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Review Article

Olericulture as an Alternative of Diversification and Source of Income

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Abstract

The national agroecology and organic production plan, Brazil agroecological, foresee policies to encourage food production with a focus on socioeconomic development and the preservation of the environment. The initial investment to accomplish this project was almost 9 billion reais. Agricultural diversification is important, as in addition to assisting in the item of trade of the product, also assist due to lack of product, because when you reap only one product the producer is obliged to sell cheap, however, if the plantation is diversified the other Product covers the price loss of the other product. It is noteworthy that agricultural diversification also avoids spraying chemical control, which assists the producer in the question of courses, and also of assisting in environmental issues. The term olericulture comes from Latin oleri= vegetables and coleri= cultivar, is used to designate the cultivation of certain plants of herbaceous consistencies, usually short cycle and intensive cultural tracts whose parts Foods are directly used in human food without requiring prior industrialization. The aim of this research is to point out the benefits of agricultural diversification and the use of olericulture for this. The method used for this research was the qualitative bibliographical method, where several important data were collected regarding the theme involved. As a result of the research, it was noted that the olericulture is an excellent option for the diversification of culture, thus providing a series of benefits, for example, the facilitation of management, soil fertilization and economic viability.

Keywords: Agriculture; Horticulture; Culture Diversification

Introduction

Agriculture in Brazil suffers severe crisis due to the constant reductions in the prices of some agricultural products, explained largely by the increase in supply and the opening of the economy, which allowed its greater importation. As a consequence, rural producers, especially small ones, are experiencing financial difficulties, with a shortage of own resources and third parties to finance their production.

Agricultural diversification is the practice of cultivating more than a variety of crops belonging to equal or different species in a given area, in the form of rotation and/or intercropping. It is perceived as one of the most environmentally viable, profitable and rational ways to reduce uncertainties in agriculture, especially among smallholder farmers. The adoption of a more diversified cultivation system is therefore an important adaptation option, since it reduces the risks, thus improving the stability of production.

The cultivation of vegetables has grown in Brazil every year, and what leverages this growth is the population increase, that is, it is encouraged by the need to feed a greater number of people. Vegetables appear as a great opportunity to produce and source income for small farmers, because it is possible to produce them in small spaces, as well as the cultivation of different species in the same period is facilitated. In addition, the producer manages to leverage his income by reducing the seasonality of several ollericles, which guarantees the product at different times of the year on the shelf, as well as the possibility of adding value to it. So what are the possibilities for the horticulture to generate income for the producer?

This study is justified, therefore, as an alternative production proposal so that the small rural producer does not get off his property, opting for the diversification of its production through the Olericulture, which allows the diversification of Crops and provides more stable incomes.

The aim of this research is to point through literature reviews, the benefits of agricultural diversification and the use of olericulture for such. To this end, its specific objectives are: to emphasize what is family farming; point to the importance of agricultural diversification and to address olericulture as an alternative to agricultural diversification and income assistance for the Small rural producer.

The method used for this research was the qualitative bibliographical method, where several important data were collected regarding the theme involved. According to Oliveira (2011, p. 24) "Qualitative research is understood by some authors as a" generic expression ". This means, on the one hand, that it understands activities or research that can be called specific ". The collected materials originated from books, articles, and documents from digital platforms, all duly cited in the bibliographic reference. The criterion for selection of the researched works was to select the published works from the year 2014 that approached the theme in an original and objective way to better substantiating the research and making clear the importance of the chosen theme.

Family farming

The national agroecology and organic production plan, Brazil agroecological, foresee policies to encourage food production with a focus on socioeconomic development and the preservation of the environment. The initial investment to accomplish this project was almost nine billion reais [1].

Many environmental changes are provided by the practices used in land use as a form of production, causing many damages such as the reduction of soil capacity for food production, among others [1].

Brazil has important bioms, for example, the Amazon, the Cerrado, the Caatinga, among others, and each of these biomms is possible to make an integrated agriculture, which can produce food and respecting all this agrobiodiversity, this is the basis of Sustainable farming, thinking of an adequacy to the biomes and working according to nature having an agriculture that preserves resources for current generations and future life [1].

