Revista Multidisciplinar do Nordeste Mineiro, v.18, 2025
ISSN 2178-6925
DOI: 10.61164/j8ggp975

EVALUATION OF THE USE OF ACCOUNTING AND FINANCIAL TOOLS IN A SMALL RURAL PROPERTY IN THE CITY OF IRANDUBA, AMAZONAS

AVALIAÇÃO DO USO DE FERRAMENTAS CONTÁBEIS E FINANCEIRAS EM PEQUENA PROPRIEDADE RURAL DA CIDADE DE IRANDUBA, AMAZONAS

EVALUACIÓN DEL USO DE HERRAMIENTAS CONTABLES Y FINANCIERAS EN UNA PEQUEÑA PROPIEDAD RURAL EN LA CIUDAD DE IRANDUBA, AMAZONAS

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Recebido: 15/09/2025 – Aceito: 22/09/2025

Abstract

Family farming on the Amazon continues to face a centuries-old challenge in adopting management and production methods and tools based on contemporary science and technology, such as accounting and financial tools for planning and monitoring the assets and financial resources of its enterprises. Therefore, this study aimed to evaluate the use of accounting and financial tools on a small rural property operating in the family farming segment located in the city of Iranduba, Amazonas state. The method used consisted of collecting data on the social, productive, and accounting-financial aspects of the enterprise, collected through interviews and on-site observation, organized and presented in summary tables. The social results showed low education levels and a family composed of only three people, considered young. The productive aspects presented a small variety of products, some of which were organic, with a small cultivation area and low production. The accounting-financial aspects demonstrated a lack of use of any planning and control tools. The conclusion shows that the lack of accounting and financial rationality contributes significantly to the continued poverty that is so common in Amazonian family farming.

Keywords: Accounting; family farming; accounting tools; financial tools.

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Resumo

A agricultura familiar na Amazônia ainda continua a ser um desafio secular no sentido de adoção de métodos e ferramentas gerenciais e de produção baseados na ciência e tecnologias contemporâneas, como são os casos das ferramentas contábeis e financeiras, voltadas para o planejamento e monitoramento dos recursos patrimoniais e financeiros de seus empreendimentos. Neste sentido, este estudo teve como objetivo avaliar o uso de ferramentas contábeis e financeiras em uma pequena propriedade rural atuante no segmento da agricultura familiar localizada na cidade de Iranduba, estado do Amazonas. O método utilizado consistiu no levantamento de dados sobre os aspectos sociais, produtivo e contábil-financeiro do empreendimento, coletados através de entrevistas e observação in loco, organizados e expostos em tabelas sintetizadoras. Os resultados sociais mostraram baixa escolaridade e família composta de apenas três pessoas consideradas jovens; os aspectos produtivos apresentaram pequena variedade de produtos, alguns orgânicos, com pequena área de cultivo e baixa produção; e os aspectos contábeis-financeiros constataram a inexistência do uso de qualquer ferramenta de planejamento e controle. A conclusão mostra que a falta de racionalidade contábil-financeira contribui muito para a manutenção da situação de pobreza muito comum na agricultura familiar amazônica.
Palavras-chave: Contabilidade; agricultura familiar; ferramentas contábeis; ferramentas financeiras.

Resumen

La agricultura familiar en la Amazonía sigue enfrentando un desafío centenario: la adopción de métodos y herramientas de gestión y producción basados en la ciencia y la tecnología contemporáneas, como las herramientas contables y financieras para la planificación y el seguimiento de los activos y recursos financieros de sus empresas. Por lo tanto, este estudio tuvo como objetivo evaluar el uso de herramientas contables y financieras en una pequeña propiedad rural del sector de la agricultura familiar, ubicada en la ciudad de Iranduba, estado de Amazonas. El método empleado consistió en la recopilación de datos sobre los aspectos sociales, productivos y contable-financieros de la empresa, recopilados mediante entrevistas y observación in situ, organizados y presentados en tablas resumen. Los resultados sociales mostraron bajos niveles de educación y una familia de solo tres personas consideradas jóvenes; los aspectos productivos presentaron una escasa variedad de productos, algunos orgánicos, con una pequeña superficie cultivada y baja producción; y los aspectos contable-financieros demostraron la falta de uso de herramientas de planificación y control. La conclusión muestra que la falta de racionalidad contable y financiera contribuye significativamente a la persistente pobreza, tan común en la agricultura familiar amazónica.
Palabras clave: Contabilidad; agricultura familiar; herramientas contables; herramientas financieras.

1. Introduction

Every activity and every type of production consume resources. Resources are all the means through which a given product is generated, or a service is performed (Tovar et al., 2025; Csesznek et al., 2025; Gebrewold, 2024). This rule applies to all types of enterprises, regardless of whether they aim for economic or financial results. Therefore, it is always advisable for every activity to have a costing system to assess how much resource it consumes and the consequences this consumption may have for the entity, whether natural or legal. Understanding

ISSN 2178-6925
DOI: 10.61164/j8ggp975

the cost structure of any enterprise is facilitated using tools specifically designed for this purpose, known as accounting and financial tools. Accounting tools focus on the changes that activities cause to the entity's assets, which are understood as the total assets, rights, and obligations that are the subject of accounting. Financial tools are concerned with understanding and monitoring the evolution of cash outflows (when activities are executed) as well as cash inflows (when the products of these inputs are delivered to customers). This means that any enterprise, to be considered rational, must measure the entity's assets and financial changes. Without the use of these tools, rationally calculated success is unlikely.

