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Smart Farming in Haiti

When it comes to the word ‘base’ it can be used in many definitions, a base of a house, a base of a cake, and or a base of your shoe. In this case, base is the base of the entire economy. The base of agriculture is directed towards feeding humans, providing jobs, and establishing a good foundation for those needing to prosper. Agriculture will allow many cultures to become prosperous in knowledge, strength, and balance. If countries were to have a solid base in agriculture, they could help solve hunger, unemployment, and will eventually lead to a strong economy.

In Haiti, the understanding of sustainable farming for the environmental factors Haitians face is a major problem. Many environmental factors and past weather tragedies leading to the destruction of homes, land, and lives have left this country at a loss of what are the next steps to take in action. To start this process would be education in agriculture and smart farming. The phrase “smart farming” is used all the time in the agricultural industry and plays a role all over the world. With the environmental factors, it has been hard for small farmers to have the opportunity to improve the quality of production, leading to poverty.

Educating small farmers in Haiti will allow for greater and improved production of agricultural goods. It will decrease food scarcity, improve youth education, and lower unemployment rates. Teaching Haitians about their land and to develop “smart farms” will in turn boost their economy and lead to better developments and improving other industries.

Haiti has gone through a whirlwind in the past 11 years. In January of 2010, there was a 7.0 magnitude earthquake that hit Haiti. More than 300,000 people were killed and left 1.5 million Haitians homeless. After this, Hurricane Matthew a hurricane hit October 4, 2016. This natural disaster left behind 500 deaths and damage to crops, livestock, and infrastructures. Both tragic events have left Haiti the poorest country in the Western Hemisphere (“Haiti,” *CIA World Factbook*).

Haiti is located in the Caribbean, between the Caribbean Sea and the North Atlantic Ocean, west of the Dominican Republic. In all, the land and water totals 27,750² kilometers, the land being 27,560 sq km and water 190 sq km (“Haiti,” *CIA World Factbook*). The climate of Haiti is tropical and dry with much of the terrain being rough mountainous lands. With this particular terrain, there is little farmable land. Only 38.5% of Haiti’s land is arable with the ability to be used for suitable growth of crops. Agricultural products that are able to be produced in Haiti include sugar cane, cassava, mangoes/guavas, plantains, bananas, yams, avocados, maize, rice, and vegetables (“Haiti,” *CIA World Factbook*).

Many of Haiti’s problems stem from its population. The population of Haiti is estimated to be over 10 million with “only 58% having access to adequate amounts of food and 45% of Haitians are experiencing malnutrition” (“Haiti,” *CIA World Factbook*). Additionally, only 38.1% is in the agricultural industry. The Haitian way of living leads to many forestry problems and a decrease in forest cover to only 3% is caused by 85% of the total population using fuelwood as a source of household energy (Bargout & Raizada, 2013).

Throughout all of this, Haitians tend to be warm, friendly, and generous. They are very proud of their culture and history (“Haiti,” *CultureGrams Online Edition*). Urban families have 2-4 kids while rural families have 5. According to *CultureGrams Online Edition*, “In order to

live a sustainable life, they eat 3 meals a day consisting of rice, beans, and meat. This all depends on if they can afford it and the majority of the time households can not afford meat products.”

Haitians rely on large quantities of fats for it to be sufficient enough to survive.

We take a look into gender roles and how men and women are affected differently when brought up to these situations. According to Maritza Pierre, at Iowa State University (2018), it was not until the 1970s that the thought of the impact on men and women was different. The fact that giving opportunities to women and girls stemming from every age to show their contribution in agriculture. Haitians saw their instability in food security, and women being more known for their perceptions in responsible management of money they are more likely to spend on food and children's needs. Since this was a recent upcoming for womens voice, this is affecting the young and elderly differently, the younger generation might have been introduced to education, strength, and opportunities earlier then Haitians who are elderly.

