Analysis of the certification rules for the fruit agri-business: Review and analysis of the literature

Ana Cristina G. Castro Silva[*], Ava Santana Barbosa[+], Cristiano Hora de O. Fontes[+]

[*] College of Production Engineering, Federal University of São Francisco Valley, Juazeiro Campus, 48902-300, Bahia, Brazil
[+] Graduate Program in Industrial Engineering, Federal University of Bahia, the Polytechnic School, 40210-630, Bahia, Brazil.

Email: castroanasilva@gmail.com,, avasb@ufba.br, cfontes@ufba.br

Abstract

Studies on the certification rules in the fruit industry are being developed worldwide. In Brazil, although there are institutions that stand out among research on the study of the certification rules for export of fruits, there is still little known on the subject. The certification aims at raising the standards of quality, adding value to the product and may contribute to increased competitiveness in the fruit industry, being an important requirement for inclusion in the international market. This paper conducts a systematic review of scientific literature about the commercial requirements and procedures required for the export of fruits, mapping the intellectual production developed over the last ten years. The universe of data collection comprised the electronic databases (SciELO, Scopus and Science Direct), Brazilian journals in the agricultural area, and conference proceedings for the area, following a standard literature search for systematic coherent keywords. The results show the importance of certification as a factor of competitiveness by adding value within the supply chain of fruits, in order to meet the expectations of customers becoming more aware of the products produced with environmental and social sustainability.

Keywords: Certification; Fruit; Literature Review.

1 Introduction

The fruit industry is among the main means of income generation, employment and rural development of agribusiness in Brazil. The levels of productivity and business results achieved in recent harvests are factors that demonstrate not only vitality, but also the potential of this segment. The orcharding is an activity with a high multiplier effect of income. The polo orcharding of Petrolina-Juazeiro located in northeastern Brazil serves as an example of the capacity for growth and development of the activity in general (BUAINAIN e BATALHA, 2007).

In recent years, consumer confidence in food safety was shaken a few times in the category of health-related foods. By contrast, many countries that import their products, together with key actors in the supply chain, used global strategies to repair people's confidence in the safety of their food through the adoption of specific programs, to ensure standardization, control and traceability throughout the food production chain, this includes fresh fruit. According to Chaves et al. (2010), the market, in general, besides the increasing demand on the external quality of fruit (appearance, color, size, shape), has required a number of other attributes such as control and registration on the production system (chemical analysis of waste, damage to the environment) and details of the nutritional value.

The objective of this study is based on systematic review of scientific literature about the commercial requirements and procedures required for the export of fruits, understanding which agents are involved in a certification process in the sector of orcharding and how it contributes to the elevation of quality standards, adding value to the product and increasing the competitiveness of the fruit industry.

2 Research Methodology

The research method used was a systematic review of the literature. The objectives of a systematic literature review are (Kitchenham, 2004):

- Summarize the existing evidence regarding a specific topic.
- Identify gaps in current research to suggest areas for further investigation.
- Provide a framework/background to properly position new research activities.

For the cohesive development of a research process in a systematic review, a particular sequence of methodological steps must be followed. In this work, we adopted a methodological procedure of systematic literature review adapted from planning proposed by Kitchenham (2004) and the methodology of Sampaio and Mancini (2007), as shown in Table 1.

Table 1: Planning Methodological

Steps to the Systematic Literature Review	Strategy adopted
1. Identification of the need to review	Defining the purpose of the review.
2. Identify the databases to be queried and set keywords.	The survey was conducted on the world wide web and understand the electronic databases (SciELO, Scopus and Science Direct), Brazilian journals of agricultural area, conference proceedings, with standard bibliographic search using the keywords: "certication", "fruit production", "fruits exportation", "traceability", "quality certification".
3. Selection of Publications.	Studies published from 2001 to 2011, that address the issue Certification of food products, were considered.
4. Data Analysis.	The information of the works were organized and tabulated, so that it is possible to develop comparisons and analysis.
5. Synthesize the data	From the data analysis, it was possible to prepare a systematic summary, summarizing the information provided by the articles that were included in the review.
6. Conclusion present	From the systematic summary prepared, it was possible to understand the characteristics and importance of certification in the production chain of fruit.

Source: Adapted from Kitchenham 2004 and Sampaio & Mancini 2007

3 Result

After the selection of publications, according to the criteria of methodological procedure, were initially identified 45 papers. After a pre-selection based on reading the abstracts, 24 papers were selected for analysis. Excluded were studies that did not address the main theme, or the specific types of certification of food products.