Family farming on the Amazon has remained a centuries-old challenge in its transition from an amateur activity to one where scientific methods and tools are utilized to increase the likelihood of success. As the study by Silva, Oliveira, and Nascimento-e-Silva (2025) demonstrates, most Amazonian family farmers remain at a stage of well-being and material quality of life comparable to that of their ancestors from centuries past, unlike family farmers in most of southern Brazil, whose enterprises are structured around advanced management techniques and methods, with production systems based on technologies specifically designed to overcome their challenges, and whose financial independence allows them to make their own technological investments, Amazonian family farmers generally produce solely for their own consumption, lacking government aid to maintain their livelihoods. It is difficult to find a family farming enterprise that operates based on structured production planning and control of potential losses and risks, ensuring a balanced cost/benefit ratio for the products cultivated (Vielmo, Drumm, and Deponti, 2022).

The importance of managing expenses in traditional family farming, as is the case on professionalized family farms, could be better achieved with the adoption of accounting and financial tools. The benefits of this approach could contribute to increased profits, secure decision-making, and, consequently, positive results in the short, medium, and long term. Accounting is a substantial tool that supports the progress of economic and financial activities inherent to family farming, a fundamental instrument for establishing methods, procedures,

ISSN 2178-6925
DOI: 10.61164/j8ggp975

and techniques that assist in resolving operational and financial problems (Marcelino et al., 2021).

Therefore, the objective of this study was to evaluate the use of accounting and financial tools on a small rural property operating in the family farming segment located in the city of Iranduba, Amazonas state. To achieve this objective, the following specific objectives were defined: a) to describe the main social aspects of the family farming unit; b) to describe the main productive aspects of the family farming unit selected for the study; and c) to understand the accounting and financial tools used by the family farming unit and its members.

2. Accounting and financial tools: Theoretical architecture

Conceptual and operational knowledge of accounting and financial tools requires a prior understanding of what is considered accounting and finance in this study. The study by Nofriadi et al. (2025) considers accounting as a systematic information system, which can be understood as a set of inputs in the form of data that are transformed into logically ordered information, according to their relevance and reliability, regarding the actual condition of a given entity's assets. The reason for accounting's existence, in this sense, is to understand the exact status of an entity's assets, which can be either an individual or a legal entity, so that it can feed reliable information into decision-making.

Another way to view and understand accounting is as the use of numerically based calculations and techniques expressed in monetary units that mediate the interrelationships between people, groups of people, organizations, and institutions (Castro; Kober, 2025). The calculation of an entity's net worth, for example, is an example of this operational nature, as is the relationship between total short-term assets and total assets, which determines the availability of resources for immediate use in relation to total assets available. Finally, a third conceptual definition of accounting is as a set of resources (assets, rights, and obligations, which constitute equity) capable of being used in various ways and for multiple purposes, including political ones (Rahman et al., 2025), as is the case with prominent public organizations.

ISSN 2178-6925
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The conceptual and operational idea of accounting can be defined as the set of assets, rights, and obligations of an entity expressed in monetary units at a given time. This set represents tangible resources (such as buildings, facilities, and cash on hand), intangible resources (such as the entity's money loaned to other individuals and organizations), and liabilities (such as debts to suppliers and loans taken out from financial institutions). The difference between assets and rights and obligations gives rise to an entity's net worth, or equity, which represents its effective "wealth" as recorded in a document resulting from a survey conducted at a given point in time (called a balance sheet). This assessment must be performed periodically to track the evolution of this wealth and prevent liabilities from exceeding assets and rights, thereby avoiding a negative situation. It is with this focus that accounting tools play several fundamental roles and must be understood in this regard.

Broadly speaking, a tool is any technique that can be used to perform a specific function to generate a previously desired result, as shown in the study by Führer et al. (2025). A technique is a set of procedures that leads to the materialization of some result or product, such as the steps of a calculation, which highlights the functional value of solving a problem (Völz et al., 2025), since tools have this operational nature. Perhaps the most striking characteristic of tools is their externality, as pointed out in studies by Li (2024) and Hayles (2025). This externality allows tools to be viewed both in their static sense and in their uses. In their static sense, it will enable us to understand their physical forms and compositions; in their dynamic sense, their uses, including the creation of other artifacts. From these two senses comes the observation that tools enhance both human physical abilities (such as a chisel for carving marble) and cognitive abilities (like a calculator for performing calculations).

An accounting tool can be defined as an instrument that allows the management of a given entity's assets. Management refers to the logical sequence of planning, organizing, directing, and controlling resources to achieve a specific objective. Planning is the explicit determination of which goals will be achieved and the strategy that will be used to achieve them; organization is the forecast of all resources (not just money) needed to achieve the intended

ISSN 2178-6925
DOI: 10.61164/j8ggp975

objectives; direction is the leadership, motivation, and communication scheme that will be implemented to converge people's efforts so that they achieve what is outlined in the plan; and control is the continuous monitoring of the goals established for each objective in comparison with what is being executed, making immediate corrective actions (Brito et al., 2016; Bezerra et al., 2024; Almeida et al., 2022). Assets consist of all the assets, rights, and obligations of the entity.

