

Coffee Clusters in Brazil

Marly Cavalcanti

Titular: Professor, Centro Paula Souza, SP Brazil
Ave. Brigadeiro Luiz Antônio, 1930

Abstract- *What is organic coffee? Basically, organic coffee is a coffee produced without using highly soluble chemical and either of fungicides, herbicides, insecticides or other chemicals. A specialty coffee is characterized by being differentiated quality, which involves from the process of production to consumption itself. There is no precise definition of the product and to establish a more approximate characterization should consider intrinsic parameters of the quality of the drink (variety, origin, and post-harvest cultural), as well as the condition of grain production. In Brazil, the entity responsible for evaluation, qualification, certification and promotion of coffee is the ABIC. When it comes to specifically special coffee, BSCA (Brazil Specialty Coffee Association) undertakes to assess and qualify products as rigid standard of evaluation. The coffee industry is represented by 300 thousand properties of various sizes (23 are small businesses). The sector employs 8.4 million workers directly and indirectly, that add a gross value of production of R\$ 5 billion to the national economy. An important entry barrier lies in product differentiation via production process, with emphasis on the adoption of organic products and practices to better qualify the resulting coffee. There are several cases of producers who converted their crops to produce higher-quality coffees. At this point, the investment in training and in techniques and equipment is fundamental to obtaining of a product "special".* Key-words: Cluster, organic, coffee specialty barriers to entry, Brazilian producers

Keywords- Cluster; organic; coffees specialty barriers to entry; Brazilian producers; BSCA(Brazil Specialty Coffee Association).

1. INTRODUCTION

The terroir has come to coffee. Term characteristic of viticulture, the source attribute, and bounded, animates the national coffee production. Demanding consumers of the drink, especially the express coffee.. Certified quality is priceless. In the center of this virtuous process in the field is the Cerrado, with headquarters in Monte Carmelo, Minas Gerais. There, to the northeast of Triângulo Mineiro, develops a peculiar mode of production, different from traditional coffee plantations. Farmers have the advantage of good altitude of the land is essential for the quality of the coffee. But, in addition, they grow coffee with attitude. This is not mere play on words. It is known that the plantations in high land, between 800 and 1,300 meters, gain advantages in the formation and maturation of the coffee beans. The night freshness, opposed to sunny days and warm, improves the drink, leaving more voluminous, with intense aroma. Historically, great weather and altitude were used on the slopes of Serra da Mantiqueira, in distributed by beautiful mountains between São Paulo, Minas Gerais and Espírito Santo. More recently, unusual way, agronomic advantages were discovered also in the plateaus, own of Brazilian cerrado in the Midwest. So, up the West of Bahia, a new coffee culture began to be configured. Its producers have not only with the sort of nature-flat land, deep soil, high altitude, mild climate, but invest strongly in coffee technology. Here lives the difference. Begins at the origin of coffee

growers. Unlike the old agricultural regions that cling to the past and, of course, tend to, the Cerrado received rural young entrepreneurs, adventurers, who broke their family origins to open the nation's borders. Getting strong support of the agronomic research, its productive beat obstacles, and almost daring dogmas, created by the culture in the coastal strip of the Atlantic forest. An innovative DNA carry the rural producers from Cerrado mineiro, to the Federation, which brings together 2,500 farmers. These spread small, prosperous, and 55 municipalities, identified by geographical origin. Example of the new generation of field, from frost of Paraná, its origin, to tame the unknown. Starred in a quarter-century, an extraordinary success epic story The coffee production in the Cerrado Mineiro, currently with 170 thousand hectares, clothed, since birth, new look. The different conditions of soil and climate, added to lack of manpower, demanded to break with traditional patterns of coffee production. The harvest is largely mechanized. Land plans promote the operation of huge machines, which overlap the rows of coffee vibrating their stems to cause grain picking. Impossible in the mountains. In the dry season of the year, the coffee is drip irrigation, receive low watering the roots underneath the Crown, either by spraying, squirting over the plants. No one wastes water there. Fertilizing, organic chemistry and, more plant control are flawless. Harvested with low humidity, no rain, the beans don't burn on the terrace. The technology package is expensive, but ensures high productivity and good quality. Coffee drink is slightly