Selected studies were read in full and the information deemed relevant to this survey were tabulated, according to the following groupings: year of publication, authors, published location, keywords, search method, the study's objectives and the main results and conclusions. The results were grouped according to themes of the works found: The Section 3.1 presents the definitions of certification and the importance of it to consumers and producers. The Section 3.2 presents the models of fruit certification found in the literature and in section 3.3 is made an approach on the role of certification in the production chain of fruit.

3.1 System of Certification

According to Nassar (2003), certification is the defining attributes of a product, process or service and the ensuring that they fit into pre-defined rules. The certification achieves goals on who is offering and who is requesting a product. On the supply side, the certification is an instrument to provide procedures and standards that are intended to enable companies to manage their attributes and ensure their access to markets. From the perspective of the customer, the certification is intended to inform and ensure the attributes recommended by the product. The certification becomes important when the standardization becomes insufficient to meet the needs of those involved in production processes and commercialization. This standard refers to the details of a production process, and characteristics of fresh agricultural products marketed as fruit.

According to Lazzarotto (2003) certification is stimulated in a market where there are consumers, recognizing that a certified product is a quality product, with different attributes, are willing to pay a little more for these products. In markets where there are consumers willing to pay for this unique quality, the certification shall be available only through institutional determinations. Thus, understanding consumer behavior is important for the survival and competitiveness of certifying companies. Following this reasoning, Lourenzani et al (2006) believes that the certification is just one important step for the producer, it is necessary that in addition to certification, the producer can offer their products in domestic and international markets. Differentiated by the fact that consumers recognize the certification as justification for a higher price based on the quality of the product.

The main advantage of certification is the incentive for excellence in production. The numerous requirements provide a high quality product for consumers and producers by improving the production system, the goal being the increase in the volume of fruit exported (CINTRA, VITTI E BOTEON, 2003). Certification is a way to differentiate the product without the large investments that the formation of a brand requires. At the same time, a certified product is, from the standpoint of industrial processing and modification, identical to similar non-certified. In other words, the certification adds value without changing the product. This can be very interesting to farmers, who usually are price takers in the market and commodities marketing (NASSAR, 2003).

The various systems in the certification allow aggregation of value to the product, differentiating it with investment costs many times lower in relation to labels and promotion of fruit in foreign markets. The certification adds value without the need for transformation of the product, ensuring the requirements demanded by the consumer market, more and more aware of quality and food safety in recent years (CINTRA, VITTI E BOTEON, 2003).

Jahn, Schramm and Spiller (2004) point out that the differences between certification processes are in the concept of quality, in the presence or absence of protectionist elements and depth of coverage in relation to the productive chain. The authors believe that in practice the evolution of the certification system is still in its early stages. The functions performed by the certification procedure are of market character (adjustments made to the goods to meet market demands) and commercial (market information or communication with the market) (GOMES, et al. 2006).

For the fruit industry in Brazil, the certification has important consequences because it guarantees access to export markets. The certification guarantees the quality and traceability, allowing producers of fruit from Brazil to reach new markets, without, however, the guarantee of higher prices. The certification excludes producers of less able markets, also serving as a selection process (DÖRR, 2008).

3.2 The Models of Fruit Certification

Certification involves the existence of standards, certification bodies and accreditation bodies. In order to operationalize the process, there should be a regulatory agent that dictates the rules and a coordinating agent, responsible for certification and process coordination (LAZZAROTTO, 2003). In the private certifications, trust in the brand represents a contract between the company and the consumer, whose

renewal depends on an accurate strategy for quality management that surpasses the limits of the company and extends to its suppliers and distributors (SCARE & MATINELLI, 2001).

Among the certification schemes that involve public and private agencies for regulation and monitoring, the best known is the Integrated Fruit Production – IFP, it is a voluntary program. The system of integrated fruit production (IFP) has emerged in Europe in the 70's, with a view to using self-sustainable production systems that provide protection and integrated management of plants, with the goal of quality production and environmental sustainability. The precursors of this system were Germany, Switzerland and Spain, which replaced the traditional production techniques for this system, reducing production costs and environmental damage, and improving product quality (ANDRIGUETO & KOSOSKI, 2005). The IFP is defined by the International Organization for Biological and Integrated Control of Noxios Animals and Plants (IOBC) as: "system to produce high quality fruit based on principles of environmental sustainability, food security and economic viability, by using techniques not harmful to the environment and human health" (ANDRIGUETO & KOSOSKI, 2002).