Accounting tools are constantly created and discontinued according to the needs of their entities. There are more traditional and mandatory ones, such as balance sheets and statements of sources and uses of resources, as well as those created with a specific and temporary purpose, such as material flow analyses, which assess administrative costs (Al-Mashkoor; Al-Maliki, 2024), the creation of a formula to measure the real value of assets or one of their items (Gallagher, 2024), the evaluation of the performance of specific investments (Rathod; Dadhaniya, 2022) or assessing whether or not expenses are beyond certain limits (Shittu et al., 2025). There are also accounting tools for managing all assets with specificities that go beyond traditional models, such as multi-capital accounting (Gibassier (2025), which combines accounting and management functionalities, and the accounting for ecological resources, which are generally not included in traditional balance sheets, as shown in the studies by McCourt (2022), Maresca (2025), Cipe (2025), Xu and Lin (2025), Mishra and Madhok (2025), and Zacharatos et al. (2025), which combine equity aspects of accounting with various ecological dimensions so that these resources can be adequately understood and monitored. Additionally, tools with purposes and functionalities seemingly disconnected from accounting are increasingly common, such as information and communication technologies used to transfer data and information integrally from one database or system to another, as demonstrated in the study by Boehler et al. (2025) through the tool APEL.

Table 1. Examples of accounting tools and their functionalities

Referencees	Accounting Tools	Features
Gibassier (2025)	Multi-Capital Accounting	Management tool
Rathod; Dadhaniya (2022)	Ratio Analysis	Performance evaluation
Lescano et al. (2022)	Corn Grains	Accounting tool
Gallagher (2024)	Depreciation	Measure real value

ISSN 2178-6925
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McCourt (2022)	N Footprint	Environmental pressures on consumption
Al-Mashkoor; Al-Maliki (2024)	Material Flow Analysis	Evaluate administrative costs
Maresca (2025); Cipe (2025); Xu; Lin (2025)	Ecological Footprint	Account for ecological resources
Mishra; Madhok (2025)	EP&L (Environmental Profit and Loss Accounting)	Quantify financial implications of environmental impacts and well-being
Boehler et al. (2025)	APEL	Forward audit data to accounting
Shittu et al. (2025)	Budget Monitoring	Identify excessive spending
Zacharatos et al. (2025)	FABLE Calculator	Determine the effects of greenhouse gas emissions

Source: Data collected by the authors

The examples of accounting tools contained in Table 1 demonstrate the different functionalities of the diversity of these instruments, constantly created, updated, and discontinued. The study by Lescano et al. (2022) shows that the creation of accounting tools is as ancient as the human need to know, make appropriate use of, and grow their assets, as did the ancient Inca people, who used corn grains as an accounting tool. Humans and their communities and organizations do this not for excessive and unscrupulous accumulation of goods and wealth, but to assess whether their own and their organizations' objectives are being achieved. It is the maintenance of stocks of resources in the form of assets, rights, and obligations that allows people and their entities to enjoy them. This enjoyment can translate into quality of life, happiness, and enjoyment of life. The strategy generally used for this purpose is to accumulate assets to a level of security that corresponds precisely to their intended objectives. These objectives are translated into targets, with indicators that can be calculated and monitored using tools specifically created for this purpose, namely accounting tools.

Accounting deals with an entity's assets, and accounting tools serve the purpose of monitoring this asset evolution. Different from, but closely linked to, asset management efforts are financial tools. To understand them properly and their functionalities, it is necessary to clarify what finance is. Scientific literature naturally presents different approaches, such as those that view it as both a science and an art. The scientific view considers finance as a part of human knowledge focused on understanding the different logics of money management.

ISSN 2178-6925
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From a scientific perspective, therefore, finance deals with money, not with resources or assets, as is the case with accounting. From an artistic standpoint, finance refers to the process by which people plan, organize, execute, and control an organization's funds, as demonstrated in the study by Rachmawati (2025). Planning, organizing, executing, and controlling are considered artistic aspects of money management, representing different aspects of financial management practice (Naveen; Srinivas, 2025). The challenge is to save and multiply money through investments in various market options, such as deposits, real estate, financial markets, stocks, and loans, among countless others. Financial practice is achieved through investments classified as assets (which generate more money) and liabilities (which reduce the money supply), which are forms of money creation, circulation, and management (Chuku; Nwabueze, 2025). This same logical framework applies to virtually all forms of human operations and production, which clearly includes agricultural organizations and production units (Oluwafemi et al., 2025). This is also the case with all family farming production units in Brazil and worldwide.

A financial tool can be defined as an instrument used to manage a given entity's funds. The management steps involve monitoring the external environment to identify business opportunities, planning to capitalize on these opportunities, organizing the resources to be used in the business, developing a framework that converges human capital efforts toward achieving the objectives contained in the business plan, and monitoring what has been planned and what is being executed. All these management macro-steps consume resources, and among the diversity of resources consumed is the consumption of money, which is also a type of resource. Accounting tools are not to be confused with financial tools due to at least two distinguishing characteristics. The first is that, although assets are expressed in monetary units, their tools are static, as if they were taking a snapshot of assets. In contrast, finance seeks to visualize the dynamics of money circulation, much like a film. The second is that equity is always an aggregate, like current assets and, within these, the "cash" and "inventory" accounts, always aggregated, unlike finance, which seeks to see the specifics of each type of money contained in these accounts.