sweet, sometimes chocolate, long finish in the mouth. Typical of the Cerrado Mineiro. In this paradigm-breaking promoted by Cerrado Mineiro stands out the Organization of producers. Structured in seven and eight associations' cooperatives, another research body, all coalesce in the Federation of coffee growers. This controls the certification and sustainability programs in the field. Budget originates in the gathering of 25 cents per sack marketed; they take money from his pocket to execute its strategy. Deservedly, received the first certification by geographical origin in Brazil, whose mark in bags of coffee sold around the world. Curious is the national ranking. The State of Minas Gerais, by far, the largest Brazilian producer, responsible for harvest 52.7, followed by the Espírito Santo, with 24.2. São Paulo, well below the third place and, amazingly, the crops West of Bahia has already surpassed the Paraná in fourth position. Fighting for the fifth place, believe, Rondônia. Paths of coffee crop. In Minas Gerais one of the three production regions-the South of Minas Gerais, the Zona da Mata and the Cerrado-, this accounts for only 22 of State production. Loses, in quantity, traditional regions. Boast, however, for the quality. With reason. The drink originated in the Cerrado Mineiro, dually certified with labels of geographical origin and sustainability begins to dominate the international market. In Japan the coffee stores sell, each Cup, by equivalent to R\$ 15. Always said, with some reason, that Brazil exports the best coffee, toasting in the stubble. The situation has already improved a lot after the Brazilian coffee industry Association (Abic) released their seal of guarantee, pulling up quality. Later, with the express, special coffees stood out. Now, the decisive move came: coffee certification. Minas Gerais came out in front.

2. THE EVOLUTION OF COFFEE GROWING IN BRAZIL

Coffee, as well as the wine, is influenced by different factors that determine its features (aroma, body, acidity, bitterness and sweetness), which should reach a harmony to result in a cup of coffee that reveals all the quality and the taste of the drink. The species of coffee: 2 coffee species produced for commercial purposes in the world: *Coffea Arabica* L. (known as Arabica) and *Coffea Canephora* (Robusta or Conilon) Arabic: complex structure and delicate, mild flavor, sweet, slightly acidic and with various nuances of aroma. Has, on average, 2 times less caffeine than the Robusta species. Requires high altitudes (above 600 m) and greater care in its cultivation. - Robust: it has the simplest structure, resistant to pests. Bitter flavour and without presents variations. It is astringent and slightly perfumed. Grown at sea level, is widely used in soluble coffees and traditional coffees. The Brazil is the world's largest producer of coffee, in addition to holding the largest variety in the world. Cultivates about 23 of Arabica and robusta 13 types. Why choose a specialty coffee? Is a coffee made 100% by the Arabica coffee beans. Most brands of coffee available on the

market is the result of Arabian type coffee blends with robusta type cafes, reflecting lower costs, but with lower quality. There is a technical standard that regulates the classification of quality coffees, intraditional (allows up to 30 species robust grain), higher (allows up to 15 robust grain) and gourmet (does not allow any robust grain must be 100% Arabica).

3. DESCRIPTION OF THE MAIN CLUSTERS OF ORGANIC COFFEE ESPECIALLY IN BRAZIL

What is organic coffee? Organic coffee is grown using methods and materials that have a low impact on the environment. Organic production systems replenish and maintain soil fertility, reduce the use of toxic and persistent pesticides and fertilizers, and build biologically diverse agriculture. Third-party certification organizations verify that organic farmers abide by the law. The Bird Friendly® name can only be used by operators that meet inspection and certification requirements of the Smithsonian Migratory Bird Center. All certified Bird Friendly® coffee must also be certified organic. Bird Friendly® certification requires that the coffee be shade-grown with a wide variety of native shade trees and other shade-providing species. No synthetic chemicals can be used in the processing of Bird Friendly® coffee. An investigation of a problem in the farming began to turn solution. A little over a year ago, the folks at harvest noted that some animal was encroaching on the plantation. The gnawed, shelled, began to appear on the floor, underneath the leaves. Was to observe with more attention to notice the presence of a pet aloof, who loves to appear at night. He usually looks for the low-hanging fruit, with more flavor. That is why the eye of the beast grows even more. The small mammal opossum seems a little mouse, lives in the Atlantic forest. When he enters the crop, goes straight to the feet that keep the best coffee. Is a natural selection. Planting is organic, not pesticide, and shares space with the Atlantic forest. A full aliment for the opossum. In a crop, which cultivates coffee waste removed from the branches to the soil. Sweet beans, which the cuíca gnawed and then threw away, are collected, separated and taken to a greenhouse. Dry through 10, 12 days, and then rest in the tank. When they go to the machine to eliminate impurities, are on the way. A small and valuable production, which this year is 100 pounds. The beans that have passed through the mouth of the opossum have also undergone tests. What is the ideal temperature and time of roasting? A small cup of coffee should be six times more than any other coffee. Is it worth all this? Every detail is examined. Consistency, the aroma, the taste. What about the coffee that, in practice, was first proven by this bug? "The opossum has this facility to make the selection of perfect grain." The Cuíca-Cuíca-true or four-eyes (Philander opossum) is a marsupial from the family of didelphids, found in the tropical forests of Mexico to Argentina. Measures about 30 cm in body length, long tail with hairs