The four pillars that support the IFP are: organization of the productive base, sustainability of the system, monitoring of processes and information. This system's purpose is the production of high quality food, while depending on the use of techniques that take into account the environmental impacts on the soil, water and production (plant).During the evaluation of the quality of products, the system considers physical, chemical and biological characteristics of local natural resources in the processes involved in the production chain. The fact is that this system reduces production costs due to the rational use of agricultural inputs (LOPES & HAJI, 2004). The Integrated Fruit Production (IFP) and the implementation in the production process of so-called Good Agricultural Practices (GAP)[1] promotes the standardization of production processes in order to ensure product quality to meet international requirements (FONSECA, XAVIER & COSTA, 2010).

The integrated production activities in Brazil began in 1998/99 with the aim of promoting the free membership program for producers and packers, under the overall coordination of the Ministry of Agriculture, Livestock and Food Supply - MAPA. However, its regulation achieved a legal milestone in 2001 with the publication of its basic guidelines in the Official Gazette of the Government of Brazil. Among the goals achieved with this system of production, there is emphasis on the production tracking, which gives the farmer a certification seal, and the exporter, a quality fruit (ANDRIGUETO & KOSOSKI, 2005).

Among the private certification schemes, there are the initiatives of supermarket chains. An internationally recognized model, which like IFP is a voluntary program, is provided only to those who fall within pre-established norms. The EurepGAP / GlobalGAP that is studied by several papers in the area of certification, was created by an association of European supermarkets. Launched in 1997 by the Euro-Retailer Produce Working Group (EUREP), EurepGAP/GlobalGAP corresponds to a frame of reference of good agricultural practices, which aims to serve the interests of consumers, in terms of food safety, animal welfare, environmental protection and health, as well as safety and well-being of the worker (EUREPGAP, 2004). To obtain EurepGAP certification an audit is performed by auditors of unbiased companies. They are skilled enough to act professionally while checking whether the standards established by the Protocol are being met in every respect (PESSOA.; SILVA; CAMARGO, 2002).

According to Cavicchioli et al. (2005), the EurepGAP is the most common seal in Europe, accepted by about 30 retailers representing 34% of the European market. Gomes et al (2006) points out that European countries were pioneers in the search for agricultural certification due to the internationally recognized tradition of valuing and seeking food production quality. The Europeans were the first to have products

1 Good Agricultural Practices (GAP) refers to the practice and procedures established for the primary production that aims to control hazards, productivity and quality. The practices and procedures are based on the application of technologies developed for the control of the possible dangers and potential for product quality and productivity in the field (Manual of Good Agricultural Practices and HACCP, 2004).

with certificates attesting to the quality of its products as superior to other similar and also attest to the origin. The European retail sector has a key role in assembling and organizing marketing alliances that aim to ensure quality of production processes and agricultural products (CARFANTAN & BRUM, 2006).

Thus, the network of retailers in Europe was the initial driving force, they agreed to resolve what was already becoming an issue for their customers, harmonizing their assessment criteria which were sometimes quite different. For this reason, the development of a certification standard with a more general acceptance was also the interest of producers. The EUREPGAP was focused on the Good Agricultural Practices - GAP, highlighting the importance of Integrated Production and of working conditions of agricultural labor (BERGER, 2009).

Due to the large accession to the EurepGAP concept from producers worldwide, at the end of 2007 it was decided to change the brand to GLOBALGAP. The GLOBALGAP is now a private organization that sets voluntary standards for the certification of agricultural products around the world, whose secretariat is based in Germany. Their goal is to establish standards of Good Agricultural Practice (GAP) that include different requirements for the several products, adaptable to all the world's agriculture. The GLOBALGAP has volunteer members who are divided into three groups: producers, suppliers or retailers, and distributors (BERGER, 2009).

The EurepGAP also establishes requirements to ensure the conservation and welfare of the people who are involved in food production, stimulated also by the use of Hazard Analysis and Critical Control Points - HACCP. The main points of control are: storage and maintenance of records; traceability; seedlings and varieties; seed stocks; history and site management; soil and substrate management; use of fertilizers; irrigation; crop protection; harvesting; post-treatment harvesting, pollution and waste management; recycling and reuse; health, safety and welfare of workers, environmental issues; customer service and complaints (CAVICCHIOLI et al. 2005).

