



FAMILY FARMING AND SUSTAINABLE DEVELOPMENT OF AGRIBUSINESS IN THE METROPOLITAN REGION OF CAMPINAS

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ABSTRACT

Brazil is one of the countries where agribusiness has more space and potential to develop. Thus, currently, agribusiness in the country is the main pillar of the Brazilian economy. However, the traditional system brings with it many social and, above all, environmental problems. Given this, family farming takes place in this scenario with its sustainable techniques. The main objective of this article was to verify the role of family farming in the sustainable development of agribusiness in the metropolitan region of Campinas (MRC). For this, a research of the descriptive type of qualitative nature was promoted with the participation of professionals who invest and operate in family farming, as well as executives who work in the Association of Natural Agriculture of Campinas and Region (ANC). Family farming is the main economic activity in many regions of Brazil and needs to be strengthened and studied. The potential of family farmers to generate employment and income must be observed throughout the future development of Brazilian agriculture. As a result of the research, it was perceived, in the economic dimension, the great need for credit and economic incentive by the State. In the social dimension, these state incentives would also help to create or strengthen the social value of an association or union. Finally, in the environmental dimension, it was seen and confirmed that family farmers have great environmental responsibility with their production technique.

Keywords: Sustainable development; Family farming; Agribusiness.

A AGRICULTURA FAMILIAR E O DESENVOLVIMENTO SUSTENTÁVEL DO AGRONEGÓCIO NA REGIÃO METROPOLITANA DE CAMPINAS

RESUMO

O Brasil é um dos países em que o agronegócio mais tem espaço e potencial para se desenvolver. Assim, atualmente, o agronegócio no país é o principal pilar da economia

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Data do recebimento do artigo (received): 03/03/2019

Data do aceite de publicação (accepted): 27/02/2020

Desk Review

Double BlindReview

brasileira. Todavia, o sistema tradicional traz consigo muitos problemas sociais e, principalmente, ambientais. Visto isso, a agricultura familiar ganha lugar nesse cenário com suas técnicas sustentáveis. O presente artigo, portanto, teve como o objetivo principal verificar qual é o papel da agricultura familiar sobre o desenvolvimento sustentável do agronegócio da região metropolitana de Campinas (RMC). Para tanto, foi promovida uma pesquisa do tipo descritiva de natureza qualitativa com a participação de profissionais que investem e operam na agricultura familiar, bem como executivos que atuam na Associação de Agricultura Natural de Campinas e Região (ANC). A produção agrícola familiar é a principal atividade econômica de muitas regiões do Brasil e precisa ser fortalecida e estudada. O potencial dos agricultores familiares na geração de empregos e renda deve ser observado ao longo do desenvolvimento futuro da agricultura brasileira. Como resultado da pesquisa foi percebida, na dimensão econômica, a grande necessidade de haver crédito e incentivo econômico por parte do Estado. Já na dimensão social, esses incentivos do Estado também auxiliariam na criação ou fortalecimento do valor social de uma associação ou sindicato. Por fim, na dimensão ambiental, foi visto e confirmado que os agricultores familiares possuem grande responsabilidade ambiental com a sua técnica de produção.

Palavras-chave: Desenvolvimento sustentável; Agricultura familiar; Agronegócio.

AGRICULTURA FAMILIAR Y DESARROLLO SOSTENIBLE DE LA AGROINDUSTRIA EN LA REGIÓN METROPOLITANA DE CAMPINAS

RESUMEN

Brasil es uno de los países donde la mayor parte del agronegocio tiene el espacio y el potencial para desarrollarse. Así, actualmente, la agroindustria en el país es el pilar principal de la economía brasileña. Sin embargo, el sistema tradicional trae consigo muchos problemas sociales y, principalmente, medioambientales. Teniendo esto en cuenta, la agricultura familiar adquiere un lugar en este escenario con sus técnicas sostenibles. Este artículo, por lo tanto, tenía como objetivo principal verificar cuál es el papel de la agricultura familiar en el desarrollo sostenible del agronegocio en la región metropolitana de Campinas (RMC). Con este fin, se promovió un tipo descriptivo de investigación de carácter cualitativo con la participación de profesionales que invierten y operan en la agricultura familiar, así como ejecutivos que trabajan en la Asociación de agricultura natural de Campinas y región (ANC). La producción agrícola familiar es la principal actividad económica de muchas regiones de Brasil y necesita ser fortalecida y estudiada. El potencial de los agricultores familiares en la generación de empleos e ingresos debe observarse a lo largo del futuro desarrollo de la agricultura brasileña. Como resultado de la investigación se percibió, en la dimensión económica, la gran necesidad de crédito y incentivo económico por el estado. En la dimensión social, estos incentivos del estado también ayudarían en la creación o fortalecimiento del valor social de una asociación o Unión. Finalmente, en la dimensión medioambiental, se observó y confirmó que los agricultores familiares tienen una gran responsabilidad medioambiental con su técnica de producción.

Palabras clave: Desarrollo sostenible; Agricultura familiar; Agronegocios.

1. INTRODUCTION

Based on the Paris Agreement (United Nations, 2015) and Agenda 2030 (Sustainable Development Knowledge Platform [SDKP], 2017), sustainable development encompasses the actual joint and individual efforts to produce goods, values and technology in the immediate with projections for a better future. In addition, it aims at unmanaged energy management, developing the capacity and ability of individuals and companies.

In terms of the environment, sustainable development consists of not exceeding a global peak of greenhouse gas emissions, maintaining the average temperature of the planet up to 2°C, using energy sources that do not destroy biodiversity, using renewable and non-scarce resources such as the wind and the sun (United Nations, 2015).