only at the base, dark-gray backs, bottoms and bright yellow spots of the same color above the eyes. It is omnivorous, eating a wide variety of small animals, including birds, crabs, frogs, insects, lizards. Half of their diet consists of fruits such as banana and papaya. In the conventional system the rate of employment is 1 worker for 24 hectares, in the organic system it is 1 permanent worker for 14 hectares. If the same analysis is made in terms of income, the permanent work cost considering employment rights and governmental taxes in conventional system is US\$ 49.4 per hectare/year while the organic system is US\$ 83.8 per hectare/year. In the conventional coffee production the most intensive labor activities (crop picking and fertilization) are realized with use of machineries or accomplished by external temporary hand labor. In this last case the majority of workers are contracted for short periods of time generating social problems. The organic coffee growing uses a lower quantity of chemical inputs enabling more protection against the variation in coffee prices. The main cost in organic coffee farming is related with labor rights, technical attendance, financing costs and taxes. It is observed that labor payments represent an additional expense to the organic system of US\$ 34.4 per hectare/year. On the other hand, the conventional system displayed an additional cost related to the purchase of chemical defensives and fertilizers, whose costs are US\$ 125.6 and US\$ 208.2 per hectare/year. In the coffee market there is, indeed, a great price variation. The price is affected by climatic factors which affect the crop forecast and subsequently its price. Investors use this information to speculate in the market producing daily price oscillations. This volatility in price highlights the importance of self-sufficiency in small coffee farms. In the case of big farms, the producers are able to deal with price oscillation through negotiations to obtain special financing conditions. The coffee market has shown in recent years a great variation in the price of the product. Between 1998 and 2002 the coffee price was, on average, US\$ 66.7 per bag. A bag has 60 kg of coffee beans. In 1999 the highest price registered was US\$ 89.5 per bag. However, in 2001 the lowest price registered was US\$ 39.7 per bag (AGRIANUAL, 2003). Therefore it is impossible for the farmer to protect himself because climatic factors are uncontrollable. Then the strategy of rural administration should focus on making reductions in their direct costs of production. The Table 1 presents information about a Cluster of organic coffe. Brasil: Map of organic products 4. The future market of organic coffes The organic coffee Association of Brazil (Acob) can count on the support of a foundation of the Netherlands in its goal of broadening the participation of 5 national production product in ten years and 20 years firms. In addition to the appeal of sustainability, for small producers organic farming can mean good profitability in the face of low commodity prices the plans of the Acob of increasing yield are backed mainly by the great international demand for organic coffee. But, to encourage the expansion, the entity wants to

try to get the commitment of national and foreign buyers that there will be demand in the future. In this context, the Association invests in a work of revitalization and promotion of the thread that will require R\$ one million initially. One of the funders of this project may be the Foundation Terra New, created by Dutch company Simon Lévelt, to promote sustainable consumption of coffee and teas. The partnership has not yet been closed. Domestic production of organic coffee has fluctuated between 80 000 and 100 000 sacks per harvest, up from about 300 thousand bags from 2003 to 2004, the height of the market, according producers and President of Acob. At the beginning of the last decade, many producers entered in this field because there were no production certifications, but then found it difficult to put the organic coffee on the market, according. Today, 75 of the production goes abroad, mainly to United States, Germany, Holland, England and Japan. Although production costs are highly variable-hard to scale a medium value-average productivity can be a little smaller, the awards on the organic gourmet coffee revolve around \$ 3 to \$ 4 per pound-weight, while for the average product is between \$ 0.50 and \$ 0.70 per pound-weight. In times of crisis of the coffee production, the difference between organic and conventional is higher. For more than 20 years in organic production, plans to increase the area with 20 to 35 acres on their property in Machado, Sul de Minas, and the renovation of coffee plantations. Yield 201213 earned about 350 sacks. Producer from Carmo de Minas, currently receives around 850 per sack of special organic, while the conventional product of high quality coffee is between 350 to 400. Without telling the cost of production, the producer says that has no prejudice with the activity. About 70% of the production goes directly to a company in Japan. The foundation representatives, producers, processors, exporters and importers will attend a meeting on organic coffee to discuss the challenges and opportunities for the thread. In partnership with researchers from institutions, producers and representatives of organic coffee growers association that sought to address in the document the various aspects of management and cultural practices that the coffee culture requires when planted under organic production system. The document covers the basics of organic farming and the conventional system for organic conversion, in addition to the choice of varieties and the preparation and handling of coffee seedlings. Other prominent points of the document refer to fertilization, pest and disease management with alternative products in order to preserve the environment. In addition, discusses the necessary care in the harvesting and processing of grains, including aspects of the certification and the marketing of the product. The document includes annexes with detailed information about the different formulations of biofertilizers used in culture, washer and dryer. In order to clarify to readers about a few concepts and practices used in organic coffee system. The organic coffee cultivation follows rules of organic production system whose internal and external market has been expanding very quickly. So