The CPCC (Control Points and Compliance Criteria) assessed as critical of the level of service in the early stage of EurepGAP certification are: fertilization, crop protection, Waste Management and Pollution, Recycling and Reuse, Health, Safety and Welfare Workers and Environmental Issues (PAULINO & JACOMETI, 2006). In addition, the EurepGAP protocol consists of a set of basic requirements of good agricultural practices that correspond to global standards of food safety, environmental preservation, health and safety and animal welfare (CAFARTAN & BRUM, 2006).

The EurepGAP certification can be given to a producer or a group of producers (belonging or not to an association or cooperative). A version of this protocol, published in March 2001, defines essential elements for the development of best practices for the global production of vegetable and fruit products. These guidelines define the minimum acceptable standard to guide groups of European producers, which may, however, also exceed the requirements of the protocol (PESSOA; SILVA; CAMARGO, 2002).

Another seal, considered voluntary, that can be cited is the TNC (Tesco Nature's Choice). This is a private process of certification of suppliers used exclusively by British retailer Tesco. More stringent than the EurepGAP, the Code of Practice Tesco Nature's Choice was created by the technical staff of Tesco, with requirements aimed at product quality, the use of best management practices for products and processes, protection of the environment, as well as increase the welfare of rural workers and biodiversity. To get the seal, you must be a supplier of Tesco, and all interested in providing for the network had to be certified by January 2006 (CAVICCHIOLI et al. 2005). In TNC certification the products are marketed only in its stores, making the seal highly restrictive.

In addition to the voluntary certification, the main requirement demanded by the United States to permit imports is the Deparatment of Agriculture (USDA) pre-shipment seal of the Animal and Plants Health Inspection Service (APHIS) which is nothing more than a certificate that includes health regulations, phytosanitary and animal health, with every fruit and vegetable for some specific standards (ASSIS, 2009).

The APHIS seal uses several methods of protection that ensure their producers and consumers against the introduction of diseases, plant pests and animals that might limit or jeopardize food production. It is based on a strategy to safeguard human health, animals and plants, making a secure ecosystem,

providing a safe agricultural trade, and reducing the loss of natural resources (APHIS, 2011). For the issue of USDA-APHIS, there is the obligation of monitoring by a representative of the USDA itself, funded by producers, which significantly burdens the export process.

To Trienekens & Zuurbier (2008) voluntary certifications have become almost a mandatory requirement for access to markets, especially those in developed countries. Companies that focus on the international market are faced with the need to certify their product and process for different voluntary standards. Companies need to demonstrate greater control in the production, trade and distribution of food to ensure quality and traceability of their product and remain competitive in the market. Thus, standards can act as reducing trade barriers by reducing the information asymmetry between buyers and producers, providing greater confidence between the parties to the transaction.

In a work of Dorr (2009) he made a comparative analysis of certification systems that exist in the fruit industry in Brazil, the results showed that EurepGAP / GlobalGAP and Integrated Fruit Production (IFP) are similar certification systems. However, they differ with respect to the number of requirements and their distribution over various stages (eg, production, post-harvest). In both systems, much attention is given to labor and environmental conditions, as well as ensuring a minimum price for farmers. Most of the requirements of EurepGAP / GlobalGAP are included in the IFP, but there are differences with regard to their level of importance and distribution over several stages. Moreover, it was found that farmers with certification EurepGAP/GLOBALGAP use accounting provided by the IFP, although EurepGAP / GlobalGAP itself does not require any accountability. This means that the certification process with EurepGAP / GlobalGAP becomes easier and faster when the farmer has already implemented the IFP. Corroborating this study, Andrigueto and Kososki (2005) argue that the IFP is placed at the apex of the pyramid as the strategic level most evolved in organization, technology, management and other components in a context where the levels for innovation and competitiveness are stratified by levels of development and represents the various stages that the producer is and can be inserted into the evolving context of production.

Table 2 shows a summary of the main characteristics of the certification models found in the literature.