In the social sphere, poverty eradication and gender equality are essential if sustainable development is to happen, since only then will it be possible for all countries to become developed. In addition, peace, food security and the inclusion of minorities are of utmost importance for development (United Nations, 2015).

Economically, without the articulation of environmental sustainability and social development, it is impossible to increase new forms of energy production. Thus, the sum of these aspects culminates in the technological advance by means of transfers of this energy production to implement new clean and renewable forms, with little pollution (SDKP, 2017).

As advantages of the concept of sustainable development are: respect for biodiversity; is economically interesting since it does not deplete resources; there is the development of technology; and finally, the social impact is very positive, since it seeks the inclusion of all minorities in society (SDKP, 2017). As a disadvantage of the concept, one can cite the regulation that may restrict capitalist profits. In addition, there is a demand for high R&D expenditures and their return is usually obtained in the long term (SDKP, 2017).

Family farming is characterized by a family group of producers that generate for their own subsistence and benefit their region. In addition, goods and services, as well as food, can be produced. Thus, according to Decree 9,064, for this group was given the title of Family Unit of Agricultural Production (UFPA) (Brazil, 2017).

Family farming, even facing the large agribusiness industry, still has room to grow, since it seeks sustainable alternatives. However, it is necessary that there be public and social measures to boost and encourage this branch. When encouraged, the whole region of these producers' benefits, as they receive better quality products normally free of pesticides. In addition, the products of family farming are

produced by sustainable means, which brings in a better environment for the next generations and allows a future reproduction of agriculture, since there are good environmental conditions to be repeated (Guimarães, Ribeiro & Echeverria, 2011).

In the metropolitan region of Campinas (MRC), which is highly urbanized, it is essential to study the role of family farmers for the sustainable development of agribusiness in the region. The society deserves food with less pesticides, more sustainable and affordable, and, for this, public measures are necessary and the State plays an essential role in the process (Guimarães, Ribeiro & Echeverria, 2011).

The study addressed by this article is of fundamental importance, as sustainable means of production are increasingly being developed because of their potential future reproduction and well-being of succeeding generations. Given this, it is an extremely current subject, and family farming is of crucial importance, since it meets the values of sustainable production and contrasts traditional agroindustry. This is because it is a smaller scale production, without the use of pesticides, most of the time, and that benefits the region of the farmer as a whole, since it provides healthier and more affordable products to the population. According to the Ministry of Agrarian Development, family farming is responsible for supplying about 70% of the food that is consumed every day in Brazil (Guimarães, Ribeiro & Echeverria, 2011). In addition, it: composes the economic base of 90% of the municipalities of the country that have up to 20 thousand inhabitants; constitutes 35% of the GDP (Gross Domestic Product) of Brazil; and accommodates 40% of the country's economically active population (Ministério do Desenvolvimento Agrário [MDA], 2017). Agribusiness, in 2014, accounted for 24% of the national GDP, 43% of total exports and, in 2013, employed 30% of the population (ABAGRP, 2017). Finally, in relation to Sustainable Development, Brazil is able, according to IBGE, to provide almost half of the energy used from renewable sources, as well as the recycling of more than 90% of aluminum cans (Nunes, Spitzcovsky & Amaral, 2017).

Thus, based on the literature presented and the problematization that emerges from the need to establish an effective relationship between sustainable development and Brazilian agribusiness, the question that this research sought to answer was: **what is the role of family farming in the sustainable development of agribusiness in metropolitan region of Campinas?** The main objective of this research was to verify the role of family farming in the sustainable development of agribusiness in the metropolitan region of Campinas. As specific objectives, this study proposed: (a) to examine the relationship between agribusiness and sustainability dimensions; (b) to verify the challenges of family farming in the metropolitan region of Campinas; (c) analyze the impacts of this new concept of agribusiness for society and the local economy.

This article was structured in five sections. In addition to this introduction, a review of the theory on agribusiness, family farming and sustainable development

was developed. Methodological procedures were then defined. Results were then presented and analyzed. Finally, in the conclusions, the final considerations about this research were presented, as well as the discussion about the limitations of this work and the suggestions for future studies in the sector.

2. THEORETICAL REFERENCE

In this section the theoretical reference was developed related to the concepts of agribusiness, family farming and sustainable development.

2.1. Agribusiness

Agribusiness first emerged as a term at Harvard University in the United States in 1957, with the English term agribusiness. Thus, it can be defined as an activity that has its beginning with the production of agricultural inputs, which go to agricultural and livestock units so that, finally, the processing of the *in natura* products in industrialized, thus enabled to be distributed and consumed. In addition, agribusiness is understood as a set of operations of production and sharing of agricultural supplies and the entire process of agricultural products until they reach commercialization. However, this term spread through Brazil only from the 1980s (Araújo, 2013).

As shown in Figure 1 below, we first have suppliers of inputs and output goods and these are at the top of the pyramid, because without them the rest of the process is unable to occur. Below, one has the agricultural generation, which uses these goods of production and inputs to form the products that will be in the third layer of the pyramid, that is the processing and transformation. In this phase, the goods, of any kind, are processed to be enabled for the next phase, distribution and consumption in the points of sale, thus starting to the last stage, the consumers.

