
14. Overview of the argentinean agroindustrial and soy complex facing the production of biodiesel

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14.1. Introduction

The land surface for cultivating soy has grown dramatically between the 1990/91 harvest time and 2001/02 – in Brazil (by 106%), in Argentina (by 170%), and in Paraguay and Bolivia (by 125%). It was in the 2002/03 harvest time that production in those countries surpassed that of the USA for the first time. Demand for soy and its by-products continued to increase, basically because of the entrance of China to demanding markets.

A translocation of the productive world soy area is taking place, USDA's estimations about future progress in 2004 placed Argentina and Brazil with 40 million tons and 73 million tons respectively for 2012. Nevertheless, it was in the 2005/06 crop year that Argentina exceeded 40 million tons, and 46 million tons in the crop year of 2006/07. For 2007/08, USDA foresees a World production of 225.32 million tons of soy.

Apportionment of world production (main soy producing countries)

USA:	71.44 million tons.
Brazil:	61 million tons.
Argentina:	47 million tons.
China:	15.6 million tons.
India:	7.9 million tons.
Paraguay:	6.2 million tons.
Canada:	3.1 million tons.
Other countries will produce	9.81 million tons.

China will continue to be the principal soy importer. It will buy 34,5 million tons from the international market (almost five million more than the amount it imported in 2006/07) The European Union (made up of 27 States) will import around 14.88 million tons, Japan 4,15 million tons, and Mexico 3,95 million tons.

As in the last four years, the major soy exporters in 2007/08 will be Brazil, the USA and Argentina. It is predicted that Brazil will export 29.68 million tons, the USA 27.76 million tons, and that Argentina might exceed 10 million tons of exported soy in the 2007/08 season.

Between the harvest times in 2002/03 and 2006/07, the surface continued to grow. During this period, Argentina achieved an all-time high harvest record for the country, reaching 2990 kg / ha., with a performance of 34.5 hundredweight average in the central soy area and 30 hundredweights/ha in the North West. The lowest performance was seen in the South of Buenos Aires Province, with an average performance of 21 hundredweights.

Brazil and Argentina account for more than 90% of the surface and production of the region. In Argentina, the surface has continued growing, thus reaching 16.2 million ha in 2006/07 and an estimated production of 46.7 million tons.

This performance was achieved with an interplay of very beneficial weather conditions and the application of a better technological package that became established in the last few years. In a great proportion of cases, this was done on soy predecessor, causing mainly a situation of crop only.

Argentinean provinces sowed in the following ratios over the last five years on average: Córdoba 31%, Santa Fe 30%, Buenos Aires 21%, Entre Ríos 5%, Chaco 3,6%, Santiago del Estero 3,6%, Salta 2,6%, Tucumán 1,6% and the remaining ones 2,4%.

In regards to production, provinces participated in the following way: Córdoba 27.5%, Santa Fe 25.4 %, Buenos Aires 26%, Entre Ríos 7 %, and Chaco 3.4 %, among the most important.

It is estimated that the Argentinean soy complex, in terms of current prices, will account for more than US\$ 13,000 million in exports, thus becoming the largest segment of the Argentinean economy with 43% of agro industrial exports.

