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Food Production in Brazil

In today's high tech world, where many problems rarely go unsolved, one issue that has continued to plague our society is malnutrition; more specifically hunger. Not all hunger is based in one location. Hunger problems exist in all countries of the world. Currently eight hundred million people are affected world wide. Approximately 32 million are from Brazil (Striving for agricultural diversity and food security in Brazil).

Brazil is a country not widely known for its malnutrition problems. As many as 17% are deprived of the minimum caloric intake (Striving for agricultural diversity and food security in Brazil). A majority of these people are from a rural environment. So in essence the same people who are supposed to be feeding the country cannot even feed themselves.

Today in Brazil the average family is not viewed as a victim of malnutrition. The average income is \$3, 580 U.S. dollars. The family would also live in an urban area with both parents working (Au Pair in America). Since the legalization of divorce in the 1970s, however, one parent families are becoming more common. With both parents working, it is not unusual to find domestic help in some homes (Au Pair in America).

Brazilians typically eat a variety of foods. Their diet was influenced by a number of different cultures, including the Portuguese through colonization, slaves from Africa, and European immigrants (Au Pair in America). A daily meal usually consists of beans, rice, vegetables, and beef or chicken. Breakfast is usually small, consisting of just milk, bread, and coffee (Au Pair in America). American influence is also prominent in Brazil. Franchises like McDonald's and Pizza Hut are located throughout the country. Brazilians, however, are becoming bored with this food and no longer eat it(Au Pair in America).

On weekends, especially Sundays, meals are often shared with the extended family. This can include aunts, uncles, cousins, and grandparents (Au Pair in America). Often these meals are served by the mother or the domestic help (Au Pair in America).

Brazil's educational structure resembles the one used in the United States. The education system is split into three basic levels(Au Pair in America). The first level includes nursery school, kindergarten, and elementary school. This includes all grades through eighth(Au Pair in America). Senior high school is the second level. Subjects are usually taught all year long as opposed to semesters. The final level is University (Au Pair in America). In order for students to enter university they have to pass a test called the Vestibular. This test is difficult. It tests all of the information that students have learned from past years.

The school year in Brazil goes from February through December (Au Pair in America). Often July, January, and parts of December and February are holidays (Au Pair in America). Students get out of school before the midday so they are free to eat at home. (Au Pair in America).

However, for much of Brazil's rural population, eating at home is easier said than done. Unlike the urban population, the rural population averages \$772 U.S. dollars annually (Brazil's Agrarian Reform). They also lack running water and sewage systems (Brazil's Agrarian

Reform). Currently 50.7% of Brazil's rural population is malnourished (Striving for agricultural diversity and food security in Brazil). This is caused by a variety of factors. The two principal factors are food production and food distribution. Food production plays a large part, but food distribution may play an even larger one (Striving for agricultural diversity and food security in Brazil). Poor quality land and weather conditions also contribute to the problem (Top of the Crops). Brazil's food insecurity issues are largely contributed to by the lack of food production and the challenges of food distribution.

The country's growing conditions vary from region to region, but the issues remain the same. The quality of the growing conditions varies depending on weather patterns, land quality, and geographical location. Each region of Brazil has distinct growing conditions which ultimately affects food supply.

The large central region has a nearly perfect climate with plentiful rain in the summer and usually warm and dry winters (Tops of Crops). The annual rainfall of this region is about eighty inches (Volume Library: Brazil). Northeast section suffers from recurring droughts (World Fact Book: Brazil). This region receives about twenty inches of rain a year (Volume Library: Brazil). The South is prone to floods and frost (World Fact Book: Brazil).

The landscape varies, making some land better for growing. The northeast region has a tropical coastal plain one side and desert on the other. They are separated by a dry forest area (Volume Library: Brazil). The northwestern region is occupied mainly by the Amazon Basin. In the central west, a majority of the land is grassland with a few scattered trees, making this land ideal for growing crops (Volume Library: Brazil). The Brazilian Highlands are the primary land forms of this region. The higher elevated areas in the south see snow in the winter.

Much of Brazil's land requires fertilization (Top of the Crop). This has led to some deforestation problems of the Amazon Rain Forest (World Fact Book: Brazil). Brazil's land is also controlled by many private owners. The unequal land distribution has led to some problems (Brazil's agrarian reform). The small farmer is being uprooted because they can no longer afford the high price to produce (Brazil's agrarian reform). The integration of Green Revolution has led to land problems as well. Pesticides and fertilizers have affected the microorganisms in the soil; weakening and diminishing their ability to work efficiently (Striving for agricultural diversity and food security in Brazil). Herbicides have lost their effectiveness in weed control. The continual applications of these and other chemical products has led to decreased fertility of the soil.

Soil infertility has not stopped Brazil from becoming a leader in some food products. Brazil is responsible for 25% of the world's food production. Such products include: sugar, soybeans, tobacco, coffee, cotton, and orange juice (Brazil's agrarian reform). Brazil has gained ground in the beef, chicken, and pork industries as well (Top of the Crops). The western portion of the eastern region is one of Brazil's principal production areas (Volume Library: Brazil). It is responsible for supplying two of Brazil's largest cities, San Paulo and Rio de Janeiro, with food (Volume Library: Brazil).