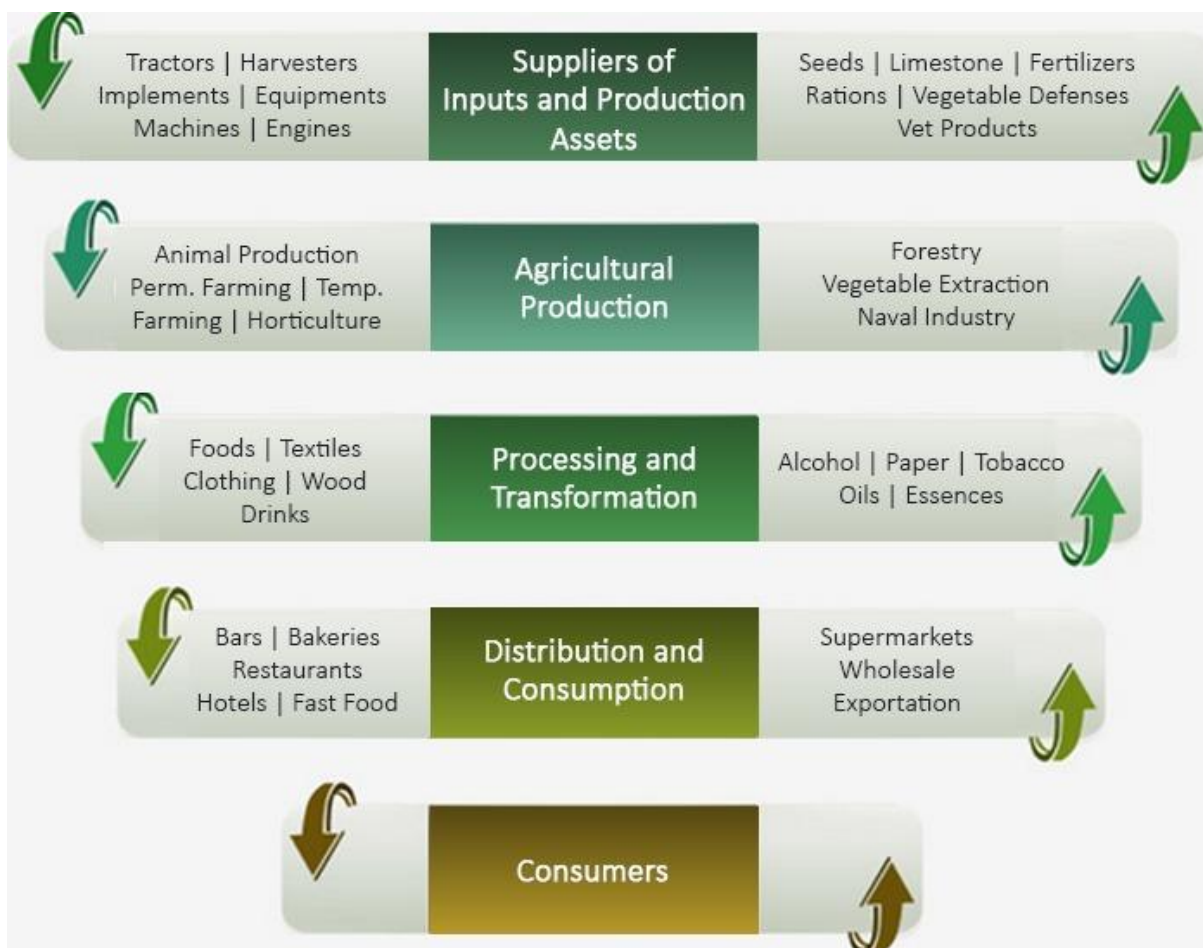


Figure 1. Flow of production, operations, supplies and commercialization of the agricultural sector.

Note: Araújo, Wedekin and Pinazza (1989).

In view of the above, in traditional agribusiness there are several stages and, because of this, there is a distance from the producer of the inputs to the final consumers. In addition, each of these processes is assigned to a specific group of professionals and sectors, i.e. the producer is not responsible for the distribution of the product. This traditional method is still widely used in agribusiness, however, it brings with it numerous environmental problems, such as the use of exacerbated pesticides and the large emission of CO₂, by transporting the food produced far from the distribution and consumption poles.

Agribusiness in the year 2014 accounted for 24% of the national GDP and 43% of total exports. In addition, in 2013, it employed 30% of the population (Associação Brasileira do Agronegócio da Região de Ribeirão Preto [ABAGRP], 2017). Thus, it can be said that agribusiness is the sector that contributes most to the strengthening of the Brazilian economy, that is, it is responsible for ¼ of the GDP (Ministério da Agricultura, Pecuária e Abastecimento [MAPA], 2017). Brazil is the country with the largest territorial extension of South America and the fifth largest in the world. However, only 254 million

hectares of this territory are destined to agricultural activities, that is, 29% of the land, with 9% for agriculture and 20% for livestock.

According to Megido and Xavier (2003), agribusiness is an extremely dynamic sector, since it, while dependent on climatic factors, also needs to combine economic, natural, technological, environmental and human factors. Thus, these variants interfere in the productive chain of the companies, which, in turn, are very broad and complex, which stimulates the competitiveness between these companies and the search for technological innovations. Therefore, for these innovations to happen, it is necessary to assert people's participation, so that all resources (technological, financial, human or material) are used in the best way (Comin *et al.*, 2017).

One of the reasons that led to the improvement and better training of agribusiness to gain a competitive advantage over competitors was the need to adapt to the consumer market. In this way, it was essential to invest in the training of people, but also in technologies and processes (Comin *et al.*, 2017).

2.1.1. Family farming

Family farming is characterized by being differentiated, with the work group composed of family members and these establish a closer relationship with their production. Because of this, they use production techniques that have less impact on the environment and, consequently, generate better products for their subsistence and local sales (MDA, 2018).

This type of agriculture is characterized by producers of a family who produce for their own subsistence, but who can also benefit their region. In addition, goods and services can be produced in addition to food. Thus, according to Decree no. 9,064, for this family group was given the denomination of Family Unit of Agrarian Production (UFPA) (Brazil, 2017). This agriculture is also particularized by the link that farmers establish with the land, since the place of their work, where their livelihood comes from, is also their dwelling. This fact causes reflection in the products they generate, since they have a much closer relationship with the land and with food. Another reason for being a differentiated agriculture is because of the cultural load, that is, family farming is tradition, very common in Brazilian municipalities, which, in their majority, have less than 20 thousand inhabitants. As such, its function is not only to generate income, jobs and better-quality products, but also to continue a regional legacy (MDA, 2017).