14.2. Strengths of the soy chain in Argentina

- **High competitiveness in the production of soy:** The average performance is among the largest in the world, and continues growing.
- **For the producer, soy has become "the best choice for growing".** Soy gross margins are higher than those of other crops, using less capital and investment per surface unit.
- **Expansion to all agricultural and cattle farming areas.** This growth fortifies the crop with different ways and competitiveness, as a raw material supplier for the agro-industry.
- **Beneficial weather conditions in new areas.** This contributed to the initial expansion in marginal areas, but the climatic risk must be reduced by applying a technological package adapted to different situations.
- **Full activity for genetic improvement.** The continuous launching of new varieties with a higher performance potential, and the diversity of ripening groups adapted to new handling situations in different ecological areas. We must highlight a considerable delay in the release of new biotechnological events.
- **There is an active participation of institutions and companies in organizing events to spread the news.**
- **Skillful and competitive producers.** Producers are tireless, always eager to get a wider knowledge in order to produce more and better within the difficult macroeconomic conditions of Argentina.
- **Fluent commercialization of transgenic soy.** In spite of external pressure to do otherwise, Argentina did not have, and has not had, any problems in selling its products.
- **Great competitiveness in the industry of industrial soybean processing.** The permanent investments, the modernization of plants, and the strategic location of the agro-industrial pole on the Parana creek, add a determining factor in the local competitiveness of the chain. In the last few years more than US\$ 1,500 million have been invested in new plants and in Rosario's agro-industrial complex. The local crushing capacity is approximately 48 million tons per year.
- **Development of ports and navigable routes.** The privatization of the ports and the dredging of the Parana River were decisive elements in the export logistics. The increase in the river level will encourage this situation even more.
- **Proximity to the production sites of ports and industries.** The processing industry installation was fostered on the Parana coast, but the mediterranean provinces have restrained their investments.
- **Increase in storage capacities in fields.** The distortion with respect to other producing countries has oscillated due to the investments made in new plants and in the use of silo bags.
- **Diversification of soybean oil and flour importing countries.**
- **Increase in relative world prices and domestic devaluation of the dollar.** The joint action of these factors has been decisive in the improvement of the financial situation of the production sector, in the attraction that primary production exerts on investors who are outside the sector, on the capital availability to invest in equipment, machinery and so on, and in contributing to the well-being of the country's inner communities.
- **Independence of the soybean complex, in spite of the changes to the critical economic situation, the domestic policy, and the tax pressure placed on the sector.** Undoubtedly, this is due to the relatively high prices of soy worldwide.
- **Successful campaign on the local consumption of soy by-products.** Although it does not have any effect on the global domestic consumption of the complex, it has helped to put the soybean in regard as one of the local assets for urban communities.
- **Favorable interaction of all the above - mentioned factors.**

14.3. Outstanding position in international markets

Being an important part of the local oil industry, it is worth mentioning that the soybean is even more important for being the vegetable protein in which the production of different meats depend, in a genuine export chain. Argentina is the first exporter in the world of soy oil and flour, with 53% and 43% respectively of world trade and with 13% of such grain.

14.4. Diversified destination of the exported product

The soybean grain is mainly exported to Asia, China being the main market. The strengthening of industry in China has turned that market towards being a greater importer of raw materials. The first major importer is the EU, with 60% of the total, with Asia being the second market with 26%. As regards to oils, Asia takes 69% of the total, followed by the rest of America, with 20%. Nevertheless, given the certain vulnerability of the Chinese market as a main grain importer, the local surpluses are expected to decrease every year.

14.5. Regional concentration of the oil industry

The share of the soybean milling industry in the provinces shows a concentration in the Province of Santa Fe, especially the greater Rosario area. This province processes 87% of the soybean grain, followed by the Province of Cordoba with 8%, and the Province of Buenos Aires with 5%. The location of the processing plants, less than 300 km from the main soy zone, on the River Parana coast or near to it, gives us a very different kind of competitiveness from other countries in this area. The interdependence of all the actors in the chain, and related industries and S&TMEs, define a powerful "soy cluster" in all its magnitude.

14.6. Our logistics and transport reduce competitiveness

However, Argentina has practically the same road infrastructure it had decades ago, which increases the price of transportation and negatively affects the benefits received by the producers. The transportation system faces a real bottleneck. We must add that transportation is done basically by truck, and only 15% by train, which increases its cost. Not to mention the poor condition of the roads and the collapse of the system of freeways that takes place in the harvest season. On this matter, changes in the policy of investments of national funds in main freeways and the beginning of the "Beltway Plan" in the greater Rosario area have been announced recently.

