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RESEARCH ARTICLE

ADMINISTRATIVE MANAGEMENT IN THE PROCESS OF VEGETABLES CERTIFICATION IN FAMILY AGRICULTURE

Charlier Valdslei Nonato da Costa [1], Aline Carla de Medeiros[1], Karla Elita Viegas Pereira [1], José Cândido da Silva Nóbrega [1], Fernanda Fernandes Barbosa, Aldeone Pereira Silva, Marina Cartaxo Braga Morais de Oliveira[2] e Patricio Borges Maracaja[1]

[1] M. Sc. Pelo PPGSA/CCTA/UFCG - Pombal - PB E-mail: charlier@ccta.ufcg.edu.br; alinecarla.edu@gmail.com;karla-viegas@hotmail.com;jcneto@cajueiromotos.com.br; aldeonesocial2026@gmail.com, nandafernandesrn@hotmail.com; D. Sc. Prof. Visitante do PPGSA/CCTA/UFCG lotado no CCJS Campus de Sousa - PB E-mail: patricio@ufcg.edu.br

[2] Graduanda em Engenharia Civil pelo IFPB – Campus de Cajazeiras – PB E-mail: maricartaxo100@gmail.com

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ABSTRACT

In the face of the relevance given in modern times to human health when the subject is the pesticides use, this article has the objective to provide to the familiar agriculturist the process of vegetables certification in the view of the administrative manager. The choice for the product in study (vegetables) was made by the fact that is one of the most practiced activities by the family farming. To achieve the objective, this article used bibliographic searches in scientific articles and websites that make official data available through censuses such as the Instituto Brasileiro de Geografia e Estatística (IBGE). From the collected data it was possible to notice and quantified the number of establishments that uses pesticides in all of the Paraíba State and, specifically, in the Pombal-PB city. Moreover, this study described the importance of the administrative manager in all certification process. Concluded that the presence of an administrator in charge of the certification of the agricultural products in companies in formation period, also, in agricultural areas or in any other sector that has objective to obtain certificates (stamps), can shorten the path and provide success of the process..

***Corresponding author*:** *Charlier Valdslei Nonato da Costa,*
M. Sc. Do CCTA-UFCG- Campus de Pombal – PB - Brazil.

INTRODUCTION

Over the years, the population, especially, the consumers of agricultural products, has been increasingly demanding. Worried with the technological advances and, consequently, constant use of pesticides in Brazilian crops, the focus of the consumers have been, gradually, to the search for products exempt from chemical application. However, to guarantee the purchase as desired, the consumer seeks the seal certifying such peculiarities.

As one of the reason for the current behavior of society, in general, can be pointed out the worried look at the environmental. Thus, securing the merchandise and environmentally correct labeling can translate into commercial advances. The fact is that the consumers, like retailers, are looking for not only quality and price but also, environmental aspects associated with the product itself. Noting, therefore, the growing number of fans, companies and farmers have sought to direct their products to this type of market. Kotler (1994) already indicates that only consumer-oriented companies will win.

Given this perspective, whether large companies whether family farmers producers, try to produce high quality food without any toxic residues, with have more flavor, higher nutritional and biological quality, has become into a promising market, according to Gonçalves; Gomes; Medeiros (2007). Campanhola e Valarini (2001) ratify the idea that in order to gain greater credibility and consumers guarantee it is necessary to give greater transparency to the practices and principles used in production, as well as generating certificates by specific entities, that provide seal to be attached to the product when it is sold.

Thinking in this perspective this article had the objective to provide to the family farmer the process of vegetables certification in the perspective of the administrative manager.

The choice for the products in study (vegetables) it was given by the fact of being one of the most practiced productions by family farming. To reach the goal, this article used bibliographic searches.

In spite of noticing the city advances, with the urbanization process, that is, scape from the resident population in the countryside to the city, the man's work that live in the countryside is super important. This part of society has been responsible for the supply of urban centers, even in big, medium or small proportions. Part of this relevance could and should be designated to the family farming. This way, it is important to define what is known as family farming.

Establishing a relation with the peasant agriculture "a familiar agriculture highly integrated with the market, capable of incorporate the principle technics advances and to answer the governmental politics cannot be characterized as peasant at all" (ABRAMOVAY, 1992:22).

In a contrary perspective, the transformations experienced by the modern family farmer do not represents the definitive rupture with previous forms, but on the contrary, maintain a peasant tradition that strengthens their capacity to adapt to the new demands of society. Along these lines, arguments put together by Huges Lamarche (1998) e Nazareth Wanderley (1999) explain the family farming as a generic concept, that incorporates multiple specific situations, the peasantry being one of these particular forms.

Facing distinct models, where one relates the family farming to the peasant and subsistence. While the other one points out a modern family farming. However, in both situations, it is important to point out that the study highlights the maintenance of the predominance of family labor as strategy, even where there is the presence of hired labor, and the relentless pursuit of stable access to land as a condition still present in the family's reproductive capacity (LAMARCHE, 1998:110).

