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ORGANIC AGRICULTURE AND SUSTENTABILITY

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Abstract: The preservation of ecosystems is a concern of those who develop organic agriculture. Using this model of exploitation is possible to preserve ecosystems and, gradually, recovering some areas that may eventually be degraded by ongoing exploration through the conventional model of agriculture. Organic agriculture is beginning to establish production systems based on a set of procedures involving the plant, soil and climatic conditions. And the goal of this type of agriculture is to produce health food and its characteristics and flavor, to meet consumer expectations. Unlike conventional agriculture, which has a big concern about the financial return, organic agriculture is concerned about the environment and human health. The theoretical concept that would serve as a base for organic agriculture was designed by Sir Albert Howard, in the early twentieth century. In less than a century, organic agriculture has expanded around the world, changing food consumption, how to farm the land, and, above all, showing that it is possible to produce, but without harming the environment. Underpinned by the principles of sustainability, it also has a great relationship with the health and quality of life of the human being, and therefore an alternative to sustainable development.

Keywords. Organic Agriculture. Sustainability. Contribution.

AGRICULTURA ORGANICA E A SUSTENTABILIDADE

Resumo: A preservação dos ecossistemas é uma preocupação daqueles que desenvolvem a agricultura orgânica. Utilizando-se desse modelo de exploração é possível preservar os ecossistemas e, de forma gradativa, recuperar-se algumas áreas que por ventura estejam degradadas, pela exploração contínua através do modelo convencional de agricultura. A agricultura orgânica tem por princípio estabelecer sistemas de produção com base num conjunto de procedimentos que envolvam a planta, o solo e as condições climáticas. E, o objetivo dessa modalidade de agricultura é produzir um alimento sadio e com suas características e sabor originais, visando atender às expectativas do consumidor. Ao contrário da agricultura convencional, que possui uma grande preocupação quanto ao retorno financeiro, a agricultura orgânica preocupa-se com o meio ambiente e com a saúde humana. A concepção teórica que serviria de base para a agricultura orgânica foi idealizada por Sir Albert Howard, no início do século XX. Em menos de um século, a agricultura orgânica expandiu-se por todo o mundo, mudando o consumo de alimentos, a forma de exploração da terra, e, principalmente, mostrando que é possível se produzir, sem, contudo, agredir o meio ambiente. Apoiada nos princípios da sustentabilidade, ela também possui uma grande relação com a saúde e a qualidade de vida do ser humano, sendo, portanto, uma alternativa para o desenvolvimento sustentável.

Palavras-chave. Agricultura Orgânica. Sustentabilidade. Contribuição.

INTRODUCTION

In recent years, much of society has become aware that the form of food production in the modern technical standard is a major responsible for the contamination of groundwater, rivers and oceans. Several studies show that conventional farming compromises the fertility of the soil, destroys biodiversity, while it intensifies the energy dependence of petrochemicals and agrochemicals. Thus, it is clear that this type of agriculture belittles the power of the soil too much and considers the power of modern inputs (MIYASAKA, 1993).

In this scenario, has been expanding organic agriculture, which preserves the environment, developing a form of cultivation and land use, focusing on water quality and soil, the health of the plant, biological control of pests, diversification of properties in livestock integrated system, the optimum yield rather than maximum yield and controlling the use of non-renewable energy sources in the production system (KATHOUNIAN, 2001).

More than technologically and ecologically sustainable, organic agriculture is a sustainable development strategy, suitable for semi-arid regions, such as the Brazilian northeast.

Borguini and Torres record (2006), for the benefits that they pose to human health and environmental preservation, organic foods now occupy a significant share in the world market.

In Brazil, organic agriculture has grown at an annual rate of 10%, the production of vegetables the segment that has developed within the organic system, according to data released by the Ministry of Agriculture, Livestock and Supply (BRAZIL, 2007).

However, although Brazil is already including among the largest producers of organic products in the world, in the northeast organic farming is not yet an expressive activity. This article, bibliographic nature, aims to make an approach to organic agriculture and its contribution to sustainability.