Table 2: Comparative analysis of the main models for the certification of fruit

Model	Features	Coordinating Agent
IFP	Voluntary accession. Is premised on the Good Agriculture Practices - GAP. It has 115 requirements, divided into mandatory, recommended, prohibited and permitted with restrictions. Certificate valid for 12 months, but monitoring occurs three times a year.	Public Agencies
EurepGAP/ GLOBALGAP	Voluntary accession. It has 214 requirements, obligations classified as major, minor obligations and recommendations. Certificate valid for 12 months, but monitoring occurs twice a year. Is premised on the Good Agriculture Practices - GAP. Necessary requirement to export fruit to the European continent.	Network of retailers in Europe
TNC	Voluntary accession. Is premised on the Good Agriculture Practices – GAP. Include the requirements of EurepGAP, but there is a greater emphasis regarding food safety and the environment. Restricted to registered suppliers in Tesco.	Network British retailer (Tesco)
APHIS	Mandatory requirement demanded by the United States to permit imports of the United States Deparatment of Agriculture (USDA) regulations includes sanitary, phytosanitary and animal health, with every fruit and vegetable for some specific standards and is premised on the Good Agriculture Practices - GAP.	Public Agencies

Source: Data compiled from Cavicchioli et al. (2005), Dorr (2009), Assis (2009)

Considering the pyramid of the organization, technology, management and production quality, proposed by Andrigueto and Kososki (2005), the Good Agriculture Practices - GAP represent all models of certification for the first step towards certification and aim to standardization, quality and preservation of environmental resources in the productive system.

3.3 The Role of Certification in the Fruit Production Chain

The requirement of certification as to the inputs of a production chain can lead to further integration of their links, enhancing the coordination, information flow and adaptation to the demands. This process aims at a more efficient management and operates in the improvement of coordination mechanisms, both upstream and downstream in the supply chain. In this sense, quality programs in the chain of food production have been adopted, reflecting the international requirements, resulting in the adoption of certification seals proving the quality, health and safety of imported products, as happens today with mainly fruit for to the markets of the United States and European Union (ASSIS, 2009). According to Lazzarotto (2003), the benefits observed of membership reflect the certification throughout the supply chain, since there is a reduction of informational asymmetry all parties obtain unbiased information about product quality.

Some authors emphasize the role that retail plays in the link of the food chain in relation to obtaining certification seals. Trienekens & Zuurbier (2008) pointed out that large retail companies have the power to put pressure on their suppliers to comply with all the norms public and private. By taking on the coordination of food supply chains, retailers of the European Union pursue a goal of standardization and differentiation. It makes available to the consumer unique products that combine market differential with food security and even the care of social issues. Control devices used by the various segments of the production chain, become validated by certification systems and interdependent entities, sometimes by groups of consumers that drive retailers to look for a different quality from its suppliers (CAFARTAN & BRUM, 2006).

The ability to add value to the product via the legitimacy of some aspects and definitions of quality leads to the need for certification. Thus arises the importance of studying social relations and institutions that organize and control both the quality criteria, such as certification mechanisms associated with multiple dimensions of quality. The importance of certification also appears strongly in the food chain. The food quality is not only in relation to their physical properties, but also to its social aspects built into the product, which may even add economic value to them. In this context, it is emphasized that the enhancement of quality in the market is produced by the process of certification. Considering the quality issues related to intangibles, such as issues involved, the consumer's perception depend on the confidence he has about the information received. Thus, becomes a necessary normalization which ensures that the products have the features advertised (RENARD, 2005).

Santos Silva & Batalha (2005) identified the roles of private certification adopted by large supermarket chains in Brazil and in the coordination chain management of fruits, and their impact on it. They concluded that the management of the supply chain is mainly with regard to technical assistance, monitoring and quality control. However, the certification of fruit per supermarket chains still seems to be influencing some of the coordination chains of fruit in Brazil, since the connection between them and the producer is still weak, for the most part characterized by partnerships with no formal contract long established.

Souza & Amato Neto (2009) pointed out that the relations between producers and intermediaries in the chain,it can be observed that the intermediaries are concerned with the requirements of its main customer, the retailer. Information is transferred in respect of certificates and what changes should be made to suit them. For this reason, many intermediaries have some of their staff present in the packing house producers in times of harvest, in order to verify that quality standards are met. In addition, information is transferred about the varieties most demanded and problems regarding the quality standardsof that fruit until it reaches its destination. Some intermediaries highlight the difficulty in educating the producers about the importance of adherence to the certificates. They contend that the certificates do not necessarily represent increased sales or better prices, therefore making it difficult to convince producers of its importance.

The modern orcharding should be able to produce healthy and quality products in accordance with the requirements of environmental sustainability, food security and economic viability, using technologies not

harmful to the environment and human health. In this context, the conformity of the fruit is a market requirement, which demands, in addition to the commercial characteristics of quality, safety of the product set to program and legislation, ensuring the control and traceability as well as skilled and permanent systems and processes involved in the production chain of fruit. In addition, a unique opportunity is the social gain arising from the adoption of systems that create "cleaner" production, which ensures a higher quality of life for each link in the chain of production, and this is a latent concern of consumers in developed countries to acquire their products. The adjustment to the requirements of certification requires understanding of the role to be played by all segments and links that operate in the production chain, and their interrelationships, for traceability procedures and the production of a safe and quality fruit (CHAVES et al 2010).