opens new perspectives in Brazilian rural economy especially for small producers. It is expected that the document will contribute to the diffusion of the cultivation

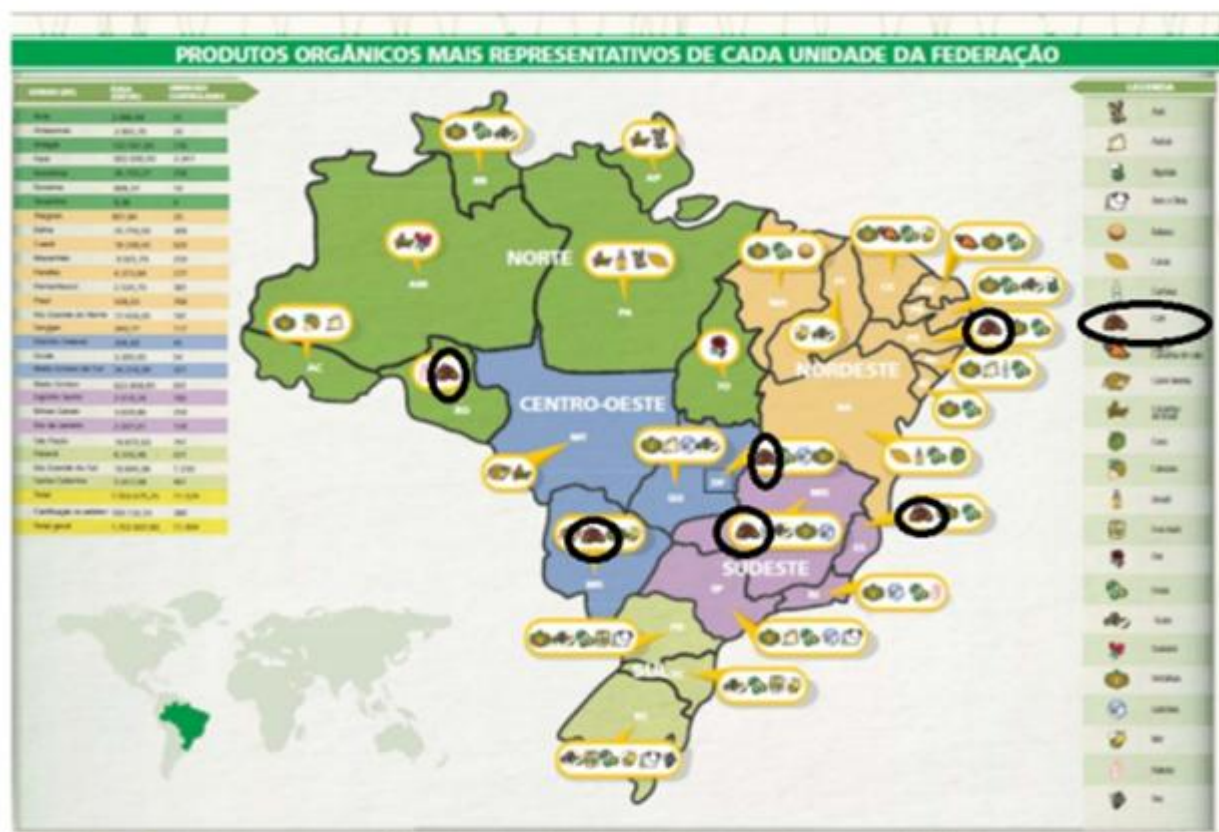
of organic coffee in the country, for producers and researchers who work in the area of organic agriculture and Agroecology.