Family farming still faces many obstacles within the agribusiness, mainly against the large traditional agribusiness industry. However, it still has room for growth, since it uses sustainable alternatives and a different way of thinking about agriculture, which makes it a sustainable agriculture because it respects the environment more and preserves resources. In order for family farming to grow stronger, there is a need for public and social measures to boost, encourage and provide the necessary support to this

sector. When this is done, the whole region around these family producers is impacted, since it receives products of better quality and, normally, free of pesticides. In addition, these goods are produced through more sustainable means, which leads to a better environment for future generations and provides the reproduction of agriculture in the future. This fact, therefore, characterizes family farming as an agriculture of sustainable development (Guimarães, Ribeiro & Echeverria, 2011).

In view of the above, family farming is used in sustainable ways for its production, which guarantees it is an agriculture of the future and confronting agribusiness with its traditional bases. This happens, as mentioned earlier, because it is a smaller scale production without the use of pesticides, most of the time, and that benefits the farmer's region as a whole, since it provides healthier products and at lower prices. According to the Ministry of Agrarian Development, family farming is responsible for the supply of about 70% of the food that is consumed every day in Brazil (Guimarães, Ribeiro & Echeverria, 2011). In addition, it composes the economic base of 90% of the municipalities of the country that have up to 20 thousand inhabitants; constitutes 35% of the GDP (Gross Domestic Product) of Brazil; and accommodates 40% of the country's economically active population (MDA, 2017).

One of the biggest supporters of family farming is the National Program for Strengthening Family Farming (PRONAF). The purpose of this program is to help promote the sustainable development of family farming by making these family farmers have access to various credit lines so that they can choose the one that best fits their needs and projects. One of the limitations for access to PRONAF is to have a gross annual income of up to R \$ 360,000, and with this, farmers can use this credit to invest in machinery, infrastructure, crop costs or agro-industrial activity. However, for this to occur it is necessary to have the PRONAF Aptitude Statement (DAP), as it is with it that the family farmer is identified and guaranteed access to more than 15 public policies (MDA, 2017).

Brazil, with its large food production capacity, which comes mainly from family farming, and thanks to the aid of government programs, has managed to become one of the countries that left the Hunger Map of the United Nations Food Organization and Agriculture (FAO). In addition, according to the report of the UN agency, Brazil can become the main food exporting country in the next decade (MDA, 2018). These government programs are necessary since, increasingly, small farms become important parts to aid the food supply to the population of the country, which has been growing and demanding more technology (Zuin & Queiroz, 2006).

2.2. Sustainable development

Sustainability has the purest meaning of sustaining something, of maintaining, conserving, or preserving something in good conditions. As such, it can also be considered a behavior in the middle of the business that fully considers the economic,

social and environmental aspects, always aiming for long-term benefits for future generations and for their investors (Paz & Kipper, 2016).

It was at the UN General Assembly in 1983 that the World Commission on Environment and Development was created, where the concept of Sustainable Development was mentioned for the first time, under the premise that the planet's resources were finite and that it was therefore necessary a new type of development. Today, unlike some decades ago, it is possible to think of combining development with the environment. This movement is called Sustainable Development and this term was legitimized and absorbed by the environmental community after the Rio Conference in 1992 (Layrargues, 1997).

The concept of Sustainable Development is based on the triple bottom line, which consists of meeting the economic, social and environmental tripod. That is, the company is not only concerned with economic growth, but also with its social responsibility and environmental balance (Elkington, 1994). In addition, the concept of Sustainable Development aims at preserving the current resources, taking into account the needs of the moment, so that the next generations will not be lacking, thus combining economic development and environmental conservation (World Wide Fund for Nature [WWF], 2017).

In this conception, the sustainable development aims to aim that the present generation has needs that are not limited to the economic plane, but also social and environmental aspects. However, in the business environment this suit did not fit, and for this reason, it was necessary to create another expression, such as the triple bottom line, which became a parameter for companies to adopt a posture with more social and sustainable responsibility (Elkington, 1994).

In the business world, sustainable development has brought many benefits. Companies, with the best understanding of their production chain, their spending and resources, are able to achieve greater profitability, reduce their waste and increase their productivity and revenues. Thus, it is not only environmental and social issues that benefit from adherence to sustainable development by the business sector, but also benefit from this new concept. In addition, when environmental issues are to be followed, technological development is optimized, since this allows a better use of inputs, such as the raw material, of the company (Dias, Labegalini & Csillag, 2012). Given this, it is possible to analyze that the implementation of a more sustainable mentality in companies generates organizational innovations, such as reformulation of products, technologies, processes and even business models, which helps them to be more competitive in the market (Paz & Kipper, 2016).

Following the triple bottom line, in the social sphere, to be sustainable is to pay attention to issues such as work practices and social obligations (Dias, Labegalini & Csillag, 2012). That is, even if a sector has high profitability, the society that is involved, in all spheres, from the workers to the final consumers, must have their rights

taken into account. Thus, social obligations include projects in the communities in which they operate and hiring the local workforce, for example.

In the environmental area, sustainability is based on preserving the environment in which it is installed and also the region, not generating negative environmental impacts in the chain. Therefore, this aspect consists of having an environmental responsibility, that is, not throwing waste and chemicals in soils and rivers or have a large emission of CO₂. This question, often left only as a disguise for the real intentions of the companies, is extremely important, since Brazil ranks 18th among the world's biggest polluters. In addition, according to data from Embrapa Satellite Monitoring, every ten years, the world's richest countries, the so-called G-8, emit CO₂ equivalent to the deforestation of the entire Amazon (ABAGRP, 2017).