Therefore, in the peasant/subsistence or modem view, the contribution of this activity to society regarding the distribution of food is observed. However, it is noteworthy that this article will address the model of Modern Family Farming, since, in modern times the globalization has tried to modernize part of this agricultural activity leading to relevant advances, including, regarding improvements in production and the search for certification of products in order to meet a growing demand for seals with products that guarantee the conduction of pesticides-free cultural treatments, that is, that harm the environment less and less.

The fact is that it should understood that family farming in Brazil, whose importance is unquestionable, helps keep man in the countryside (BEZERRA and SCHLINDWEIN, 2016);

The use of pesticides[11] has been increasingly

[1] [...] the products and the agents of physical, chemical or biological process, intended for use in the production, storage and processing of agricultural products, grassland, protection of native or implanted forests, and other ecosystems and also of urbans, water and industrial environments, whose purpose is to change the composition of flora or fauna, in order to preserve them from the harmful action of living beings considered harmful [...] substances and products used as defoliants, desiccants, stimulators and growth inhibitors (BRASIL, 1989).

funneled. The fact is due, in large part, to the supervision of society itself regarding the care of the environment. This scenario forces the family farmer to rethink about the applicability of products in his crop. In other words, decision-making by family farmers is based on criteria such as environmental damages, including, human health. Regarding environmental damage, pesticides act in two ways: they accumulate in the biota; and contaminate water and soil. Its dispersion in the environment can cause an ecological imbalance in the natural interaction between two or more species.

Some types of pesticides – as the organochlorines, accumulate along the food chain through biomagnigication, this is, increased trophic level. In addition, about this Peres & Moreira claim that contamination of fishes, shellfishes, mollusks and other animals represents a potential source of human contamination, which the risks can be extended to all consumers of these animals as a food source.

The point of view presented justifies the position of many consumers regarding the use of pesticides in Brazilian crops, since; contaminating the environment also harms human health. In addition, it is noteworthy that some pesticides, not only eradicate pests, but also eliminate their natural enemies. Which means that it would banish its predators and competitors.

On the subject, it is appropriate to add that some individuals are more resistant, that is, in most cases; the pests are not completely decimated, leaving individuals with stronger genotype. The aggravating factor, however, happens later when the crossing of these individuals, in addition to less competition for food, space and shelter, promotes substantial increases, making the pest more resilient and at higher population levels than before chemical application.

Attesting to the above, Paschoal believes that "species previously susceptible to certain pesticides, under their pressures, are no longer controllable at the recommended normal dosages, tolerating doses that previously killed almost all of their parents".

Besides acting in the biota, the pesticides acts in another way of environmental impact: contamination in water and soil. For Zebarth (1999), the degradation of groundwater and surface water quality has been identified as the principal concern regarding the impact of agriculture on the environment. About this approach, the author states that the contamination of surface and underground water collection has an extremely polluting potential.

In real, the fact can be seen as follows: in cases where the location where it received application of pesticides is close to a water source responsible for supplying a particular city, the quality of this water captured must also be compromised. Regarding soil contamination, the accumulation of pesticides may weaken and trigger absorption of mineral elements, especially in bare soils, contributing to the reduction of soil fertility. Given the perspectives presented on the harmful effects of pesticides on the environmental, it is possible to understand the change in the habit of the consumer and, sometimes the family farmer as detailed in this article, when addressing the relationship between pesticides and human health.

As already mentioned, the use of pesticides generates externalities in the environmental and human health. However, it is important to highlight that such losses and impacts occur in the long term and, are still unknown.

With regard to human health, as presented in relation to the environment, there are two types of toxicological effects, a directly form through the intoxication of the rural worker, also indirectly harming the consumer health when eats a food which residual level is at harmful levels to health.

Initially addressing the health of the rural worker can be stated that the health effects can be acute and chronic. Cocco (2002) reports that in acute intoxication, effective damage is apparent over a 24-hour period. However, on the chronic effect the author reports that the damage results from the continuous exposure to low doses of one or more products. Addressing the acute effects, Cocco (2002) points out that these are more visible, since the intoxicated person presents symptoms such as seizures, vomiting, nausea, and others. When affected by a chronic acute effect, the rural worker may present symptoms after weeks, years or decades of pesticide use.

The author adds that the indiscriminate use of these toxic products may be the result of factors such as lack of information and unprepared health systems, which can make cases, go unnoticed, leading to underreporting. Regarding the pesticides effects on human health, studies correlate its use with reduced of fertility ad some types of cancers.

