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### **Foot-And-Mouth Disease in South Korea**

In January of 2011 an outbreak of foot-and-mouth disease quickly spread throughout South Korea. Foot-and-mouth disease affects most slot footed animals: anything from cattle and pigs to hedgehogs and armadillos. The greatest impact of this disease was on the food supply of South Korea. This paper will examine the cause of this outbreak, its impact on the food supply of South Korea, the disease itself and possible solutions to foot-and-mouth disease. (*Foot-and-Mouth in South Korea, TIME*)

Foot-and-mouth disease is a highly mobile disease that can travel a 40 mile radius via any gusts of wind. The disease can survive at room temperature for up to 46 days, making it hard to eliminate in any natural situations. Foot-and-mouth disease has been around for a long time, impacting nearly every country including the United States including a large cluster of outbreaks between 1914 and 1929. The most recent and largest outbreak was in the East Asian county of South Korea early this year. Foot-and-mouth disease is characterized as sores in the feet and in the mouth. It also causes fevers and lameness. (*USAHA: Foot-and-Mouth Disease*)

South Korea is a country surrounded by water. Its size is comparable to that of Indiana with high variable growing conditions and terrain. South Korea has a Republic government that was established in 1948. South Korea has a population of over 48.5 million people, most of which live in highly industrial cities like the countries capital city of Seoul. A typical South Korean diet will consist of lots of rice and noodles as well as a large consumption of vegetables. South Koreans have only recently begun to consume large quantities of meats like beef and pork. (*CIA, World Fact Book*)

As a producer of show pigs I know that if one pig has a sickness the best reaction is to quarantine, or remove, that pig from the herd. Pigs spread diseases very easily because they are in constant contact with each other. For a small pig producer like myself this is an easy task, a small producer can quickly identify a lame or sick hog and remove the infected animal quickly. A large corporate farming operation will have a harder time identifying an infected animal, finding a solitary place to confine the animal and ridding the herd of an illness.

Farms in the United States have an effective, preventative strategy to fight easily spreadable diseases like foot-and-mouth. Anytime there is a visitor into a production facility that person must disinfect their shoes and wash their entire body to stop the spread of disease at the door. This type of preventative maintenance can stop diseases from jumping from one farm to another.

One way that the South Korean government combated foot-and-mouth disease was to cull, or kill, large amounts of livestock in fear that they might be contaminated with the foot-and-mouth disease. As a producer of hogs I understand what a devastating affect a total wipeout of a herd would be. Without proper funding many operations would have to give up production due to the

high cost of buying a new herd and starting production with a brand new herd. (*Foot-and-Mouth in South Korea, TIME*)

Pigs are a great source of food for many countries, including the United State and South Korea. There are many products that come from pigs including: hams, sausage and bacon. Pigs are also made into dog treats and snacks such as pork rinds. Pigs can also be used in medicine: the heart valves from pigs can be planted in humans for new valves for human hearts. The bones and skin of a pig are not thrown away either, these parts can be used to make many gelatins.

In order to get familiar with the situation in South Korea I decided the best approach to gather information about foot-and-mouth disease was to interview a Korean family about their experiences with the disease. I was made aware of this family through a foreign exchange student at a school close to Vevay. Below are some of the insightful questions and answers I received from this family. (*Jung, Interview*)

1) Has Foot-in-Mouth disease affected you personally?

*Not really, though we did hear about it through the news. We were told that the problem was being taken care of by the government.*

2) Have you seen an increase in the price of meat that you buy?

*Yes, the price of beef and pork rose but has now steadied. It is higher now than it was before the foot-and-mouth outbreak. We eat a lot of Tofu, and so we use more of that now that the price of meat has gone up.*

3) If you have livestock, has it affected your herd in any way? If so, how?

*We do not have any livestock but from our understanding the families that produce livestock have lost a lot of animals because they had to kill all the possibly effected animals.*

4) Has the outbreak affected your community?

*It was in the news and many people were scared about the possibility of people getting sick from this disease. That did not happen though in our community.*

5) If you consume the contaminated meat, will it harm the consumer?

*I do not believe that South Korean markets would let contaminated meat on the shelves.*

The foot-and-mouth outbreak in South Korea impacted not only people but the prices of the food products. Fear seemed to be an ongoing theme of the interview, the people of South Korea were

not prepared for this outbreak, nor did they seem to really understand what was going on. (*Jung, Interview*)

In order to establish the best means for combating foot-and-mouth disease let's look at some of the characteristics of this disease that make it so hard to defend. Foot-and -Mouth disease is spread through the air or any means of transportation, examples of ways that foot-and-mouth disease can be spread are wildlife, feed, clothing on people working with the animals, and farm equipment.