Thus, as shown in Figure 2 below, whether a company, or a sector, adopting sustainable measures, is increasingly seen as a sign of modernity and more evolved thinking, which brings them many advantages such as a good image and reputation in the market, thus attracting more investors and greater competitive advantage (Guimarães, Peixoto & Carvalho, 2017). According to Oliveira *et al.* (2012), there are five key principles for better implementation of sustainability in organizations. The first of these is to encourage the voluntary initiative of professionals within organizations. The second is to include the professionals motivated for sustainability and their participation in strategic planning. The third is the development and implementation of strategic, tactical and operational indicators. The fourth is characterized by establishing an internal process of participation for the creation of strategic objectives and goals. Finally, the fifth principle is to establish a connection between the career development plan and the commitment of professionals to the sustainability of the organization.

Economic Benefits
<ul style="list-style-type: none"> • Cost savings; • Savings due to reduction of water, energy and other inputs; <ul style="list-style-type: none"> • Savings due to recycling, sale and use of waste; • Reduction of fines and penalties for pollution.
Revenue Benefits
<ul style="list-style-type: none"> • Increased marginal construction of "green products" that can be sold at lower prices; • Increased market shares due to product innovation and less competition; <ul style="list-style-type: none"> • Product lines for new markets; • Increased demand for products that contribute to population decline.
Strategic Benefits
<ul style="list-style-type: none"> • Improvement of the institutional image; <ul style="list-style-type: none"> • Renewal of product portfolio; • Increased productivity; • Reduction of fines and penalties for pollution;

- High commitment of staff;
- Improvements in labor relations;
- Improvement and creativity for new challenges;
- Improvement in relations with government agencies, community and environmental groups;
 - Guaranteed access to the external market;
 - Better compliance with environmental standards.

Figure 2. Benefits of sustainable development for organizations.

Note: Adapted from North (1992).

3. METHODOLOGICAL PROCEDURES

For this work a qualitative descriptive research was adopted. According to Merriam (2002), the qualitative research seeks to understand a certain situation through the interpretation and experience of individuals about such context, that is, the researcher hopes to understand a situation through the logic and perspective of the interviewees. The qualitative study is characterized by considering: (a) perception of the meanings that the participants attribute to the situation; (b) researcher as the main instrument for collecting and analyzing data; (c) application of inductive approach; (d) presentation of descriptive results (Merriam, 2002).

According to Richardson (1999), in qualitative research the results emerge from phenomenological and interpretative paradigms, and statistical means are not used as the basis of the analysis process.

According to Appolinário (2012), the descriptive research seeks, exactly, to describe a certain reality. The purpose of the descriptive research is to observe, record and analyze phenomena or technical systems, without, however, entering into the merits of the contents. In this type of research there can be no interference from the researcher, who should only discover how often the phenomenon occurs or how a system, process or operational reality is structured and functioning (Barros & Lehfeld, 2007).

3.1. Data collection instrument and research subject

According to Merriam (2002), there are three traditional ways to collect data in qualitative research: (1) interviews; (2) observation; (3) documents. With the sophistication of computing, data can also be collected online, and interviews can be conducted electronically.

According to Flores (1994), qualitative data are collected through procedures such as in-depth interview, participant observation, review of personal and official documents. The data collection was done through a script developed throughout the bibliographic survey.

For Appolinário (2012), the intentional choice of subjects considered representative in a given population is called trial sampling. Merriam (2002) also mentions that it is important to evaluate and select subjects that provide learning.

The semistructured interviews were carried out with specialists who invest or operate in family farming, selected in the register of the Cooperative of Family Farming of Campinas (COOPERAF), as well as executives who work in the Association of Natural Agriculture of Campinas and Region (ANC).

3.2. Data analysis strategy

The analysis of the data referring to this research was based on the principles of data analysis based on the concepts of categorization (Flores, 1994). According to this strategy, the organization and interpretation of data are done by topics relevant to the researcher.

For Flores (1994), the data have limited meaning, so it is necessary to find meaning in them. In the categorization phase of the components analyzed, the principles of data analysis are based on the operation of classification of the constituent elements, reduction of data, provision of data, change from private to general and verification of conclusions.

In the qualitative research, the analysis and interpretation of the data has the objective of providing meaning to the information collected. Data analysis can be defined as a set of manipulations, transformations, operations, reflections and verifications carried out from the data in order to extract relevant meaning in relation to the research problem (Flores, 1994).

Data analysis began with the interviews and the careful reading of the transcripts, aiming to meet the objective of this study, which was to verify if there is a positive influence of family farming on the sustainable development of agribusiness in the metropolitan region of Campinas. After the hearing and reading of all the interviews, the first analyzes were started, which focused on finding excerpts from the interviews that complemented or led to the same idea.

3.3. Delimitation of the study and limitation of the method

This work was restricted to investigate family farming in the metropolitan region of Campinas and its impact on sustainable development. It is important to emphasize that this study was not intended to generalize the conclusions, but rather to raise discussions that could stimulate the expansion of debates and research in Brazilian agribusiness.

As to the delimitation of the study, it can be said that this work was cross-sectional, since the data collection and analysis of the results occurred within the same space of time, where the same social, political and economic conditions were

maintained (Appolinário, 2012). The present study did not focus on a longitudinal data collection, that is, a research with a longer time interval that aimed to observe if there is a change in the perception and opinion of the respondents over time or with changes in the economic, political or Social (Appolinário, 2012).