With production this high, little food has to be imported. Imported products are mainly manufactured good and machinery. Some food stuffs are imported (Volume Library: Brazil). Brazil exports agricultural products to many of the countries. Products such as coffee, soybeans and soy products, sugar and cacao are exported annually (Volume Library: Brazil). The principal countries of export include the United States, Germany, The Netherlands, Japan, and the Middle East (Volume Library: Brazil).

With food production this high it is a wonder how hunger could be a problem. This is where food distribution comes into play. Some regions of Brazil have higher productivity levels than others. The eastern region has one of the highest production levels while the northeast has an extremely low level (Volume Library: Brazil, 14). Modern agriculture still remains alien to the farmers in the northeast (Volume Library: Brazil). Local farmers can produce the food. Without proper transportation systems it is hard to evenly distribute food. Muddy, rough roads make it difficult to transport food from rural to urban areas. The country's landscape makes it difficult to construct roads (Volume Library: Brazil). The number of people in isolation has also caused some problems (Volume Library: Brazil). After making it to the coastal ports farmers still face the high freight and travel costs to distribute (Top of the Crops).

Over the past 30 years, production has been slowly changing from subsistence farming to cash crops (Striving for agricultural diversity and food security in Brazil). The change has largely impacted the small scale farmer (Striving for agricultural diversity and food security in Brazil). In places where subsistence farming used to be a way of life, cash crops have taken over. The hardest hit by this change are the women. Women used to play a special role in subsistence production (Striving for agricultural diversity and food security in Brazil). Now many women are left with nothing.

The Uniformity systems of the Green Revolution did not increase production enough to have an impact on the family's income. Many small-scale farmers have lost their land or were forced to move to urban areas because they could not afford the price of this artificial nature (Striving for agricultural diversity and food security in Brazil). Not all small-scale farmers were affected uniformly (Striving for agricultural diversity and food security in Brazil). The farmers who did not modernize themselves were excluded from the benefits that could have helped them. In this way, all of Brazil's small-scale farmers were affected by the modernization efforts either by adoption or exclusion (Striving for agricultural diversity and food security in Brazil).

The innovation of the Green Revolution and other programs that were used to attempt to increase food production both helped and hindered the cause. The Green Revolution increases a country's dependence on agrochemical industry. This solution imposed standard resolutions to culturally, environmentally, and socially different regions of the country (Striving for agricultural diversity and food security in Brazil). In the 1970's, the Green Revolution was implemented to provide a "miraculous package" to quickly increase food production and income of the small-scale farmer (Striving for agricultural diversity and food security in Brazil). The "miraculous package" consisted of high yield varieties, chemical fertilizers, and pesticides (Striving for agricultural diversity and food security in Brazil). Farmers were also offered credit so they could begin utilizing the products. While Green Revolution did provide a temporary increase of food production, the income was not substantial enough to have an effect on the rural family. In fact, many farmers went into debt because of the cost of the "miraculous package" (Striving for agricultural diversity and food security in Brazil). The lack of success can be blamed on many factors. Sufficient funds to back up the cost of the chemicals did not exist. The Brazilian government did not continue support of the small farmer, but instead placed more emphasis on the large, commercial farmer.

The increased production was short lived. One of Brazil's staple foods, soybeans, illustrates the issue. In the twenty years between 1970 and 1990, the average productivity per hectare dropped from 635 kilograms to 426 kilograms. The cost to produce the beans, however, stayed the same, or in most cases rose considerably (Striving for agricultural diversity and food

security in Brazil). The beans were attacked by a number of diseases that they were not genetically immune to. This forced many farmers to use more pesticides, thus genetic erosion continued(Striving for agricultural diversity and food security in Brazil).

Many crop plants were hit hard by the Revolution. The increase in the use of the same genetics, in the plants, made them vulnerable to the genetically changing weeds. After a while the use of herbicides seemed to have no effect (Striving for agricultural diversity and food security in Brazil). The continual use of the same genetics also wiped out many of the native genetics of the country(Striving for agricultural diversity and food security in Brazil).

The short lived increase did provide more food for the country. The country is also now slowly recovering from the effects of Green Revolution. The production is increasing. The country is using Genetically Modified (GM) soybeans(Top of the Crops). GM crops provide relief from the genetically inferior crops. Farmers from other countries are now looking at Brazil as a place to produce their crops(Top of the Crops). Many compare what is happening in Brazil, especially the central state of Mato Grosso, to the American Midwest in the 1800's after the implementation of the Homestead Act (Top of the Crops).

As Brazil slowly moves from a state of little to no production to becoming very prosperous, many recommendations and much assistance can be offered. The main problem with the Green Revolution was the reuse of the same products. This would cause the weeds and other unwanted organisms to become resistant. The key to improve would be to use new genetics and chemical products yearly. This plan, however, could be extremely costly, especially if products have to be shipped from another location.