In Figure 1, it is possible to observe the distribution of the production of vegetables from family farming in Brazil, divided by region.

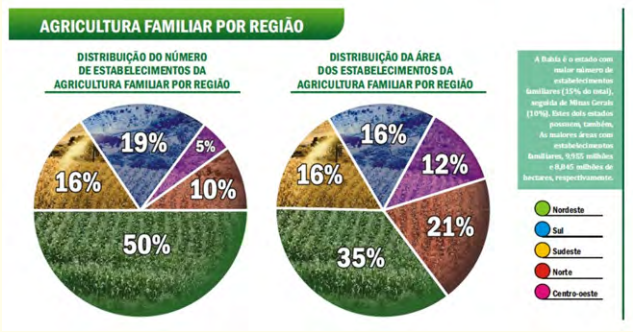

Figure 1: Distribution of family farming in Brazil, by region, in vegetable production.

Source: Sebrae, (2014).

This type of agriculture is multifunctional, not only important from the economic point of view, but increasingly with social inclusion and with respect to the whole thematic focused on the protection of the environment. Organic farming in Brazil began composing a group of smallholders, something around 10000 accredited properties and characterized with organic farming, but there is a very large potential for growth [1].

Family farming plays an important role in Brazilian development, as it generates employment, income, food security and local development [2]. The advantage of this new concept of agriculture is to make the farmer work seamlessly with nature along with his family, providing the pleasure of working respecting nature, thus bringing benefits that are viable for the Producer and nature at the same time [2].

From another point of view, the production of food that gives pleasure in producing and delivering to consumers, producers feel a much greater pride when they can deliver a quality product and that were produced in partnership with the environment. This type of agriculture preserves forests and local biodiversity, as well as the potability of water, air, among other rural [2].

Although family farming is of great importance to the country's economy, the living conditions of farmers are little known. The perception of the farmers themselves about their living conditions deserves special attention as an indicator of the local development potential [3].

Family farming has faced major problems currently related to profitability, considering that farmers have little profitability in the field, this happens because currently the cost of production in agriculture is very high, the small Farmers are investing heavily in pesticides and technologies so that there is a higher production in their activity, this consequently is generating less profit for the rural producer day after day [2].

Farmers are also not using natural resources to work properly, could use a rainwater harvesting system, solar collector and also reuse organic residues for soil fertilization [4].

Non-family farming and family farming are two important productive segments impacting GDP [2]. It is concluded that it is able to associate profitability with sustainability giving more value to the agricultural environment. With the techniques discussed above it is stated that it can reduce costs, generate more profits and thus generate more interest in the permanence of young people in the field [3].

Within this perspective, it is perceived that there can be several ways for small farmers to organize themselves in order to achieve a sustainable production [3], being: Gutters adapted to store rainwater in a water box; Use of solar collector; Organic fertilization, allowing the reuse of organic solid residues so that it can be used as fertilizer; Organic fertilization, with the use of the Esterqueira, which are places where the feces of the animals of the property are stored in order to be used as fertilizer, thus preventing high costs with fertilizers for agricultural production; Adopt the habit of practicing the diversification of crops, for example, fruits, vegetables, cereals, among others [3].

The farmers ' perception of the results achieved in guaranteeing their livelihood, commercial insertion and social inclusion is a fundamental aspect. Access to public policies provides assurance of the conditions for the development of family farming [3].

The diversification of culture brings great benefits to the small farmer, so it is important that this farmer does not make isolated plots of certain crops, the essential is to work interspersed, so that the culture itself works as A natural barrier, considering that most pests that attack a certain type of culture do not attack another culture [3].

This procedure creates a physical barrier, a distance between a plot and another, if this culture is affected by some plague the farmer will be able to make the control localized, if it gets to the point that he needs to use some chemical control Will be in a much smaller area than it would be if he had a monoculture or if he were working cultures in cell forms. This mixture of crops is favorable for both fertilization and soil structure and for the issue of Pest and disease Control [4].

