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Haiti, Factor 7: Animal Agriculture

Haiti: Utilization of Rabbits for Restoration of Soil Quality and Reduction of Food insecurity

Haiti is the country I decided to research because there is much potential for this island's agricultural infrastructure to improve. Haiti is still recovering from the past natural disasters that have impacted the island in the last few years. To add to this problem Haiti's soil quality has been impacted severely by poor farming practices in the past. The poor soil quality has led to lower yields and food insecurity throughout Haiti. With both of these major problems I have created a solution that I believe could reduce the amount of food insecure people in the country.

According to The CIA World Factbook, Haiti is a small semi-presidential republic country located in the Caribbean and shares the island of Hispaniola with the country of the Dominican Republic. Haiti has a tropical climate or a semi arid climate where the mountains in the east cut off trade winds and Haiti has a very rough mountainous geography. The country of Haiti has a area of 27,750 sq km or 10714 miles sq. This area is slightly smaller than the state of Maryland. (CIA)

According to the CIA World Factbook, approximately 66.4% of Haiti's land is used for agriculture, with 3.4% forest land and 30% of the land for other purposes. Agriculture employs 21.9% of the population. Because Haiti's land and employment is primarily agriculture their major crops are coffee, mango, cocoa, sugarcane, rice corn and sorghum.Unfortunately, according to The World Bank 59% of the population of Haiti lives under the national poverty line and many haitians live on less than $2 a day. (CIA)

The country of Haiti has a population of 10.6 million people which is twice as much as Iowa's population of 3.1 million people. Approximately 60% of the population live in urban areas and 40% of the population lives in rural areas. In rural areas, families may have about four to five people per household and live on one hectare of land which is comparable to two football fields. According to encyclopedia Britannica, dwellings in rural areas are made up of are two rooms where the kitchen is located outside and many homes do not have running water. The walls and floors in these homes may be made out of mud. However, the roofs of these dwelling may be made out of grasses, plastic, or metal. (CIA)

Food insecurity and lack to essential healthcare are other identified problems in Haiti. According to the Adoption Nutrition website the average Haitian meal is composed of tropical fruits, rice, and beans which lack the essential vitamins and minerals such as calcium, iron, iodine, vitamin A, vitamin B12 and vitamin C. Children are more susceptible to these deficiencies. However, the food insecurity is being solved by school meal programs. Haiti's healthcare has been improved in since Hurricane Matthew in 2016. In Fact Haiti has become a medical missionary country that offers free healthcare to patients that cannot afford proper healthcare. (USAID HEALTH)

The quality of education in Haiti has also improved slightly through many years of help from various non-profit organizations. Primary enrollment in school is up to 85% according to a report done by USAID. However, the average Haitian that is 25 years old or older have less than 5 years of schooling. Approximately 75% of students that end the first grade and half of students

finishing second grade cannot read and 50% of students reach the 6th grade. (USAID EDU)

Water quality and sanitation is also an issue in Haiti. According to The Water Project only 55.2% of the population has access to a source of improved water also known as piped water. However, 70% of people do not have direct access to drinking water due to the lack of poor water sanitation. In urban areas 25% of people have access to water sanitation but this percentage is lower in rural areas with 10% having access to sanitation facilities. Seeing all the problems that Haiti currently has I feel that I have a solution for a few of these issues. (CIA)

My solution is to incorporate the usage of rabbits in rural areas to improve soil quality and reduce food insecurity to the country of Haiti. According to Voxs News documentary Haiti's soil quality has been affected by poor farming practices during the time period when Haiti was a colony of France. France exploited the land for its natural resources such as lumber and the fertile soil for its numerous crops. Due to the over exploitation of land Haiti has never fully recovered and the effects of this can be seen to this day. (Vox)

When the French exploited the land it took all the nutrients out of the soil and greatly reduced the amount of organic matter due to less trees that shed leaves in Haiti. The organic matter helps the soil become healthy and benefits future generations. According to the Noble Research Institute organic matter greatly benefits the soil. The matter acts as a nutrient supply, increases water holding capacity, increases soil structure, and acts as a erosion barrier. The last point to me really stands out because of the major exploitation of Haiti's natural resources and land has caused Haiti to become more prone to floods and mudslides. As previously stated rural haitians live on one hectare of land which is comparable to two football fields. Due to the small area of living space I believe rabbits would be very beneficial to Haiti. (Guardian)

According to the Rabbit House website, the minimum size of a cage is usually 24” by 24” for production purposes. However, cage size should be based on individual rabbits. Larger cages should be utilized for rabbits that are meant to be bred for reproduction purposes in order to increase the rabbit population. Rabbit cages can be stacked but need a system to remove manure and other waste away from the rabbits to keep them clean. There is also potential for an automatic watering system if producers would like this option as well.