Revista Multidisciplinar do Nordeste Mineiro, v.18, 2025
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Table 2. Examples of financial tools and their functionalities

References	Financial Tools	Features
Defranian (2024)	Value Analysis	Understand the impact of production issues on project value
Liu et al. (2024)	Loan Approval	Help people obtain financial support
Bouziani; Azegagh (2024); Verma et al. (2025)	Crowdfunding	Option to obtain financial resources
Bhandari et al. (2024)	Fundamental Analysis	Measures company performance
Abduqodirova (2025); Maharani et al. (2025)	Financial Leverage	Mitigates vulnerability and drives company growth
Vyshnavi; Ahammed (2025)	Cash Flow Statement	Analyzes cash flow movements
Poylin et al. (2025)	Net Present Value	Analyzes project viability
Wijesena; Pradhan (2025)	Climate Index Insurance	Increases climate resilience in agriculture
Rehman et al. (2025)	Sukuk	Obtains long-term capital
Irchani et al. (2025)	Equity Index	Evaluates the amount of equity capital needed to sustain the company's activities

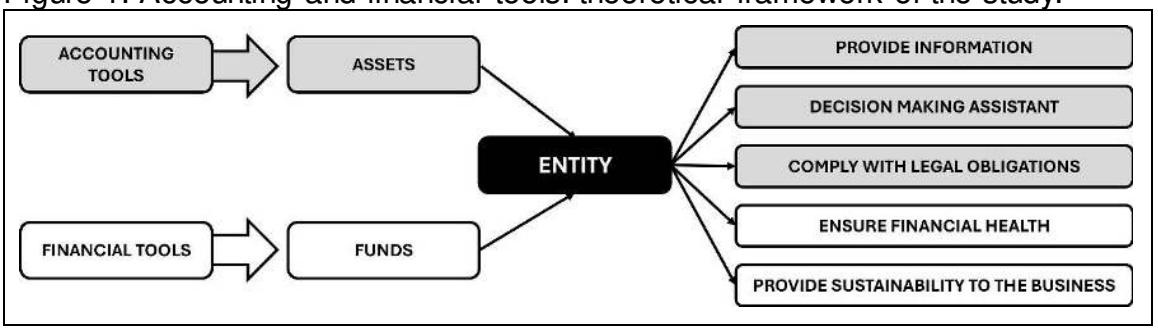
Source: Data collected by the authors.

Table 2 presents examples of financial tools and their corresponding functionalities, as identified in the literature. The specificities of these tools are noted in accordance with the challenges they created. The study by Defranian (2024) shows that value analysis was used to understand the impact of specific production problems on the financial value of the project, much like the need to assess the net present value of money to be invested in another project, determining its viability for achieving specific objectives (Poylin et al., 2025). Crowdfunding (Bouziani; Azegagh, 2024), Sukuk (Rehman et al., 2025), and a loan approval system (Verma et al., 2025) were financial tools created to solve credit problems in different contexts and specific situations safely. The financial tool known as fundamental analysis (Bhandari et al., 2024) can assess a company's financial performance. Financial leverage (Abduqodirova, 2025; Maharani et al., 2025) mitigates financial vulnerability and aids in company growth. The cash flow statement (Vyshnavi; Ahammed, 2025) can determine whether certain investments adequately move cash resources. The equity ratio is a financial tool capable of assessing whether the amount of equity capital is sufficient to sustain a company's activities (Irchani et al., 2025). There are even financial tools used to measure the impacts of nature on the financial dynamics of

Revista Multidisciplinar do Nordeste Mineiro, v.18, 2025
ISSN 2178-6925
DOI: 10.61164/j8ggp975

an organization or entity (Wijesena; Pradhan, 2025), as is the case with agricultural production and most family farming activities. Figure 1 shows the theoretical framework resulting from this literature review.

Figure 1. Accounting and financial tools: theoretical framework of the study.



Source: Prepared by the authors.

Accounting tools focus on an entity's assets with three well-defined objectives. The first step is to generate and provide information on the three core aspects of assets (assets, rights, and obligations) to determine the entity's net worth, which represents the amount effectively owed to its owners and shareholders. The second is to assist managers in decision-making, based on valid and legal information, so that assets grow or at least remain in a comfortable position. The third is to comply with legal obligations to ensure the legal security of the entity's business and ventures.

Financial tools, in turn, focus the entity's funds on two well-defined objectives: ensuring the financial health and sustainability of the business. These tools can optimize the allocation of funds by indicating where and how to invest, ensuring viability and value generation; maximize value by increasing the entity's assets through profitability and business expansion; reduce financial risks by assessing and measuring threats so that mitigation strategies can be executed; facilitate decision-making through clarity of current and future performance derived from indicators based on net profit and return on investment; guarantee cash flow by ensuring the entity has the necessary funds for daily operations and to weather periods of low profitability; and enable growth through constant monitoring of opportunities and threats in the external environment with specific tools.

ISSN 2178-6925
DOI: 10.61164/j8ggp975

It is therefore clear that these tools are complementary and interconnected. Most financial tools are created based on information provided by accounting and its tools, primarily due to their technical reliability and legal validity. Decisions made using financial tools can be simultaneously monitored to generate results, which are subsequently confirmed and validated by accounting tools, such as balance sheets and income statements. Using these two sets of tools provides any enterprise with the managerial, legal, and accounting security necessary for sustainable success.

3. Research methdology

This study is characterized as exploratory and descriptive research, with an individual unit of analysis, an organizational level of analysis, and a cross-sectional or synchronic analysis perspective. The methodological strategy was applied to a family farm located in the Nossa Senhora do Perpétuo Socorro community, in the municipality of Iranduba, Amazonas state, using an interview guide addressing questions about the social, productive, economic, and accounting aspects of the property. The overall objective of the research was to evaluate the use of accounting and financial tools on a small farm operating in the family farming segment.