LITERATURE REVIEW

The theoretical basis of organic agriculture

In the early twentieth century, when Sir Albert Howard established the theoretical framework that would serve as a base for organic agriculture, has endeavored to show the importance of conservation and soil fertility for growing healthy plants and the development of an agriculture permanent.

Thus, to produce in an environmentally English researcher said that it was essential learning the basics of how to preserve nature and use correctly

the soil to maintain its fertility. Thus, observing the teachings of Howard must learn from nature how best to act on it (ROMEIRO, 2007).

According Schimaichel and Resende (2007, p. 3):

The organic production system has the basics, according to its founder Sir Howard, not using artificial fertilizers, especially chemical fertilizers mineral and scope of improvement of soil fertility through the use of organic matter. Besides considering the importance of biological processes, the production system is entirely concerned with organic relationship soil, plant, animal and human health, to lead to integration and diversification of the system, which can be achieved through practice poly-cropping, agroforestry systems, crop rotation, green manure, etc.

Analyzing the above quotation it is clear that the organic system does not allow the use of synthetic fertilizers or pesticides. And, what about ecological production system is characterized by the involvement of agents involved in it contribute to preserving life and nature, prioritizing the use of sustainable and rational use of natural resources. In this rational use of land use methods are employed with traditional green technologies.

It also informs Schimaichel and Resende (2007, p. 4) that:

Among the principles of organic agriculture listed by IFOAM (International Federation of Organic Agriculture Movements), is the following statement - organic management should be conducted with caution and responsibility, to protect the health and well-being of present and

future generation and environment the environment that frames the concept of organic agriculture in sustainable development.

Preservation of ecosystems is a concern of those who develop organic agriculture. Using this model of exploitation is possible to preserve ecosystems and, gradually, recovering some areas that may eventually be degraded by ongoing exploration through the conventional model of agriculture.

Clarifies Penteadó (2000), that organic agriculture is beginning to establish production systems based on a set of procedures involving the plant, soil and climatic conditions. And the goal of this type of agriculture is to produce health food and its characteristics and flavor, to meet consumer expectations.

Supplementing this thought, Santos and Mendonça (2001) state that organic agriculture has the following objectives:

- a) generate high quality organic foods, respecting and working with the environment;
- b) maintain soil fertility as the generalization of polyculture and the integration of crop and animal husbandry, thus realizing, erosion control and preservation of water quality, without the use of pesticides polluting the food and the environment;
- c) create appropriate solutions in order to achieve the causes rather than the symptoms and put the objective appreciation of the man and his work.

Thus, one can see that in organic agriculture "the search for development should occur without the destruction of natural resources, with its concept and its practices present in the discussion of issues related to the notion of sustainable development" (SCHULTZ, 2007, p. 623).

Given the importance of organic agriculture, the Brazilian government through the Law No. 10.831, of December 23, 2003, defined the legal parameters for the organic production system.

Under this law, Altmann and Oltramari (2004) state that an organic production system has the following purposes:

- a) providing healthy products free of contaminants intentional;
- b) reserve the biodiversity of natural ecosystems and restore or enhance the biological diversity of ecosystems in which it operates modified production system;
- c) increase soil biological activity;
- d) promote a healthy use of soil, water and air and minimize all forms of contamination of these elements, which may result from agricultural practices;
- e) maintain or enhance soil fertility in the long term;

f) recycling of organic waste, minimizing the use of non-renewable resources;

g) based on renewable resources in locally organized agricultural systems;

h) encourage integration among different segments of the production chain and consumption of organic products and regionalize production and trade of these products;

i) handle agricultural products based on use of careful preparation methods, in order to maintain the integrity and the organic vital qualities of the product at all stages.

Thus, analyzing the goals and purpose of organic agriculture can conclude that it aims to produce food from areas where production and soil have not suffered any actions of fertilizers or pesticides. Importantly also allowed the exploration of organic agriculture in places where such products have been used. However, it is required that the soil is properly treated before installing this production model.

Organic agriculture: Benefits for human health and environmental

Unlike conventional agriculture, which has a big concern about the financial return, organic agriculture is concerned about the environment and human health.