According to Creswell (2007), the main and eventual limitation of the method that was applied in this research would be linked to the interviews. The interviewees could be led, in an indirect way, to agree with the assertions proposed by the study. To minimize the effects of this eventual limitation, the interviews were conducted in the most impartial way possible

4. PRESENTATION AND ANALYSIS OF RESULTS

During the qualitative research were interviewed three professionals involved with family farming in the metropolitan region of Campinas. In this section we analyzed the data analysis from the interviews. The development of content analysis took into account the identification of keywords, followed by the categorization process.

After the transcription, the interviews were read gradually by the researchers and, through the result of the frequency of words along with the similarity of what the excerpts portrayed, the categorization was structured. It is important to point out that, for systematization and characterization, micro-analysis was used. In other words, it was sought, from the careful reading and transcription of the interviews, to identify fragments that could be grouped into subcategories. These subcategories, in turn, were grouped into the categories identified during the theory review.

Professionals preferred that their names not be identified and therefore identified as E1, E2 and E3. An interview with ten open questions was used (Appendix A). Figure 3 presents the information about the professionals.

Interviewee	Education	Position
E1	Graduation in Agronomic Engineering and Master in Agroecology and Rural Development	Executive Secretary at ANC (Association of Natural Agriculture of Campinas and Region)
E2	Graduation in Agronomic Engineering and Master in Tropical and Subtropical Agriculture	Technical director at EDR Campinas (Coordination of Integral Technical Assistance)
E3	Graduation in Agronomy, Master and PhD in Agricultural Engineering	Prof. Dr. of the Faculty of Agricultural Engineering (FEAGRI/Unicamp)

Figure 3. Interviewees involved in the development of family farming in the MRC.

4.1.Sustainable development - economic dimension

Throughout the analysis phase of the interviews, the category sustainable development - economic dimension met two subcategories: (i) **credit and economic incentive of the State**; (ii) **organization of cooperatives or associations linked to family farming**.

In economic terms, sustainable development involves the transformation of production and change in patterns of consumption and generation of employment and income, in addition to tax and tax reform are essential to achieve sustainable development. In the political and institutional sphere, integration between development and the environment is necessary in decision-making, decentralization for sustainable development, cooperation, coordination and strengthening of institutional action (Ministério do Meio Ambiente [MMA], 2002).

The first identified subcategory is focused on the economic incentive and difficulty to reach the state credit. It is noticeable that there are federal and state programs that seek to assist the family farmer, however, most of these programs can reach the most capitalized farmers, while those with fewer financial resources are left out and not advised by the state. According to the interviewees:

Now it's really harder to get credit because you even have credit available, but sometimes you have bureaucratic difficulties that you cannot quite reach what you want to achieve. (Excerpt from interview with E1).
PRONAF is serving far more to capitalized farmers than to those farmers who need it, which is the majority. Because of the bureaucracy of achievement involving the banking system, these less capitalized farmers are unable to access PRONAF. (Excerpt from the interview with E3).

Despite this, it was only from the PRONAF that the segment of family farming was inserted in the strategies of development of the Brazilian rural environment. It was after the creation of this program that it was possible to have new perspectives and revision of the national agricultural model, that is, inserting these farmers in the process of social development (Abramovay *et al.*, 1998). Therefore, there are some incentives that are effective in relation to this issue. In this sense E2 highlights:

The credit policy that makes it is the federal government, so PRONAF's resource exists and the producer has no limitation to pursue it. So many producers were able to improve, evolve because they went to get credit reasonably, even not so expensive, and they were able to improve their production. São Paulo made some policies such as mechanization, such as zero tractor policy, then the farmer who wanted to improve his mechanization, then he could buy a zero-interest tractor. (Excerpt from the interview with E2)

Family agriculture, historically marginalized by the modernization of traditional agriculture and agribusiness, has brought to society problems such as the rural exodus, which has led many small rural towns to leave the land, causing an imbalance in both cities and overpopulation, as well as in the interior, such as reducing the number of people producing for local trade. This type of agriculture also represents the largest

segment in terms of numbers of rural establishments in the country and, therefore, has a very large economic importance in several production chains. Moreover, because it presents characteristics as small or medium-sized property, family labor, little capital, most of the time, and be taken as a tradition by the family, what is perceived is that these farmers alone cannot, or less, will have more difficulty, to exceed their limits and to advance with their agriculture. To this end, State support, monetary incentives and a technology that meets the specific demands of this type of agriculture and livelihood are essential.

Another identified subcategory was the organization of cooperatives or associations linked to family farming. This is because the family farmer, who has the characteristic of being small and not having many resources, once together, manages to gain more strength and visibility, thus opening possibilities for improving his production, such as means of disposing of his products. In this sense E3 highlights: *"There are cases where, when a producer is inserted in a cooperative, his monthly income is much higher than when he is alone, then this system of organization is a good system, but there are failures."* However, E1 also highlights the importance of having a common goal: *"Each has a way of working, a standard, so you have to be more attuned to developing and forming that cooperative, to form a group that has a common front."* In this way, the strength that a group of people with the same purpose and objectives makes this process much more efficient, and the consequence of this formation of associations and cooperatives are the greatest benefits that those involved will have.

Figure 4 presents the categorization of sustainable development in its economic dimension and its subcategories, found during the process of interpretation of the interviews carried out in this work.

Categories	Subcategories
Sustainable development - economic dimension	State economic credit and incentive
	Organization of cooperatives or associations linked to family farming

Figure 4. Sustainable development categorization - economic dimension.

4.2. Sustainable development - social dimension

During the analysis phase of the interviews, the category sustainable development - social dimension met two subcategories: (i) **incentives for social development by the State**; (ii) **the social value of an association or union**.

In the social sphere, sustainable development is based on measures to reduce inequalities and combat poverty, eradicating illiteracy and child labor, and this would be necessary to reduce income concentration and regional disparities and, finally, to minimize the rural exodus. In addition, it is the protection and promotion of human health and social security conditions, as well as promotion of education and culture for sustainability (MMA, 2002).