3.1 Guiding Questions

The overall objective was divided into three clearly defined goals, transformed into guiding questions: 1) What are the main social aspects of the family production unit? This study aimed to investigate the level of education among family members, the number of individuals involved in production, and the age of the members, among other human aspects. 2) What are the main productive aspects of the production unit? This aims to determine the types and varieties of products produced, the most produced and sought-after products, the planted area, and the operating time of the production unit. 3) What are the main managerial aspects of the production unit? This aims to describe the unit's management approach, as well as the accounting and financial tools used. The

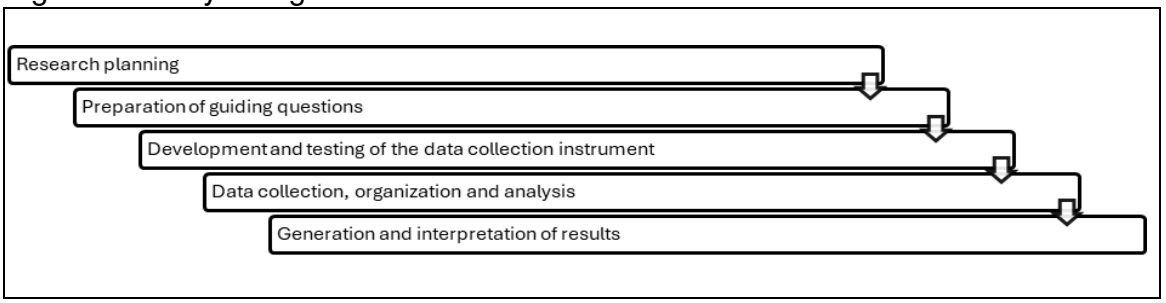
ISSN 2178-6925
DOI: 10.61164/j8ggp975

entire study design was designed to answer these questions, as recommended by the studies by Nascimento-e-Silva (2020; 2021a; 2021b).

3.2 Study Design

The research design followed the methodological approach developed by Silva, Oliveira, and Nascimento-e-Silva (2025), as described in Figure 2. The first step was research planning, which determined the scope of the investigation, the procedures for constructing the theoretical framework, and the methodological approach to be followed for conducting the field research. The second stage involved developing the research's guiding questions, based on the theoretical framework and aligned with the specific research objectives. The third stage consisted of developing and testing the data collection instrument, which transformed the theoretical framework into an interview and observation guide.

Figure 2: Study design



Source: Prepared by the authors.

The fourth stage consisted of data collection (conducted at the production unit), analysis (using content and semantic analysis), and organization (using summary tables). The fifth stage involved generating results by understanding the meaning of the data and its subsequent interpretation, which was achieved by comparing it with the theoretical framework of the study. The fifth stage was completed by preparing the interview and observation reports, as well as transforming them into manuscripts for subsequent submission for publication.

3.3 Research Subjects

The research subjects were members of the family farming production unit operating in the Nossa Senhora do Perpétuo Socorro Community, located in the

ISSN 2178-6925
DOI: 10.61164/j8ggp975

city of Iranduba, in the state of Amazonas. The primary respondent was the owner, who requested that his personal data and that of his production unit be kept confidential.

3.4 Data Collection Instrument

Two data collection instruments were used, both based on the same theoretical framework: semi-structured interviews and observation, conducted at the production unit itself. The theoretical framework for the interviews and observations consisted of three parts. The first contained questions about the social aspects of the production unit, such as the number of members, gender, age, and education. The second focused on aspects of the production unit, such as the varieties of agricultural specimens worked, those in most significant demand, the main products, and the area produced and left fallow. The third part explicitly focused on the accounting and financial tools used on the family farm to measure the evolution of its assets and its financial sustainability.

3.5 Data: Collection, Analysis, and Organization Instruments and Strategy

First, the data collection instruments were created and tested to assess their validity and reliability (Nascimento-e-Silva, 2023). Data were then collected directly at the production unit, through a prior arrangement with the family, facilitated by their leader, who also served as the primary provider of data and information. Data were collected through semi-structured interviews and observation, conducted simultaneously. As the data were discussed, they were displayed so that the interviewers could understand them adequately. After collecting, the data were analyzed by separating the responses to each guiding question from the responses to the remaining questions. These responses to each question were then organized into two-column tables, with the key variables of the questions listed in the left column and the corresponding data and information presented in the right column.

3.6 Generating and Interpreting Results

Results were generated by constructing the answers to each guiding question. This construction was based on a synthesis of the data set contained in each summary table, focusing on the aspects considered most relevant,

ISSN 2178-6925
DOI: 10.61164/j8ggp975

highlighting them, and deepening the description based on what is described in the literature. This procedure was used for each of the three guiding questions. The results were interpreted by comparing empirical findings and evidence with the theoretical framework that guided the planning and execution of field activities.

4. Results and discussion

The data presentation was based on an analysis conducted through data collection conducted through an interview schedule on a family-owned farm located in the Nossa Senhora do Perpétuo Socorro Community, addressing social, productive, and managerial aspects, particularly the diversity of crops cultivated, the planting methods used, and how expenditure control, primarily involving production costs, is managed.

