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### **Pakistan: How diseases affect crops and livestock**

The country of Pakistan has an unusual hot and dry climate all year, which makes growing crops almost impossible. As for the farmers though, they live in an area where the valleys are equally bordered with water and are able to keep the livestock and poultry well fed, and in addition are able to grow crops. Agriculture is the most important business in Pakistan, because this is how people make their living. For a population of 173 million, only sixty-eight percent are employed in agriculture. The last three decades this nation has been enjoying the steady growth of agriculture. In 2002, Pakistan had consistent droughts brought the economic growth to decline. When this decline occurred it caused over thirty eight percent of the farmers to go poor. Each year Pakistan's farmers suffer severe pest infestations, diseases from their livestock and poultry, and crop diseases. Today, a majority of Pakistan's population is more interested in industry than farming because it brings in more money.

Farmers in Pakistan are the most important people because they produce the most crops to feed their people. Since the 1960's, small farmers are known to have higher yield per acre than larger farms because smaller farms produce more crops such as wheat, rice, maize, sugarcane, cotton, fruits and vegetables. These farmers have two main ways of growing these crops. The first way, Rabi, is where they grow half the crops in the winter, while the second way, Kharit, grows the other half in the summer. In an article the Swami once told the Jihadi press that "Pakistan's vast agricultural lands are all extremely dependent on the large amounts of river water.". The minimum wage depends on how much the farmer sells at the market. Tobacco is grown on large acres of land cause it is the leading cash crop. While cotton is the leading export it is mostly grown on the small farms because it is the most efficient way to earn a living. The heavy use of pesticides on the cotton has left the land poisoned.

Due to livestock and poultry, more than forty million people in rural areas depend on livestock. Pakistan's livestock includes goats, sheep, and cattle. However, these animal products are important in the development of the economy because they are the fastest growing sub-sectors besides the poultry. Also the livestock equals up to forty percent of the value in world agriculture, which makes it a major limiting factor. In their country the women play an important role in the care of the livestock. Besides the fact that livestock is the main essential in most foods so is poultry. Meanwhile, over two million people work generates from the employment of poultry. This is why poultry makes over twenty-four percent of the total meat production. On the contrary these animals face three major problems such as high temperatures, lack of water, and shortage of food.

Generally speaking migratory pests are considered the most threatening outbreaks because they are triggered by changing conditions in the weather, and they hit countries that are ill prepared. Meanwhile quarantine pests can be caused by diseases that are introduced to a country during trade or movement of people. No doubt the economic losses are estimated about one billion per year. Nevertheless there can be multiple types of pests. In general locusts can have a change in behavior while they migrate over large distances. Also have a tendency to fly in huge swarms, which gives them the ability to blend in and hide among plants when they rest to eat. The desert locust is known to be the best migratory crop pest because it has speedy outbreaks and has certain scales of infestations such as a deadly plague that develops. Yet they can fly over thirty million square kilometers, and can affect over sixty countries worldwide. Additionally, the larger grain borer was originally from Central America in the 1980's and is considered a serious pest of stored maize and dried cassava. The past twenty years they have spread over many countries, and have caused post-harvest losses. Due to the post-harvest losses they have destroyed over

thirty percent of the stored grain. Farmers often put up to six poisonous pills into a matchbox and stores it with their grain which has caused plenty of casualties.

When farmers in Pakistan are dealing with livestock and poultry they have to be careful of Transboundary Animal Diseases (TAD) these diseases can affect humans, and some of the side effects can result in death. This disease will affect livestock production, poor countries with vulnerable illness regulations; it can also carry a larger burden than others. Animal Diseases and Zoonosis have the tendency to be at the origin of an international crisis. The last two types of diseases that can be found among animals and humans are the Aquatic Animal Disease and the Animal Disease and Pests. Aquatic Animal Disease is a disease that is aggravated by globalization, introduction of new species, and climate change. One example of how disease is spread to people is Pakistan's fishing economy. Their economy leaves their freshly caught fish out in the sun to dry out and rot.

Livestock diseases are very common because most of them are caused by undercooked meat or flooding. These can also be caused by the farmers feeding their livestock spoiled grain. The first type of disease is called black leg; this is where cows, goats, or sheep are standing for a very long time in floodwater. This can affect cattle that are six to twenty-four months old, and causes death. Next, is Anthrax this also is caused by flooding, but this causes the livestock to die suddenly. All diseased livestock should be carefully taken care of by a properly trained veterinarian. The third type is Malignant Edema this disease kills after one or two days and the treatments are rarely effective. Finally, blue tongue this is a highly infectious viral disease which has a limited virus. The mortality rates for these diseases are only fifteen percent, which means that if the livestock has the disease when she is pregnant then there is a slight chance that the calf will survive.

Poultry diseases are the second most common type of disease. Botulism is the most common type of poultry disease, the only way to prevent it is by keeping chickens well away from any decaying matter. Brooder pneumonia affects chickens and turkeys, and the side effects include coughing, fast breathing, etc. Next, is the chicken Anemia Virus this is a very important pathogen because if the chicken is not isolated from the rest then it will cause the rest of the flock to get sick, it is also very time consuming. Furthermore, is Salmonella Enteritis this is one of the most important zoonotic diseases, it must be isolated from all broilers. Lastly, is infectious Bronchitis virus this is a highly contagious virus, which can be manifested as a respiratory condition.

