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AGRICULTURAL AND LIVESTOCK POLICY: SCIENCE AND TECHNOLOGY APPLIED TO THE FOOD CHAIN

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CONTENTS

	<i>Page</i>
Summary	3
Development of Brazilian Agroindustry in International Trade.....	3
Technology and Agrifood Chains.....	5
Beef.....	7
Poultry Farming for Meat	7
Sugar	8
Soybeans	9
Food Safety and Public Health Strategies.....	10

Summary

1. The development of Brazilian agroindustry in international trade shows that adopting the concept of chains of production and incorporating technology leads to high levels of competitiveness and excellence. Some chains, such as those for soybeans, sugar, and meats, obtained surprising results. Food safety, attained through technology, is a key factor in this success. With the growing interdependence among different chains and the importance of food production for the Americas, there is a pressing need for coordinated action to implement risk management methodology in all the countries of the Hemisphere.

Development of Brazilian Agroindustry in International Trade

2. The comparative advantages of Brazilian agroindustry turned into competitive advantages when the sectors involved adopted the concept of the chain of production and, at the same time, absorbed a factor that acts as trigger for full development: technology.

3. The chains of production that worked in this direction achieved high levels of competitiveness and excellence. In a few years, they brought Brazil to a prominent position among the world's primary producers of food with high value added, in addition to agricultural products.

4. In 2004, agroindustry accounted for 40% of Brazilian exports, with US\$39 billion in exports to over 150 countries around the world.

5. The importance of agroindustry to the country's economy is undeniable. Of all the sectors, it is the one that provides more jobs, the one that has drawn most on technology inputs, and the one with the greatest growth potential, mainly in areas such as productivity and quality.

6. Table 1 shows the principal Brazilian agroindustrial products marketed in the world. The figures are considerable:

Table 1: Principal Export Products					
		2003 US\$ billion	2004 US\$ billion	$\Delta\%$	% Share*
1	Soybeans	8.12	10.0	23.7	25.8
2	Meats	4.1	6.4	50.4	15.7
3	Sugar and Alcohol	2.3	3.1	36.6	8.0
4	Lumber	2.1	3.0	46.3	7.8
5	Paper and Pulp	2.8	2.9	2.8	7.5
6	Leather and Leather Products	2.4	2.9	17.5	7.4
7	Coffee	1.5	2.0	33.6	5.2
8	Tobacco (leaf and processed)	1.1	1.4	30.8	3.7
9	Fruit juices	1.2	1.1	-8.7	2.9
10	Corn	0.4	0.5	59.2	1.5

* Percentage share of total agroindustrial exports in the period.

Source: Secex/MDIC – ALICE.

7. In 2004, these exports mainly came from the states of São Paulo (\$9.1 billion, 23%), Paraná (\$6.5 billion, 17%), and Rio Grande do Sul (\$6.2 billion, 16%).

8. The United States stands out among the countries of destination, with a share of almost 15% (\$5.7 billion in 2004). During 2004, there was an increase in sales to all trading blocs or regions compared with 2003, notably to countries such as China (a 31% increase) and Japan (30%). Table 2 shows the share of blocs and countries in the purchase of Brazilian agroindustrial products.

9. Brazilian agroindustrial imports held stable during 2004, resulting in a positive trade balance. In 2004, Brazil exported \$39 billion (a 27% increase over 2003) and imported \$4.8 billion (a 2% increase), yielding a \$34.1 billion balance.

Economic Blocs or Countries	Feb. 2003-Jan. 2004		Feb. 2004-Jan.2005		% Var.
	US\$ billion	% Share	US\$ billion	% Share	
European Union	11.3	36.5	13.4	34.2	18.7
Asia (excluding the Middle East)	5.7	18.3	7.7	19.6	35.6
NAFTA (excluding Mexico)	5.2	17.0	6.3	16.2	20.7
Middle East	2.0	6.6	2.4	7.2	38.8
Eastern Europe	1.9	6.2	2.3	6.0	23.4
Africa	1.5	4.9	2.3	5.8	50.4
Rest of LAIA (excluding MERCOSUR)	1.2	3.8	1.7	4.5	46.7
MERCOSUR	1.0	3.2	1.1	2.9	16.4
Other Countries of Western Europe	0.5	1.8	0.7	1.8	32.2
Other Countries of the Americas	0.4	1.3	0.5	1.3	25.4
Oceania	0.1	0.4	0.2	0.4	35.8
TOTAL	31.0	100.0	39.3	100.0	26.8

Source: Secex/MDIC – ALICE.