Sustainable development is already part of many rural properties. In the field of agriculture, it is noteworthy that many coffee properties make a point of applying sustainability in their activities, aiming to produce coffee with quality, productivity and at the same time preserving the environment [4].

It is also important that the small farmer works much more with the brush than with the herbicide, considering that it is possible to keep a green and dead cover on the soil, storing water in the soil, also maintaining a living vegetation between the Crops worked so that animals that are taxed as pests have food and do not cause damage to crops and reduce evapotranspiration as well as water consumption. It is important to emphasize that this situation drastically decreases the use of agrochemicals in the property [4].

Thus, it is possible that the small rural producer can reap the benefits that is a healthier product with balanced environment and system that works. The demand for inputs is lower because it has the system functioning more efficiently [3].

More than environmental awareness, the concern to preserve the environment can also prove profitable, firstly seeks education within the farm, then tries to aggregate values selling a concept, which is to produce without degrading [4].

Family farming generates many jobs in the field, besides being ecologically more balanced, diversified, uses fewer industrial inputs and preserves the heritage. Nowadays, most of the foods that supply the table of Brazilians come from small properties [5].

Family farming is more than a model of agrarian economics, consisting of a means of organizing the productions that are managed and operated by a family. What determines this in the rural setting is the labor that must be predominantly familiar [4].

Family farming is currently protected by a law that defines what is family farming, that is, the farmer who conducts his property basically with the family, some fixed employees, but always in number less than the number of relatives who They work.

This type of agriculture is responsible for the feeding of 70% of the country, in summary, even with 1/5 of the agricultural areas of Brazil, family farming is responsible for about 1/3 of total production, this proves the great productivity index of small producers And family farming in the country [4].

The importance of family farming in Brazil is in the great food production that this activity carries out, in general terms, family farming is characterized by small properties, by the family owning all the means of production and the Earth. The program for family farming wants to commercialize what is produced and exceeds the own consumption of these families, increasing the income to reduce the problem of rural poverty [5].

Production is generally geared towards food diversification and consumer goods. Family farming on average produces 70% of the country's food, so the greatest importance of family farming for Brazil is food production, but in the economic sense, family farming represents the difference between the development Local, because in addition to having all the food production, there is also the question of occupation of people by means of labor, this situation evidences a social and economic importance of family farming [4].

The small farmer currently occupies a decisive role in the production chain that supplies the Brazilian market. The main foods that come from family farming are cassava, pork, beans, milk, poultry, and corn. The western region of Paraná is driven by agriculture, its participation in the economy and development in the region is extremely important. This state is cited as an example of other states, for example, the state of Rondônia, where family farming predominates the local economy [3].

Importance of agricultural diversification

The Portuguese crown decided to colonize Brazil in the year 1530 and had to face three major problems, that is, the product they had to cultivate in the land, the capital to be able to finance the product and labor to plow and cultivate the land [6].

The product was sugar cane, considered very expensive in Europe and very well known by the Portuguese, these plantations were mainly made in northeastern Brazil where the soil and climate were favorable. The money invested in the ingenuity of that time was borrowed by Portuguese, Dutch and Italian traders, only from the 17TH century the investments were invested in the colony itself [3].

The investments came from the Holy House of Mercy formed by the elite of the region. On the workforce, it is affirmed that during most of the 16th century the slaves were the Indians captured in the so-called fair wars, Africans only arrived in Brazil at the end of the 16th century and at the beginning of the 17th century due to the high mortality of the labour force indigenous Gena at that time [3].

It was also common for African trafficking that was organized many times by African chiefs. On the agricultural diversity, it is noteworthy that the main agricultural sector in colonial Brazil was the sugarcane tree, but there were industries of tobacco, brandy, meat, leather, flour, cotton, besides cashew nuts, cocoa and parsley [6].

Smoking was used as a bargaining chip to get slaves, on the colonialist society it stands out that the 17th Century Paulista Society had its own characteristics and had its bandeirantes and indigenous, it was very different from the northeastern sugar cane, but Two common characteristics predominated, the first was slavery present in almost all colonial territory, the second was the hierarchy that guaranteed power to a few [7].