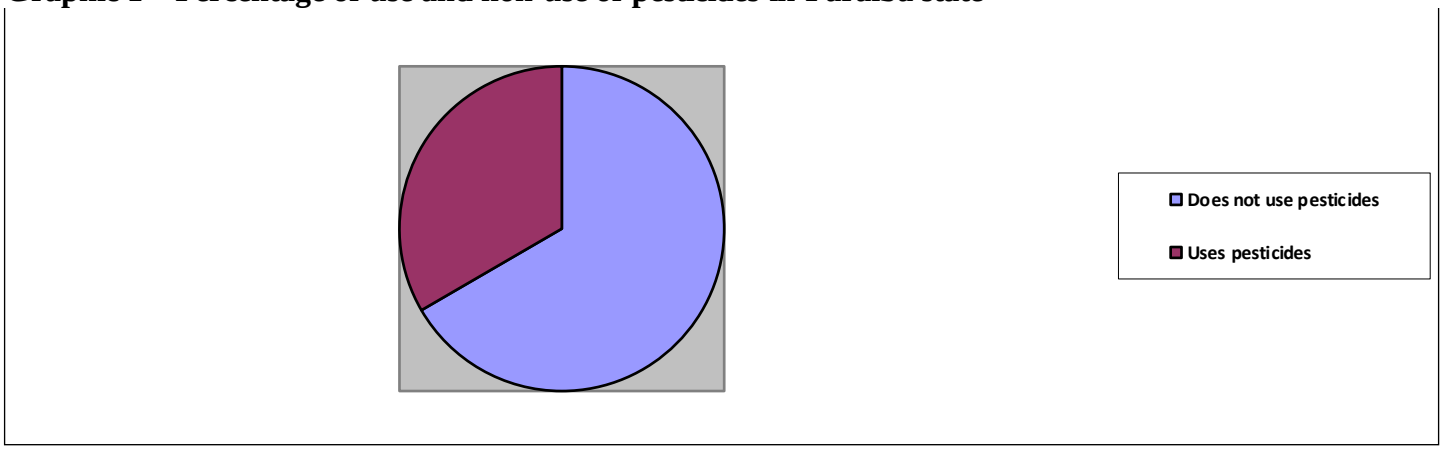
Chart 1 – Relationship between the types of pesticides exposure, clinical signs and symptoms present

Exposure		
	Unique or for a short period	**Continued for a long period**
Acute signs and symptoms	Nausea; Headache; dizziness; vomiting; paraesthesias; muscle fasciculation; disorientation; breathing difficulty; coma; death.	Hemorrhages; hypersensitivity; teratogenesis and brain death.
Chronic signs and symptoms	Reversible paresis and paralysis; irreversible delayed neurotoxic action; pancytopenia.	Irreversible brain injury; malignant tumors; testicular atrophy; male sterility; behavioral changes; contact dermatitis; optic nerve atrophy; liver damage and others.

Source: Manual de Vigilância da Saúde de Populações Expostas a Agrotóxicos, 1996, OPAS/OMS (Brasil, 1997).

Facts like the ones presented lead to changing consumer habits. It is from causes like the ones presented that make both the farmer and the consumer migrate to the adoption of healthier measures. In case of the family farmer opts for less aggressive cultural treatments, and, consequently, a more suitable chemical waste product. For the consumer, the health factor has been one of the main reasons for the mass escape to search for healthier shelf products or trade show counters. Translating into numbers, the state of Paraíba totalizes 156.494 (one hundred fifty-six thousand, four hundred ninety-four) agricultural establishments. Of these, according to agricultural census released by Instituto Brasileiro de Geografia e Estatística (IBGE, 2010), 52.228 (fifty-two thousand, two hundred and twenty-seven) establishments make use of pesticides, while 104.267 (one hundred four thousand, two hundred and sixty-seven) do not use pesticides.

