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### **Brazil's Part in Alleviating World Hunger**

South America is the fourth largest continent, with 6,880,000 square miles and a population of approximately 299,150,000 people. Brazil is the largest country in South America. Their 3,287,597 square miles of land and population of 188,078,261 puts Brazil as the fifth largest country in the world. About twenty percent of their land is farmable.

A typical farm in Brazil is 10,000 acres, but the bigger farms range from 15,000 to 80,000-acre farms. At peak times the employment on the farms can be around 100-300 people! All but a couple farms are family owned and are passed down from generation to generation. Brazil has laws that protect about 30 percent of the acres from being cut down. This affects the amount of crops the farm can produce and the willingness of farmers to buy more acres. Some of the more common farms are dairy farms.

Larger milk farms have about 700 dairy cows. These cows are well taken care of and milked twice a day. To wean the newborns they normally give them milk until they are five months and then they slowly start letting them eat little amounts of pasture. To make sure the cows are healthy they normally eat in the pasture. Farms like this normally produce about 9000 kilos of milk every day.

Since many farms are family owned and passed down from generation to generation, they pay their workers little money. The average worker gets about \$120 U.S. a month. However, since the increase in crop productions these last few years, many farmers are planning to start paying their working hands more each year.

Other farms in Brazil grow a variety of crops. Some of the major crops grown are soybeans, fruits, coffee, wheat, rice, cotton, sugar cane, and corn. The crops that are grown in Brazil depend upon the region. Coffee and fruits are planted in the northeast, where elevations are higher. In the southern parts of Brazil, wheat is grown. In addition, corn, cotton, sugar cane, and rice are grown on larger farms. However, corn yields are not impressive.

Brazilians normally import computer accessories, peripherals and parts, civilian aircraft parts, civilian aircraft engines, organic chemicals, fully built civilian aircraft, oil field drilling equipment, plastics, semi-conductors, chemical fertilizers, and pharmaceutical preparations from the United States. The United States, Argentina, Germany, China, Japan, Algeria, France, Nigeria, South Korea, and Italy are the top ten countries where Brazil gets its imports. These countries make up about 63.5% of Brazil's total imports!

Brazil's trading surplus just keeps growing. In 2001 it was \$2.6 billion and four years later, it is \$47 billion, which is about 16 times more! Not only that, but in those four years their exports doubled from \$58 billion to \$118 billion. Their rising exports, trading surplus, and population of about 200 million makes them the world's leading exporter.

Their top exports are beef, orange juice, sugar, and coffee. Soybeans are their fastest products to grow and ship off. Top ten countries purchasing from Brazil are United States, Argentina, China, Netherlands, Germany, Mexico, Chile, Japan, Italy, and Russia. All these countries combined take up a total of 56.5% of their exports!

The diet of a Brazilian depends in what region they live. The four main regions are the North, Northeast, South, and Southeast. Africans, Germans, Japanese, Italians, Poles, and European immigrants influenced these diets over the years. Even though each region is a little different, the main foods eaten in Brazil are beans and rice.

Northern regions eat mostly dried shrimp, rice, manioc, dried and salted codfish, beans, coconuts, and Dendi oil (red palm oil). Their fruits include passion fruit, pineapple, sweetsop, hog-plum, acai, cupuacu, papaya, orange, mango, and guava. Northeast regions have a Bahian cuisine. This cuisine is malagueta chili peppers, coconut milk, and palm oil. They also have foods influenced by the Africans. These influences are coconut, tropical fruit, seafood, and shellfish (these are only the staples). Meat is normally dried in the sun and served with beans, rice, manioc, corn meal, and sometimes goat.

Staples in the southern regions are pork, chicken, local cheeses, maize, and beans. The national dish is feijoada and is served for lunch on Wednesdays and Saturdays. Feijoada is a stew of beans, sausages, pork, beef, tongue, other meats, and has spicy rice on the side. This lunch is a version of a Portuguese dish. On the other hand, southeast regions serve meat. These meats are either boiled, salt-dried, sun-dried, or barreado (sun cooks it while in ceramic pots). In Brazil, you can have all-you-can-eat meat for as much as \$30 or as little as \$12.

Leafy vegetables are seldom eaten in Brazil. Instead, sweet potatoes, beans, rice, yams, and manioc replace them. Squashes, like chuchu and maxixe, are often used. The most common vegetables are avocados, peppers, olives, tomatoes, onions and herbs (cilantro, jambu, ginger, garlic, and parsley). Avocados are used for sweet desserts. Peanuts are considered part of the vegetable category here.

Rounding out the diet in Brazil are their choices of beverage. The two drinks that are the most common are coconut milk and caipirinha. For meals, many people have coconut milk as a healthier decision. Caipirinha is a national drink, and consists of cachaca with sugar and some lime juice.

As you can see, there have been some changes in agriculture over the years and the family structure in Brazil has also adapted over the years. Though more religions and beliefs have been added, closely-knit families have stayed the same. Influence of nepotism is great because extended families are extremely close. Nepotism is when the shop owner hires relatives, just because they know them and how they work. Family ties are extremely strong and important.

Because of strong family ties, weddings in Brazil are luxurious and steeped in tradition. The ceremonies are ancient and come from lines of Christianity. Both the bride and groom have engagement rings that they must wear on their right hand. Once they are married, they switch their engagement rings to their left hand and have their wedding rings. A groom is not to see his bride-to-be until the ceremony begins. Brides, then, must arrive at the ceremony at least 10 minutes after the groom.