Another recommendation could be to increase the amount of education given to the rural population. Aside from the basic education received in school, University extension from an agricultural school should be implemented. This would ensure proper research and development is continued. The new technologies should first be tested to ensure partial success. This is unlike the Green Revolution where many farms were encouraged to change in a small amount of time(Striving for agricultural diversity and food security in Brazil). Farmers should be used as the main tool for educating other farmers.

International organizations could provide assistance in helping to educate the rural population. This would ensure that the information was current. The organization could also supply a financial backing that would be necessary for continual research and development until a sound system is set up.

The National government is currently working to more equally distribute the land to the country's landless(Brazil's agrarian reform). Past efforts have left much of the land open to private ownership(Brazil's agrarian reform). Brazil's government is making an effort to support the large enterprise farms. These farms are often the only ones receiving subsidized credit, tax breaks, and price supports(Brazil's agrarian reform). This plan does not solve the problem. The small farmer is still in need of assistance.

These efforts were put forth to attempt agricultural modernization. The modernization efforts left many small farms out, so small farmers lost their land. Now the government has to find a way to return the land to the small farmers who need it. The solution to the land problem will not be easily solved. It will require nation and international governments to work together.

Brazil's national government and international organizations could work together in

providing the small farms with the materials the small farmers would need. The national government could subsidize the seed, necessary fertilizers, and pesticides. The international organizations could provide the necessary information for growing crops successfully. The major issue would be to ensure proper land use. To avoid nutrient depletion in the soil, proper crop rotation techniques should be implemented. Research should also be done on ways to cut down on or completely eliminate water and wind erosion of the land. The possibility of changing planting techniques in hilly, mountainous areas could affect erosion from water during the rainy seasons.

Many solutions exist for fixing the problems of producing the food. The other problem, food distribution, seems to cause more of a problem and could result in the involvement of more people. The food distribution issues stem from the lack of poor transportation systems in rural areas and the high tariffs and shipping costs farmers are required to pay on their products.

The road systems used to transport their produce are often rutted and rough (Top of the Crops). The national government needs to work with rural farmers to provide a transportation system that could accommodate the produce being transferred. Most of the roads are made of easily erodible materials. They could be paved using the labor of the landless. In payment for the road construction, the government could offer land for little to no money. This would provide a road system for the farmers and a job for the landless. The recent use of airlines has helped overcome some of the transportation barrier (Volume Library: Brazil).

The high tariffs and shipping costs have caused problems for the small farmer. Brazil faces one of the highest agricultural tariffs on the Western Hemisphere (Striving for agricultural diversity and food security in Brazil). The higher costs bring some farmers dangerously close to break-even prices (Top of the Crops). This could result in the lower overall productivity of the farm. The farm would not have sufficient funds to continue to produce large amounts of produce. Eventually the financial resources would run out, leaving the farmer to the mercy of the banks.

In conclusion, food production and distribution has caused more problems relating to the resolution of Brazil's hunger problems. A majority of Brazil's population is no longer rural. The urban environment offers a more promising lifestyle. The average annual income is much higher and life is much easier for the urban population. The rural population is still heavily needed by the country. Their lives may not be as glorious but, nonetheless, they are still needed to feed the country.

In order for a rural family to produce food for the country, there are a number of obstacles they must conquer. The first being the land. The family or farmer must first acquire land. The land would hopefully be located in a region of Brazil with a pleasant climate. Fertility of the soil could be the next item to check. Because of the repeated use of chemical products, much of the land is infertile (Top of the Crops). The second obstacle is coaxing the land to produce a crop. The Green Revolution caused a major problem for many of the crop species. Many of the species suffered decreased production. Crop production is slowly on the rise. The third obstacle is the distribution of the produce. The road that farmers cross to get to the nearest city or port are often muddy and rutted. The shipping costs and tariffs that the farmers pay are some of the highest in the Western Hemisphere.

Despite the difficulties, farming is slowly changing from subsistence farm to cash crop. This is not happening however, without some degree of resistance. The cost to change from subsistence to cash crop is quite high. Often the government will not subsidize a small subsistence farmer, so they are forced to change (Striving for agricultural diversity and food

security in Brazil). This could result in some small farmers losing their land because they cannot afford the high price of chemical products. The women are also being hit hard because they played a large part in subsistence farming (Striving for agricultural diversity and food security in Brazil).

The overall food production is on the rise. Recommendations can still be offered to help increase success. The utilization of new genetics in the crop species and changing the chemical products could increase yield even more. Agriculture extension and the education of the rural population would ensure research and development for years to come. A more equal redistribution of the land would mean more farmers making use of the land.

On a possibly more important note, food distribution causes a greater road block in the malnutrition problem. The lack of adequate transportation system, high tariffs, and shipping costs are mainly to blame. These problems could be solved with the help of the national government.

With increased support from national and international governments and organization, Brazil will continue to grow. This growth could yield higher production. Ultimately, the higher production will help to end Brazil's food crisis.

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