Financial factors determine a farmer's decisions. Off-farm income and risk aversion are important factors influencing farmers' decisions to adopt soil and water conservation technologies (Budry Bayard et al.). This affects the overall outcome of the productivity of crop production due to the farmers not being able to afford effective materials, from seeds, fertilizers, and equipment. Farmers need to work to overcome this by reaching out to organizations that are working to help farmers in need. This would include the UHP, Union of Haitian Peasants who work to improve the overall quality of life as a small Haitian producer.

Haiti is in a challenging position as more than 2,000 Haitian producers are in urgent need of support. They are needed to make agriculture more efficient and competitive or rational. Some of the problems they are working to solve include poverty, hunger, inequality, and climate change. Villalobos explains in his article “Towards Sustainable and Competitive Agriculture in

the Americas,” “The greatest challenge lies in increasing agriculture investments and rural investments and improving efficiency.” Farmers need to be aware of where their money is going and that it is being put to good use. To improve overall efficiency, Haitian farmers are needing to find solutions to better their crop production at a less costly rate.

One major factor of poverty and malnutrition in rural Haiti is soil infertility. Contributions to soil infertility and erosions include land gradients, rainfall patterns, soil types, and the unsustainable farming practices of impoverished smallholders. Continuing factors to Haiti’s problem is land, as Haiti is predominantly volcanic rock or limestone. Also, there is an acceleration by human activity. This causes deforestation due to the amount of forestry used for household heating. Deforestation then leads soils to be exposed to wind and rainfall, which accelerate the process of erosion (Bargout & Raizada, 2013) .

To solve this devastating problem in Haiti, the solution lies in increasing soil fertility and controlling erosion. In order to increase agricultural production to feed an ever-growing population, soil and water conservation technologies need to be improved. The article written by Bargout and Raizada states that, “A few small steps include tree planting and alley cropping, which would improve the overall soil fertility.” This will also reduce soil loss and be more profitable than the traditional farming system.

Alley cropping, as stated above, could be one solution to the problem. This is one of the soil and water conservation technologies promoted in the last two or three decades in an attempt to mitigate the negative effects of soil erosion (Budry Bayard et al.). In simpler form, it would be row planting with trees in between every 10 or so rows.

In addition, to solve the ongoing problem of soil fertility in Haiti as listed above, tree planting would be a step in the right direction. In order to find a solution, Haitians can plant

faster-growing trees, use better tree harvesting methods or smarter ways to harvest wood, use more efficient stoves, and or use pressure cookers (Bargout & Raizada, 2013). The increase in forestry would better the soil and the crop production because it would increase windbreaks making for an increase in harvest rate.

Soil is one of the most important factors in a healthy crop. To accomplish this, Haitians must increase yields through the more rational use of water and soil (Villalobos). The increase in yields would provide more sustainable food and crops at a higher production rate. Bargout and Raizada suggest that to get better soil, Haitians should use organic matter, meaning manure or waste from animals. It would be beneficial to use this because it is packed full of nutrients to have stronger soil that will give the crop enough nutrients to grow to its full potential and farmers will be able to use their land to the full extent. This will also be more cost-effective and decrease the amount of harmful chemicals that might not be helping the sustainability of the crop.

Other strategies to improve farming include tied ridges, contour farming, and no-tillage agriculture, which are continued solutions to the problem in Haiti of soil fertility and getting the most out of Haitian farmers' land (Bargout & Raizada, 2013). In definition to tied ridges, meaning ridges in between rows to facilitate water. Contour farming is a form of planting not in straight parallel rows to reduce the loss of soil loss from prevention of erosion. Finally, no-tillage agriculture leads to a reduction of soil erosion, an increase in soil biological activity, and an increase in organic matter found in soil. Overall, these improvements to Haitian agriculture would benefit the soil's strength in nutrients, productivity, and fertility.

In conclusion, to better understand and develop a stronger agricultural base in Haiti is to educate and provide knowledge for small farmers allowing for greater production of farmed

goods. It will lead to a decrease in food scarcity, low education, and unemployment. Teaching Haitians about their land and how to better “smart farm” will boost their economy and lead to better developments, improving industries.

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