According Khatounian (2001, p. 41-42), in organic agriculture:

[...] The idea is to produce and preserve as long as possible, ideally without any externality. The yield thus obtained is what has been called the great. This is not only a great short-term economic, but a great encompassing environmental preservation, production quantity and quality of the product, a great unfolding in time and does not compromise other spaces.

There are several advantages to the environment provided by organic agriculture. Their activities do not harm nature, preserving it, does not contaminate water sources and does not cause the death of fish and other aquatic animals, which can be triggered with the indiscriminate use of mineral inputs.

Given these facts, explains Ribeiro and Soares (2002), that with the use of organic agriculture techniques no decline in agricultural productivity, and there is no commitment and no degradation of life and fertility.

Penteado (2000), states that the observance of proper standards of organic production can bring the following benefits:

- a) animal-plant interaction,
- b) maintenance and preservation of springs and water sources,
- c) environmental protection,
- d) regarding the protection of biodiversity.

On the other hand, clarify Ribeiro and Soares (2002), that the natural soil improvement is expected in the principles of organic agriculture. Those authors add the action of microorganisms present in biodegradable compounds existing in the soil or placed, enables the supply of mineral elements required for the development of the cultivated plant, producing thus more vigorous plants and more resistant to pests and diseases.

The possibility of improving the quality of life is one of the advantages offered by organic agriculture. And, this possibility has contributed to an increased demand for organic products because their consumers have awareness about the harm that residues of pesticides and chemical fertilizers can cause to human health (DAROLT, 2001).

Azevedo records (2005), one of the central issues of organic agriculture relates to the production of quality food and health promotion. In turn, organic foods must have a content balanced nutrients because they are produced from a soil richer and more balanced.

However, although there are controversies over the issue of the nutritional value of organic foods, studies indicate that various types of organic vegetables contain more minerals, vitamins and phytochemicals of dry matter and antioxidant action.

In the opinion of Borguini and Torres (2006, p. 70):

The production of organic food is an alternative framework to chemical contamination of food, seeking to offer products free of chemical residues. The quality attributes of the products obtained by means of organic agriculture, as no chemical residues or synthetic additives represent high degree of affinity with the concept of food safety, which includes the acquisition by the consumer food of good quality free of chemical contaminants (pesticides, additives), physical or biological.

Seen as a productive option that prioritizes quality food, organic agriculture is growing at an accelerated pace, as many consumers began to demand changes that have led to an expansion of organics. These demands are stimulated by the challenge of industrialization of agri-food system and the food scandals that occurred in Europe in recent decades, such as mad cow disease, dioxin in chicken and FMD.

According Borguini and Torres (2006, p. 65):

Organic is a labeling term that indicates that the products produced are meeting the standards for organic production and are certified by a certification authority structure or duly constituted. Organic agriculture is based on minimum employment of external inputs. However, due to widespread environmental contamination, organic agriculture practices cannot ensure the total absence of waste. However, it's possible to apply methods aimed at reducing to a minimum the contamination of air, soil and water.

Organic foods have a great relationship with human health promotion. Such foods have balanced nutritional value and low toxicity, or simply do not contain detectable amounts of such waste. And, therefore, are related to a preventive action of some deficiency diseases and chronic degenerative.

The search for a sustainable option

More than ever, the impact that human activities have had on the environment has increasingly been of concern since the industrial and urban growth have produced considerable environmental impact on the planet, altering the natural balance. This action requires a more conscious human being. Human must use resources rationally provided by nature, observing the parameters of sustainability, a mean, prioritizing sustainable development.

According Carmo (1998, p. 5):

[...] Sustainable development is founded on three pillars, economic, social and environmental interrelated in a process

of transformation that transcends geographical and political boundaries and put the survival of man and other species, as its ultimate goal.

need for integration between crop and livestock production as a condition for maintaining or restoring soil fertility.

Looking at the quote above, it is understood that sustainable development is one that promotes the same time, a social and economic development, maintaining and conserving natural resources, seeking a common future for humanity, reducing thus the economic impacts on the environment. In other words, it is a process of change and the rise of social opportunities compatible with economic growth and environmental.