Graphic 1 – Percentage of use and non-use of pesticides in Paraíba state



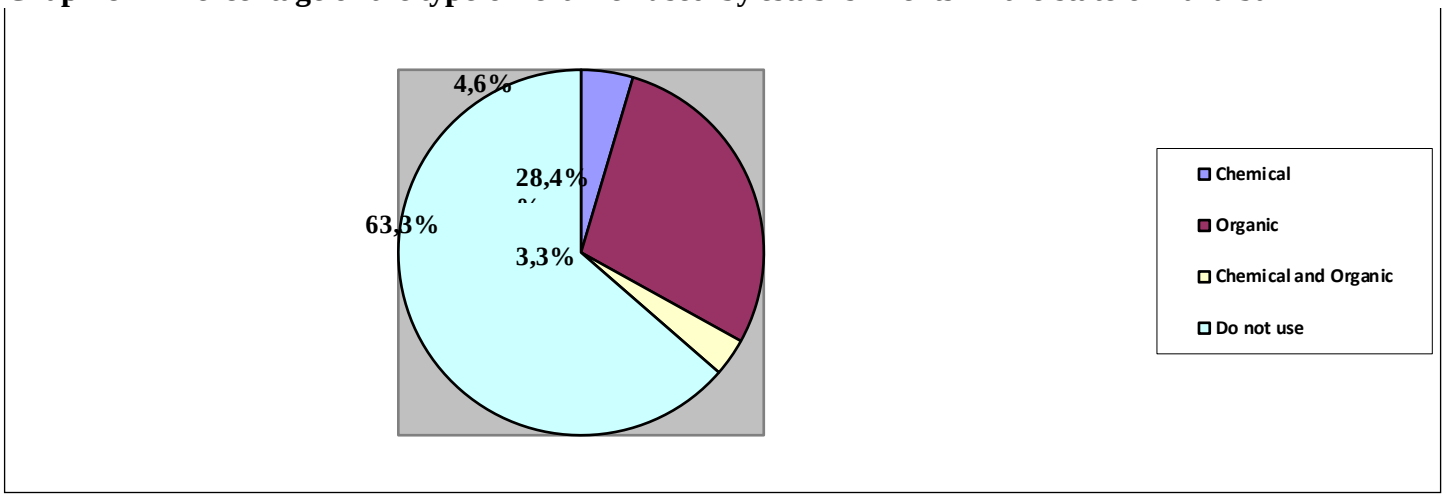
Source: Prepared by the author (2018).

As for the fertilization used the IBGE details about those that use chemical, organic, chemical, chemical and organic fertilization and those that do not use any type of fertilization.

According to the data publicized by the Institute in the last agricultural census, chemical fertilization is used by 7.478 (seven thousand, four hundred and seventy-eight) establishments; the organic fertilization by 46.345 (forty-six thousand, three hundred and forty-five) agricultural establishments; whereas those who use both chemical and organic add up to 5.447 (five thousand, four hundred and forty-seven); and the

establishments that does not use any type of fertilization total 103.579 (one hundred and three thousand, five hundred and seventy-nine). The Graphic 2 shows these numbers translated as a percentage.

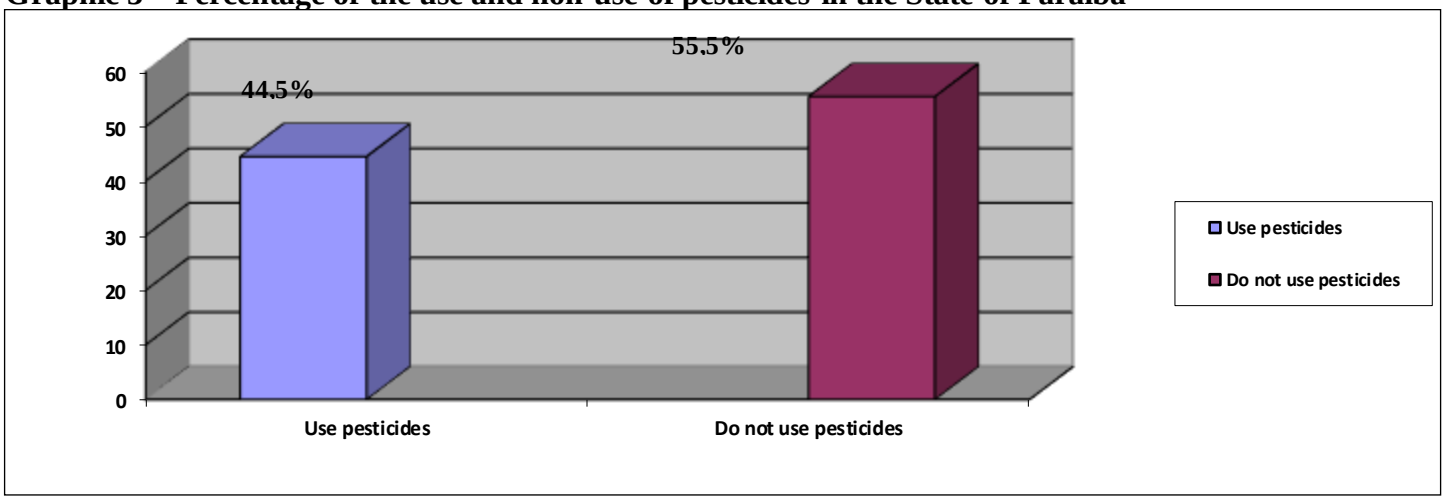
Graphic 2 – Percentage of the type of fertilizer used by establishments in the state of Paraíba



Source: Prepared by the author (2018).

In Pombal-PB city, regarding the use and non-use of pesticides, the IBGE 2010 Agricultural Census provides the following numbers: 583 (five hundred and eighty-three) establishments use pesticides, while 727 (seven hundred and twenty-seven) choose for not using the product.