The Table 1 presents information about a Cluster of organic coffe.

Barrinha farm and ranch Terra Verde production system characteristics.

Managerial Model	Crop area	System production characteristics						Risks of system
Conventional monoculture	150 ha (medium size)	Chemical fertilize and pests control	Large scale production	High Mechanization	High energy (fuel) and capital costs	Intensive in temporary hand labor	Coffee sale as commodity	Soil erosion; loss of biological diversity; social exclusion.
Organic System	25 ha (small size)	Natural fertilize, biological control of pests and subsistence culture	Small scale production	No mechanization	Small energy and capital costs	Intensive in permanent and familiar hand labor	Specialty coffee sale direct to consumer	Lose of competitiveness if organic coffee sale price will low

Source: Ecological Engineering Laboratory, FEA/UNICAMP



5 CERTIFICATION

What is certification of organic products? Certification of organic products is the procedure by which a certification, duly accredited by the Ministry of Agriculture, Livestock and Supply (MAPA) and "accredited" (accredited) by the National Institute of Metrology, Standardization and Industrial Quality (INMETRO), ensures written that a product, process or service conforms to the standards and practices of organic production. The certification is presented in the form of a stamp affixed or printed on the label or packaging of the product. The Ministry of Agriculture accredit, monitor and supervise the certification bodies, with the prior authorization of the MAP, will the certification of organic production and shall update the information producers to feed the national registry of organic producers. These organs, before receiving the authorization of the Ministry, will undergo accreditation process INMETRO. Abroad, the international body that accredits the certifiers is the IFOAM International Federation of Organic Agriculture Movements, which is the international federation that brings together the various movements related to organic agriculture. In covering the inspection, this will be done on farms, commercial and industrial establishments, cooperatives, government agencies, ports, airports, border crossings, vehicles and transportation and any environment where there is the production, processing, handling, manufacturing, packing, packaging, distribution, trade, storage, import and export. When there is evidence of tampering, forgery, fraud and breach of the legislation will be taken the following measures: warning, assessment, seizure of products, withdrawal of registration of farmers allowed to work with direct sales and suspension of accreditation and assessment body. Sanctions will be maintained until they comply with the analyzes, surveys or audits as necessary. They can also be fined ranging between R \$ 100 and R \$ 1 million dollars. In Brazil the organic producer must be part of the National Register of Organic Producers, which is possible only if it is certified by one of three mechanisms described below: 1- "Certification by Audit - The Seal Award Sisorg is made by a public or private accredited certifier in the Ministry of Agriculture. The conformity assessment body complies with internationally recognized criteria and procedures, in addition to the technical requirements established by Brazilian legislation. " 2- "Participatory Guarantee System - is characterized by the collective responsibility of the members of the system, which can be producers, consumers, technicians and other interested parties. To be cool, an SPG have to own a Participatory Organisation for Conformity Assessment (parenchymal opacities) legally constituted, which will respond by issuing Sisorg. " 3- "Social Control in Direct Selling - Brazilian law made an exception in the mandatory certification of organic products for the family farm. It is required, however, the accreditation of social control in an organization registered in official organ watchdog. With this, the farmers become

part of the National Register of Organic Producers. " The importance of certification, and quality assurance of the product / service to the consumer, is the regulation of production processes and technologies necessary to maintain ethical standards of the organic movement and credibility of the product and the producer in the trade. The establishment of standards to regulate the production, processing, certification and marketing of organic products arose from the need for consumers to have certainty as to the quality of the products they buy, the market niche that has emerged in several countries, driven by rising demand for products grown with organic farming methods. The differentiation of organic products is based on their physical qualities, mainly due to the absence of pesticides and chemical fertilizers, for example, which are more directly related to how these products were produced. These features embedded in organic products cannot be easily observed at the time of purchase. The distance between consumers and producers and the inability to be certain as to how the organic products were produced justify the need for production monitoring by an independent third party. Certification is therefore a guarantee that products labeled as organic have actually been produced within the standards of organic agriculture. The product certificate or seal helps eliminate or at least reduce, the uncertainty with regard to quality in the products, providing consumers with objective information, which are important at the time of purchase. The development of the organic market crucially depends on consumer confidence in its authenticity, which, in turn, can only be ensured by law and / or certification programs. When consumers decide to purchase the organic products and the payment of a premium for the positive effects to health and environmental impact reduction, among other attributes, they expect to get in return, a product of organic origin guaranteed. As organic farmers, who pay higher production costs, consumers want to be protected against false organic products. Organic certification may be made by local agencies or international partnerships between them. Can also be performed by groups of small producers, since there are internal mechanisms of control that follow the standards of organic agriculture. In such cases, it is common to market production through farmers' markets and there is concern for export. For a certifying agency for organic products will operate legally, must become certified by the competent official body, in Brazil the Ministry of Agriculture. The international certifiers can also become certified by the IFOAM and get the ISO-65 for the stamp issued is recognized internationally. Still need to establish their own norms, standards and certification procedures, but must necessarily be subordinated to both the legislation of each country regarding the accrediting organization. Standards generally refer to how the products of organic origin are produced. The most common practice is to define general guidelines and description of cultural practices, technologies and / or inputs allowed, prohibited or restricted in this mode of production. The reputation of the certifying agencies is a