To synthesize the approaches discussed, Table 3 presents a chronological summary of the work used in the systematic review of the literature.

Table 3: Chronological overview of studies on certification used in the systematic review

Year	Authors	Approach
2001	Scare & Matinelli	The certification models as a strategy for quality management and competitive advantage over competitors.
2002	Andrigueto & Kososki	Displays the set of guidelines, rules and regulations of the system Integrated Fruit Production in Brazil - IFP.
2002	Pessoa; Silva & Camargo	The quality and certification of agricultural products, with emphasis on EurepGAP certification.
2003	Cintra, Vitti & Boteon	The advantages of certification and the impacts on the production process and product certificate.
2003	Lazzarotto	Certification as a way of reducing information asymmetry and obtain unbiased information about product quality.
2003	Nassar	How certification adds value to products in the Agribusiness.
2004	Jahn, Schramm e Spiller	The different certification standards must be situated in the concept of quality required throughout the supply chain.
2004	Lopes e Haji	The implementation of the Integrated Fruit Production IFP as a guarantee of quality of exported products.
2005	Andrigueto& Kososki	The concepts and definitions of certification systems, focusing on the IFP and EurepGAP.
2005	Cavicchioli et al.	Certification as a passport to export the most demanding markets, with emphasis on EurepGAP and TNC.
2005	Santos, Silva & Batalha	The impacts of private certification adopted by large supermarket chains in Brazil and in the coordination chain management of fruits.
2005	Renard	Considers the issue of certification as an agent that creates value for the product quality enhancement.
2006	Paulino & Jacometi	Analysis of the certification process emphasizing its role in the establishment of conditions for sustainability in agriculture.
2006	Cafartan & Brum	As the European Union retailers assume the coordination of food chains and influence the strategy for the certification of suppliers.
2006	Gomes et al.	The certification process occurs in two forms: marketing and commercial nature, with emphasis on the impacts of certification EurepGap IFP and a producer of grapes in the valley region of San Francisco - Brazil.
2006	Lourenzani et al	Although the certification result in investment and restructuring of production systems, on the other, makes it possible to access niche markets and helps build a

		positive image of the product with the consumer market.
2008	Dorr	The importance of certification for the fruit industry in Brazil, securing access to international markets.
2008	Trienekens & Zuurbier	The importance of certifications in the adoption of market access, especially in developed countries, and the role of large retail businesses in order to boost its suppliers acquire certifications.
2009	Assis	The importance of certification in the market for the production of mangoes in Brazil, highlighting the IFP, EurepGap and APHIS.
2009	Berger	System Certification EurepGAP to ensure the realization of the Good Agricultural Practices.
2009	Dorr	Comparative analysis of certification systems that exist in the fruit industry in Brazil, especially the EurepGap and IFP.
2009	Souza e Amato Neto	Analyze the relationships that occur between producers and intermediaries in the supply chain of fruit.
2010	Chaves et al.	The role of certification in modern fruit in order to drive the generation of healthy and quality products in accordance with the requirements of environmental sustainability, food security and economic viability, using technologies not harmful to the environment and health human.
2010	Fonseca, Xavier & Costa	The IFP, the EurepGAP and TNC promote the standardization of production processes have positive impact on the Brazilian fruit exports to international markets.

4 Final Thoughts

The objective of this study was based on systematic review of scientific literature about the commercial requirements and procedures required for the export of fruits, understanding which agents are involved in a certification process in the sector of fruit production and how it contributes to the elevation of quality standards, adding value to the product and increasing the competitiveness of the fruit industry. To this end, we selected works that address this issue of certification of food products. The results were structured in three sections that dealt with the definitions of certification, its importance for consumers and producers, certification models of fruits found in the literature and a discussion of the role of certification in the production chain of fruit.