Graphic 3 – Percentage of the use and non-use of pesticides in the State of Paraíba



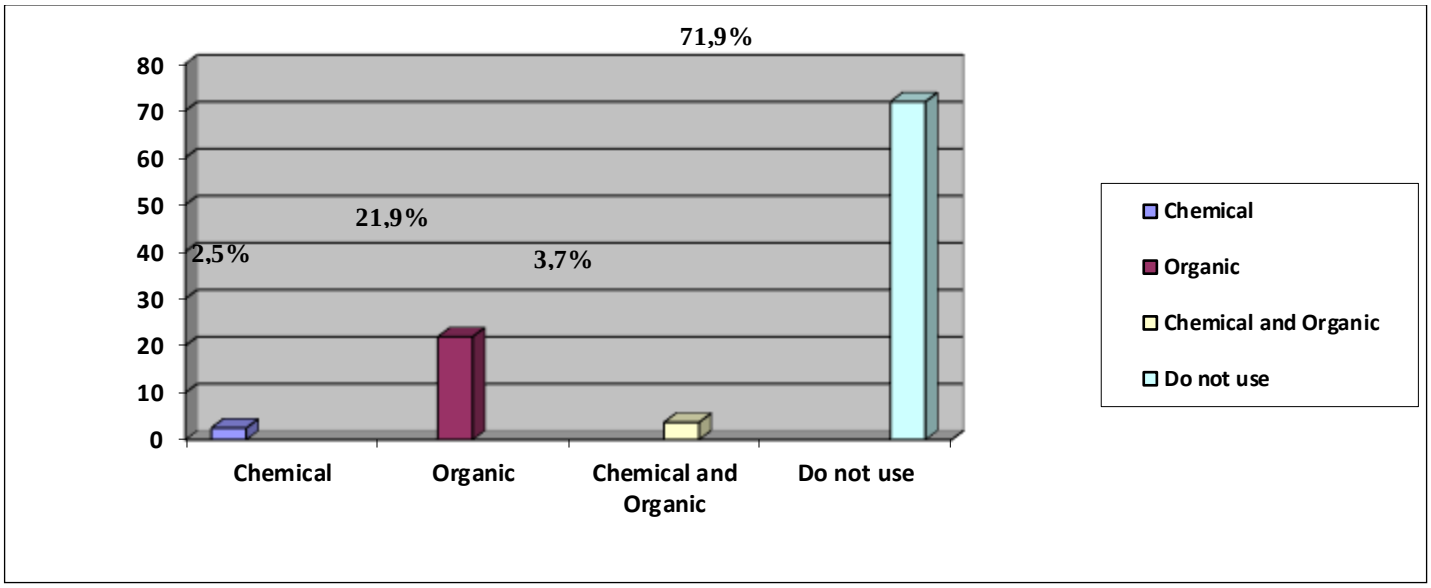
Source: Prepared by the author (2018).

Regarding the fertilization used in the agricultural establishments of Pombal – PB city, the IBGE also details about those that use chemical, organic, chemical and organic and those that does not use any type of fertilization.

According to the data released by the Institute in the last agricultural census, chemical fertilization is used by 33 (thirty-three) establishments; organic fertilization by 293 (two hundred and ninety-three) agricultural establishments; those who use both chemical and organic total 49 (forty-nine); and the establishments that does not use any type of fertilization total 959 (nine hundred and fifty nine).

Next, the Graphic 4 shows in a detailed and percentage way the type of fertilization used in Pombal – PB city.

Graphic 4 – Percentage of the type of fertilization used by establishments in the city of Pombal – PB



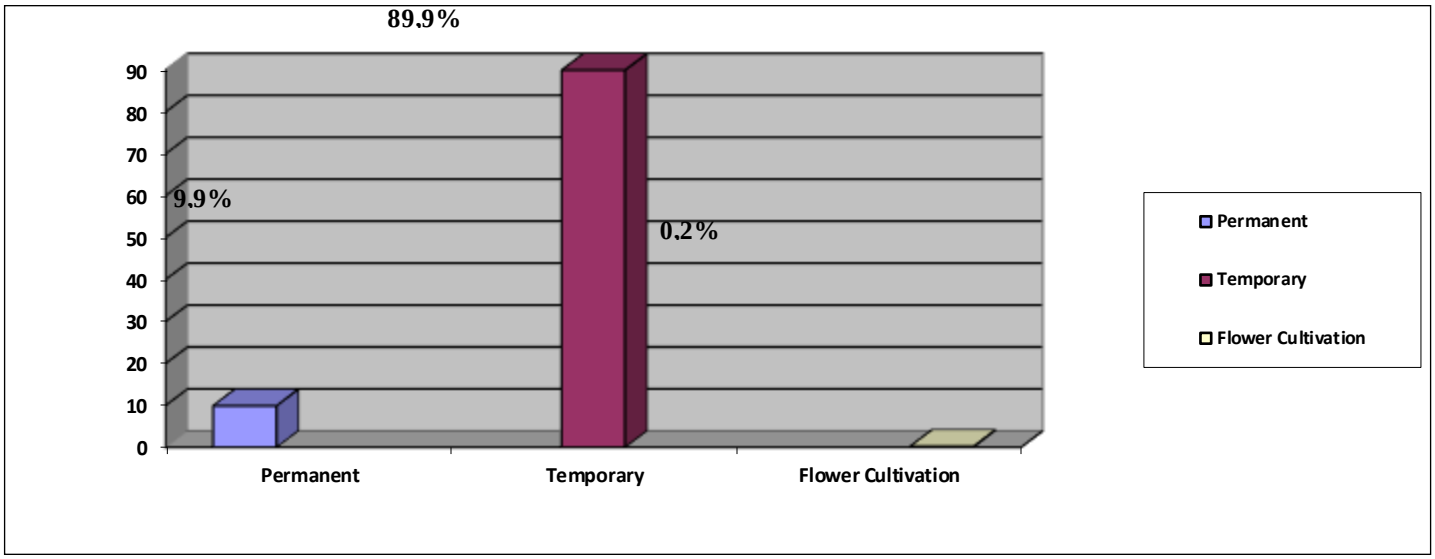
Source: Prepared by the author (2018).