key, because it denotes persistence of seriousness in production and product quality. IFOAM was the pioneer organization in the creation of a global organic certification, which had, in 1999, with 14 agencies for issuing certificates of recognition.

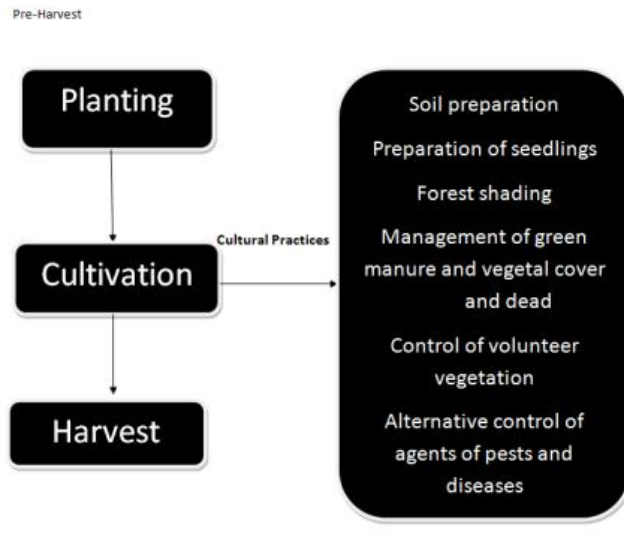


Fig. 1

Distribution of organic producers by region 2011

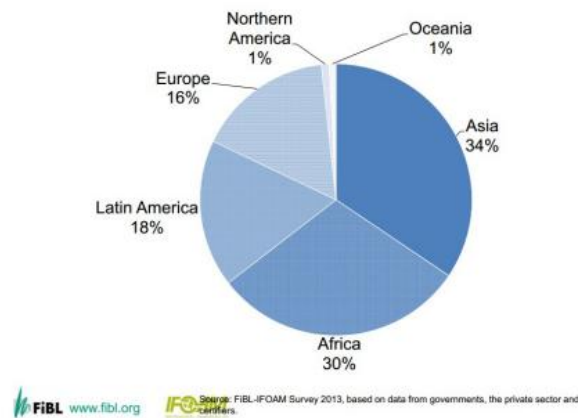


Fig. 2

His standards provide parameters for the legislation on organic products from different countries. There are also independent certifiers who tend to act based site. So far, there is not a system that is fully recognized worldwide and can provide assurance of the quality of organic products. To facilitate commercial relations with other countries, in Brazil, our legislation was based on the Codex Alimentarius guidelines for organic production and regulations already adopted in the United States, European Union and Japan Once the producer decides to produce using organic methods of farming, it is recommended that contact with a certifying agency, where you will learn the technical standards of production. The certifier may also indicate consultants for technical assistance, which give guidance on the production and marketing within their

technical standards for certification. In general, the certification process should be done through periodic inspection, conducted in agricultural production unit, when the product is sold 'fresh', and also in the processing units,

