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PUBLIC AND TECHNOLOGICAL POLICIES FOR THE FAMILY AGRICULTURE TRANSFORMATION: *EFFECTS ON THE RURAL DEVELOPMENT*

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ABSTRACT

In the reality of the rural world, it is necessary to provide services and infrastructure that allow family farmers to maintain competitiveness, which is why it is essential for the participation of local agricultural development. Sustainable development means obtaining the necessary economic growth, guaranteeing the preservation of the environment and social development for the present and future generations. Therefore, for sustainable development to occur, there must be a harmonization between economic development, environmental preservation, social justice (access to quality public services), quality of life and the rational use of nature's resources (mainly water). Family farming means the cultivation of land carried out by small rural landowners, whose labor force is essentially the family nucleus, in contrast to employer agriculture - which uses contract workers, fixed or temporary, on medium or large properties.

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INTRODUCTION

Agricultural activities stated in the periodo after de chipped stone, the so-called Neolithic period. Its beginnings are unknown, as they predate writing, but the idea that it arose independently in different parts of the world, and around the same time, between 8000 and 6000 BC is unanimous (CASTRO, 2014). Hunters and gatherers knew what types of food were necessary for survival, and realized that some of those grains could be buried, and if taken care properly, they could produce plants just like the ones that originated them. To improve agricultural techniques, primitive man needed, first, to understand the environment in which he lived, and then to transform it. In addition to the cultivation of grains, they also started to develop the breeding of some animals such as sheep, goats, pigs and cattle (HARARI, 2015). As not all land was good for cultivation, some techniques were developed to produce more, among them were the excavation for irrigation canals and dams to conduct, accumulate and distribute water in semiarid regions. In Brazil, the agriculture is one of the main bases of the economy of the Country, from the colonial period to the present day (MOURA, 2017). In this way, the family farmers, members or not of agrarian reform projects, are part of rapid and major changes in rural areas.

New economic activities are increasingly present in the reality of this population, for example, industries, turism, recreation, trade, crafts, specialized professional services, housing etc. At the same time, agricultural and livestock activities are increasingly dynamic, both on the technological side and in relation to market behavior, demanding more and more farmers to work in agribusiness. In this new reality in the rural world, it is necessary to provide services and infrastructure that allow them to remain competitive, which is their participation in local developmente is essencial In this new reality in the rural world, it is necessary to provide services and infrastructure that allow them to remain competitive, that is why their participation in local development is essential (NIEDERLE *et al*., 2014). Many other changes, however, need to be promoted. Taking agrarian reform as an example, measures to ensure the full emancipation of the settlements have not yet been duly considered, allowing their integration with local communities and the affective insertion in the agricultural economy and developmente circuit. What is fundamental, however, is that these changes occur in a synchronized way with the conceptual, structural and behavioral transformations underway, and with the comtemporary paradigms that are shaping a new worldview, influencing behavior and guiding the actions of groups and

actors in the construction of contemporary development proposals (SOUZA, 2013; GRISA; SCHNEIDER, 2015). In the same way, it is essencial that the public policies that originate these changes take into account the diversity of situations verified in the countryside and small cities, which differ enormously in social, economic and political terms. For this, it is necessary to define differentiated strategies and specific actions, in order to ensure that developmente of these regions occurs in a balanced way, in the sense of promoting collective well-being.In this context, family farming is an inseparable segment of local development. This work aimed to carry out a survey on the effect of technology and public policies for the transformation of the family farming.

MATERIAL AND METHODS

The present research is qualitatiuve, of na exploratory nature and appears from a bibliographic review in the period 2012 to 2020, which was developed based on materials already published, scanning especially in works and scientific articles that deal with the subject in question. According to Gil (2018, p. 45), "the mais advantage of bibliografic research is that it allows the researcher to cover a much wider range of phenomena than he could research directly". Thus, in the methodological aspect, the research was divided into two stages, the first of which was carried out in articles, documents and books on the theme of public policies and the developmente of family agriculture, it was carried out from scientific bases with official bodies, such as Scielo, Scopus and bank of dissertations and theses at the Pontifical Catholic University of Goiás (PUC) and Federal University of Rio de Janeiro (UFRJ). And the second with the scrutiny of the material and the writing of the article. Still, with the contribution of the deductive and historical methods, the development of the family farming was approached, establishing a parallel between production in family farming and rural development.