Vegetables comprise more than 70 species and can be grouped according to the edible part into: leafy vegetables (lettuce, hive, cress, spinach, kale, chives, parsley, arugula); Flowers vegetables (cauliflower, broccoli, cabbage); Fruit vegetables (eggplant, scarlet eggplant, pumpkin, okra, chayote, tomato, pepper, cucumber); Tubers vegetables (potato, cará); Root vegetables (carrots, beets, radishes, turnips, sweet potatoes); Bulb vegetables (onion, garlic); Rhizome vegetables (yam); Stem vegetables (asparagus, celery); Spice vegetables (chives, cilantro, pepper, parsley, basil, mint).

Regardless of the type of vegetable, it is important to highlight that its consumption is related to the health. About this relationship, the Organização Mundial de Saúde (OMS, 2009) states that low consumption of vegetables is responsible for 19% of gastrointestinal cancers, 31% of ischemic cardiovascular disease and 11% of myocardial infarctions and potentially more than 2.7 million lives could be saved every year if each person consumed adequate portions of fruits and vegetables (FV).

In front of its importance, it is pertinent to expose the number related to the use of land in Paraíba. In numerical terms, the State has an area of 445.551, 772 hectares of crops. Of this total area, 44.112,298 hectares are destined to permanent crops; 400.474,034 to temporary crops; and 965,440 the area for flower cultivation.

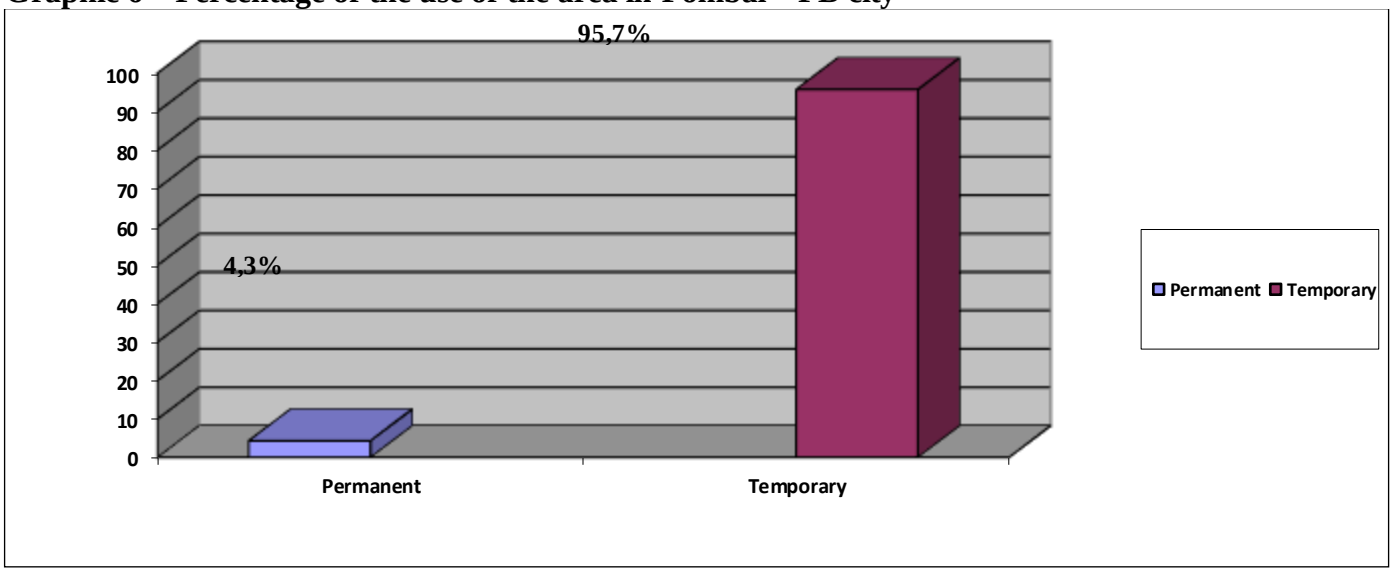
Graphic 5 – Percentage of area use in the State of Paraíba



Source: Prepared by the author (2018).