Now that the power that agriculture has on the economic and social situation of a particular region is better understood, the importance of agricultural diversification is highlighted.

Agricultural diversification is important, besides assisting in the product trade item, also assisting due to the lack of product, however, if the plantation is diversified the other product covers the price loss of the other product. It is noteworthy that agricultural diversification also avoids spraying chemical control, which assists the producer in the question of courses, and also of assisting in environmental issues [6].

The main advantage of diversification is in reducing the risks and uncertainties of a farm. Its adoption can generate direct and indirect economic gains linked mainly to reducing production costs, obtaining environmental advantages and reducing the economic impact of several crises in the rural sector. Thus, diversification is the best way to avoid the uncertainties and vulnerabilities related to climate, market, pests and diseases [8].

Regions that practice monoculture make producers give up agricultural production more easily, precisely because they have no more resources to follow agricultural production, where rural exodus occurs, providing a drop in quality of life [7].

In this context, agricultural diversification provides the facility to practise agricultural production where the farmer can vary between various agricultural products, not needing to leave the rural area due to the low price of a particular agricultural product.

Table 1 shows the diversity of economic activity in Brazil, as well as the number of establishments and occupation in area (there).

Economic activities	Establishments	Area (there)
Temporary tillage	513	10.5
Horticulture and floriculture	39	81
Livestock and breeding of other animals	754	16.583
Forest production of planted forests	16	239
Forest production of native forests	3	58
Aquaculture	1	
Total	1.335	27.920

Table 1: Diversity of economic activities, number of establishments and area (no) occupied in Brazil.

Source: IBGE, 2010.

The strengthening in the structure of family farming, through the diversification of agronomic crops in the field, provides diversified forms of production and continuous revenues, given that this scenario presents economic and social potentialities Impactful in the generation of income and commercialization of food in the country, being extremely important for the local and/or regional development of this practice [9].

In small farms, family farmers are seeking alternatives, either from cultivation or from creations to occupy the family and have a source of income. The reference municipality of agricultural Diversification promoted by EMATER (municipal Authority for technical assistance and Rural extension) together with the city Hall and the Rural Development Council is Pitangueiras in the north of Paraná [6]. The municipality of 3,000 inhabitants, 300 of these depend directly on local farming, and 90% are family farmers living in small rural property. A remarkable fact is that 85 families live in three rural villages, each family occupies an average of 5,000 m^2 and it takes away the sustenance through the entrepreneurial spirit and agricultural diversification to improve the income and occupy well the family labor [7].

Agricultural diversification can be an alternative for family farmers to increase their incomes and consequently improve the quality of life in the field. Having the affirmative as correct, why does diversification still not happen? Which factors are determinant for the non-diversification of production in the region of Manhuaçu-MG? In view of these questions, this article aims to: identify, from the perception of the producers of family farming in a particular region in the municipality of Manhuaçu MG, factors that lead or not to diversify their PRODUCTION [10].

EMATER provides technical guidance on the production process of different types of crops, such as coffee, which is the predominant crop in the municipality of Pitangueiras, but also encouraged the creation of beef cattle, forest crops, Fisheries, grains, among others more specific, such as fruticulture and asparagus [6].

The diversification of crops is one of the basic principles for soil management in soybean crops, among the benefits one can cite the increase of the production of coverage and the reduction of diseases and pests in the soil, which results in the best productivity of the crop, falling production costs and reducing environmental impacts [7].

In this way, it is necessary to distinguish agricultural diversification and rural diversification. Agricultural diversification consists of the implantation of two or more activities in a rural property, such as coffee cultivation, maize, milk, poultry breeding, classifying the production unit as diversified. However, diversifying can only bring few improvements to the family, in some cases it is necessary to develop the simultaneous development of rural diversification consisting of the joint practice of primary (production) and non-agricultural farming activities (Industrialization and provision of services) involving secondary and tertiary sector activities [7]. The diversification of culture should be seen by the rural producer not as a cost for its activity, but rather as an investment, considering that in the medium and long term brings so many benefits for the term of profitability and in terms of reduction of the impact Environment associated with agricultural activity [6].