RESULTS AND DISCUSSION

Agriculture in Brazil, began with the "Hereditary Captaiscies" in the 16th century and the beginning of the cultivation of sugar cane, followed by extensive agricuture, going through the gold cycle to reach the exploration of coffee, in this period the entire economy was export-oriented. From the 18th century onwards, with mining and investments in coffee plantations, the cultivation of other vegetables became significant. Similarly to the activity of the gadgets, the boom in the coffee production represented a new economic phase, strongly influencing politics and generating fortunes. During the coffee period, the reversal of income obtained from production was responsible for a major technological and industrialized advance, seen in the work of Barão de Mauá, who carried out works such as a Shipyard, Companhia Fluminense de Transporte and the railway connectingo Rio de Janeiro to Petrópolis. As a result, the Ministry of Agriculture was in 1860, during the second Empire. This, originally called the State Secretariat for Agriculture, Commerce and Public Works, represented one of the first government initiatives regarding the structuring of agricultural activities (BRANDENBURG, 1999; OLIVEIRA, 2015). While Brazil was developing activities that would later be called Agribusiness, researchers such as Justus von Liebige and Julius Hensel used their chemical knowledge for soil treatment, seeking better productivity. In the 19th century, both Germans developed two practices used in current agronomy, namely the use of natural fertilizers and the supply of soil with mineral salts found in rocks. A century later, the world was experiencing significant scientific discoveries, and, consequently, a divergence of opinios regarding the limits of science as state by Hobsbawn (1955) "The mistrut and fear of science was fueled by four feelings: that science was incomprehensible; that its practical and moral consequences were unpredictable and probably catastrophic; that it accentuated the individual's helplessness, and undermined the authority", and by saying authorities refers to the conflict between religion and science (DINIZ *et al*., 2016).

Discoveries such as the photoelectric effect of albert Einsteis, the atomic model of Niels Bohr and Big Bang Theory by Georges Lamaître are examples of an era of rapid scientific development, which has generated in society a strangeness and detachment from scientists. In short, technology was already at the heart of the nineteenth century bourgeois, although pratical people did not know exactly what to do with the triumphs of scientific theory. Despite this, vast areas of human life continued to be governed, for the most part, by experience, experimentation, skill and trained common sense and, at best, systematic dissemination of knowledge about existing best practices and techniques. This was clearly the case with agriculture, construction and medicine, and indeed with a wide range of activities that provided human beings with their needs and luxuries (BRANDENBURG; ROCHA, 2001; QUIJADA *et al*., 2020). Other discoveries of the 20th century, related to themes with almost immediate application in daily life, also raised questions. In 1918, Fritz Haber, Nobel Prize in Chemistry for the sythesis of ammonia from hydrogen and nitrogen, thus representing the invention of chemical fertilizers for agriculture; and in 1939, Paul Muller, a man who started his career at Geigy AG, Switzerland and received in 1948 the Nobel Prize for Medicine for studying the insecticidal properties in combating the vector of Malaria synthesizes the organochlorine DDT, which was widely used in wars for prevention of flea soldiers and Typhus vectors. However, along with the implementation of these discoveries came doubts about the effects on flora, water tables, fauna and especially for human health that these artificial components could cause. Over the years accidents with pesticides have caused serious health and environmental problems all over the world, cases ranging from intoxication during the production process to intoxication of entire cities. In the city of Anniston in the North American State of Alabama, one of the most famous cases happened, where the activities of a large agricultural technology company caused the intoxication of the entire population between the years 1929-1971and the production of pesticides containing polychlorinated biphenyl (PCB) in its composition led to the poisoning of the entire city, showing that the population's fears were not entirely unfounded (BRANDENBURG; ROCHA, 2001; DINIZ; HESPANHOL, 2020).

Both research that generates scientific and technological development and studies that examine its consequences depend on governmental as well as private initiatives. In Brazil, in 1909, issues related to the agricultural sector were once again highlighted, with the creation of the Ministry of Agriculture, Industry and Commerce and in 1930, the ministry became part of the governmental structure of the Republic. However, this ministry prioritized only organizational issues

such as the distribution and collection of taxes, mobilization of public and private resources, rural risk management and support for commercialization. Therefore, in this period there was a gap in the research sector, and difficulty in the distribution of applied sciece (ABRAMOVAY ; VEIGA, 1999; SILVA, 2015). In 1970, population growth and capita income as well as the opening of the foreign market were factors that influenced the intensification of agriculture in Brazil. Without investment in agrarian sciences, the country would not be able to supply the demand for food and fibers (NEVES, 2016). The Agriculture Ministry debated the importance of scientific knowledge to support agricultural development. Rural extension professionals raised the issue of the lack of technical knowledge generated in the country to pass on to farmers. Then, the miniter of agriculture, Luiz Fernando Cirne Lima, formed a working group that aimed to define the functions of agricultural research, limitations, suggest measures, sources and forms of financing, and propose appropriate legislation to make the work more dynamic. In 1972, as a result of this, the Brazilian Agricultural Research Corporation (EMBRAPA) was created, linking to the Ministry of agriculture. Within the same bias other initiatives took place in the 20th and 21st centuries, such as the creation, by law, of the profession of Agricultural Engineer on October 12, 1933, and is represented by the Regional Council of Engineering and Agronomy (CREA), along with the other engineerings; one of the pioneering universities being the Higher School of Agriculture "Luiz de Quiroz" (ESALQ) followed by the Federal Rural University of the Semi-Arid (UFERSA) which has been promoting the agronomy course since 1972, and specialized courses such as zootechnics, ecology and fishing engineering (ANDRIOLI, 2007; QUIJADA *et al*., 2020).