This broad definition is inserted organic agriculture, based mainly on the dimensions and technical agronomic production and management of agroecosystems. Organic agriculture is based on economic, social and environmental, that interconnected and interdependent form a dynamic equilibrium, standard of sustainability.

Further notes Carmo (1998, p. 10) that:

[...] The qualificative sustainable agriculture, opportunistically, has several connotations, as the class interests. The boundaries between sustain and develop reflected in the difficulties in treading sustainable development, starting with the vagueness and lack of consensus about the term.

Importantly sustainability beyond the technical-productive approach, which involves economic, can not ignore the environmental and social approaches. Therefore, through sustainable agriculture seeks to maintain soil productivity, always observing the life of the balance of ecosystems, diversification and the use of organic matter.

Schoenhals; Follador and Winck (2009, p. 272), based on the teachings of Howard, stated that:

[...] The basis of sustainability in agriculture is the conversion of soil fertility, drawing attention to the fundamental role of organic matter and soil microorganisms and the

Defined as techniques that can minimize some environmental impacts, sustainable agriculture only makes sense, where the physical and social relations of production, diversity is privileged through public policies, aimed at a particular development.

In conception of Campanhola and Valarini (2001), organic agriculture offers several advantages for the small producer. Among these we highlight the following:

- a) eliminates the use of pesticides,
- b) favors the diversification of production in the establishment,
- c) generates more jobs than conventional
- d) the products are most valued and adoption is easier,
- e) has a lower reliance on external inputs,
- f) viability in small areas.

However, organic farming not only produces benefits. It also presents problems of various aspects, especially, according Schoenhals; Follador and Winck (2009), as follows:

- a) deficiency or lack of technical assistance,
- b) difficulties in accessing credit,
- c) high costs of certification,
- d) lack of research,
- e) possibility of some negative impacts on the environment due to inappropriate use of some inputs, especially manure,
- f) Small-scale production.

It should be noted that to develop sustainable agriculture is necessary to reduce the maximum soil erosion, reduce or eliminate dependence on it, in terms of chemical fertilizers, pesticides and other modern inputs.

The certification of organic products

Certification can be understood with a procedure through which it ensures that a product, process or service conforms to specified requirements.

Affirm Schimaichel and Resende (2007, p. 10), that "certification is a verification procedure and confirmation of compliance of the product or process in relation to established standards."

Based on this principle, it is understood that the entities and agencies that perform this work must be serious and reliable. For, otherwise, if will be putting on the market a product that does not meet the principles for organic agriculture.

Inform Campanhola and Valarini (2001), that certification provides credibility to products and reassures consumers and is also a guarantee of access to bank credit.

The certification process of organic foods aims to assure consumers of a food supply, which was produced under the principles of organic agriculture, a mean, was produced respecting the environment, noting its biological and nutritional quality.

Add Schimaichel and Resende (2007, p. 8) that:

The certification of organic products fits into what is meant by environmental labeling. The environmental labeling, in turn, is understood as a communication tool for Environmental Policy, which ultimately aims to provide accurate information to consumers about the products, a mean, it is a formal means of informing consumers the origin (production method), the components and product quality.

The environmental labeling is an instrument created to give some assurance to the consumer. It informs the negative effects of the product to humans and the environment. Moreover, the positive features of the product to the consumer advertised lettering should be adequately substantiated.

To be certified, organic produce receives a stamp. And to get that seal the legal requirement is that the product is obtained by considering the social and environmental aspects (SCHOENHALS; FOLLADOR; WINCK, 2009).

Also according Schimaichel and Resende (2007, p. 8):

The evolution of environmental labeling system goes hand in hand with the evolution of environmental awareness and technological developments. As new discoveries are methodologies relationships with the environment and new management systems that are less aggressive, increasing interest in models that cause less impact and more benefits in the long term. Organic

agriculture adopted this model around the 70, going to be used, voluntarily, stamps or labels to inform the non-use of pesticides in its production process. These seals were conferred by environmental authorities or by the producers themselves.

