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Argentina the Next Dust Bowl?

Argentina is the third largest food producer in the world, and the largest in soybean production. Interesting agriculture techniques include dual cropping or the planting of two crops on one field in the same year, and they have a variety of crops. Because of the dual cropping, Argentina is suffering significant loss in the production of these crops. Soil and water erosion are two problems that are causing this loss. It is affecting the yields of crops and is dropping the growth of each crop. This problem will increase if fields are not maintained and Argentina will suffer from loss in their crop production and yields. This problem can relate right back to our own fields in Iowa. Soil erosion plays a big role in each farmer's crop, for bringing out productive yields and abundant supplies. Iowa, as well as Argentina can use new technology and techniques to figure out the best way to make their crops more sufficient and not decline from previous harvests.

Dual cropping has brought many economic opportunities for Argentina, but has also taken away from crop production, their environment, and economy. Land is being washed away and farmers are unable to make a productive crop out of the land they have. This wash is creating low yields and poor crops. The land is used until it has no more use and then is abandoned. Similar to the United State's "Dust Bowl in the 1930's, Argentina could see a significant desertification of cropland. The Dust Bowl was caused by poor agricultural practices and years of drought. Farmers kept plowing and planting and the great soil they once had turned into sand and nothing would grow. If Argentina keeps their dual cropping and doesn't do anything about their increasing soil erosion, they may have the next Dust Bowl.

Argentina is, and has been since the beginning of its colonization, a great producer for food for the world to consume and use. If Argentina's farmers fail to maintain good fields and do not better their farming practices, they may suffer major loss in food production, money, and the land itself and become the next "Dust Bowl". They can avoid this loss by changing their strategies and using more advanced technology to sustain high yields and bountiful crops. In turn, if Iowa and the United States can learn from Argentina, we too can start a farming season with dual cropping and possibly a greater variety and higher yields of crops.

Argentina located in continent of South America is shaped like an inverted triangle with its base at the top; it is about 880 miles at its widest from east to west and stretches 2,360 miles long from the subtropical north and the subantartic south. Argentina's total land area is about 1,073,520 square miles, and has an estimated population of 39,531,000. Its geography can be divided into four regions: the Andes, the North, the Pampas, and the Patagonia. Argentina is bordered by the countries Bolivia and Paraguay to the north, Chile to the west and south, and Brazil, Uruguay, and the Atlantic Ocean to the east.

Argentina is located mostly in the temperate zone of the Southern Hemisphere. Tropical air masses occasionally invade Argentina's provinces of the extreme north, Formosa and Misiones. The southern extremes of Argentina have temperate conditions, the South American landmass narrows so markedly towards the tip that its weather patterns are moderated toward the Atlantic and Pacific oceans. The average temperature stays above freezing in the winter. The temperate climate is interrupted by a long north-south band of semiarid to arid conditions and by tundra and polar conditions in the high Andes and in southern portions of Tierra del Fuego. Precipitation is moderate throughout most of the country a good quantity of it falling in Humid Pampa, Mesopotamia, and the eastern Chaco. The driest areas are in the northwest and the southern part of Patagonia. During the winter long rainy periods are caused by stationary fronts, characterizing

the days as being dull, gray days with damp weather. Tropical air masses make southern excursions and bring mild relief from the cold and damp winters.

The customs and life styles of families vary from location and economic status. Many families that live in large cities have high-raised apartments, and families in the suburbs usually have small ranch style homes with tile roofing. Most homes are rented, usually not even having indoor plumbing and having dirt or temporary floors. The government classifies most of these homes as being shacks, with most homes having more than three people shoved into one home. Argentina possesses a large and literate workforce. Women constitute more than one-third of the paid labor force, and about two-fifths of women laborers are employed as household servants. Women working gives a mean that money is need to be made by both parents to support their family and that more women are beginning to run the household. Argentina has one of the greatest educated populations in Latin America, which is shown in its many schools and a nearly universal literacy rate. Primary education is compulsory and free; secondary and higher education is offered in free public schools and in private schools that are subsidized by the state.

The main focus of education in the Argentina is agriculture and farming. Argentina's wealth has traditionally come from ranching and growing grain. Agricultural commodities continue to be a mainstay of Argentine exports. The main crops of Argentina include: soybeans (22%), wheat (2.4%), maize (corn) (2.8%), and sunflower seeds (13.4%). Argentina's soybean crushing capacity more than doubled during 2005-2006 years helping solidify Argentina as the world's leading exporter of soybean meal and soybean oil. The country produces 18 percent of the world's soybeans, accounts for 46 percent of the world's soybean meal exports and 55 percent of the world's soybean oil exports. Factors behind the country's strength in exporting soy products include small internal consumption of soy products, new efficient soy processing facilities, and a competitive currency exchange rate.

The expansion of croplands during the last 20 years has caused rapid depletion of the soil nutrient endowment and a growing use of inorganic fertilizers to compensate for the loss. The farming practices for these abundant soybean crops and yields are causing significant damage to the fields of Argentina. A practice of nutrient cycling which is the replacement of rangelands and cultivated grasslands by croplands is modifying the nutrient cycling in ecosystems. Studies revealed an increasing weakness of organic compartments in nitrogen and phosphorus cycles. The retention of nitrogen and phosphorus in strong organic compartments has maintained a robust functioning of nutrient cycles when rangelands and legume-based cultivated grasslands have predominated over croplands. This practice of cycling and over cultivating then leads to a much bigger problem of soil erosion.