The Agribusiness market has aligned itself with new technologies, current business management techniques disseminated in multinationals, but there are also deficiencies that hinder the possible and probable benefits. The investments made in innovation carried out by the farms involve the development of examples of the culture that are better adapted to the climate and the soil of the farm, for example (GRISA; SCHNEIDER, 2015). For the Agribusiness sector to grow and help the country to grow, all the bodies involved must work in synergy for this to happen. However, there is a factor that greatly limits agriculture in the country, which are the roads. It is extensive and complicated to deal with, but many farmers suffer from this issue, one of them is a producer in Mato Grosso, one of the largest farmers in Brazil and in the world, one of the most suffering, because his crops grew a lot in the last 30 years, ando so did his grain production, so much theat he had to buy more trucks for transportation, but the road used to take the production is very disqualified, and moreover, the queus at the ports are huge. What would be the Organization of work on the farms, which in the beginning was a family business usually run by father and children, and today is a large company with over three thousand employees, with the need to create sectors for the administration of this "Company" and for determining decisions (BUAINAIN; SOUZA FILHO, 2001; SALAMONI;FLORES, 2020).

This Scintific Management is observed on the farm of one of the biggest farmers in Brazil and in the world, when he had to creat positions of directors, commercial, financial, and mainly human resources. This is the reality experienced by many farmers in Brazil, who are moving trom "family business" to medium and large companies. Innovations in biotechnology have also reached Brazilian agribusiness and, with no doubt, it can be said that, thanks to this, it is possible to reach production levels in the United States, Australia etc. (BRANDENBURG, 1999; NEVES, 20160. Technological improvements have led intense growth in agribusiness, as a result of which a large part of the Brazilian territory has changed the form of agriculture. This is all due to studies carried out by Brazilian Research Corporation (Embrapa), which developed a soybean seed that withstands the extreme heat of the Mato Grosso region, making it possible to expand by 35% of the planted area in the country. This was a great fact that contributed to Eraí Maggi and also to the country (BRANDENBURG, 1999; NEVES, 2016). Another trend in agriculture, in terms of technological innovation, is the use of Drone (UAV – Unmanned Aerial Vehicle). It is a techonology that was not developed for this sector, although this innovation proved to be very versatile, so much that it is used in various sectors, such as TV, army (Drone developers), agriculture itself etc. It is a technology still considered expensive (simpler models can cost less than a thousand dollars in the USA), but seen from another angle it can be very useful, and even minimize expenses and time. For example, you can replace an employee who would be touring the plantation in search of problems, the farmer will be able to monitor the crop, identify problems (incidence of pests, lack of water, property boundaries etc.) and also assist in the agricultural technique precision (ANDRIOLI, 2007; DINIZ, 2018).

Agribusiness, known as the locomotive of the national economy, represents 22% of the country's annual GDP, has been important since the beginning of the colonization, passing through the 1950s when there was expansion of the cultivated area and, consequently, the growth of agricultural production; from the 1960s onwards, the introduction of technologies such as processing machines, fertilizers and chemical pesticides started to have relevance in increasing productivity. According to the foundation Instituto de Pesquisa Aplicada (IPEA, 2016), there was an increase of more than 1,000% in the number of tractors used in the 70's compared to the 50's and increase of 254% in the use of animasl-drawn plows and haversters; use of chemical fertilizers increased by 1,380% between 1965 and 1980 (ANDRIOLI, 2007; IPEA, 2016). The data show the peak of modernization sinse 1970s. in addition to the change in the technical base of the field, agro-industrial complexes have emerged, representing the technical integration between the industry that produces for agriculture, the agriculture and the agro-industry. The competitiveness of the foreign market with other countries or economic blocs required the adaptation of the sector in many ways, one of which, Research and Development (P&D) (ANDRIOLI, 2007; GELLI, 2015). The creation of Embrapa, an initiative of the Ministry of Agriculture, in 1973, served as a foundation for the entire development of a range of companies and products specialized in creating tools in order to improve cultivation techniques. In addition to the state initiative, the potencial of national production attracted private initiative such as the Santiago & Cintra group, which was a pioneer in the commercialization of precision agriculture solutions, bringing the first systems to Brazil in 1998 (ANDRIOLI, 2007; GELLI, 2015).