4.1 Social aspects of the production unit

The low level of education among farmers can affect the proper management of inputs such as pesticides used in crops, the use of safety materials, and the appropriate disposal of packaging for these inputs. Therefore, adequate education on the proper use of these inputs is of paramount importance for the health of farmers and to prevent contamination of both themselves and other living beings found in nature (Oliveira et al., 2024). This justification for low levels of education may be related to the lack of access to school systems in rural areas, as well as school dropout rates. Low levels of education, for example, influence institutional relationships representing this social category. Many of them cannot even obtain agricultural credit to develop their farming activities (Deggerone, 2024). Family farms face daily production challenges due to the small number of family members who wish to remain farmers to continue the work done by their parents, which has consequences for the continuity of this agricultural reproduction based on traditional knowledge (Silva; Mantelli, 2024).

Family farming involves all family members, including children, in assisting with agricultural work. Although there are laws prohibiting the use of child labor,

ISSN 2178-6925
DOI: 10.61164/j8ggp975

such as Article 227 of the Federal Constitution, these organizations employ this labor under the guise of valuing broadly socialized labor. However, this violates the very essence of the law, which assigns the family the responsibility of maintaining the physical and mental integrity of children and adolescents. Therefore, there is a need to curb the use of child labor on family farms (Veloso et al., 2024). All family members participate in the farm's productive activities. However, youth participation has become scarce. Seniors have been more involved in this type of activity, seeing agricultural activity not only as a means of income but also as a form of therapy that makes them feel useful in this environment (Pereira et al., 2024).

According to a survey conducted on a rural property in the state of Rio Grande do Sul, more than half of the farmers are 50 years of age or older and have been farming for more than 30 years. The inference is that younger workers are in smaller numbers, a number that is worrying when considering future succession to continue carrying out these activities (Behm et al., 2024). Table 3 summarizes these findings.

Table 3. Social aspects of the production unit

Analysis Categories	Results
Owner's Education Level	High School
Number of People in the Family	3 members (owner, wife, and son)
Age of Family Members	39 years, 30 years, 5 years

Source: Data collected by the authors.

Given these aspects, it is essential to promote actions that enable rural producers to remain in the field, aiming to provide visibility for this type of rural enterprise. Programs such as the Local Innovation Agent (ALI), for example, demonstrate a differentiated dynamic to guide family members on the application of innovative practices involving new technologies and management methods that enable improvements in management and production processes. Such activities should be carried out with the involvement and support of family members, such as spouses, children, and grandchildren (Santos et al., 2024).

Revista Multidisciplinar do Nordeste Mineiro, v.18, 2025
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DOI: 10.61164/j8ggp975

4.2 Productive aspects of the production unit

The rural property has approximately two hectares of land, but only 75% of this area is used. It has been active in the family farming segment since 2002, through agricultural activities involving horticulture. Planting a variety of seasonal crops is predominant. This small rural property cultivates a variety of crops, including kale, parsley, lettuce, lemon, arugula, jambu, cucumber, cassava, and oranges. Kale is the main agricultural product that provides the family's income. Each seasonal crop has its own seasonality. The season in which they are produced is also quite variable. There are seasonal crops that can be grown year-round, such as vegetables, cereals, tubers, and fruits. On this particular property, the family farms produce year-round to sell their produce and support themselves. Furthermore, they seek sales alternatives through all available channels. Therefore, they sell to markets, to regular buyers, and to school lunches. This is how they ensure their livelihood.

Regarding the method adopted for growing these crops, the property uses both organic and conventional cultivation. All these products are sold, except for oranges and cassava, which are intended for family consumption. The family does not sell these products because they are not produced on a large scale, and there is no interest in making large quantities for sale. In this community, many families choose to produce and sell a specific type of product, which I believe is the most strategic for marketing. Another factor may be the inputs required for this production, such as the labor employed, which can entail high costs. Likely, this production is not consumed solely for family consumption, but also to produce products derived from these inputs for culinary purposes, such as orange juice and cassava recipes.

Table 4. Productive aspects of the production unit.

Analysis Categories	Results
Activity Practiced	Horticulture
Types of Crops Cultivated	Kale, parsley, lettuce, lemon, arugula, jambu, cucumber, cassava, and orange
Type of Crop Adopted	Organic and conventional
Main Product	Kale

ISSN 2178-6925
DOI: 10.61164/j8ggp975

Products for Consumption	Cassava and orange
Time of Activity	Since 2002
Estimated Area	2 hectares (uses only 1.5 hectares)
Primary Rural Producer Portfolio	Yes

Source: Data collected by the authors.

For this type of economic activity, the use of rural accounting would be beneficial, given its potential impacts. For example, it could assess production costs, monitor revenue, and identify possible actions to increase profitability. Furthermore, productive events, associated with financial ones, could be more adequately controlled through rural accounting, as it would foster economic growth for properties. Through accounting, all administrative and productive aspects of the property, especially its costs, revenues, and expenses, would be better controlled (Lima; Gonçalves, 2024).

Accounting can be considered the closest tool to family farming to support farmers in managing their businesses, especially when it comes to knowledge transfer and innovation, as studies on the influence of this tool on the rural family succession process indicate. Family successions require the support of tools such as accounting to reduce rural exodus and encourage family businesses, as the use of this tool allows for significant and consistent results, as detected by this research (Bernardi et al., 2024).