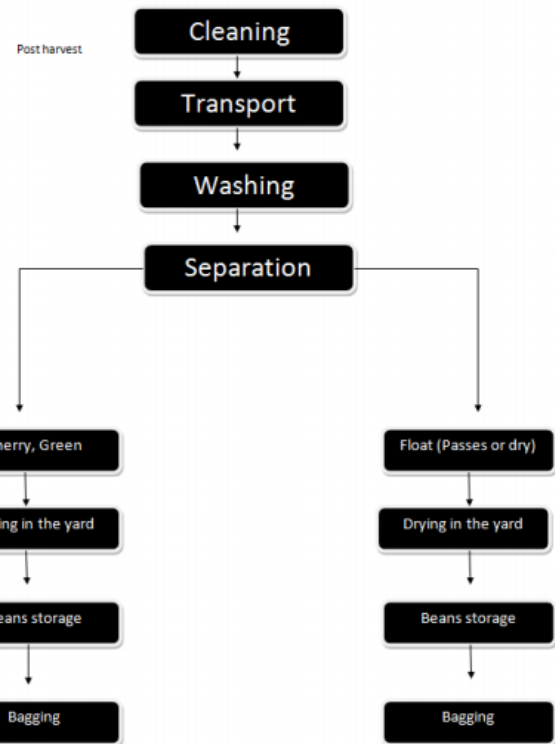


Fig. 3

when the product is processed, and marketing in the case of warehouses. Inspections should be both programmed (with the knowledge of the producer) and random (without your prior knowledge). The producer must submit a production plan for the certification and maintain updated records of a variety of information such as the origin of purchased inputs, its application and the volume produced. This information is confidential and, like property facilities should be readily available for inspection and evaluation of the inspector, if requested. After the visit, the inspector prepares a report which indicates the cultural practices and breeding observed, which allows detecting possible irregularities in relation to the production standards established. These reports are forwarded to the Technical Department or the Board of Certification certifying that decides on the granting of the certificate that enables the producer, processor or distributor to use the seal. Certification may be required for some areas or for the entire property. Organic certification standards are usually set by the Technical Department of the certifying agencies, which promotes regular meetings with agronomists, veterinarians and organic producers to determine the technical feasibility of the proposed practices. Standards should always be in line with the basic guidelines established by the Brazilian authorities. The standards set should be widely disseminated among the members and providers of technical assistance and strictly followed by

the farmer, processor or trader wishing to obtain and maintain certification. The standards are reviewed periodically, to allow adaptation to any technical updates. The certification helps a lot, but for export, the producer or company must have, above all, quality products, competitive pricing and ability to deliver sustainable supply and unite as the desires of the importers. The professionalism, both in production, management, and in other stages is very important. This includes groups of small producers, with consulting support and self-effort, reach levels of organization and quality that allow play space in international trade.

CONCLUSION

The consumption of organic products allows the natural strengthening of our health as well as the defense mechanisms of our body. Contribute to the conservation of natural resources, with the recovery of soil fertility and the quality of life of the producer and the worker. Also, eat tastier food; help reduce the amount of pesticides and chemical fertilizers, protecting the quality of soil, water and air. Organic farming helps preserve biodiversity, agricultural production is a more natural that does not use pesticides, GMOs and synthetic fertilizers. We are bequeathing to future generations the hope of a just and harmonious life on this planet. Consuming organic develop our role as agents of social and environmental transformation, practicing an exercise of citizenship. Besides the fresh products and grain, the market for processed organic products have shown steady growth in recent years. Are already found juices, jellies, dairy, oils, sweets, hearts of palm, breads, biscuits, sauces, spices, wine, rum, honey, soy-based products organic frozen meals, dehydrated fruits, essential oils, white sugar and brown sugar, coffee, guarana powder, cereal bars, processed vegetables, vegetable extracts dried shrimp, chicken and beef. The main Brazilian products exported are: coffee (Minas Gerais), cocoa (Brazil), soy, sugar, yerba mate, coffee (Paraná), orange juice, brown sugar and dried fruit (São Paulo), cashew nuts, oil palm and tropical fruits (Northeast), palm oil and palm (Pará), guarana (Amazon), Rio Grande do Sul (rice, soybean and citrus fruits), Santa Catarina (rice), Mato Grosso (livestock). Organic producers are divided into two groups: small farmers, linked to associations, cooperatives and groups of social movements, representing approximately one 90% of farmers, and businesses (10%), linked to private initiative. Family farmers are responsible for about 70% of Brazilian organic production and account for part of the income generated by these products. In the southern region the organic system is composed mostly of farmers, cooperatives and small farms. In central participation is primarily of large estates. Regarding the type of product, the major producers are leaders in the production of fruit – citrus and tropical fruits, sugar cane, coffee and organic cereals (corn and soybeans, basically) and organic livestock in extensive areas, especially the Mato Grosso do

Sul and Rio Grande do Sul Small producers are primarily responsible for domestic supply, producing vegetables, fruits and processed foods.