Technology and Agrifood Chains

10. Some Brazilian chains of production have become true productive blockbusters, giving them a prominent place in world food production.

11. It is noteworthy that in Brazil, the concept of chains has increasingly been assimilated, leading to the optimization of efforts and results. Before moving on to describe specific chains, it will be useful to quickly go over the concept of agrifood chains of production.

12. A simple, strictly economic definition of the chain of production for a good or service would be “the economic agents that have a significant part of their businesses in the production of that given product or service.” In other words, members of a chain of production include any company or entity that would gain with its growth or lose with its deterioration.

13. This definition, perfect from the business standpoint, errs from the social standpoint due to its limited scope.

14. The strategic factor needs to be taken into account, since a chain is only as strong as its weakest link. State action penetrates every link in the chain; the State accompanies the process and acts when necessary to maintain the strength of the links.

15. The State's function is to hold the chain together, to guarantee the sustainability of the weakest links. The breakdown of one link—that is, of the chain— can lead not only to financial damage, but also to serious social crises that will have an impact on the State. There are very serious consequences to not thinking and acting strategically.

16. In agrifood chains, one of the State's functions is to promote, produce, and, in some cases, finance technological research; to use its purchasing power to correct specific distortions; to possess the legal framework for acting firmly in the area of health.

17. It is also a State function to anticipate events that could affect these chains and undermine their competitiveness or even lead to their breakdown; in a food chain, for example, anticipating the impact of an animal disease that could be transmitted to humans. It is the government's job to prevent this from happening, to maintain a competent technical corps, and to have surveillance systems in place.

18. Without this, one animal disease can disrupt the entire chain, gravely affecting society, with dire consequences for employment and income generation. Thus, an event that could be an easily-solved problem if control mechanisms were in place ends up damaging the reputation of both the product and the country, undoing years of development and allowing other external economic agents to exploit the opportunity created by the breakdown in the chain.

19. We know that for the various agroindustry sectors in a country to adopt the chain of production concept cultural factors must be overcome. Historically, representatives of the links in the chains would face off at the discussion table, blaming each other for whatever had happened. Some were accused of being conservative or reactionary, others of being manipulators and opportunists. But that was the past that needs to be overcome. Organizing a chain of production requires transparency and strength. The great challenge is to negotiate the points of agreement, redouble efforts to overcome obstacles, and establish common goals for the chain. Thinking and acting strategically is the watchword for the unity that makes it possible to develop chains of production.

20. The result of this new attitude is exemplified in Brazil's chains of production, which stand out because of their considerable technological progress, their capacity to overcome challenges, and their export competitiveness.

Beef

21. Until just over 20 years ago, Brazil was still a net importer. In 2003, it became the world's largest exporter. Today, Brazilian meat is consumed in 143 countries. In addition, 83% of national production is intended for the domestic market. All of this has been possible only through an extremely serious effort. The chain of production has effectively been consolidated.

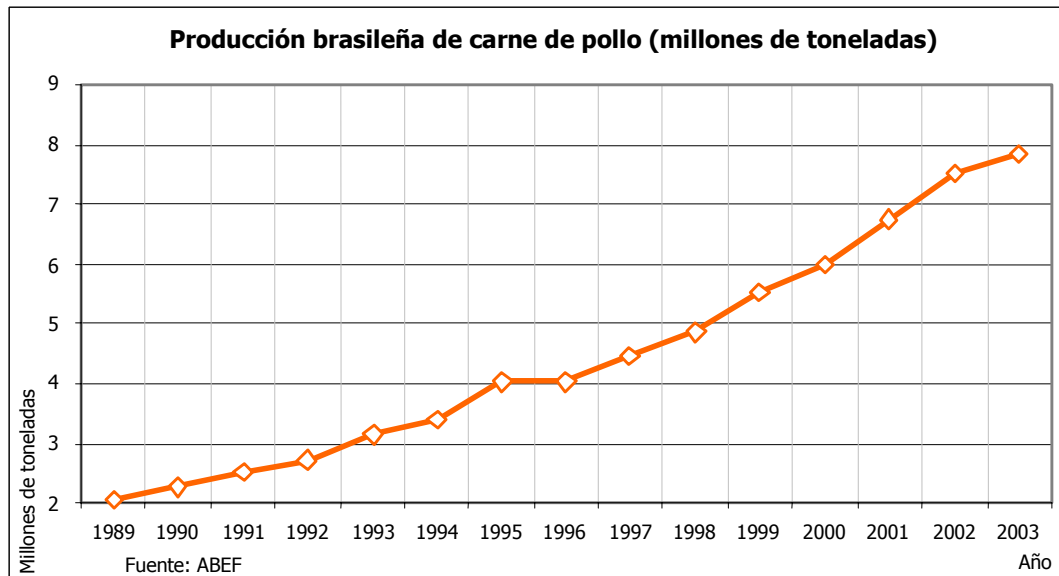
22. There are several reasons for the development of the Brazilian beef livestock chain of production. Success occurred through the optimization of zootechnical factors, the quality of inputs, and greater sanitary awareness. It is also due to low production costs, the comparative and competitive advantage of vast pasturelands, in addition to the upgrading of industry's technology and processes. But the most important factor is perhaps the organization of the chain and the capacity of each of its links to solve common problems, which guarantees the competitiveness of the chain as a whole.