4.3 Management Aspects of the Production Unit

Table 5 shows the results related to the management aspects of the production unit studied. The farming family on this property consists of three members. The main representative of the rural property holds the primary rural producer card and manages the agricultural enterprise together with his wife and a minor child. In terms of management control of this economic activity, these farmers do not have the habit of manually recording or recording all expenses and earnings related to their economic and financial activity (horticulture). Exceptionally, these records are made for incoming resources, that is, those arising from the sale of their agricultural products, such as parsley, lettuce, arugula, cucumber, jambu, and especially from the sale of kale, considered the

ISSN 2178-6925
DOI: 10.61164/j8ggp975

main product sold on their property. Therefore, these owners issue sales invoices through their primary producer portfolio, aiming to control the revenues earned from the sale of this production.

Table 5. Management aspects of the production unit.

Analytical Categories	**Results**
Manager	Rural Producer
Production Unit Management Control	None
Main Benefit	Primary Producer Portfolio
Financial Planning	None
Accounting Planning	None
Cash Control	None
Inventory Control	None
Storage Adequacy	None

Source: Data collected by the authors.

The primary producer card is a benefit from the Amazonas State government, granted to individuals engaged in rural production. Among its advantages, it allows for the issuance of A4 invoices (for rural producers) and electronic invoices without the inclusion of the Goods and Services Tax (ICMS). This includes exemption from ICMS in the local state, and outside of it, on the acquisition of inputs, machinery, and equipment for use in rural activities (IDAM, 2022). Furthermore, farmers can perform additional management controls by consulting bank statements, which allow for greater control over incoming and outgoing funds, such as revenue from the sale of their production, as well as family expenses. Thus, invoices and bank statements are the only available records that this owner has of their agricultural activities. When it comes to financial planning, the management stage of which is crucial for decision-making, it was found that the farm does not use any planning, justifying the lack of separation between personal and farm expenses. However, the rural producer's understanding of the importance of planning to stay organized is superficial, as is their interest in using this accounting tool to guide their decisions, constituting an "ennobling" sign of change that should be emphasized.

ISSN 2178-6925
DOI: 10.61164/j8ggp975

Therefore, the need for accounting planning to properly evaluate agricultural activity becomes evident, aiming to control and assess its overall economic and financial performance. Comparing results with previous periods and with those of other entities in the same industry helps manage farm and family expenses, as well as improve their ability to pay creditors, among other advantages this tool can provide.

Regarding cash flow control on this farm, it was noted that there was no effective cash flow control, as the farmers lacked a complete understanding of how to manage financial transactions arising from their agricultural activities. This control is performed solely through bank transactions, through the issuance of bank statements, and through issued sales invoices. The lack of rigorous control also prevents a reserve of funds for emergencies. Given this aspect, the need for more consistent financial control in this establishment becomes evident so that the rural producer, as manager, can run their business more safely and have a better understanding of the financial aspects of their property. With the use of more consolidated cash control, they can better control the flow of incoming and outgoing funds, gaining a more detailed view of sales made, as well as predicting the timing of cash inflows and the property's ability to pay bills, thus avoiding certain inconveniences, such as cash shortages and mismanagement of accounts. Regarding inventory control, this tool is clearly absent on this family property, as the rural producer does not consider it necessary on his farm. Immediately after harvesting, the agricultural produce is shipped directly to markets, supermarkets, and delivery services. Harvesting is typically done no more than one day before sale, helping to maintain the "freshness" of the produce at the time of sale. There is no specific storage space on the property for inputs and leftovers used for planting. Therefore, this property requires adequate space to store the necessary seeds, chemical fertilizers, organic fertilizers, and substrates. Furthermore, another point noted concerns the fact that the rural producer claims to "monitor" the quantity of inputs for each type of crop he cultivates only through practical experiments, that is, conducting several tests until reaching the ideal amount for planting. It is understood that this monitoring can be done inconsistently and should be avoided, since failure to record the quantities

ISSN 2178-6925
DOI: 10.61164/j8ggp975

used in each test performed may result in waste of raw materials and other inputs used in production.

Given the lack of inventory control on family farms, we recommend using this tool and other tools to help increase agricultural productivity and profitability, as well as efficiently control the quantities of inputs required for each crop. This helps avoid input waste and increases in production costs and expenses, accurately assessing the farm's economic results. Furthermore, having a place to store inputs allows farmers to more accurately manage the storage of materials needed for their farming activities and protect the company against uncertainties regarding demand and material replenishment times, thus safeguarding against unexpected events and price increases. It is essential to employ tools in family farm management practices. Without these tools, it will not be possible, for example, to optimize the resources used in production activities, as well as to record and control costs. In this sense, rural accounting can serve as a tool to assist in the production and provision of information, financial control, and particularly in decision-making (Moura, 2024).

4.4 Discussion of Results

Given social limitations regarding the size of a family and the level of education of the farmer-owner and family members, several obstacles arise in both cultivation and property management. Low levels of education can be a challenge for farmers to efficiently and effectively perform these duties in this type of economic activity. Regarding the size of a family, this factor can compromise the continuity and succession of these activities, given that adolescents tend to seek opportunities in urban areas, resulting in an even smaller number of family members. Therefore, it is essential to guide farmers regarding the management of field activities, as well as economic and financial activities, as it is difficult for these farmers to return to school. Furthermore, adolescents need to be made aware of the importance of agricultural work and receive incentives to remain in rural areas to provide greater security for the succession of these families in this type of economic segment.