During the summer period in rotation with soybean, for example, the producer can use maize, which is the main alternative, as well as sorghum, rice and tropical forage as the Brachiaria in the system of integration of farming and livestock.

When we talk about diversification, we need to understand the difference between agricultural diversification and rural diversification. Agricultural diversification refers to the implementation of two or more agricultural or livestock activities in a rural property. For example, a property that produces coffee, corn, milk and breeds pigs is considered a diversified property. Rural diversification refers to the simultaneous deployment of agricultural and non-agricultural activities in a property, setting up through a relatively undifferentiated market, which combines from the provision of manual services to employment In traditional industries

(agroindustry, textiles, etc.) or, by combining urban activities in the tertiary sector with the management of agricultural activities [11].

During the autumn and winter period, there is an option of crop diversification, second crop maize, wheat, oats, forage turkeys and species of tropical forage, for example, Brachiaria. The diversification of culture should be done gradually so that the producer can know the particularities of the new crops and thus have fewer risks and higher performance [6].

Diversifying production is also a strategy to circumvent climatic problems and better harness the property's spaces. Several family farmers have been betting on the diversification of agricultural production, other activities serve as a complement to income at the end of the month [7].

Continuous crops of the same species, as they happen in conventional monocultures, can cause, over the years, the decline in productivity in the field. Such This fact occurs because the soil characteristics are altered and the conditions of the environment become favorable to the multiplication of pests and diseases. The way to solve or mitigate these problems is the practice of crop rotation, which, by the inclusion of species with vigorous root system and the differentiated inputs of dry matter, can alter the physical and chemical properties of the soil [9].

The diversification of production has been a survival strategy for family farmers who are realizing the risks of monoculture dependence. The bad price of a given product hinders the farmer's income, thus, agricultural diversification has helped family farming to stay more easily. The cultivation of passion fruit, for example, has been giving guaranteed return to farmers [6].

Diversification shows that in small areas the producer can keep small creations, produce milk, fatter calves, cultivate fruits, vegetables and vegetables and thus have a good variety at his table and keep the market stocked with products of great quality and have an improvement in income [7].

The water crisis, the high prices of inputs, lack of rain and breakage in coffee production are crucial factors that led the farmers to rethink the monoculture, until recently the Conilon coffee stood out on the other crops in the north of Holy Spirit, what was seen were whole terrains covered with coffee feet. Currently the situation has changed, as much as the product is the head car of the agricultural economy, other crops are gaining space [6].

Olericultura in agricultural diversity

The term olericulture comes from Latin oleri= vegetables and coleri= cultivar, is used to designate the cultivation of certain plants of herbaceous consistencies, usually short cycle and intensive cultural tracts whose parts Foods are directly used in human food without requiring prior industrialization [7].

Olericulture refers to applied science, as well as to the study of Agrotechnology for the production of oleraceous crops (oleris vegetable + colere, cultivar). Vegetable refers to the group of plants that presents, in the majority, the following characteristics tender, non-woody consistency; short biological cycle; requirement of intensive cultural tracts; cultivation in smaller areas, In relation to large crops; and used in human food without requiring prior industrial preparation [12].

The vegetables are also denominated by olerácias cultures that are popularly known as vegetables and vegetables, the olericulture is not synonymous with horticulture, the latter being more comprehensive referring to the production of a great diversity of crops Edible or ornamental, such as fruticulture, for example [6].

According to the Brazilian Society of Olericultura do Brasil, in addition to the vegetables should be included among the Oleraceae crops to watermelon, melon, strawberry, sweet potatoes, potato chips, yam, the arracacha salsa, among others. The characteristics of the most striking vegetables are of an intensive nature regarding the use of the soil to the cultural tracts, the labor and the modern agricultural inputs, seeds, pesticides, and chemical fertilizers [7].

