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EVOLUTION OF AGRICULTURAL PRODUCTION IN LATIN AMERICA

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Over the last two decades, Brazil and Argentina have emerged as major agricultural competitors of the United States particularly in the production of soybeans and corn. Commercial soybean production was first introduced in Brazil in the early 1960's and Brazil has now developed into the world's second largest soybean producer. Argentine agriculture has evolved from a pastoral beginning to one now emphasizing row crop production. Argentina is now the second largest exporter of corn in the world and a major producer of soybeans. In my brief comments today, I will highlight the major factors contributing to the rapid development of the agricultural sector in these countries, some of the key developmental trends in recent years and what lies ahead for agriculture in Brazil and Argentina.

How did Brazil and Argentina emerge as leading world agricultural producers in such a short period of time? The answer to this question is that both countries took advantage of their natural strengths. Brazil's most obvious advantage is the tremendous land mass encompassed in this the fifth largest country in the world. Brazil is 9% larger than the continental United States and most of the country enjoys a wet tropical climate. The major area of agricultural expansion thus far has been in the Cerrados Region of central Brazil. These savanna-like lands are characterized by short twisted trees interspersed by sparse grass. The price of this Cerrado land is relatively cheap and they are easily cleared and converted to mechanized agricultural production. In their native state the Cerrado soils are quite infertile, but regular application of lime and fertilizer can make them relatively productive.

Brazilian farmers have also been very quick to embrace new technology and adapt it to their own situation. Leading this new technology has been the development of superior varieties suitable for tropical environments. Brazilian scientist have done a superb job of developing germplasm that excels in the hot tropical climate of central Brazil. Brazilian farmers have also been quick to adopt improved tillage practices such as no-till and pest management practices utilizing the newest herbicides and insecticides. And lastly, with the end of hyper inflation, Brazilian farmers now have expanded marketing options encompassing a new futures exchange in Sao Paulo.

Argentina's major agricultural strength stems from its fertile Pampas soils. This broad expanse of flat and fertile grassland is easily converted into excellent agricultural production. As a testament to the soil's native fertility, Argentine farmers have developed over the years a long term rotation strategy that maintained the native fertility of the soil to such an extent that commercial fertilizers were rarely used. Recently, Argentine agriculture has moved to more of a corn and soybean rotation similar to that of the United States and now the native fertility must be supplemented by commercial fertilizers.

Argentina has several other more subtle advantages. First, any advances in agricultural technology developed in the United States is generally directly transferable to Argentina since the soils, climate and latitude of Argentina are very similar to those of the United States. Secondly, Argentine producers also have an advantage in that the major agricultural production regions of the country are in close proximity to domestic markets and export facilities thus greatly reducing transportation costs. These advantages allow Argentina to be the low cost producer in South America.

In recent years there has been several major trends that have been key in propelling South America to the forefront of world agricultural development.

1. New lands being brought into agricultural production.

This trend has been particularly evident in Brazil where the major expansion has been occurring in the central regions of Brazil primarily in the states of Mato Grosso, Mato Grosso do Sul, Goias, Minas Gerais, Tocantins, Bahia, and Maranhao, Piaui, and Rondonia. The majority of the new production has been carved out of the Cerrado land which is cheap and quite easily converted to agricultural production. This trend has been accelerating in recent years and shows no signs of slowing down.

Agricultural development has been the primary driving force behind this rapid northward expansion in Brazil. The vast majority of this land is converted to either pastures or row crops with soybeans being the major crop planted in these areas. Other forces driving this expansion are logging and mining, but they play only minor roles compared to agriculture. There still remains in Brazil hundreds of millions of acres of land that could potentially be converted to agricultural production. The speed at which this land could be converted to agricultural production will depend on a complex set of factors including governmental land use policy, fiscal policy, world commodity prices as well as social, cultural and environmental concerns.

This conversion of new lands into agricultural production is not limited to Brazil. In southern Paraguay and eastern Bolivia a similar trend has emerged in recent years. In fact, much of this conversion has been driven by Brazilian farmers who move into these areas searching for new land to produce soybeans. This trend has been exhibited to a lesser extent in Argentina where the expansion of agricultural production outside of its core area of the Humid Pampas has been limited by unfavorable climatic conditions.

2. Rapid adoption of new technology.

Brazilian and Argentine farmers have become very proficient at adopting new technologies as soon as they have become available. This trend is most obvious in availability of new varieties, tillage practices, pest management and machinery. Whatever is available to the U.S. farmers is generally available to the producers in South America. Much of this technology transfer has been aided by the fact that the same agribusiness companies that develop and market these technologies in North America market the same products in South America. This has allowed the South American farmers to make very rapid progress in improving crop yields. Today, soybean yields in Brazil and Argentina are approaching the levels of the United States.

3. Emphasis on infrastructure improvements.

The biggest impediment to rapid agricultural expansion in Brazil has been a lack of adequate infrastructure- roads, rail lines, water transport and port facilities. The topography of Brazil has made this infrastructure development quite difficult. Mountains along the coast of Brazil forces the major rivers to run west toward the interior of the continent. This has hampered the development of any type of water transportation system to coastal port facilities. It has also made the building of highways and rail lines more difficult.