The term precision agriculture refers to the use of cutting edge techonology to obtain exactly the points where agricultural activities are being developed, such as: productivity with genetically modified grais, the use of the seasons, today with

up to two annual harvests, better use of soil with multiculture, development of resistant grains, transforming the cerrado of the central-west of the country into a soil responsible for record soy and corn production, taking off position in the international export and production rankings, and other participations, development of more effective fertilizers, mapping of plantations, enrichment of nutrients in soil also mapped, today with the help of satellites, accurate analysis of the climate, rais and droughts. And finally, pest control, the use of alternatives to pesticides such as genetic modification of grais, has become a draw for countries that impot products. Since in addition to being harmful to health, common pesticides used by other competitors in the international market are considered pollutants and go against the initiative of most countries that promote sustainable development (LOURENZANI e SOUZA FILHO, 2004; HENIG e SANTOS, 2016).

Sustainable development is one of the main challenges facing agriculture for the coming years, together with logistical problems. Both factors become extremely detrimental to the profitability of the product, since a product considered sustainable has a higher production cost due to a series of imposed requirements. It is still a novelty for many producers, even the most developed ones on the national scene, in addition, logistical bottlenecks make goods more expensive, making competition with other countries unbalanced. It is also worth mentioning the incentive to environmental preservation, which requires investment in R&D to mitigate the consequences of the manipulations employed (LOURENZANI e SOUZA FILHO, 2004). The investment in higher education aimed at small producers who use only family labor becomes a differential making their children succeed their parents in the administration in a more professional and efficient way, bringing current techniques in the various sectors of the productive chain of the farm culture, which contributes to increased productivity and gains from better preparation of new business manangers (AGRA e SANTOS, 2012; BRASIL, 2019). Agricultural modernization was concentrated in the southern, southeastern and central-western regions of Brazil, in the monoculture of exportable products such as soybeans and sugar cane, leaving the poorest regions in the north and northeast, where small producers and the food polyculture predominate. The inequality of the modernization of Brazilian agriculture is also motivated by the state that uses, as the main inducing agent of this process, the National Rural Credit System (SNCR), which acted for the benefit of large landowners and multinationals, assuming the cost and risks of production and assing them on the society (AGRA e SANTOS, 2012; BRASIL, 2019).

As a result of the investment in mechanization, logistics and maintenance, the price of the product increases for the consumer, in contrast to Brazil with a record production in 2019 of 241.5 million tons of vegetables and oilseeds, which should break a new record in 2020 of 247 million tons according to the IBGE. Although producers are investing to improve, Brazil does not follow the same rhythm, underestimating the investment needed to improve the way of transporting production. The money invested to interconnect the country, and facilitate the transport of goods, is deficient in relation to the great production that exists. In other words, any innovation applied in the development of improvements has profitability barred in infrastructure difficulties. In Brazil, despite the efforts linked to PAC's 1 and 2 (Federal Government Growth Acceleration Program), the works have not yet been concluded (MAIA e SOUSA, 2020). Despite the setbacks that still encountered in agribusiness, there is still much to grow. The continous investment inR&D enables better productivity in the areas explored, and also makes possible the cultivation in areas of the country that were previously unexplored, such as the northeastern region of the country, which was previously considered unable to shelter competitive farms in the national scenario. As evidenced by R&D, it shows a differential thal only has functionality when the initiatives are periodically renewed. Concomitantly with technical and scientific innovations, the new methods of work and organization form a solid basis for continuous improvement, together with government support that will provide the necessary adaptation to logistics, and educational guidelines so that companies can be competitive and sector is successful (MAIA e SOUSA, 2020).

Although crop-livestock integration can be an extremely important alternative from the point of view of the sustainability of animal production, with producers who already practice it considerable advantage over others, it requires several prerequisites to be used. Indeed, Kluthcouski *et al*. (2020), pointed out that the biggest obstacles to the adoption of this technology are the absence of appropriate machinery on the farm and their respective adoption costs (GELLI, 2015). The optimism of Brazilian landowners is mainly due to the increase in their profit margins thanks to bigger and better harvests, and this growth encourages farmers to apply a percentage in research and development of both machinery and tractos guided by computers linked to satellite information, planes to dump defenders and pesticides on plantations, as well as improvement techniques, such as much more resistant seeds and quick enrichment of the soil. This has led to the development of a culture of investment in technology, reinforcing the idea of integration between sectors of the economy (KLUTHCOUSKI *et al*., 2000; STEFFEN, 2017). Some farmers are going further, partnering with laboratories, which received soil samples and are able to identify the amount of nutrients that must be added so that there is no wast, this, together with new stretches of land, making sure that each one receives the right amount of nutrients, and sometimes, it is not even necessary to apply it due to the very fertility of the land, something that would not be discovered only by the farmer and lead to waste fertilizers and increased costs (AGRA e SANTOS, 2012; ESQUERDO-SOUZA e BERGAMASCO, 2015).