However, as in other countries, family sizes over the years have decreased. The average woman in 2003 had 2.01 children. This is 2.29 children less than the average woman in 1950's. The decrease is due to the lack of money and food to supply their families. Family sizes are slowly starting to increase again as Brazil's employment rate keeps getting better and better.

Improved employment rate results in greater demand for housing. "Not only is there an acute housing shortage in Brazil," says James, "but increased purchasing power means more Brazilians will enter the property market." The number of poor people have been cut in half since 2003. This is because of the rising employment rates. The average income is now 11.3% higher than what it was in 2003.

This astonishing employment rate is helping Brazil become a wealthier place. Since Brazil is becoming wealthier, the middle class is now the majority of Brazilian citizens. The middle class make up 52% of Brazil's population. This has never been the case before. Many people are saying, "Brazil represents great promise for the immediate future at a time when many established economies are set for some very hard times."

Public education in Brazil is free. However, the schools are not well maintained. Children are required to go to school from ages seven to fourteen, yet many students of poor families often do not attend because their parents need them to work. Children in rural communities simply live too far from school and do not have transportation so they remain at home helping on the family farm. Only thirty-three out of every 100 students will make it from first grade to sixth grade. Very few of those 33 students will then continue to high school.

Technological advancements in farming equipment and genetic breeding techniques for cattle would greatly improve the lives of rural people in Brazil. Farming the land and raising the cattle today requires more advanced methods. As land changed family hands, farming methods were taught to younger generations. These methods are outdated and no longer allow the farmers and cattle producers to remain competitive. The young generation will need to accept the responsibility to learn about technological advancements available to farmers and teach their elders.

Rural farmers in Brazil rely on manual labor, which obviously is a slower method of farming, but also it is hard work. Government subsidized purchases of farm equipment would make farmers more competitive in the world market as an exporter. Before farmers should purchase new equipment, they must know which mechanical equipment would be most efficient and they must understand how to perform their own maintenance on their equipment. Investing in education and extension opportunities is necessary for improved implementation of agricultural research and technology.

Internship opportunities offered to the younger generation of Brazilian farmers would provide hands-on opportunities to learn how farm equipment can be effectively utilized to replace manual labor. The young farmers would learn about maintenance and improved methods of farming. An internship program for 16-24 year-old farmers lasting one to two years would be ideal, because participants can see the different growing seasons for crops.

One might think internship opportunities in the United States are the only option for the young farmers of Brazil, however language may prove to be an unforeseen barrier. Other South American tropical regions may already be implementing mechanical labor and new technology with their family farms. As the internship programs are established, consideration must be given to distant and local educational opportunities as both would provide unique experiences.

Just as their parents have passed down knowledge and tradition for farming techniques, the new knowledge gained from internship opportunities must also be shared. The new generation of farmers will teach the older generation about technology and mechanical labor. Networking will help the individual farmers and will improve community relationships as neighbors share their knowledge. Sharing and comparing will inspire others to find solutions for old problems.

Internships offering hands-on learning from successful farmers in neighboring countries and from successful farmers on different continents will provide the foundation for an outreach program where young farmers share their knowledge within their own families and communities.

Several international organizations already provide agricultural internship opportunities, such as the USDA's International Agricultural Internship Program, the International Fund for Agricultural Development, and Farm Work Abroad. Future Farmers of America can become involved. Sponsorship can be solicited from seed companies, civic organizations such as the Rotary Club, manufacturing industries, religious groups, and health organizations. Financing is an obvious obstacle and it would be over-simplifying to assume that the Brazilian government and the farming families would be willing to fund the internships. Pursuing outside sources for funding would be necessary as the poorest of Brazilian farmers are those who most need the education offered through the internships.

New technology and mechanical labor will not be enough to save the family farms in Brazil. The use of scientific breeding for agriculture is equally important. Lately, Brazil has been working on certain genetic breeding techniques for cattle. They have researched cloning, embryo selection, DNA analysis, and in vitro fertilization. Along with their expanding genetic ways, they are also exporting more bovine semen. This volume increased to 163 thousand doses from 105 thousand doses in the last two years. This has made the exports \$909 thousand instead of the original \$480 thousand. Scientists are investigating the use of in vitro fertilization with cattle. Agricultural farmers know this will increase the cattle population faster. A recent study showed the average cow had 15 calves. By using in vitro fertilization it raised the number of calves per cow to 60. Brazil's recent interest in agricultural science is an indication the young generation is ready make science an integral facet in the success of their farm.

Urbanization and education must occur simultaneously just as technology must be paired with science. Education and extension opportunities can be offered to young farmers so they can use the agricultural foundation from their families to learn new techniques from successful farms abroad. Free education in a substandard school system is not enough to remove Brazilian farmers from the cycle of poverty.

Brazil can become a model for other countries to produce larger amounts of food economically and efficiently. The middle class continues to prosper, however, the poorest agricultural farmers are not sharing in that prosperity. It is the working agricultural farmers who need the support of the government so they may learn how to more efficiently manage their family farms. Through education and paid internships, the younger generations of agricultural workers will shape the future for Brazil. With the implementation of new scientific breeding methods and the use of mechanical labor, the farmers will have more time to learn effective ways to manage their farms, labor, finances, and will have more time to spend in their communities teaching others. Begin with the children and instill in them their responsibility for changing and contributing to making this world better for all.

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