These inputs are employed in high amounts per cultivated area, in contrast, allowing high liquicide incomes per cultivated area. Olericultor is the type of rural entrepreneur who gains greater profits for units of area exploited in relation to other farmers or breeders. This is because in most cases the cultural cycle of the vegetables is much shorter compared to the other crops [6].

The improvement of the way of life of the European and North American population due to urbanization created a consumer market for vegetables, another point confirming this rise in the way of life was the greater use of fossil Energy for the warming of residences, allowing the abstention of a diet so caloric to face the harsh winter. In Brazil, the pioneers in the cultivation of vegetables were immigrants of non-Iberian origin more specifically those coming from the interior of the European continent, the culture of these

peoples carried with them the need for consumption of these plants, but the currency of Exchange in the Brazilian territory were still the grains and the insertion of vegetables with this potential was very low [13].

From the United Nations conferences on the environment and Development carried out in 1972 and 1982 and the last in 1992 in Rio de Janeiro, known as Rio 92, the damage caused by conventional farming became apparent, where the main objective was the Increased production, showing that agriculture is the diffuse source of pollution, causing excessive use of insecticides serious problems for the environment [7].

Most of the vegetables are propagated by seeds and some by planting their vegetative parts, so it is important that the farmer uses seeds of good quality vegetables and also give preference for Brazilian seeds, should also have the Care to choose the most adapted variety to the site, climate and planting season [6].

The production of vegetables is an activity with great acuity, because this cultivation is part of the daily meals of Brazilians and also because it is an important source of vitamins. Its production is usually made around the cities due to its high percibility, thus it has a faster and more effective flow of its production thus avoiding large losses, and due to this also its stock in supermarkets and free trade fairs is Practically renewed every day. Its production is usually done by family farmers, because this type of cultivation uses little space, little input, and because it has a fairly short cycle, its only problem is the great need for water [14].

Figure 2 brings the great diversity of vegetables that are produced by small and medium-sized producers in Brazil.

Figure 2: Diversity of vegetables produced by small and medium-sized Brazilian producers.

Source: Halberstadt, Talline (2016).

The purchase of seeds packaged in aluminized bags and stocked in dry, airy and shaded places should also be preferred, paying attention in the shelf-life and noting in the packaging seeds that present hard castes, as these should be Soak in water for 24 hours to facilitate the entry of water and start the germination, as for example, the okra, Abobora, among others [7].

It is important to use only the seeds that are at the bottom of the container, because those that are floating almost always will not germinate. The sowing corresponds to the place where the seedlings will be cultivated for a certain time and then the transplant will be performed to the definitive site, the sowing will be made for vegetables that form heads, in this case, lettuce, chicory, chard, among others, Those with very small seeds need good conditions to germinate and grow [6].

For sowing it is not necessary to prepare large areas, which shows a great benefit for agricultural diversification, it can be made in crates bored in the background with a layer of stones underneath to facilitate the flow and excess water.

In addition to the environmental advantage, increasing the diversity of species in the property is also a good alternative income, mainly for family farmers, since the greater the diversity of crops within the system, the greater will be the variety of Products available for sale. From an economic standpoint, the farmer has a better financial return by offering to the market a wider range of products [6].

Transplantation consists in the removal of seedlings from sowing and replanting them to the definitive site in beds or graves, should be done when the seedlings are 4 to 6 definitive leaves, or with a size of 4 to 5 cm so that the size is good and there is no delay ment in its development [6].

It is necessary to wet the sowing well, proceed the removal of the seedlings with the spoon of gardener using the clothe of them and dismantle it with all care to preserve its roots and choose the best-looking transplanting with varying spacing according to the Species. With the transplant spoon open the graves at the definitive site and then a seedling is placed by the pit, taking care that the main root does not get tangled during the transplant process [7].

Lastly, one must cover with the Earth the root and tighten a point around the roots to stand firm and then water well the place every day in the morning and at the end of the earth avoiding watering at times when the sun is hot, the ideal to perform transplantation is at the end of the earth, cloudy or rainy days for the best rooting. The direct seeding can be divided into three groups, first, crops that

are sown directly in large pits distaged by wide spacings, such as the zucchini, cucumber, okra, among others, are recommended for large plants that have Long cycle of cultivation and are perennial [6].