The first subcategory focuses on incentives for social development by the State. Family farmers are already able to grow a lot, without the incentive part being very developed, such as setting up local cooperatives, which exchange experiences and seek their rights together. Thus, if there were more policies that would assist these producers, they would be able to participate more and more in the country's economy, in which, in fact, they already have a very important importance, besides the production and quality of their food being improved. According to E3:

Family farmers produce a lot, produce well with very little state incentive. If there were more incentive, more resource for this category, they would certainly be much stronger, within the rural environment, within the economy that we have. (Excerpt from the interview with E3).

In addition, adds the E1: "I think that campaigns that value the rural is directly related to the incentive".

The other subcategory, however, concerns the social value of an association or union. This is because, as the rural population has a history of being composed of simpler people in the way of life and academic education, these citizens often do not recognize that they have a very great importance in society, since they produce all the food consumed, both in the countryside and in the cities. That is, when rural farmers become aware of their importance, what results is the creation of associations or unions, often being initiatives of their own and not so much of the state. In this sense, E1 corroborates: "[...] *he also knows how important his work is, but sometimes the producer who has a land there sometimes feels a bit rejected, because the municipality does not encourage this farmer.*" E2 reinforces:

So often, as an individual, I understand that he does not have this perception. Within an organization, from a context, I think it has this perception. He does not have that vision. Today it may be even more, but formerly people of the countryside were considered second-rate people, so this perception there today, with some situations that occur has more visualization in that sense. I believe that those who have a little more sense are the settlers, they are more ideologized, the people of the settlements in a way are more aware because somehow, they have to use this to justify their occupation on the land, as a means of production It's good for everyone. (Excerpt from the interview with E2).

Figure 5 presents a synthesis with the relation that comes from the process of interpretation of the interviews carried out in this study, between the categories and subcategories involving the construct sustainable development in its social dimension.

Categories	Subcategories
Sustainable development - social dimension	Incentives for social development by the State
	Value of an association or union

Figure 5. Categorization of sustainable development - social dimension.

4.3.Sustainable development - environmental dimension

During the analysis phase of the interviews, the category sustainable development - environmental dimension met two subcategories: (i) **conservation of natural characteristics**; (ii) **clean technologies and agroecology**.

Among the many definitions of Sustainable Development, the main lines are: sustainable use, conservation and protection of natural resources, coupled with this also the conservation and control of biological diversity, atmosphere, water resources and soil. In addition, it consists of the proper management of wastes, effluents, toxic substances and radioactive waste (MMA, 2002).

The first subcategory is conservation of natural features. The family farmer, with his environmentally sustainable production technique, manages to maintain the organic profile of his property, thereby preserving water and soil properties, for example. E2 points out that: *"So in this context, when it maintains its properties, it maintains the rural characteristics such as water infiltration, soil preservation and such, it is rendering a service, as well as producing fresh, quality food for local populations."* Moreover, according to E1, *"... besides he is taking care of the environment, he is there occupying, instead of letting an industry end the rural, large enterprises that only destroy, family farming in small niches, it ends up preserving."* Thus, in contrast to the agribusiness that deforests large plots of land, it develops monoculture, besides water pollution, causing great environmental imbalance, family farming does not act as an aggressive and invasive actor. This type of agriculture is more sustainable, promotes crop rotation, and less use of pesticides, which guarantee healthier and fresher products for the population.

In addition, for the family farmer to continue with his production, this needs to happen in a way that respects the land, its resources and limitations. One of the alternatives that these farmers found was to start producing together with forests, as a means, thus, to become increasingly sustainable. According to E3: *"Family farmers are increasingly having access to this form of production along with the forest, which goes into that sustainability issue, which is totally sustainable to produce within the forest."*

In addition, the second category is closely linked to the first, since this deals with the use of clean technologies and agroecology. These characteristics are also part of the essence of the family farmer's production, since they need to preserve their place of production, since they depend on it for their survival and cultivation. Moreover, according to E3: *"[...] family producers are increasingly having access to this form of production together with the forest that enters into this sustainability issue, which is totally sustainable to produce within the forest."*

Thus, family farming produces in an environmentally intelligent way, since in its production it thinks in the long term and it does not degrade the natural resources, in other words, it does a maintenance aiming at the future productions.

Figure 6 presents a synthesis of the process of interpretation and categorization of the interviews conducted in this study, involving the construct sustainable development in its environmental dimension.

Categories	Subcategories
Sustainable development - environmental dimension	Conservation of natural characteristics
	Clean technologies and agroecology

Figure 6. Categorization of sustainable development - environmental dimension.

5. DISCUSSION OF THE RESULTS

In the economic dimension, the great necessity and importance of the State was shown giving economic credits and incentives, since the family producers would feel more encouraged and with more subsidies if they were more attended and perceived by the State. As a consequence, there would be a great improvement, since society would have a healthier diet and the economy of the country would have one more stimulating factor. In addition, this incentive would also make it easier to organize cooperatives or associations linked to family farming. This is because of the greater incentive that these cooperatives or associations would have, which would result in a better organization of producers and their production, thus generating more income and stimulating the sector. However, if an association is created solely for economic reasons, it will not succeed, according to E3:

When a cooperative is only created with this economic aspect, it is very difficult for it to work. We need to know the principles of cooperativism, you have to know the question of cooperation to join a cooperative association. So, just the economic bias, this does not work. When the family farmer participates in a large cooperative, he is likely to participate to take advantage of very timely issues, such as buying inputs or selling, so the cooperative will organize all of this. (Excerpt from the interview with E3).