In Pombal – PB the use of the land total an area of 2.224,744 hectares. Of this area, 99,416 hectares are used as permanent crops and 2.128,328 hectares develops activities with temporary crops.

Graphic 6 – Percentage of the use of the area in Pombal – PB city



Source: Prepared by the author (2018).

In Pombal – PB city there is no activity connected to flower cultivation. Regarding about the city it is possible to highlight the fairs where large varieties of vegetables are sold.

Figure 1 – Street Market in Pombal – PB.

Source: Prepared by the author (2018).

Figure 2 – Vegetables Merchants participate in Street Market in Pombal-PB

Source: Prepared by the author (2018).

Figure 3 – Vegetable Trade in Pombal – PB

Source: Prepared by the author (2018).

Figure 4 – Vegetable Trade in Pombal – PB

Source: Prepared by the author (2018).

The fairs in the Pombal – PB city happens every Saturday and offer a wide variety of vegetables.

The certification of products from has been a smart alternative, as they resemble organic production system and, therefore, differ from chemical agriculture. However, it is necessary to show or prove that the product has been modified in its procedures, that is, in its handling. In addition, one of the way to attest the changes applied to production if through of certification, which according to most of the studious of the subject, may be of greater proximity between producers and consumers.

That is, adopt a form of sustainable production[2] and attest it is to establish credibility in the direct sale of products. It exposes the presence of some mechanism that ensures that the product has been elaborated following the norms and specifications that gives it the organic quality. This mechanism need to be put in place by independent organizations of the productive and consumer sectors – the so-called *certifiers*. These, on the other hand, adopt the form of certification by audit or by inspection. It is from this that the importance of the Management professional who plays, among other roles, the management function can be visualized. The relevance is due to the professional perform duties of managing events such as the product certification process in a company in formation or in areas occupied by family farming.

An example of the importance of this professional is reflected in the complex technological network necessary for the operation of a certification system the respects the ISO[3] requirements, incipient in developing countries, particularly in its rural component.

Based on the foregoing, where was considered the compliance with ISO requirements, it is in this discussion to consider the role of the administrator, together with the process of certification of agricultural products, whether in companies in formation or in agricultural areas involving the practice of family farming. Observing the theme, is worth to report that the manager is responsible for informing and solving doubts involving the necessary measures and the most appropriate way to obtain the certificate.

An in this sense, the administrative manager must take into consideration the form of certification most commonly practiced by certifiers, that is the case of certification by audit or inspection. This in turn has favorable and unfavorable characteristics, as can be seen:

Independence: the certifying entity and the inspector designated for the survey cannot be connected in any instance with the enterprise to be certified. This means that they cannot be connected to the production, technical assistance or marketing of the enterprise. The purpose of this is to generate impartiality, transparency and reliability in the process.

Impartiality: provide that it is able to do so, the certifier must attend to any undertaking that requests it services in a non-discriminatory manner. That is, does no matter if it is a 5 hundred hectare farm or a family farm, does not matter if is a multinational or a micro-mill of a small farmers association.

Reliability: the certifier is an entity that confers credibility, guaranteeing to the consumer that a certain product was really elaborated within the norms that identify its differential.

Technical staff: the certifier is generally made up of professionals recognized for their academic skills. In the case of certification of organic products, they are agronomists, biologists, veterinarians, food engineers and other professionals in this field.

Inspection Procedures: the main mechanism for generating reliability is the inspection visit to the certification unit. Through the on-site conference of the procedures performed, the inspector – the person delegated by the certifier for the verification of the activities, the generated documentation and who will produce a specific report for sending to the certifier – performs the intervention that will ensure that standards and agreements are being met. These interventions occur at intervals set by the certifier, usually every 6 months or every year.

Standards: standards refer to the procedures that must be followed or avoided in order for the business to obtain certification. It contains a listing of allowed and not allowed products for the organic production.

Service costs: there are several ways to charge for the certification service, the most common of which are: charging a fee for the inspection day, inspector travel time, report preparation, certificate issuance, travel cost, seal license, and percentage of certified volume.

Besides being concerned in instructing about the process, the administrative manager need to

[2] Sustainable Production is the incorporation, throughout the life cycle of good and services, of the best possible alternatives to minimize environmental and social costs (AMARO, 2003).