Another successful area of this partnership is that of research with seeds. Several laboratories are focused on studying their resistande and development, creating a variety capable of adapting better to the varied climates of Brazil, another that develops faster, allowing earlier and more numerous harvests a year, something that was unthinkable through convencional methods. Several other researches are underway, of the most varied genres, and these examples serve to show how much work the area is generating, directly and indirectly (AGRA e SANTOS, 2012; ESQUERDO-SOUZA e BERGAMASCO, 2015). The main responsible for this increase are the pesticides used to fight pests, mainly Helicoverpa armigera. The profile of the management of these farmas has been changing along with their growth. The business was previously conducted and managed by the family that owns the farm, while around 25% of the farms hire financial managers and about 20% hire consultants from the moment they understand that changes and

improvements in the production process are necessary. Another characteristic that has been changing is that the children of the owners, who had access to studies, begin to succed their parents in the administration of the farm and do so in an increasingly professional manner, as they have better training. Again, mechanization and increased productivity appear as positive points, transporting the family farming environment (AGRA e SANTOS, 2012; STEFFEN, 2017).
The ONUBR website, on 06/23/2019, stated that family farming represents 84% of agricultural jobs in Brazil. Being a sector with small production due little labor participation, focusing on the family's own work, an investment like a tractor can boost the expansion of the plantation, and a study of the soil can direct planting to a more fertile and, as a consequence, requires less fertilizers asd thus reduces costs, returning once again to the question of the importance of R&D.

As it has already been said, regarding the increasing interconnection of different sectors of the economy, this increase will also affect the production of sugar and ethanol. Plants with production of own sugarcane must have a total cost (day-today expenses and replacement of assets) 13% higher in this harvest compared to the previous one. Total ethanol production costs will increase by 15%, while sugar costs will increase 16% (WIENS; LUIZ, 2011). The increase in costs can also generate by the farmers' own investment in their crops. The news from Secretariat of Agriculture, Livestock, Irrigation, Agrarian Reform, Fisheries and Aquaculture (SEAGRI), "Mechanization of sugarcane grows among suppliers and costs increase" (05/9th/2013), investment in machinery for planting and harvesting is high, in addition to the costs for maintaining these machines themvelves, resulting in a higher selling price, the value of which ends up being passed on to the final consumer. The cost of logistics continues to be a huge bottleneck in exports and directly affects the agribusiness sector, the so-called "Brazil cost" impacts farmers' profits, "We have been in Mato Grosso for 30 years, we have multiplied production, and we have the same road to transport" (GELLI, 2015). The volume of investment in infrastructure in recent decades has been small in the face of the challenge of connecting a country of continental dimensions such as Brazil. Even with the exorbitant growths presented by the agribusiness sector, there was not much movement in order to improve the road, rail and port structures, final destinations in the process of transporting agricultural production for export. The supersafra recorde in 2019 and kilometric queues of trucks bound for the Ports demonstrated how backward the country is and is losing momey due to logistical inefficiency (LEMOS *et al*., 2003; GELLI, 2015; PAULI e NEVES, 2020).

Technological and economic integration causes this growth to spread to other interconnected sectors, such as the agricultural machinery sector. The producer is obliged to invest in new technologies that give faster planting and harvesting and larger and more updated machines. This direct influence on national GDP is due to the fact that Brazil is still strongly agrarian country (LEMOS *et al*., 2003; GRISA e SCHNEIDER, 2015).
Following this line of reasoning for innovations, and combining the ideas of ecology, environment and sustainability that are present in te daily life of Brasilians, the Modern Farmer Project was created in 2013. This idea basically consists of the idea of a sustainable balance between animal husbandry, agriculture, energy production and waste treatment. In simple lines, the necessary would be planted to feed the animals and a surplus for commercialization; the wate generate would be treated to generate natural gas and biofertilizer, which can be used for the farm itself, and any surplus could be commercialized. This project aims a self-sustainable farm, where the operational and logistical costs would be reduced, as the necessary elements would be obtained within it, which would allow an increase in the profitability of the farmers without causing an uncontrolled increase, besides allowing the option for lower prices and much more competitive (LEMOS *et al*., 2003; SCHNEIDER, 2015). The State of São Paulo developed together with the rest of the country, and this also refers to agriculture. It was a village almost isolated from the rest of the coustry, and began to develop with the expeditions of the bandeirantes, who left for the unexplored hinterlands in search of indigenous labor, stones and precious metal. With the expansion of the São Paulo borders by the Bandeirantes, the Governmente of São Paulo began to invest in industry and farming, with implantation of weaving and foundry factories, and incentive for the cultivation of sugarcane (PRIMAVESI, 2004; PAULI e NEVES, 2020).