The popularization of the environmental problem brought legal obligation information on product labels. Previously, the only requirement was limited to harmful products. Importantly, the certification helped the growth of the organic market. Thus, facilitated the production identification and gave it confidence in the same time.

Expounding on the importance of certification of organic products in the international market, Schimaichel and Resende (2007, p. 11) state that:

[...] Any legal entity in Brazil (national association, foundation or cooperative) nonprofit, with solid technical and administrative structure, based on the fundamentals and rules of organic agriculture, may be entitled to the process of certification of organic products in according to IN 007/99 of the Ministry of Agriculture and Supply.

The certification is subject to legal regulation, a mean, there are laws and procedures, national and / or international, that determine the granting of a certificate or seal to products that wish to benefit from this title. One of the legal requirements regarding the need of the authority granting the seal or certificate is accredited to the government bodies responsible for the certification object.

Inform Khautonian (2001), which in the case of organic products, the body that accredits certifying internationally is the International Federation of Organic Agriculture Movements (IFOAM), an international federation that brings together the various movements related to organic agriculture.

Add Souza and Bulhões (2002), that the certification of organic products in Brazil began in mid-1980. The first initiatives of the organization of production of departed Cooperative Production and

Marketing of Organic Products from Rio Grande do Sul (COOLMÉIA) in 1978. And, which in 1984 founded an organization of producers, the Biological Farmers Association (ABIO) of Rio de Janeiro, which created the first standards for accreditation of properties in 1986.

Later, according to Khautonian (2001), emerged certification bodies and other entities, such as:

- a) Association of Agriculture and Natural Region of Campinas (ANC);
- b) the Organic Agriculture Association (AAO);
- c) the Association of Producers of Agriculture Natural (APAN);
- d) Foundation Mokiti Okada (MOA);
- e) the Biodynamic Institute of Rural Development (IBD),

Importantly, in 1995 the federal government established the National Committee for Organic Products (NCOP), to develop and enhance standards aimed at organic agriculture at the national level, with equal composition between government and NGOs working with ecologic agriculture.

Inform Gazzoni (2002), in Brazil, organic agriculture is governed by Instruction No. 7, May 17, 1999, and the Agriculture Defense Department's MAP, the inspection agency at the federal level, which also advises the Collegiate National Organic Agriculture. In this, it is the accreditation of certifying institutions, coordination, supervision and monitoring of the activities of state boards.

Among the main body and certification institutions, it's possible to highlight the Biodynamic Institute (Botucatu-SP), the Foundation Mokiti Okada (São Paulo), the Organic Agriculture Association (São Paulo), the Assessor (Francisco Beltrao-PR), the Network Ecovida Agroecology, Natural Farming Association of Campinas (Campinas-SP), the Biological Farmers Association of the State of Rio de Janeiro (New Fribourg).

FINAL CONSIDERATIONS

Organic agriculture can be a way to go to the search for harmonious survival of human beings with their planet. This is possible because sustainable development shows that the present generation needs must be met without, however, sacrificing future generations regarding the care also needs.

Thus, it is clear that conventional agriculture, which is characterized by the level of current depletion of natural resources, caused mainly by the excessive use of fertilizers and pesticides, there is no more acceptances among various sectors of global society, now motivated by movements to promote awareness for nature conservation.

It was found that the increasing demand for organic products is linked to the need that people feel to preserve their health and that of their descendants,

as well as to preserve the environment. Given this, more than ever, has been doing organic agriculture viable alternative to increasing the profitability of the agricultural sector without decimating the environment.

Analyzed within the dimension of environmental and cultural preservation, organic agriculture can be seen as a useful strategy for reintroduction of nature in rural areas and in agriculture, as it is a practice that respects the principles of natural ecosystems involved, reconnecting men live in this environment of nature, showing them that are part of it, needing, therefore, preserving it to stay alive.

In less than a century, organic agriculture has expanded around the world, changing food consumption, how to farm the land, and, above all, showing that it is possible to produce, but without harming the environment. Underpinned by the principles of sustainability, organic farming also has a great relationship with the health and quality of life of the human being, and therefore an alternative to sustainable development.

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