



Feeding^{the}Planet

EU Agri-Food & Biotech Clusters on the World Stage



Country Report: **Brazil**

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The project

Co-funded by the European Commission and coordinated by Lombardy Region, EU clusters Parco Tecnologico Padano (Lombardy - Italy), Agropolis International (Languedoc-Roussillon – France) and Oost NV (Food Valley Wageningen – The Netherlands), Feeding the Planet aims at promoting and commercializing the cluster expertise in the field of agricultural/breeding/food R&D (including health and nutrition), either through bilateral agreements and contracts or through calls from international organizations and governmental agencies and large foundations/charities. “FTP” also wishes to develop business opportunities and partnerships at international level in the agro-food sector, to the benefit of innovative and biotech-based enterprises, innovative research centers and food companies/SMEs.

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The framework

For the “Feeding The Planet” mission to Brazil a few objectives were defined, namely:

1. Make contact with the most relevant agrofood clusters, associations, research institutes and government supporting organisations in Brazil.
2. Present the Feeding the Planet consortium, the clusters, organisations and its capabilities and objectives.
3. Make preparations for a agrofood and biotechnology match making mission in May 2014.
4. Collect information on the agrofood and biotech sector in Brazil.

The methodology

Regarding the above mentioned objectives desk research was done to identify potential interesting clusters, associations, research institutes and governmental organisations. Also an inventory was made of existing relations between the partner countries and organisations in Brazil. Meetings were organised with European organisations that have information and contacts with Brazil, with companies from the agrofood sector and with organisations based in Brazil. Based on this analysis it was decided to focus on the states of São Paulo and Minas Gerais. It was needed to focus on certain areas in Brazil, simply because it is very big, and some states are more relevant because of the relevance for agrofood production, research and innovation and the population and company density. Organisations, institutes and universities were visited during this mission also in order to prepare the next mission to Brazil in May 2014. Information was collected, and relationships were established to prepare the cooperation and mission.



Regione Lombardia



The context

The Brazilian food exports accounted 32,2% of the merchandised exports in 2012¹. Main agro food industries include coffee, soybeans, wheat, rice, corn, sugarcane, cocoa, citrus, beef, pork, poultry and cotton. In 2012, food and livestock production² increased 5% and 1% respectively. The GDP per capita in 2012 was 11,3 thousand dollars.

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The São Paulo state is the world's largest producer of sugarcane and oranges. Roughly 60% of world production of orange juice originates in the state. São Paulo is also Brazil's largest producer of peanuts, natural rubber, flowers, vegetables and eggs. There are 21 million hectares of agricultural land in São Paulo (equivalent to the territory of Romania or Ghana). São Paulo is the world's main producer of sugarcane ethanol, accounting for about 54% of national output. São Paulo's agribusiness exports reached US\$ 59 billion in 2012, accounting for 49% of Brazilian agribusiness' industrialized products. São Paulo's agribusiness sector also stands out for its strict compliance with sanitation, environmental and labour standards and regulations, crucial for the integration of, and trade in, products in international consumer markets. The Securities, Commodities and Futures Exchange (BM&FBOVESPA), headquartered in Sao Paulo, is one of the major stock exchanges operating with agricultural commodities³.

Minas Gerais is the largest manufacturer of steel, iron ore, gold, niobium, cement, coffee and milk. It is the main producer and exporter of coffee in Brazil, the biggest dairy production and second biggest cattle herd in Brazil; the world's greatest hub of Zebu genetics. Minas Gerais is the largest horse herd, the third flock of egg-laying birds, the fourth herd of swine and rabbits, and the fifth flock of broilers in the country. It is also the third largest national producer of quail eggs and the sixth producer of apiculture products. Minas Gerais is the third largest ethanol producer and the second largest sugar producer in Brazil. Regarding the fruit industry, the Jaíba Project has permitted Minas Gerais to have one of the largest areas of irrigated fruit agriculture in Latin America.

¹ It comprises the food and live animals; beverages and tobacco; animal and vegetable oils and fats; and oil seeds, oil nuts, and oil kernels (The World Bank).

² Food covers food crops excepting fodder crops, coffee and tea. Livestock includes meat and milk from all dairy products. Last database from 2011 (The World Bank).

³Department of Agriculture and Supply

The opportunities

Among the most important specialization areas, interesting perspective has been identified in the following sectors:

Sugarcane

Brazil is the largest producer of sugarcane and also the first in the world in the production of sugar and ethanol. Brazil is responsible for over half of the sugar traded in the world, and it is forecasted a rate of increase in output of 3.25% until 2018/19. For exports, the volume planned for 2019 is 32.6 million tonnes. The sugarcane ethanol also has positive projections for the coming years, due mainly to the growth of internal consumption. The projected production for 2019 is 58.8 billion gallons, more than double that recorded in 2008. The domestic consumption is projected at 50 billion and exports at 8.8 billion liters⁴. The Sugarcane industry is undergoing a process of consolidation in the market: the largest producer group currently has a market share close to 9% and the top 25 producers have 58% domestic market⁵.

Coffee

Brazil is the largest world producer and exporter of coffee and second largest consumer of the product. The harvest in 2013 was 49.15 million of 60kg green coffee bags, of which 38.29 million from Arabica and 10.86 million from Conilon species. The planted area is 2.311 million hectares; 5.67 billions of coffee plants, and US\$ 5.27 billion exports⁶. The coffee producers are mainly associated in cooperatives. The biggest one in Brazil, the Cooxupé, has around 11 million members, followed by Cooparaíso (4500) and Coabriel (1500).