Foot-and-Mouth disease can be classified on a scale from "minor and contained" to "major and out of control." When foot-and-mouth disease becomes major and uncontrollable like the case in South Korea drastic measures like culling, or killing, millions of animals becomes the only way to stop a major world-wide outbreak of this disease. Because this disease affects so many different types of livestock an uncontrollable outbreak would not only decrease the supply of hog products but all livestock related goods. A smaller containable outbreak of this disease may not cause National headlines, but if not controlled correctly the disease will spread rapidly. (*Mesmer, World News*)

Controlling a small outbreak of foot-and-mouth disease requires a producer contact their local government and inform them of the problem. The government and producer will work together to eliminate the infected animals, then the producer must decontaminate all other livestock on the farm as well as all equipment, clothes or other items that might have come in contact with the infected animals. (*APHIS*)

Foot-and-mouth disease can ruin a food supply dependent on animal meats. As stated earlier the Asian country of South Korea has increased its demand for livestock meats like pork and beef due to an increase in the average income in that country, the main alternative to livestock meats in South Korea is Tofu, a soybean based food product high in protein, but with more South Korean people eating beef and pork a threat to that supply caused a huge problem in their nations food supply. (*CIA, World Fact Book*)

The foot-and-mouth outbreak of 2011 in South Korea caused a decrease in the supply of pork products in the country of South Korea. Any decrease in a supply of a good will cause the price of that good to rise. This is backed up from the interview conducted with the South Korean family as they pointed out the price of meats did rise. A rise in the price of a food product will eliminate lower income consumers from purchasing that product. If these lower income consumers have relied on this product as a major source of caloric intake their diets will be limited to the alternative food sources they have available. (*NetMBA, Supply and Demand*)

The question becomes how do you contain and eliminate foot-and-mouth disease before it becomes a global issue impacting food security. I feel the best way to do this is to soak the infected areas in a naturally acidic solution that will kill the virus. According to the United States Animal Health Association Grey Book: "a 2% acetic solution or straight vinegar will be the best solution to foot-and-mouth disease."

After some research I found that South Korea is a large producer of “Persimmon Vinegar” with a pH of approximately 3.0, a highly acidic product that South Koreans have in high supply. This would be the most effective fight against another outbreak of foot-and-mouth disease in South Korea. (*CIA, World Book*)

Along with finding a washing method to contain an outbreak of food-and-mouth disease I also feel it is very important to support and educate South Korean people on preventative methods like washing your clothes and feet before entering a livestock production facility. This along with educating the public on what happens when an outbreak of foot-and-mouth disease occurs will prevent the fear and confusion experienced by the Korean family I interviewed.

The foot-and-mouth outbreak in South Korea was not well contained, but luckily tofu served as a viable food source. What we can learn from the South Korean outbreak in January is that proactive measures like washing your feet and clothes before entering a production facility will help stop the spread of disease. We can also see that having a low pH substance like persimmon vinegar identified as a possible disinfectant can stop the spread of and livestock disease. Food alternatives like tofu in South Korea are also crucial to maintaining a viable food system in any country.

## Works Cited

- APHIS. *Veterinary Services. APHIS International*. Web.  
<[http://www.aphis.usda.gov/publications/animal\\_health/content/printable\\_version/fs\\_foot\\_mouth\\_disease07.pdf](http://www.aphis.usda.gov/publications/animal_health/content/printable_version/fs_foot_mouth_disease07.pdf)>.
- "CIA - The World Factbook." *Welcome to the CIA Web Site — Central Intelligence Agency*. Web. 08 Sept. 2011. <<https://www.cia.gov/library/publications/the-world-factbook/geos/ks.html>>.
- "Foot-and-Mouth in South Korea: 1 Million Farm Animals Slaughtered - TIME." *Breaking News, Analysis, Politics, Blogs, News Photos, Video, Tech Reviews - TIME.com*. Web. 08 Sept. 2011. <<http://www.time.com/time/world/article/0,8599,2042942,00.html>>.
- Jung, Jin Hee. "Foot-and-Mouth in South Korea." E-mail interview. 18 Aug. 2011.
- Mesmer, Philippe. "Public Health Worries after Foot and Mouth Epidemic in South Korea | World News | Guardian Weekly." *Latest News, Comment and Reviews from the Guardian | Guardian.co.uk*. Web. 08 Sept. 2011. <<http://www.guardian.co.uk/world/2011/feb/15/south-korea-foot-mouth-mesmer>>.
- "Supply and Demand." *NetMBA Business Knowledge Center*. Web. 08 Sept. 2011.  
<<http://www.netmba.com/econ/micro/supply-demand/>>.
- United States Animal Health Association. *Foreign Animal Diseases*. Seventh ed. APHIS. 2008. Web. 15 Aug. 2011. <[http://www.aphis.usda.gov/emergency\\_response/downloads/nahems/fad.pdf](http://www.aphis.usda.gov/emergency_response/downloads/nahems/fad.pdf)>.