Soil erosion significantly affects the most productive lands in Argentina, particularly the region called "Pampa Ondulada". ¹Data reported by agronomist and scientist said that 21,400,000 hectares are effected by water and soil erosion to a moderate and severe degree. This is about 52,890,916.35 acres, as one hectare is equal to 2.4710538147 acres. The relationship between degree of water erosion and yields of the main crops, (wheat, maize, and soybeans) was recently evaluated. ²A moderate degree reduces grain yields in 12% for wheat, 17% for soybeans, and 30% for maize. When transforming these rates into economical loss, 230 to 300 million dollars are lost due to decrease in yields of the three main crops because of soil erosion. ³At national level it can reach 1000 to 1200 million dollars due to water erosion and 3000 to 4000 million dollars taking into account all land degradation processes as well as the damages to infrastructure. The main causes for land degradation after the significant amount of soil erosion

¹ Information taken from www.elsitioagricola.com

² Information taken from www.elsitioagricola.com

³ Information taken from www.elsitioagricola.com

are the intensification or “agriculturization” process, which is the introduction of dual cropping and the change from rotation of cattle-agriculture to continuous agriculture.

Argentina has practices to prevent and control the degradation processes, many practices have been applied to land reclamation and land and water conservation. The no-tillage or direct planting process, has been a major practice that has been accepted all across the Argentina nation. In this process a farmer would not work the field or till the field after his harvest, but simply just plant directly over the residue from the harvest in the following farming season. We use similar practices in the Midwest. These practices are very common in the hilly sections of the Midwest. If we sustain from tilling we leave the residue left from harvest on the fields, which in rains and other weather conditions soaks up water and other precipitation and keeps it from washing away the soil. Practices also used include putting terraces, waterway, and tiling in fields to help slow and control water flow. Terraces which are small mounds of soil help to slow the flow of water and cause it to flow to a central location. From there, the water flows into tiling which carries water to drainage areas. Waterways are grassy areas that also help centralize the water flow, but the grass within the waterways helps absorb the water decreasing soil erosion. Unlike Argentina, our crop season is shorter which allows less time for crops to mature and get ready for harvest, especially in using dual cropping. The Midwest does not currently dual crop except for the wheat and soybean combination. Even with this combination yields can be lowered by about 50% in latter of the two crops. Locating your local SCS (Soil Conservation Service) office also is a wise choice in trying to stop your soil erosion. The SCS offices are government agencies that are placed in every county that subsidize soil erosion projects for farmers. Some of the projects they help support are waterways and terraces, with other projects that change on a yearly basis. These practices will help minimize soil erosion and keep your top soils and good soils in the fields to help maintain and reach high yields. The production of these practices show as time passes and yields increase, more plants are present because less are washed out by water and soil erosion, nitrates, phosphates, pot ash, and chemicals stay in fields instead of entering lakes, ponds, rivers, and water systems, and fields are better maintained. Productivity of farmers has improved greatly in the past 20 years. Good farmers are using practices and techniques to help maintain their soils, while inexperienced or poor farmers have failed to do so and have quit or are small farmers. The production of these farming practices will hopefully solve soil and water erosion for the future.

The government of Argentina should remain identifying problems in agricultural practices and find solutions that would not be destructive to the economy and environment. They should form more groups and associations to help make new practices to help save their world leading agriculture. They should advise people to visit an organization, such as the SCS office, to help stop erosion. Also, Argentina should set regulations on the amount of land they can farm without further damaging the fields and should require each farmer to take care of his damage before it is too late. This might require giving money to those who need it in order to set up and complete these projects but it will help significantly in the production of the Argentina crops.

The Midwest and Argentina have many similarities with their agricultural systems. They have fertile soils, similar crop productions, the equipment, and the climates to have satisfying crops. The Midwest is a large producer for the United States as Argentina is for the world. Argentina needs to make adjustments to their farming techniques and continue to make advancements for higher yields, the abundance of crops, and production in crops. They could raise their position from third largest to largest in crop production in the world. They could higher percentages in all of their crops yields and exports to other countries. They could lower their spending on soil and water erosion by thousands, and use it on other spending such as transportation or health issues.

Argentina has shown that it can produce some of the most abundant crops in the world. Over using fields, dual cropping, soil erosion, and water erosion could possibly lead to the inability to farm the land and it’s agriculture economy could amount to nothing. This problem can be stopped with the right techniques and practices. As in the Midwest, Argentina can use the minimal no-till practice, make waterways and terraces, and watch the chemicals they use which in

turn will help them produce more abundant crops than in the past. Argentina crops are similar and are grown similar to the Midwest, so as time passes we can learn from the mistakes; Argentina has made and put them into our agricultural system. Dual cropping could become possible and new hybrids could be produced to make crops more abundant and successful. If we do not strive to make these changes, we as a region, nation, or world will fail to move forward and improve. This time could lead us to suffer the next Dust Bowl, even with practices we use now.

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