The results indicate that some issues stand out in the analysis that assist in understanding the role of certification in fruit growing. The first considers the growing demand of consumers as to guarantee traceability and healthy products without waste from production systems that are environmentally and socially correct. Faced with a global market, increasingly dynamic demands coupled with a global population increasingly aware, certification protocols as EUREPGAP / GLOBALGAP, IFP and TNC, presented as indicators with visual identity, recognized internationally, which ensures the production within the demands of Good Agricultural Practices (GAP) required by consumers. The second refers to certification as a factor increasing the competitiveness of companies giving product differentiation by adding value and therefore increasing international trade. And the third question assesses the importance of certification for the production chain of fruit has intensified due to increased requirements of the leading importers of fruits in the world as it pertains to food safety, from the plantation to the end consumer, where the major retailers are becoming the coordinators of this chain, absorbing consumer and customer demands for food safety and driving through certification seals, its suppliers to comply with the requirements regarding Good Agricultural Practices (GAP), environmental sustainability and social systems of production in which they participate.

Another issue that deserves mention is the managerial implications for certification organizations in the fruit industry, therefore, to produce products that meet the requirements for certification protocols,

investments are needed in strategic planning goals and objectives with well-drawn, identifying , monitoring and control of critical success factors for service to CPCC (control Points and Compliance Criteria), and technological development, with improved production techniques and specialized training of hand labor.

References

ANDRIGUETO, J.R.; KOSOSKI, A.R. Marco legal da produção integrada de frutas do Brasil. Brasília: MAPA/SARC, 2002. 60p.

ANDRIGUETO, J.R. KOSOSKI, A.R. Desenvolvimento e conquistas da Produção Integrada de Frutas no Brasil. In: LAGES, V.; LAGARES, L.; BRAGA, C.L. (Organizadores). Valorização de produtos com diferencial de qualidade e identidade: indicações geográficas e certificações para competitividade nos negócios. Sebrae: Brasília-DF. 2005. 232 p.

Animal and Plant Health Inspection Service (APHIS) Manuals. Disponível em: <http://www.aphis.usda.gov/library/manuals>. Acesso em Dez/2011.

ASSIS, J. S. de. Importância da Qualidade e certificação para Ampliação do mercado Internacional da Manga Brasileira. In: Simposio da Manga, 2009, Juazeiro. Feira nacional da Agricultura Irrigada - FENAGRI. Petrolina : Embrapa Semiarido, 2009.

BERGER, I. Sistema de Certificação GLOBALGAP: Como garantir as Boas Práticas Agrícolas. Segurança e Qualidade Alimentar. N.7, Dezembro de 2009.

BUAINAIN, A. M.; BATALHA, M. O. (Coord.). Cadeia Produtiva de Frutas - Série Agronegócios. Brasília: Instituto Interamericano de Cooperação para a Agricultura - IICA, 2007. v. 7. 101 p.

Carfantan, J. Y; Brum, A. L. O Agronegócio Brasileiro e as novas regras de acesso ao mercado da União Européia. In Desenvolvimento em questão. Unijuí. Vol4. n.008. p.119-157, 2006.

CAVICCHIOLI, B; PUPIN, F; BOTEON, M. Certificação: Passaporte para os Mercados Mais Exigentes. Hortifruti Brasil, Piracicaba, set. 2005, v. 4, nº. 39.

CHAVES, R.Q. MAGALHÃES, A.M. BENEDETTI, O.I.S. BLOS, A.L.F. SILVA, T.N. Produção Integrada de Frutas como Estratégia para a Cadeia Produtiva do Pêssego no Rio Grande do Sul. Revista Perspectiva v. 34, n.127, p. 7-24, setembro/2010. Disponível em: < www.uricer.edu.br/new/site/pdfs/perspectiva/127_118.pdf>. Acesso em set/2011.

CINTRA, R.F.; VITTI, A.; BOTEON, M. Análise dos impactos da certificação das frutas brasileiras para o mercado externo. XLI CONGRESSO DA SOBER. Sociedade Brasileira de Economia e Sociologia Rural. Juiz de Fora - MG, 2003.

DORR, Andrea Cristina . The role of certification in the Brazilian Fruit Chain. The Annals of "Dunarea de Jos" University, Fascicle I, Economics and Applied Informatics, v. Fas. I, p. 5-12, 2008. ; Meio de divulgação: Impresso; Homepage: http://www.fse.ugal.ro/informatii/anale2008.pdf; Série: XIV; ISSN/ISBN: 15840409.

DORR, Andrea Cristina . A comparative analysis of certification schemes in the Brazilian fruit sector. Annals of the University of Petroşani, Economics, v. 9, p. 217-230, 2009.

EURO-RETAILER PRODUCE WORKING GROUP/ GOOD AGRICULTURAL PRACTICE (EurepGap). Regulamento Geral de Frutas e Legumes. Köln: EurepGap, 2004.