At the beginning of the 19th century, there was a drop in sugar prices on the international market, which encouraged the planting of coffee, which in the 1850s was the main export product. Coming from Rio de Janeiro, coffee cultivation spread throughout the state of São Paulo, mainly in the Paraíba Valley, later taking over the purple lands previously occupied by sugar cane. In 1929, with the crash of the American Stock Exchange, Brazil was affected in the coffee sector.The United States was the biggest buyer of Brazilian coffee, and with the crisis, drastically reduced imports of this product. Consequently, the prices of this product fell. In order to avoid excessive devaluation, the government bought and burned tons of coffee. Despite the great decrease in the cultivation of coffee, today it still has great importance (PRIMAVESI, 2004; PAULI e NEVES, 2020). Since 1950s, the state has experienced rapid urbanization and rural exodus. The process of increasing mechanization, as well as excessive deforestation for the expansion of plantations, contributed to the impoverishment of the souil. As a result, regional economic activity decreased, leading to a drastic reduction in population, especially in the west of the state, further accentuating the rural exodus. This situation only improved after the 1990s, with the exploitation of fruit crops and farming by small properties. The rural sector of the State of São Paulo has a relevant performance, however, it faces difficulties, such as low competitiveness, due to factors such as lack of infrastructure and technical knowledge about the cultivation of certain crops, and also environmental degradation, due to the great propensity to erosion from soil (PRIMAVESI, 2004; GRISA e SCHNEIDER, 2015).

To encourage family farming, the Government created plans for 2011/2012, which involved PRONAF and Plano Safra, among others. Regarding PRONAF, the Government took measures aimed at reducing interest rates, which could be a maximum of 2% per year. As for the 2011/2012 Safra Plan, despite the amount intended to remain the same as the previous plans, R$16 billion, this investment took into account Cotag's appeals. Another intention of the Government was, within 30 days, to create the Elasa (Unified System of Attention to Agricultural Health), which will aim to establish rules for the national trade of products of family farming.

There were also announcements of the creation of the Minimum Price Guarantee Program, especially for family farming, but there has been no pronouncements on resources for the progam yet. As for housing, the Government determined a new superintendence of Caixa Econômca Federal, exclusively for housing in the countryside. Therefore, what was perceived was the Government's concern, in all Federal, State and Municipal spheres with agriculture in general, and also family agriculture, as the importance for the world as a whole is remarkable, since in conquering the ability to cultivate crops and domesticate animals (such as dogs to aid hunting and oxen, to feed on them and also to cultivate the land), man made a considerable leap towards civilization (FARIA, 2019; PAULI e NEVES, 2020). However, what happens is that, at times, farmers find themselves helpless as to information about what and how should be done to acquire such support. It is at this moment that the Government's need is seen not only to support these family farmers, but also to bring these aid measures to their attention. The wide degradation of the soil, due to inadequate exploitation for a long time without the necessary recovery or necessary care, becomes an obstacle to the productivity of the rural property (ABRAMOVAY, 1992).

It is a major problem for family farmers in recent years, in addition to being able to access the Internet in more areas, the use of smartphones in this area has grown by around 45%. Even so, producers still received very little information that favors their work, including environmental variables such as humidity and solar radiation, even detailed forecasts of the microclimate of the region. Therefore, not bringing the best results can affect the decision (PAULI e NEVES, 2020). It is difficult for the development of family farming to be unaware of the benefits arising from the implementation of these programs, as no town hall will want to encourage this benefit in its city if there are no advantages for itself. The same goes for farmers. These points mentioned above are the main barriers encountered by family farmers when producing, and by the Government when trying to implement a program to support them (ABRAMOVAY, 1992; GRISA; SCHNEIDER, 2015). For Tedesco (2001), small producers, who do not keep up with techonological changes, are rejected by the market and turn to a subsistencial model, with low productivity and income. Their chances of competing increase when they join the trail of associations and cooperatives, where they can take advantage of technological innovations in groups (OLIVEIRA, 2015). According to Abramovay (2000); Gomes (2016), the search for explanations for different development trajectories of the regions, often from the country and/or very close, has been incorporated in recent yeas by some scientists and politicians, as well as by internacional development institutions, the term social capital. This new notion of individual behavior of members of the same social structure allows us to see that, not always, the functioning of this system consists of the combination of the independent actions of these individuals. In other words, individual goals do not always follow isolated and selfish rationalities, but rather behavior and associative actions that benefit the community.