Another reason why I believe rabbits are a good option for the people of Haiti is because of the manure they produce can be used for fertilizer for plants. According to the University of Florida there are many different ways to convey nutrients to plants. These options include Slow-and Controlled- Release fertilizers, inorganic fertilizers, organic fertilizers, dry fertilizers, and water soluble fertilizers. These fertilizers introduce nutrients to your plants in different ways that greatly benefit your plant to produce brighter colors and more yields. Now that we have seen the different types of fertilizer let's compare these and see how they work. (Fertilizer)

The first type of fertilizer that can be used is Slow- and Controlled- Release fertilizers. According to the University of Florida these fertilizers provide nutrients to plants over an extended period of time so you don't have to fertilize as often. These fertilizers also trap nutrients so there is less nutrients lost by weathering of the soil. The second fertilizer that can be used is

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Inorganic Fertilizer. This fertilizer is often mined from non living material and creates a fertilizer that is immediately available to plants. The third type that is used is organic fertilizer. This fertilizer is composted animal manure that is placed by the rows of the crops and is a quick source of nitrogen and other nutrients. The forth fertilizer that can be used is Dry Fertilizer this is a fertilizer that can be applied in many different ways such as sprinkling it over the plants, running it down the rows or you can circle it around the individual crops. The fifth and final fertilizer is water soluble fertilizer. This fertilizer is often used as a quick boost for crops and requires frequent fertilization day after day. (Fertilizer)

As you can see just having fertilizer can be very beneficial for plants and the crops that receive extra nutrients for them to grow. Rabbit manure is considered an organic fertilizer and is also is composed of organic matter that not only is a quick source of essential nutrients but can help the soil structure as well. In fact, rabbit manure is one of the best forms of fertilizer that is available. According to Michigan State University Extension, rabbit manure has four times more nutrients than cow and horse manure and has twice as rich then chicken manure. All three of these manure is considered hot which means they need to be composted first before they are used as fertilizer. Rabbit fertilizer is an excellent source of NPK (Nitrogen, Phosphorus, and Potassium) that is essential for plant growth in fact you can plant crops directly into the rabbit manure. In fact just one doe and her offspring can produce one ton of rabbit manure in a year (Honey)

Rabbits not only can be used for their manure but they can be used for meat purposes as well. According to livestrong.com, rabbit meat is an excellent source of protein. In fact a 3 oz serving of rabbit meat contains 28 grams of protein which is more than beef or chicken. Rabbit meat is also a concentrated source of iron. A single serving of rabbit meat contains approximately 4 mg of iron which can also reduce the iron deficiency found amongst the Haitian population. (Livestrong)

Now that we have seen the great benefits of rabbits let's take a look at what a rabbit can eat to stay healthy enough to live and also benefit its owners. According to Saveafluff rabbits enjoy eating fresh fruits and vegetables as well as fresh hay and alfalfa. Rabbits are also eat a variety of garden clippings so they are a relatively cheaper alternative to the Cow. (Save)

For this solution to be sustainable I believe that we would need support from numerous non-profits that would be willing to help this solution get started in rural areas that need tremendous help. These non-profits would need to help deliver the materials to the country and to the many haitians that could benefit from this idea. This idea would also create a great service trip for students, churches, and other volunteer organizations. The help from these numerous volunteers would be to help set up the hutches and to teach the Haitians receiving these rabbits the general care for these animals.

In conclusion I believe this solution would be very beneficial though it may not solve all of the problems Haiti has. This solution can potentially help the people of Haiti and could be brought to other countries to produce the same result that is reducing food insecurity and improving soil quality that would help their country grow.

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