[3] Internationally recognized standards and in some niche market have strong commercial appeal, encouraging sales and establishing business partnerships (VALLS, 2005; FRANCESCHINI; GALLETO; CEOCCONI, 2006).

understand and expose the key issues caused by this type of certification adopted by most certifiers. According to a document from Rede Ecovida, the biggest obstacles are:

- ✓ Extensive Documentation: there is an overvaluation of the documents, reports and roles generated from the certification process. The person responsible for these documents has to be very knowledgeable, which limits a broader work.
- ✓ Resistant to adequacy: the principles and methods recommended by audit are so ingrained in certifiers and related legislation that they are resistant to change and adequacy, being increasingly specialized and bureaucratized.
- ✓ Unsuitable for family farming: a family property or business is characterized by the diversification of activities in relation to its size, presenting many social and ecological relationship compared to a large enterprise. Because of the methods applied by the audit certification follow the ISO[4] standards, that are best suited to industrial process and production standards have been developed mostly in temperate regions[5]; the audit certification is not suitable for family farming. In addition, conventional certification demands good technical and managerial development, characteristics that are uncommon in family farming.
- ✓ Inspector overvaluation: the inspector's figure as an observer, neutral to the process and most responsible for credibility, makes him the main character of the certification. This can lead to a devaluation of farmers, relegating them to a mere position of producers.
- ✓ Expensive: the fees charged by the process can make it inaccessible to most family farmers, ultimately imposing, the need for the prize, and the highest compensation for the product. The abusive price increase can contribute to the decrease in the consumption of organic products.
- ✓ Product x Process: the prohibition or permission of certain inputs does not necessarily and by itself reflect the improvement of property as a whole, towards the greening of it. The presence of the inspector evaluating the use of allowed or not allowed products does not direct imply in the visualization of the agro ecological transition of an agroecosystem. Issues like sustainability and ethics, although being present in the standards, are overlooked in relation to product listing and enterprise accounting. In practice, some certified products like the organics might present higher energy costs than those produced in traditional agriculture.
- ✓ Certification centralization: all this vertical and centralized procedure in the certifier and technician presents a limited multiplier capacity, not realizing how quickly processes are developed, because agroecology develops faster than certification.
- ✓ Technical and Environmental x Social and Ethical: the technical and environmental aspects are overrated, and the social is given little value. For example, it certifies both a 500-hectare soy farm and a 100 family settlement where each of these families produces 5 hectares of soy. At first, this is justified by the principle of impartiality. That is where the question comes: When the demand for certification is high and the certifier has operational limits, who will be left out first, the farm or the settlement?
- ✓ Distrust: there have been reports of frauds on certified organic products. This has cast doubt on the efficiency of this type of certification. Only the presence of the inspector in the enterprise may not be sufficient to guarantee the process.
- ✓ Driven by market interests: the existence of differentiated market that pays for the product has often been the main driver of organic production. Inspection certification becomes a condition for access to this market, which is, in the case of Brazil, mostly for exportation. The promotion of agroecology is in the background.

It is with bases of these orientations disposed by the administrative manager that a company or a family farmer will be guide to make a better manage of its certification process to ensure quality management.

Considering the competitiveness at high-level companies, in general, including farmers who offer products with organic guarantee seal, need to value the quality of goods and services, either in the commercialization phase, or in the production sector, that is, see it from a new perspective (SLACK; CHAMBERS; JOHNSTON, 2002). In other words, they should search for excellence as a continuous goal, in order to achieve competitive advantage in the context in which they operate (Battikha, 2003).

This new consumer standard has forced companies and farmers into an organization that adopts

[4] International Standards Organization

[5] The temperate climate presentes diferente behaviors from the tropical one. An example of this is the decomposition of organic matter that occurs at a rate six times lower in the former. Another issue that justifies a differentiated treatment of organic production systems under tropical climate (in developing countries) is that we can still find virgin or little contaminated areas compared to European properties.

a Sistema de Gestão de Qualidade[6] (SGQ). Pinto; Carvalho; Ho (2006) attest that when adopting a new system producers, for example, began to achieve their goals, which was to produce in a sustainable reality and comply with the new demands of today's consumer. For Lagrosen and Lagrosen (2003), a SGQ is a collection of techniques and management models that aim at quality, both in the manufacturing and in service sectors, which according to Machado; Rotondaro (2003) can be emplyied in institutions of any size and nationality.

Finally, for Valls (2005) and Ueno (2008), the Sistema de Gestão e Qualidade is a form of management defined by top management based on the identification of customer requirements, process standardization and continuous improvement.

What needs to be emphasized is that in order to have a good Sistema Gestão de Qualidade, it is interesting the participation of professionals who pay attention to the standards established by ISO. Among such professionals the administrative manager assigning the function of instructing and managing improvements for companies and products.

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[6] Quality Management (Gestão de Qualidade) is a set of coordinated actions that allow managing an organization, aiming at the satisfaction of the intervening agents, which mainly includes the external client (DOUGLAS; COLEMAN; ODDY, 2003; FRANCESCHINI; GALLETO; CECCONI, 2006).

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