FONSECA, H. V. P.; XAVIER, L., F.; COSTA, E. F. Análise das exportações de uvas frescas brasileiras: uma estimação gravitacional a partir do modelo de regressões aparentemente não relacionadas. Rev. de Economia Agrícola, São Paulo, v. 57, n. 2, p. 81-98, jul./dez. 2010.

GELLI, D. S., LEITAO, M. F. F., MORETTI, C. L., CRUZ, J. C. Manual de Boas Práticas Agrícolas e Sistema APPCC. Brasília : Embrapa Informação Tecnológica, 2004 p.98.

GOMES L. C.; NETO, B. L.; SENTO-SÉ, M. R. S.; SOUZA FILHO, P. T.; BRITTO, W. S. F. O Impacto Da Certificação PIF E EurepGap, no processo de comercialização da uva produzida por pequenos produtores do Vale Do São Francisco: Um Estudo De Caso. Anais da SOBER 2006, Fortaleza-Brasil.

JAHN, G.; SCHRAMM, M.; SPILLER, A. Differentiation of certification standards: The trade-off between generality and effectiveness in certification systems. Goettingen: Institute of Agricultural Economics, Food Marketing. University of Goettingen, 2004. 17 p.

Kitchenham, B., "Procedures for Performing Systematic Reviews", Joint Technical Report: Keele University Technical Report TR/SE - 0401 and NICTA Technical Report 0400011T.1, July 2004.

LAZZAROTTO, N. F. Estudos sobre o mercado de certificações em alimentos no Brasil. In: INTERNATIONAL CONFERENCE ON AGRIFOOD CHAIN/NETWORKS ECONOMICS AND MANAGEMENT, 4., 2003, Ribeirão Preto. Proceedings.. Ribeirão Preto, 2003.

LOPES, P.R.C.; HAJI, F.N.P. Situação da Produção Integrada de Frutas no Vale do São Francisco.. In: VI Seminário Brasileiro de Produção Integrada de Frutas, 2004, Petrolina-PE. CD-ROM, 2004.

LOURENZANI, W. L; Lourenzani, A. E. B S. Pigatto, G.; Simon, E. J.. O papel da certificação no programa de desenvolvimento da fruticultura na região da Nova Alta Paulista. Informações Econômicas, São Paulo, v. 36, n. 2, p. 29-37, fev. 2006.

NASSAR, A. M.. Certificação no Agribusiness. In: ZYLBERSZTAJN, Décio; SCARE, Roberto, F. (org.). Gestão da Qualidade no Agribusiness: estudos e casos. São Paulo: Atlas, 2003, p. 30-46.

Paulino, S. R. ; JACOMETI, W. A. . Certificação na agricultura: possibilidades de diversificação e interação para o desenvolvimento da produção regional. Desenvolvimento e Meio Ambiente (UFPR), v. 14, p. 95-103, 2006.

PESSOA, M. C. P. Y.; SILVA, A. de S.; CAMARGO, C. P. Qualidade e Certificação de Produtos Agropecuários. Brasília, DF: Embrapa Informação Tecnológica. Brasília, 2002. 188 p. 14.

RENARD, M.C. Quality Certification, Regulation and Power in Fair Trade. Journal of Rural Studies, v.21, 2005. p. 419-31.

SAMPAIO, R.F; MANCINI, M.C. Estudos de revisão sistemática: um guia para síntese criteriosa da evidência científica. Revista Brasileira de Fisioterapia, São Carlos, v.11, n.1, jan./fev. 2007.

SANTOS, R. R. P. dos; SILVA, A. L.; BATALHA, M. O.. Certificação privada e a coordenação das cadeias de frutas: estudos de caso em redes supermercadistas no Brasil. XXV Encontro Nacional de Engenharia de Produção (ENEGEP - ABEPRO), Porto Alegre, RS, 29 de out a 01 de nov de 2005.

Scare, R. F. ; Martinelli, D. O. Negotiation Strategies Applied on Agribusiness Certification. In: III Workshop Internacional de Economia e Gestão de Sistemas Agroalimentares, 2001, Ribeirão Preto.

SOUZA, R. de C. ; AMATO NETO, J. . As transações entre supermercados europeus e produtores brasileiros de frutas frescas. Gestão & Produção (UFSCAR. Impresso), v. 16, p. 489-501, 2009.

TRIENEKENS, J.; ZUURBIER, P. Quality and safety standards in the food industry,developments and challenges. Int. J. Production Economics, v. 113, p. 107-122, 2008.