Poultry Farming for Meat

23. Despite being one of Brazilian agroindustry's newest chains of production, the sector showed spectacular results in 2004, producing 9 million tons of poultry meat and accounting for 17% of world production. Almost 2.5 million tons were exported, equivalent to 32% of the chicken marketed in the world. The increase in exports in 2004, compared with 2003, was 46%, which accounted for \$2.5 billion of the country's balance of trade.

24. Figure 1 illustrates the production trend in this chain of production:

Figure 1: Brazilian Chicken Meat Production (in millions of tons)



Millions of Tons Source: ABEF Year

25. This steady, upward trend reflects the positive process in the sector: this is the Brazilian chain with the most balance among its members. The interdependence with other chains of production, such as those for grains (soybeans and corn), is well managed, with synergistic activities.

Sugar

26. The sugar-alcohol chain is currently responsible for 1 million direct jobs in Brazil. Since it is concentrated mainly in the southeastern states, primarily the state of São Paulo, it is a sector that exhibits the greatest potential for technological expansion. This is seen in the production of biofuels, a renewable, clean energy source; in the production of biodegradable plastics and their various derivatives; in electric-power generation; in the secondary utilization of sugarcane by-products; and, mainly, in food production.

27. This involves not only sugar in its various forms, but also foods with high value added, such as amino acids (95% of national production is exported), and candy, which is increasingly more highly processed, with certified brands and quality.

28. In 2004, Brazil, the world's largest producer in this sector, exported 36.6% more than in 2003, with total invoices of \$3 billion, and shipments destined mainly to the European Union.

Soybeans

29. The soybean complex—which includes soybean oil, soy flour, and whole soybeans—is the Brazilian agroindustrial chain that exports the most, totaling over \$10 billion in 2004.

30. The immense development of the soybean complex is due to major investment in Brazilian research studies in the fields of genetics, health, and adaptability to the conditions of the Brazilian savannah, where the large fields are. The Brazilian tropical soybean has the lowest production costs in the world. This factor, together with the adoption of the chain of production concept, has considerably boosted the competitiveness of soybeans, turning Brazil into a major world exporter.

31. This chain is also responsible for strengthening Brazilian poultry and pig farming, which exponentially increased their exports thanks to the existence of cheap flour and grain in sufficient quantity to meet the growing demand of these sectors.

32. Table 3 shows the export trends related to the soybean complex, comparing 2003 and 2004, during which total values jumped from \$8.1 billion to \$10.0 billion.

Table 3: Development of the Soybean Complex						
Products	2003			2004		
	Volume in millions of tons	Value US\$/ton	Value in US\$ billion	Volume in billions of tons	Value US\$/ton	Value in US\$ billion
Whole Soybeans	19.9	216	4.2	19.2	280	5.3
Flour	13.6	191	2.6	14.5	226	3.3
Oil	2.5	496	1.2	2.5	549	1.4

Source: Secex/MDIC–ALICE.

33. Studies of the relative proportions of the products from the complex that are exported reveal that the trend is toward a gradual reduction in exports of whole soybeans, inversely proportional to the increase in exports of products with greater value added, such as oil and animal feed (ready-to-eat), in addition to chicken and pork, which complete the chain's cycle.