REFERENCES

- [1] Baldani, José Ivo. Embrapa, General Agrobiology Head of Embrapa Agrobiologia General
- [2] DIVULGAÇÃO/MINISTÉRIO DA AGRICULTURA, 2000
- [3] CAFÉ orgânico: em busca de um sistema de produção mais sustentável. Agroecologia Hoje, Botucatu, v.1, p. 16-22,
- [4] CAIXETA, I. F. A produção de café orgânico: alternativa para o desenvolvimento sustentado - o exemplo do sul de
- [5] Minas. In: ZAMBOLIM, L. (Ed.) 2000. Café: produtividade, qualidade e sustentabilidade. Viçosa: UFV, Departamento de Fitopatologia. p. 323-330.
- [6] CHAGAS, S. J. de R.; POZZA, A. A. A.; GUIMARÃES, M. J. C. L. 2000, Aspectos da colheita, preparo e qualidade do café orgânico. Informe Agropecuário, Belo Horizonte, v. 23, n. 214/215, p. 127-135.
- [7] Giovannucci, Daniele. 2009. The North American Organic Coffee Industry Survey.
- [8] Giovannucci, Daniele, P. Liu, and A. Byers. 2008. Adding Value: Certified Coffee Trade in North America. In Pascal Liu
- [9] (Ed.). Value-added Standards in the North American Food Market – Trade Opportunities in Certified Products for Developing Countries. FAO; Rome. Ibid. Ministry of Agriculture, MAP
- [10] MOREIRA, C. F.; MANOEL, R. M.; SEGGS, J. H.; FERNANDES, E. A. N. 2002. Avaliação da qualidade do café orgânico produzido sob sombra frente a café orgânico produzido a pleno sol. In: CONGRESSO BRASILEIRO DE PESQUISAS CAFEIRAS, 28., 2002, Caxambu: Resumos... Rio de Janeiro: MAPA: PROCACÉ.
- [11] Organic Trade Association. 2009. www.TheOrganicPagesOnline.com www.TheOrganicPagesOnline.com www.TheOrganicPagesOnline.com
- [12] U.S. Environmental Protection Agency (EPA). 2007. Methylene Chloride (Dichloromethane).
- [13] Washington, D.C. www.epa.gov/ttn/atw/hlthef/methylen.html www.epa.gov/ttn/atw/hlthef/methylen.html www.epa.gov/ttn/atw/hlthef/methylen.html
- [14] ORMOND, J. G. P.; PAULA, S. R. L. de; FAVERET FILHO, P.; ROCHA, L. T. M. 2002, da. Agricultura orgânica: quando o passado é futuro. BNDES Setorial, Rio de Janeiro, n. 15, p. 3-34.

- [15] Oscar Sarcinelli ; Enrique Ortega Laboratory of Ecological Engineering, Food Engineering School. Unicamp. P.O.
- [16] Box 6121, CEP 13083-970, Campinas, SP, Brazil. EMERGY ANALYSIS AND BOOKKEEPING ACCOUNTING OF CONVENTIONAL AND ORGANIC COFFEE PRODUCTION IN BRAZIL
- [17] ScienceLab.com. Ethyl Acetate Material Safety Data Sheet. www.sciencelab.com/xMSDS-Ethyl_acetate_Anhydrous-9923953
- [18] Smithsonian Migratory Bird Center. Norms for Production, Processing, and Marketing of •gBird Friendly® •h Coffee. Washington,
- [19] D.C.http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Coffee/Certification/Norms-English_1.pdf
- [20] http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Coffee/Certification/Norms-English_1.pdf
- [21] http://nationalzoo.si.edu/ConservationAndScience/MigratoryBirds/Coffee/Certification/Norms-English_1.pdf
- [22] Transfair USA. 2008. http://www.transfairusa.org/pdfs/almanac_2008.pdf
- [23] Personal Communication with Katie Barrow, Transfair USA Public Relations Manager, August 12, 2009.
- [24] United States Department of Agriculture, Code of Federal Regulations: Title 7, Vol. 3, Chapter 1, Parts 205.202 through 205.206.
- [25] XICO GRAZIANO- 21 DE AGOSTO, ESTADO DE SP.
- Internet:
- [26] <http://clippingmp.planejamento.gov.br/cadastros/noticias/2013/2/22/metabas-ambiciosas-para-o-cafe-organico>
- [27] http://sistemasdeproducao.cnptia.embrapa.br/FontesHTML/Cafe/CafeOrganico_2ed/