According to Branderburgo *et al* (2001); Reting *et al* (2017), one of the most practical examples of this new conjuncture can be seen in projects encouraged by some Brazilian financial entities, mostly state-owned, which provide for easy access to bank resources for associate members of a rural community, who individually they would be denied. Thus, the friendship and/or kinship relationship between individual of the same social structure, serves as a credibility strategy, which provides access to credit resources, which can facilitate income generation. It is considered that this policy is still timid, most of the bank credit systems, mainly in private institutions, do not yet have machinisms capable of incorporating the subjective conception of the so-called social capital in the financing process. In addition, agricultural credits, in general, are almost always destined for landowners with land extensions well above the areas of conventional family farmers. In other words, large landowners have greater facilities for obtaining bank financing than family farmers with small tracts of land, even though this is often much more productive than the former (DINIZ *et al*., 2016). Also according to Branderburgo *et al* (2001); Gomes (2016), the international financial system is also not yet able to incorporate, in its economic policies, the social relations of a certais local community structure, as a guarantee fund. However, it is already visible that the associative organizations are able, by means of specific strategies, ways to generate benefits that revert to socio-economic development. One example is the collective purchase of agricultural machinery, which serves to several producers, without any individual having to take responsibility for the total value of the machine. In these cases, family farmers share references of internal solidarity and community cooperation, which make them more competitive.

Agricultural production requires agility in allocating products to consumer markets, due to the high perishability. In the commercialization process, the small producer becomes hostage to the connections established upstream in the acquisition of inputs, and downstream, through the action of intermediation. The urgent need to sell the product for the purchase of goods not produced in the production unit turns intermediaries into preferred buyers. The shortening of the intermediation circuit, from the production areas to the consumer markets, means in the profit margin and a reduction in cost by excluding the figure of the intermediary. Agriculture follows a model that comes close to the economic assumptions of perfect competition, characterized by the existence of a large number of supiers of products with similar characteristics. To counter the differences between small and large producers, the formation of cooperatives has proved to be an interesting option. A cooperative is characterized by a group of people united to satisfy common aspirations and needs, based on equal rights and duties (TEDESCO, 2001; OLIVEIRA, 2015). The importance of cooperativism lies in the fact that it is a system that aims to distribute the gains from joint work, aiming not only at economic but also social objectives. Therefore, the need to qualify the workforce is in accordance with the social role played by the cooperative. In this sense, cooperativism appears as primary factor in the affirmation of development and democracy. However, practical experience has shown that cooperatives fulfill their social function only after have been successful in their economic activities. For this reason, the analysis of the economic role of cooperatives has predominated. Also, the productive organization in the form of cooperative guarantees the adequate scale of production and regularity of the agricultural offer. The benefits of solidarity work translate, for example, into increased negotiating power and the joint purchase of inputs that reduces production costs (TEDESCO, 2001; OLIVEIRA, 2015). When it comes to public policy, tere are still many conceptual divergences on the subject, besides

the need to know some of the different approaches given to the meaning of public policy. Accordingo to Secchi (2010), any definition of public policy is arbitrary, as there is no consensus in the specialized literature on basic questiona. The term politics in the sense of human activity can be understood as obtaining and maintaining the necessary resources for the exercise of power over man. For Rua (1998), politics consists of a set of formal and informal procedures that express power relations and that aimed at the peaceful resolution of conflicts over public goods (SILVA, 2015). It is also considered that public policy is a set of decisions and not an isolated decision. Rua (1999) states that although a public policy implies political decision, not every political decision comes to constitute a public policy. In this same line of thought Lima (2006) argues that public policy consists of decisions authorized or sanctioned by governmental actors. Thus, a policy can be considered public when the problem you are trying to tackle is public.

According to Law n. 11,326, of July 24, 2006, family farmers and rural family entrepreneurs are those who practice activities in rural areas, simuotaneously meeting the following requirements:

I – Do not hold, in any capacity, an area larger than 4(four) fiscal modules;
II – Use predominantly family labor in the economic activities of their establishment or enterprise;
III – Have a minimum percentage of family income originated from economic activities is their establishment or enterprise, in the manner defined by the Executive Branch;
IV – Run their establishment or enterprise with their family.

If these criteria are met, the farmer can be a Pronaf beneficiary, as established in art. 5 of Decree n. 3,991, of October 30, 2001, and holdr of DAP (Declaration of Aptitude to PRONAF).