To address this problem, the Brazilian government has turned to the private sector. Major highways in Brazil are being converted into toll roads operated by private companies in the hope that they will be better able to build and maintain the roads than the cash-starved local and federal governments. The government has also given incentives to the private sector to develop rail lines and water transportation systems into the interior of the country. New port facilities have been built on the Amazon River and a rail line is being extended into the heart of the expanding agricultural area. Established port facilities are now being privatized in order to improve their operations and make them more competitive. All these are efforts to overcome the biggest problem facing Brazilian agriculture - transportation.

Argentina has also recognized the advantages offered by efficient transportation and has taken steps to strengthen that sector. Major highways were converted into toll roads several years ago and the result has been a dramatic improvement in the condition of these roads. Dredging of the Parana River and improvement and expansion of port facilities at the city of Rosario has made this city the center of Argentina's agricultural export activity. This infrastructure improvement in Argentina has been much easier than in Brazil because of the concentrated nature of Argentine agriculture. In Brazil, the agricultural expansion is occurring 1,500-2,000 kilometers away from the primary domestic markets and export facilities. In contrast, 75% of Argentina's agricultural production lies within a 300-400 kilometer radius of the city of Rosario. The topography of the area is also very flat which has facilitated this development of this infrastructure.

4. Global markets.

In recent years, it has become much more evident that the South American farmers have become integral partners in the global agricultural economy. Today, it is not uncommon to see a rapid pace of export of soybeans and soy products out of Brazil immediately after harvest and then to later have imports of soybeans into Brazil to supply its domestic needs. This globalization is also evident in the United States when poultry producers in the Southeastern U.S. find it advantageous to import cheaper Brazilian soybeans than more expensive soybeans from the Midwest.

This free flow of agricultural commodities has been aided by the fact that many companies involved in this commerce have operations in both North and South America. With continued consolidation in the agricultural sector, this integration of global markets is certain to accelerate in the future.

The question before us today is to try to determine what lies ahead for these two major competitors of the United States. What trends do we see emerging as the driving force behind the continued agricultural development in Brazil and Argentina?

1. Continued agricultural expansion.

In the last several decades, Brazilian agriculture has emerged as one of the major driving forces in this the eighth largest economy in the world. With its huge land mass, favorable climate and energetic agricultural sector, there is no indication that agricultural expansion shows any signs of slowing down. Commodity price fluctuations could speed up or slow down this process, but it is certain that the expansion will continue. It is a natural progression of events to push the agricultural frontiers further and further into the new lands of Amazonia and beyond.

This agricultural expansion will continue to impact the agricultural sector here in the United States especially the U.S. soybean producers. Soybeans have been the primary driving force behind much of this expansion in Brazil and they will continue to do so in the future. Soybeans offer many advantages over other crops in Brazil. They are well adapted to the soils and climate of the region, productivity is comparable to the U.S., the price of the crop is based on world markets and the crop offers excellent liquidity. And lastly, Brazilian farmers like to grow soybeans. They are very good at producing soybeans and soybean expansion in Brazil shows no signs of abatement. No comparable argument can be made for any other crop in Brazil.

In Brazil, soybeans are produced primarily as a monocrop. Less than one third of Brazil's soybean crop is rotated to other crops in any given year and in the new expansion areas the percentage is even less. Therefore as agricultural expansion continues in Brazil, soybeans will be the major beneficiary of this expansion. This continued expansion of soybean production in South America could have a significant negative impact on the ability of U.S. producers to maintain their share of the world's soybean market.

Agricultural expansion in Argentina is less straight forward. Expansion of row crops in Argentina in recent years has come at the expense of cattle production. Bringing new lands into production in Argentina is not a common occurrence. It is more a function of a reshuffling of existing area into different crops. The shift away from beef production into row crops such as soybeans, corn, sunflowers and cotton appears to be accelerating and is expected to continue unabated. As in Brazil, price fluctuations can temporarily affect the speed of this transition, but not detour it.

2. Infrastructure improvements and privatization.

As agriculture has expanded into central and northern Brazil the lack of adequate infrastructure has become painfully obvious. To correct these shortcomings the government has embarked on an ambitious program of cooperation with the private sector to address these issues. This has included turning over the operation of major highways to private companies, aiding in the purchase and development of land for new rail lines, sharing part of the cost of new water transportation systems and privatizing utilities and port facilities. All this is being done to lower the cost of production and improve the efficiency by which agricultural commodities are

transported throughout the country.

The Brazilian government has reluctantly realized that its role in this process should be one of coordination and oversight and not of actual implementation. The private sector has demonstrated that it is capable developing and managing these assets much better the federal government. This is a major shift in governmental policy in Brazil which is certain to have a lasting impact on the success of how this critical issue is addressed in the future.

3. Biotechnology specifically designed for the South American market.

Until now, the agricultural sector in South America has been the beneficiary of biotechnology research geared toward the North American market. To their credit, the farmers in South America have been quick to embrace this new technology and adapt it to their own particular situation. This has encouraged companies conducting this type of research to consider developing products specifically designed for the South American market.

Major biotech companies have announced plans to build research facilities in Brazil to work on not only the major row crops of the region such as soybeans , corn, rice and cotton, but also important South American crops such as citrus, coffee, cacao and sugar. This focused emphasis on South America will likely result in improved agricultural production in the region.

As we have seen, Brazil and Argentina have made remarkable progress in recent years in expanding and improving their important agricultural sector. Many of the same forces that have aided in this development in the past will continue to play critical roles in the future. It is important for American farmers to realize that this agricultural expansion in the Southern Hemisphere is not a temporary phenomena. Rather, it is based on solid economic reality and it is certain that it continue into the future.