34. Food safety is fundamental in this panorama of Brazilian successes in foreign markets. And this is only possible thanks to the additional technology. The world consumes Brazilian products not only for logistical reasons or simply because of price, but because of the quality obtained with adding high technology to production and transformation processes and, even more, because of the certification of sanitary quality and efficient risk management.

35. The development of risk management in the productive processes of some Brazilian agroindustrial chains is due, to a large extent, a partnership between the Brazilian government and the Pan American Health Organization (PAHO). By means of the Pan American Institute for Food Protection and Zoonoses (INPPAZ), a PAHO center of excellence, a partnership was formed between the federal government and several Brazilian state governments for the implementation of risk management technologies: good manufacturing practices (GMP) and hazard analysis critical control points (HACCP). INPPAZ trained Brazilian extension agents, who worked on promoting these technologies along with agrifood chains. Adding these technologies and applying them to the various stages of the chains without a doubt gave a great positive competitive edge to some of the chains in the globalized market.

Food Safety and Public Health Strategies

36. With the optimization of relations between links in the chains and globalization, the interdependence between chains that were once considered separate has become increasingly accentuated.

37. As an example of the awareness of this situation, we have the acceptance of the proposal of the Hemispheric Conference on the Eradication of Foot-and-Mouth Disease, sponsored by PAHO and the United States Department of Agriculture (USDA), held in Houston (Texas) in March 2004. There was consensus there that, in addition to the meat chain, others, like the soybean and corn chains, should be included in efforts to eradicate foot-and-mouth disease throughout the Hemisphere. The reasoning is simple: these chains would also be seriously affected by an outbreak of the disease, since soybean and corn production, in the case of the United States, is largely destined for animal feed.

38. We all know of dramatic situations caused by food contaminated by physical, chemical or, mainly, biological agents. Today, the world consumer demands the safety of certified quality, without which the international food trade is not viable.

39. In agrifood chains, the hazards are increasingly close by and linked together. There is a pressing need for adopting correlated health risk management procedures between channels of commerce or continents. The eradication of human disease and other health disorders can no longer be reduced to the limits on maps; in today's world it is essential to consider continuous geographical areas when addressing these issues.

40. This is the only way we can eradicate the dramas related to the safety of food intended for worldwide distribution, which nowadays are unacceptable. There is no political, economic, or tariff barrier capable of controlling these risks. In addition to the risks, interaction among the chains of production is unavoidable, if only because in virtually all the countries of the Americas, as in the case of Brazil, food exports are the principal source of foreign exchange.

41. It is a matter of encouraging and consolidating the Hemisphere's food-producing potential. The Hemisphere as a whole is responsible for 54% of world beef exports and owns 34.5% of the world's cattle. In North America, Central America, and the Caribbean one-third of the cattle are slaughtered, and in South America, two-thirds. This reveals the importance of the meat chain in the Americas in terms of generating jobs and income for the countries' populations. Countries so dependent on agroindustrial exports are more open to adopting risk management measures.

42. As a result, it is essential that each country –and all of them collectively– make an enormous effort so that the Hemisphere can attain excellent levels of animal and plant health. For these countries, food safety and public health are intrinsic to sustainable development, capable of facilitating not only the definitive entrance of their products into the world market but also guaranteeing employment and income generation.

43. There is a pressing need to adopt risk management tools in the productive processes of agrifood chains in the Americas. This means implementing food quality management in the Hemisphere, beginning with good agricultural practices, good transportation and storage practices, and good manufacturing and marketing practices. The idea is to institute a solid program and give priority precisely to countries in which exports of the products of agrifood chains have strategic, social, and economic importance.

44. A detailed situation analysis is urgently needed for each country of the Americas regarding the implementation of food quality management procedures. Here, PAHO would be responsible for providing support, coordination, and technical assistance, while the Member Governments would be responsible for the execution of the study. With proportional financial support from the member countries, PAHO, together with the existing food security institutions, would provide technical training for professionals who could then replicate the measures throughout the Hemisphere. This in turn would promote the implementation of risk management techniques, which would harmonize food security standards in all the countries covered by the program.

45. In the medium-term, this Hemisphere, the world's biggest food producer, would become the only one with uniform action in the area of food safety, with the possibility of offering products of certified quality to the world.

46. It is time to share good practices, acting in concert, since the risks exist for all, regardless of countries' world economic rankings. Acting strategically in the 21st century means taking steps on a hemispheric scale.