The National Program for Strengthening Family Agriculture (PRONAF) was created in the late 1990s with the aim of stimulating the growth of the country's economy with more production and stability, generating multiplier effects for other sectors of the economy, increasing income in the countryside, having in family farming a strategic production model for the development of the country, perfecting policies for better living with climate change, promoting the transition of production systems, introducing good environmental practices and valuing sustainable production systems, stimulating new chains productive based on sustainable and healthy products, seeking to capture the opportunities that the domestic and foreign markets are providing, promoting economic organization, qualifying the participation of family farming in the production chain. The program values the expansion of investment capacity, the protection and improvement of income, the increase in productivity and the articulation of public policies and ATER (Technical Asistance and Rural Extension), economic organization and access to markets, sustainability in family farming and policies for rural youth (SECCHI, 2010; ESQUERDO-SOUZA; BERGAMASCO, 2015). Some public policies and initiatives have shown positive sesults in recent years in combating hunger, such as approaches that combine access to food for the most vulnerable segments of the population, with support for the production of foodstuffs segments by family farmers, which can bring significant benefits to fight hunger and poverty. The Brazilian experience with the Food Asquisition Program (PAA) shows the world that the institutional market can play an importante role in these approaches, ensuring, on the one hand, food for donations, and, on the other, a market opportunity for farmers who would otherwise find it difficult to establish advantageous business relationship. The advantages generated by these approaches can be significant when the acquisition strategies are executed considering the local production and the local consumption on patterns (SECCHI, 2010).

Seeking to encourage family farming, the federal government, together with the municipal governments, created programs to help small rural farmers. Some of them are:

- Technical Assistance – carried out and coordinated by the Casa da Agricultura (state agency) – it has two Agronomists, two veterinarians and an agricultural technician who provide technical assistance to producers.
- FEAP (São Paulo Agribusiness Expansion Fund), created in 2018 – another credit line for rural producers (small and medium) with subsidized interest (0 to 3%) depending on the modality, with which the producer can improve the property or start a new activity.
- PPA (Food Acquisition Program) – it was created in 2003 – it is a program that guarantees the purchase of parte of the production from family farmers and the association donates to registered entities.
- The São Paulo Micro Watersheds Program – it was created in 2015, which subsidizes incentives for producers and a group of producers to improve production and income on the property.
- PRONAF (National Family agriculture Program) – it was developed in 1996 – it is a credit line for family farmers with subsidized interest (around 2% per year), whose bank that lends the money is Banco do Brasil. There is an agreement between the Ministry of Agrarian Development (MDA) and the Coordination for Integral Technical Assistance (CATI) that allows CATI to be responsible for the classification of producers, issuing a Declaration of Aptitude PRONAF (DAP).
- PNAE (National School Feeding Program) – Law n. 11,947, that requires city halls to use at least 30% of FNDE resources and be used for the acquisition of food from family farming. It was created in 2013.
- PPAIS (São Paulo Program of Agriculture of Social Interest) – it was created in 2013, along the same lines as PNAE, the State of são Paulo launched PPAIS, its Law is n. 14,591, which establishes a minimum of 30% in food purchases from the family farmers.

For the implementation and execution of the programs, all projects must pass through the house of agriculture, since this is an organ of the Secretariat of Agriculture and Supply of São Paulo, coordinated by CATI (Coordination of Integral Technical Assistance) (MOURA, 2017). In the execution of these programs, city halls, through state and federal government projects, encourage the production of legumes, fruit and vegetables on small rural properties, so that municipalities buy these products – as guaranteed by the PAA, PNAE and PPAIS programs, among other destinations (OLIVEIRA, 2015). Even though they are family producers, each family has an income level and according to their income and land use condition, the technicians of the agricultural

house indicate, through a case study, the program that they can fit into (NEVES, 2016).

Examples:

a) To receive finacing thouth PRONAF, the producer must have a DAP (Declaration of Aptitude to PRONAF), which is an instrument that identifies family farmers and/or their associative forms organized in legal entities, able to carry out rural credit houses, under protection, PRONAF, exclusively sent to agricultural houses.
b) In general, the farmer must have his CPF regularized and free from debt.

Conclusions

This review helped to understand the strategic importance of family farming, highlighting that, in addition to its fundamental social role in mitigating rural exodus and social inequality in the countryside and cities, this sector should be seen as a strong element of wealth generation, not only for the agricultural sector, but also for the country's economy. It is also worth mentioning that family farmers who adhere to the programs not only help to improve their income, but also take care of their property, making it productive and profitable.
Produtivity is related to technology, because without the right technology, the production of certain product can be affected. And having the product damanged, it loses its quality and, consequently, its good price. Thus, the government seeks to finance technology, such as machinery, agricultural implements and computers goods, through BNDES Finame Agrícola, in order to help and invest in family farmers interested in growing a certais product. It concludes, from the analysis of the review made, that the the investiments made by the government, whether federal, state or municipal, not only helped farmers to produce with quality and to work with the land in the best possible way, but will also generate a complement of income from the selling of these products to city halls, and, with that, families will move the city's commerce, as they will have greater purchasing power. However, on the oder hand, there is still a lack of investiment in the familiarity of the family to operate the technologies that will appear to assist in the fiel.

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