14.7. Soy as an employment generator

Recent studies on the agro-industry in Argentina, published by the Fundación Producir Conservando (Produce Preserving Foundation), show that soy is an important factor in employment within the scope of oils and by-products. However, not even the most detailed study can quantify the positive effects that soy has on the creation of global wealth. It was a decisive factor in the mitigation of the effects of the recent economic crisis. The soy cluster allowed a fast recovery by the towns and cities in the interior. The collection of withholdings and taxes that burden mainly the soybean, have direct impact in the social plans that serve as social containment and satisfaction of the basic needs of the low income population.

14.8. The installed capacity of the oil industry, determine the aggregation process, is now investing in biodiesel plants

The new mandatory laws in countries such as the USA and the European Community, regarding biodiesel usage, activated the oils market. Soy oil is our first and richest source. It is logical for the industry to react to the worldwide projections of increasing usage with strong investments to assign better value to the by-product. By the mid 90s this sector invested USD 700 M, while in the last 3 years it has invested USD 770 M. Investments aim at the creation of new plants, expansion, storage infrastructure, rural logistics and ports. The oleaginous industry is making significant investments

The most significant information within the period of 1996 to 2006, was that Argentina contributed 92% of the growth in the world oil trade, increasing its exports by 3.21 million tons. Argentina is the leader in soybean oil trade in the world.

14.9. New uses

Soy and its by-products are involved in countless uses in the industry as well as for human and animals food. Almost 10% of the whole world production is used as nourishment.

In this field, new applications of biotechnology will bring new products, such as modified oils and high-value proteins. Soybean flours account for the usage of 90% of the vegetable protein which is transformed into animal protein. As long as the standard of living of people grows, these supplies also increase, and consequently the impact is greater than the vegetative growth of the population

14.10. Biofuels

Biofuels production is a new positive element, especially when it is stimulated by government decisions, because they will continue fostering production and usage, for it is the only available substitute for oil at a "large" scale in transport. Due to a precarious supply situation, in 2003, the EU adopted the Biofuel Directive (it sets a 5.75% ratio in 2010 and 10% in 2020).

This fact is generating, and will continue to generate, an increase in the demand for biodiesel, and this impacts directly on vegetable oils.

14.11. Factors that make Argentina a competitive country in the production of bio-fuels

- Greatest worldwide production per hectare.
- High technological level.
- Privileged location of the industry in proximity to the productive area and loading ports.
- Lower implementation costs of oleaginous crops in comparison to Brazil and the USA.
- The most efficient worldwide oleaginous chain.
- Plant dimensions. Larger establishment average scale at the international level. Lower processing costs.

14.12. What do we need in order to consolidate this positive scenario?

- Genetics and good management.
- We must establish legal terms and conditions as well as promotion, so that the producer can easily seize the business opportunities.
- Secure and efficient power sources, both in terms of electricity and gas.
- Improvement of the country's road infrastructure to and from plants and ports.
- Greater efforts in Good Practices, especially in the use of agrochemicals.
- To keep on dredging the waterway for deeper waters.
- Greater use of, track extension of, and improvements of the railroads.

14.13. Argentinean perspectives

- Better prices for oleaginous production and greater export of products with added value.
- Argentina will be a relevant worldwide biodiesel exporter (availability of raw material and an efficient production chain).
- It will face problems in accessing markets (more manufacturing => greater protection).
- Internal supply: Unknown factors (price, governmental policies).

14.14. Conclusions

- Argentina has become a reliable, efficient and versatile supplier of soy and grain by-products in a world of ever-growing demand.
- In this new biodiesel era Argentina is getting ready to profit from its strengths and is placing its goals in foreign supply.
- The soy complex is important not only because of its value and achievement, but also because of the "spillover effect" that it will have on our economy.
- Argentina as a whole and particularly the soy chain – clearly an exporter – must stay on the lookout for changes in international commercialization, which will unfortunately be carried out in an imperfect competence framework.

Sources

- Argentine oil industry chamber (cámara de la industria aceitera de la república argentina, ciara)
- Secretary of agriculture, cattle, fisheries and food (secretaría de agricultura, pesca y alimentos, sagpya)