In Pakistan more than 150,000 cattle have died from various diseases. The main reasons were foot and mouth disease, skin infections, and mosquito bites. Foot and mouth disease originated from farmers feeding their pigs farm made swill. Most of the poultry is also at risk because all of their food has been washed away by floods. Because of this many people are waiting for the proper relief work, which may cause malnutrition to occur due to the loss of livestock and poultry. Sana a Pashtun woman complained, "without the livestock and poultry, we can not afford to buy food." As of March 2008 there was a total of 17 million Pakistanis that had sank into food insecurity. Pakistan is also currently having a flu outbreak from birds. It is mostly found in chickens and peacocks. Vehicles found at a bird farm were contaminated with bird feces and saliva; it then posted a grave threat to the spread of poultry diseases. Approximately forty flocks of birds have died from this. Although, there were no cases of human infections, it is still considered a disease because of the past deaths and is believed to be an isolated case. As of July 3, 2006 no recent outbreaks were reported. Consequently, veterinarians run test on the type of diseases to determine if the animals have the disease and, those test are called Ruminant Test. In order to tell what kind of disease is present in the cows they have to take milk samples, and then wait twenty-four hours for the results. As for the chickens, swine, and horses, they take serum or plasma samples and then have them tested 230 times. Scientist in Pakistan are currently working on ways to neutralize the salinity.

Farmers around the world worry about this one particular disease that is found in wheat, This disease is called Wheat Stem Rust Disease or nicknamed Stem Rust. In the first place, it emerged in 1999 in east Africa. Moreover, it is highly virulent to all wheat type varieties, and it causes crop loss. Also, it puts almost thirty-seven percent of all global wheat at risk. This disease is the most feared of all the wheat diseases because it could reduce the wheat production by sixty million tons. Soon the entire world will be affected by the crop loss. The agricultural minister of NWFP said, “ due to the non-availability of proper preservation, most of what we do grow is wasted.”

In order to keep their crops and livestock safe, the country of Pakistan has taken precautions, which then will help control the malnutrition caused by the diseases and pests. They have started a disaster prevention plan. However, the livelihood of their people is considered the most cost effective because they have the government and regional partners that are prepared to prevent on short notice. For this reason, capacity development in Pakistan are strengthening their national vet and plant health services, and are the top priority in preventing them. At the same time protecting livelihoods is the second most top priority because the public needs to be aware of the preventions so that they know what to do when the time comes. Pakistan is also giving support to the human capacity, which in return has caused them to believe that disaster risk reduction should also be a priority. But the policy considers Transboundary Animal Diseases and plant pest a serious threat, and they are exactly right. The people of Pakistan feel that their country is threatened, and they believe that the government should initiate a public awareness campaigns like WRAP.

Today there are new and re-emerging threats that raise concerns, such as the locust species that are now on the move from southern Africa. Approximately, fifteen million people are at the risk of having their crops destroyed. Nevertheless, Pakistan has been aware of these re-emerging threats and has decided that spraying crops with pesticides. It was proven that over thirteen million hectares or pesticides were preventive. Out of the three outbreaks that have occurred in this country all three outbreaks were controlled. Although it only occurred in the central region of Pakistan, the total amount of pesticides resulted in over 390 million United State Dollars. With this in mind Pakistan farmers are using areas that have not been used for agriculture, which the increases the contact between domestic and wild animals. It also affects the farmers that do livestock rearing because they constantly have to find a supply of supplementary feed.

Pakistan’s government through the years has gone from federal republic to parliament. Their current president is General Musharraf, and the people believe that their government should care less about terrorism and legality of accession and focus more on the post-harvest losses. Furthermore, they don’t give the farmers any money to purchase the proper equipment that they need. In return the farmers fear the government because of the prices they set at the market when selling crops. However, in central Pakistan the government is represented by a civil servant known as a political agent. President Musharraf believes that if he controls the imports that it will protect the farmers from the cheap grain that is sold overseas. As of today the government still uses the constitution of 1973.

In order to get these diseases under control by the year 2015, I believe that we have to take the time to teach the people what they can do to help out. Some things the government could do to help out is to start funding projects such as WRAP. They should also purchase the latest equipment for the farmers. The country of Pakistan should build reservoirs to help control the floodwater. Also, they should train the farmers to pick the crops at the right time so the food doesn’t go wasted. Nevertheless, the country of Pakistan should allow Foreign Service to help instead of pushing them away. Foreign aid such as the World Bank put motion to improve the agricultural infract structure. In order to achieve all these things the country needs to learn to build a strong economic base, find other sources of power rather than using the Indus valley, and don’t stick all the money with aristocrat families.

Therefore, all types of Transboundry Animal Diseases can be highly dangerous to all people if they are not appropriately taken care of. On the other hand, farmers have already taken precautions to reduce a pest infestation, which in return has helped prevent thousands of people from getting sick. With our help Pakistan can live in a healthier environment, where the farmers have enough money to food put food on the table for their family and the community. Pakistan has the right vaccinations for the livestock and poultry, but not enough funding. If the government helped fund those, then the animals would be vaccinated. Since casualties have been caused by farmers putting poisonous pills in with their grain, I believe they should try something different so that they don't cause any deaths. Also, the government should not leave all the money with the wealthy families because they would just go out and spend it all. With this in mind, what else do you think we can do to help Pakistan continue rebuilding its country?

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