ISSN 2178-6925
DOI: 10.61164/j8ggp975

Regarding the productive aspects inherent to this type of economic segment, there is a wide variety of cultivated products. This crop helps the market, ensuring that products are always available for consumption. However, due to this variety, it is essential to adopt tools that facilitate the recording and management of crop planting and costing. For this purpose, the use of rural accounting is suggested, given that this tool has accounting peculiarities inherent to agricultural activities as well as livestock farming. Through this tool, farmers can accurately understand their expenses, costs, and revenues and thus effectively determine their profit or loss over a given period.

As observed on the property studied, regarding management aspects, family members are virtually absent in a model of economic and financial management, as found in companies. The owner is the sole manager, directing all property activities, both in management and in agricultural planting. Like what occurs in a commercial or industrial enterprise, it is suggested that activities be assigned among family members to avoid centralizing tasks and increase the effectiveness of recording, monitoring, and evaluating routine activities. Furthermore, the use of tools that are not only managerial but also productive could help these farmers increase economic and financial results, also aiming for growth.

On a family farm, when there is any, accounting is kept informally, without any automated record-keeping, performed solely through notebooks containing a few important notes, such as the recording of essential invoices relevant to daily activities. Therefore, the lack of adequate records prevents a reliable economic and financial analysis from being conducted. Consequently, it is impossible to truly understand the most relevant investments to be made in these organizations (Romansin et al., 2022).

Despite farmers' limited knowledge of the benefits of accounting, when this tool is applied to these small rural businesses, it can provide benefits for decision-making regarding both asset management and tax planning, as well as strengthening internal controls, thereby promoting improved results. Furthermore, this tool can aid in selecting performance indicators to assess the growth of these organizations (Zacarias et al., 2024).

ISSN 2178-6925
DOI: 10.61164/j8ggp975

Unlike large organizations that carry out their activities based on previously budgeted or planned plans, small businesses, especially those referred to as "family businesses," perform their tasks almost entirely without any planning. However, by adopting a budget, family businesses can better allocate their available financial resources without causing setbacks (Marion, 2021). Rural accounting is rarely utilized in rural enterprises, especially in family farming, where its application is crucial for generating information that enables farmers to manage their economic activities effectively. Its use constitutes a distinctive tool for supporting rural property management for rural businesses, allowing better economic, financial, and asset performance, a key differentiator in this type of business (Bassi; Oliveira; Pinto, 2022).

Rural accounting is a vital tool for family farming, given its wide range of functions essential for recording and controlling productive activities. Among these functions, accounting promotes production optimization through accounting and financial controls, improved profitability, and the optimization of material, human, and financial resources (Stefanovicz; Stroparo, 2023). It helps build the differential for business success and strengthens the resilience of these properties in the face of competition (Pereira; Santos, 2022). A peculiarity of rural accounting applied to rural businesses is the establishment of the fiscal year, which, due to the periodicity or seasonality of agricultural production, is fixed at the end of the farm year after the harvest, with the marketing period being recognized as revenue after the sale is completed (Marion, 2021). In short, Accounting Pronouncement No. 29, which addresses the guidelines for the accounting records of biological assets and agricultural products generated, constitutes an essential standard to be used in the accounting of rural properties (Santos et al., 2022).

Regarding the development of the chart of accounts for rural properties, it is composed of specific groups of accounts. Inventory accounts, for example, have different nomenclatures depending on the economic activity involved. When a temporary crop is in the cultivation process, its expenses are recorded in the temporary crop in development account. Upon completion of this cultivation, its costs are transferred to the agricultural product inventory account (Marion, 2021).

ISSN 2178-6925
DOI: 10.61164/j8ggp975

Another group of accounts that also has a different nomenclature is the fixed assets group, which includes a subgroup of biological assets composed of permanent crops, both in the development and established stages. All expenses arising from the cultivation of these crops should be recorded in the permanent crop in development account and, after completion and the beginning of harvest, in the established permanent crops account (Marion, 2021). When using rural accounting, it is necessary to utilize other resources to support organizations' financial decision-making. The use of cash flow can be considered an essential tool for managing activities and, consequently, for supporting financial decision-making. Cash is a crucial element that needs to be routinely monitored, given the potential impacts it can have on an organization's assets. When it comes to small businesses where the microentrepreneur lacks technical cash flow knowledge, accurate and straightforward solutions must be provided so that this control method can be adopted, thus contributing to their business.

5. Conclusion

This study evaluated the use of accounting and financial tools on a small rural property operating in the family farming segment. The results showed that the production unit studied does not reap the benefits that the use of accounting and financial tools can provide due to complete ignorance of their existence. Consequently, there is a complete absence of any accounting and financial tools in this family farm, considering that the owner claimed not to have any form of control over the financial flows of his enterprise. This lack of knowledge is so significant that he thinks keeping invoices and bank statements is a form of control.

The respondent's low level of education also hindered the obtaining of more accurate answers about the tools, as without proper monitoring of the farm's records, the rural producer had difficulty reporting on the financial aspects of his farm. However, it is worth considering that the producer demonstrated, albeit superficially, an interest in learning about the importance of using planning to stay

ISSN 2178-6925
DOI: 10.61164/j8ggp975

organized, as well as an interest in adopting these tools in his business. This signaled positive expectations for a change in the direction of family farms. Furthermore, we recommend conducting more accounting case studies with both quantitative and qualitative aspects focused on the businesses of small family farmers in the Amazon, with a view to extending knowledge of accounting and related fields to these organizations to provide insights that contribute to increased profitability and rational economic growth. The adoption of these tools could lead to a change in the toxic cycle of poverty in one of the wealthiest regions on the planet.

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