Animal protein

Brazil is a global producer of animal protein and 75% of production is consumed domestically. The sheep, goat meat, milk and dairy products are also consumed mainly in the domestic market. The Brazilian meat production (beef, pork and poultry) was estimated in 24.5 million tonnes in 2010. Regarding the exports, the production of beef, pork and poultry is growing each year. It is expected that in 2020 the Brazilian meat production will supply 44.5% of the world market. The chicken meat will be 48.1% and the pork will be 14.2% of the world exports⁷.

Citrus

The citrus industry is one of the most prominent Brazilian agribusiness. Highly organized and competitive, the Brazilian industry is responsible for 60% of world production of orange juice. Brazil is the world leader of exports. Annually is harvested over 18 million tons of oranges, or about 30% of

⁴ Ministério da Agricultura

⁵ Datagro

⁶ Source: CONAB

⁷ Ministério da Agricultura

the world crop. The main markets of Brazilian orange juice are United States, European Union and Canada.

Biotechnology in Brazil

The biotechnology sector in Brazil started in the first half of the 20th century with research in the field of combating and prevention of human diseases. In the 40s, the first biotech company was founded, aiming to produce hybrid corn seeds from selected genetic material. After, in the 60s, other companies started to produce and research genetics to obtain selected forage seeds and hybrid grain sorghum and forage sorghum cultivars of sweet corn for human consumption. They were also devoted to the research and production of improved seeds and selection of plant varieties adapted to different seasonal conditions⁸. The state of São Paulo has 96 biotech private companies where 43 are located in the capital. The state has several companies in other cities as Campinas (9) and Ribeirão Preto (9). The majority of the companies in the state regards to human health (41) followed by animal health (39) and Agriculture (8)⁹.

Minas Gerais has 58 private companies and Belo Horizonte is the second most important city in the country with 43 companies. Others cities have also biotech private companies such as Viçosa (7) and Uberlândia (5). The main biotech sector of Minas Gerais is the animal health (30), followed by human health (19) and agriculture (8)¹⁰.

Biotechnology today

Currently, Brazil develops the third generation of biotechnology, using DNA techniques to transfer selected genes between different organisms. In plant breeding, it has developed techniques of isolation and reproduction, cloning and transfer of genes, performs analysis of functional genomics, collection and conservation of genetic material, of plants and animals, for future preservation and use, import, characterization activities and conservation of germplasm¹¹. Among the various applications of agricultural biotechnology in Brazil, there is the cultivation of genetically modified products, which has grown significantly since its entry into the world market in 1996. Most of them regards to the GMO seeds for soybean, cotton, potatoes, corn and sugar cane crops. The biotech sector has undergone a Merger & Acquisition process and the eight world leaders companies accounted in 2006, 84% of Brazilian market-share. In 2007, Brazil was the third biggest transgenic producer in the world, with 15 million hectares. Brazil develops the second generation of GMO, developing agro-food products aiming to improve quality; nutritional content; and the shelf life¹². In animal breeding, Brazil is investing in the development of biotechnological techniques to animal reproduction studies since 80's, with the goal of improving the efficiency of production of meat and milk, as well as the conservation of animal genetic resources¹³.

⁸ "Biotecnologia – Histórico e Tendências". Revista de Graduação de Engenharia Química, Ano V No. 10 Jul-Dez 2002: Mandruvá.

⁹ Brazil Biotech Map 2011

¹⁰ Brazil Biotech Map 2011

¹¹ ABDI - Agência Brasileira de Desenvolvimento Industrial. □ Estudo prospective Visão de Futuro e Agenda INI Biotecnologia: 2008-2025.

¹² ABDI - Agência Brasileira de Desenvolvimento Industrial. Estudos Setoriais de Inovação.

¹³ ABDI - Agência Brasileira de Desenvolvimento Industrial. □ Estudo prospective Visão de Futuro e Agenda INI Biotecnologia: 2008-2025.



The mission

Agenda

27.10.2013 Arrival

São Paulo

28.10.2013 Meeting Fundação Getulio Vargas Projetos Campinas

Campinas

Meeting Technoparc

Campinas

29.10.2013 Meeting ITAL

Meeting UNICAMP

Belo Horizonte

30.10.2013 Meeting Sistema OCEMG

Meeting Biominas

Meeting Cluster Consulting

Belo Horizonte

31.10.2013 Seminar at SEBRAE, with institutional presentations of: Prefeitura Municipal de Belo Horizonte, Federação das Indústrias de Minas Gerais – FIEMG, Instituto de Desenvolvimento Integrado de Minas Gerais – INDI, Central Exportaminas, SEBRAE Minas Gerais, and the EU Delegation Brazil Agrofood and Biotech.

Viçosa

1.11.2013 Seminar at CenTev, with presentations and pitches of: CenTev/tecnoPARQ, Bioagro, INCT Plantas, Projeto do Centro de Excelência em Alimentos, Áreas Genetics & Reproduction e Animal nutrition and farm production, Áreas Food Safety and quality e Food processing, Viçosatec (BIOTEC Cluster), the following companies: Patsos, Labor Rural, Centro Inova, Pecuária & Desenvolvimento, Rizoflora e Agrogenética and the EU Delegation Brazil Agrofood and Biotech.

Visit to the Labs at UFV

Visit to Bioagro



Achievements

In the states of São Paulo and Minas Gerais clusters are in development, which offers a good opportunity to set up relationships. The opportunities for European research institutes and high tech industry in Agrofood and Biotech are enormous. The sector is in a momentum of further adopting new technologies, to deliver the promise to be main production area which has to provide food for the growing world population. As the a substantial part of this growth will be in Brazil, European stakeholders have to be in Brazil now to benefit from this future growth. Feeding the Planet has set up the first relationships to let stakeholders in the clusters benefit from this growth.

Do you need more information, or have specific questions about Feeding the Planet upcoming missions and activities?

Get in contact with your local partner:

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