Crops that are sowed directly in grooves with narrower spacings, such as beans, pods, among others, are recommended for long or less demanding cycle plants, cultural tracts, or else when vegetable propagating parts are Resistant and allows direct placement in the soil [14].

Crops sown in superficial grooves open in flowerbeds, such as carrot, radish, turnabo, chard, beet, spinach, among others, is recommended for small or short-cycle plants when seeding is done in the same way as in Sowing when the plants are approximately 5 to 7 cm, removing some plants to give more space for the other plants to grow [6].

When sowing or planting seedlings are pits should be opened with a swarm preferably with 30 cm of depth and distance varying according to the type of vegetable to be sown or transplanted. The organic compost must be added and the soil fertilized into the pit by gluing from 3 to 4 seeds per pit [14].

Final considerations

Family farming is carried out in several Brazilian states, as well as by thousands of families, which, through this, guarantee the livelihood. This model of agriculture is widely used by small producers, generating jobs, income and providing economic growth to its surroundings.

Agricultural diversification is an excellent alternative for small and medium-sized producers, as this diversification guarantees the cultivation year-round, as well as providing the producer with a source of income at different times of the year, as well as the possibility of producing More than one product at a time.

The use of vegetables for agricultural diversification, is an excellent option, both for the increase of income, and to ensure the valorization of the product. This is because the cultivation of vegetables can be carried out in greenhouse for example, this allows its production at different times of the year, thus being able to add value to products out of season, guaranteeing the supply of shelves with certain Products, all year round.

Bibliography

1. Aguiar Jessica and Munaretto Lorimar Francisco. "Sustainability in small rural properties of a family base: The case of Campo Novo – RS.RACEF". *Journal of Administration, Accounting and Economics of Fundace* 7.3 (2016): 1-16.

2. Bezerra G and Schlindwein M. "Family farming as income generation and local development: An analysis for Dourados, MS, Brazil". INTERACTIONS, Campo Grande, MS 18 (2017): 3-15.

3. Medina G and Novaes E. "Perception of Brazilian family farmers about their living conditions". Nterações, Campo Grande 15.2 (2014): 385-397.

4. Bohner., *et al*. "Agrochemicals and sustainability: perception of social subjects in the rural environment". Master's thesis graduate program in Rural Extension Federal University of Santa Maria (2016).

5. Figueiredo NRM. "Analysis of the effects of the National School Feeding Program on the territory of peasant farming in Paraíba". Bulletin DATALUTA N. 109 – Article of the month (2017).

6. Vieira JV. Protected Agriculture. Embrapa. (2016).

7. Costa J., *et al*. "Tropical Floriculture: An alternative of cultivation and income diversification for family farmers in Tangará da Serra-MT". Rev. Engema (2017).

8. Ahrens DC., *et al*. "Diversification in the increase of income of agroecological family property". Project developed in the opinion of IAPAR (Instituto Agronômico do Paraná) (2014).

9. M Moreira F and Binotto E. "The diversification of agronomic crops as a sustainable form in family farming: an analysis for the state/MS". *Revista Verde* (Pombal-PB-Brazil) 9.5 (2014): 68-75.

10. Barbosa P., *et al*. "The importance of agricultural diversification As a complement in family income in the region of Manhuaçu-MG". Rev. CCEI – URCAMP 20. 35 (2016).

11. Sobier S. "Agricultural Diversification: An alternative to family farming". Rev. Saber (2015): 10-40.

12. Portz A and Santos F. Agricultural Techniques. Universidade Federal de Maan (2015).

13. Bilhalva C., *et al*. "Olericultura A sustainable proposal: the Farmer's perception of family-based systems". Annals of THE VII SEUR and I International Colloquium on Field Education and geography teaching axis 4 – Rural landscape, agroecology and sustainability (2015).

14. Dias R., *et al*. "The production of vegetables by family farming in the municipality of Humble – BA". XXI National Meeting of Agrarian Geography (2014).

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