This challenge to obtain more State incentives is therefore related to the second specific objective of this study, which is to verify the challenges of family farming in the metropolitan region of Campinas. In addition, it is explicit that in family farming, unlike large agribusiness, production is conducted in a sustainable way, which also makes us reach the first specific objective presented, that of examining the relationship between agribusiness and sustainability dimensions, as exemplifies E2 characterizing family farmers:

Conservation practices they have to do, because doing practices like soil erosion, it will go without great gain from it, which is the soil. So I believe they are aware that they have to maintain and that if they produce can bring damage to their own soil. Of course, they preserve because they need water. Any LFV activity (vegetables, fruits and vegetables) needs water, if they do not preserve, do not

have a reservoir, take care and such, it runs out of water. Without water it does not produce. (Excerpt from the interview with E2).

In the social dimension, these state incentives would also support the creation or social strengthening of an association or union. As shown in the article, family farmers are often characterized by not having attended higher education institutions and, as a result, often do not have the understanding that they have a great relevance in society. As a result, with more incentives from the state, these farmers would join more and create more associations and unions, thus gaining more notoriety, fortifying and solidifying its importance for Brazil more and more. According to E2:

So for him to gain a scale, there comes an issue, he needs to organize himself, to be with other producers, then he can, he will have a bigger volume, his organizations will enter there and then he can evolve a plateau in the scale of the organization. (Excerpt from the interview with E2).

Finally, in the environmental dimension, it was analyzed and proven that family farmers have as their production philosophy a great environmental responsibility, using sustainable production techniques. Farmers preserve the natural characteristics of the environment, use crop rotation, which is fundamental for soil conservation and non-depletion. In addition, clean technologies and agroecology are also used, which is characterized by being more environmentally sustainable agriculture. As such, family farming always seeks ways to produce that preserve the land, since it is the source of its sustenance and non-preservation would cause harm to itself and to society. With this, the second specific objective of the article was reached, to analyze the impacts of this new concept of agribusiness for society and for the local economy. So E1 concludes: *"And besides he is taking care of the environment, he is there occupying, instead of leaving an industry to end the rural, big enterprises that only destroy, family farming in small niches it ends up preserving."*

Thus, the three specific objectives of this study, which were (a) to examine the relationship between agribusiness and sustainability dimensions; (b) to verify the challenges of family farming in the metropolitan region of Campinas; (c) to analyze the impacts of this new concept of agribusiness for society and for the local economy, were reached..

6. CONCLUSION

This article sought to cover knowledge about one of the most important forms of sustainable farming, family farming. Thus, the relevance and the role of this agriculture in the metropolitan region of Campinas were presented.

As discussed earlier, family farming accounts for about 70% of the food consumed by Brazilians every day. Moreover, it is characterized by a group of producers of the

same family who produce for their own subsistence but who also benefit their region. This is due to the fact that it seeks more sustainable production alternatives, in contrast to agribusiness, with higher quality products, fresher and without pesticides, resulting in a better preserved environment. Thus, in the metropolitan region of Campinas, it is essential to stimulate this type of agriculture by the State, since it is a very urbanized region, but at the same time, with much potential to strengthen family farmers and cooperatives and associations.

Given this, the main objective of the study was to verify the role of family farming in the sustainable development of agribusiness in the metropolitan region of Campinas. In addition, the methodology used was a descriptive research of a qualitative nature, in which the results emerge from phenomenological and interpretative paradigms, not using statistical means as the basis of the analysis process. Moreover, with this methodology, we sought to describe a reality, observing, recording and analyzing the phenomena without the interference of the researcher, who only had to discover the frequency with which the phenomenon occurs or how to structure and function the system of family farming.

The results of this study were that in the economic dimension it was noticeable the great need for credit and economic incentives on the part of the State, since the family producers would have more incentives and aid if assisted by the State. The consequence of this action would be an improvement of the whole, of the healthiest food of the society and the economy of the country. Moreover, this incentive would also impact the better organization of cooperatives or associations linked to family farming. This is because of the greater incentive that these cooperatives or associations would have which would culminate in a better organization of the producers and consequently of their production, generating more income and stimulating the sector.

Already in the social dimension, these incentives from the State would also help in creating or strengthening the social value of an association or union. As discussed in the article, family farmers are often characterized by not having much academic knowledge and, as a result, often fail to recognize that they are of great importance to society. Given this, with more incentives from the state, these farmers would join more and constitute more associations and unions, reinforcing and consolidating more and more its importance for Brazil.

Finally, in the environmental dimension, it was seen and confirmed that family farmers have great environmental responsibility with their production technique. Farmers retain the natural characteristics of the land and use crop rotation, which is essential for soil preservation, not to cause it to run out. In addition, they also use clean technology and a new concept of agriculture, agroecology. This, in turn, is characterized by being a type of agriculture, but environmentally sustainable. Thus, family farming always seeks ways to produce that preserve the land, since it is the source of its

sustenance and if it does not, will imply difficulties, first for themselves and, secondly, for the entire population.

Given the above, this work sought to contribute to: (a) the greater understanding by society of the importance of family farming in the metropolitan region of Campinas, its impacts on food and not only in the region, but throughout Brazil; (b) the environmental relevance and decisive role of state incentives, with which family farmers could be increasingly strengthened, since alone, or with almost no assistance, already have a very positive impact on society and the environment ; (c) the agricultural sector, giving more visibility and well-deserved recognition to the sector; (d) the academic area, in what concerns the studies on the expansion of knowledge focused on family farming and sustainable development.

In order to continue the study, it is suggested: (i) to consider collaboration as a mediating or moderating factor in the relationship between family farming and the State (the effectiveness of Government programs), thus seeking to analyze if family farmers have a symbiotic relationship with the state or acting independently; (ii) carry out researches of longitudinal design, thus allowing to verify if the result obtained is cause or effect of certain factors, internal or external.

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