Next we will discuss the importance of agriculture to the nation and more specifically, Iowa.

As we all are aware, agriculture is an essential part of the U.S. and Iowa’s economy. The U.S. had over two million farms, in 2002, caring for nearly one billion acres of farm land. This reflects a change in U.S. agriculture within the last century. While roughly 39% of the U.S. population lived on farms in the 1900s, today that figure is less than 2%. Farms today are more specialized and much larger and consolidation is occurring at all levels. Over the last decade, while the average number of farms and farm acreage have decreased, the average farm size (livestock population) has increased. This can be an important factor in the case of a disease outbreak as the spread of disease can be rapid when animals are raised in greater numbers. It is a monumental task to protect all of our farms and food supplies and requires everyone’s efforts. Vigilance on the part of the farmer/producer is essential, and so is early reporting. [Map from 2002 Census of Agriculture (this is the most current information at this time). Available at http://www.agcensus.usda.gov/research/atlas02/. Accessed 01/02/08]

In the United States, agriculture and related industries contribute over 1 trillion dollars to our Gross Domestic Product (GDP) annually and employs more than 15% of our workforce. (Monke J. 2004. CRS Report for Congress 2004, Agroterrorism: Threats and preparedness.) Agriculture is also heavily tied to other industries (good and services), such as equipment manufacturers, feed suppliers, transportation, food retailers, restaurants, hotels, and tourism, to name just a few. As you can see, a healthy agriculture economy is vital to the U.S. economy as a whole. Any significant disturbance in this smoothly operating system that subsequently affects the food supply and demand has the potential to: create higher prices domestically and abroad, increase unemployment, reduce trade, and result in a concurrent negative impact on reliant industries.

When we look at the economics of livestock at the national level, we see it is of major value. From pigs and poultry to cattle and sheep, animal agriculture generates needed income for producers and the economy while supplying safe product to our tables. Listed is the economic importance of livestock and poultry in our nation and estimated numbers (2005 for U.S. and 2006 for Iowa). These are live animal values and do not consider the value of the products we harvest from these species. Data from http://www.usda.gov/nass/pubs/stathigh/2005/lvstkindex.htm and Source: http://www.agriculture.state.ia.us/quickFacts2.htm
The food of America is now produced by fewer farmers located in more geographically defined parts of the country. Here in Iowa pigs and layers are our top commodity, but we have a large number of cattle, and sheep and goats. This consolidation means that occurrence of an animal disease could be used in a relatively focused region of the U.S. but have widespread national repercussions. (Maps from http://www.nass.usda.gov/research/atlas02/)

Here in Iowa, agriculture and livestock are major components of our economy with 88,600 farms, supporting over 63,000 jobs in the state. In 2006, Iowa led the nation in the production of pork, corn, soybeans and eggs and was second nationally in red meat production (6.5 billion pounds) and agricultural exports ($4.02 billion). Total cash receipts for farm commodities in Iowa in 2006 were almost $15 billion dollars, third in the nation. The number of animals in Iowa is also quite impressive, with over 51 million egg layers with 13.8 billion eggs produced and a gross income of $407 million. Turkeys accounted for over 274 million pounds and $123 million in turkey production. Over 17 million swine are raised in the state (about 5-1/2 hogs for every person in the state) with cash receipts of $4.15 billion. Cattle account for $2.5 billion in cash receipts from almost 4 million head in the state. There was an average of 205,000 milk cows with 4.13 billion pounds of milk produced and dairy cash receipts of over $530 million and over 235,000 head of sheep and lambs with cash receipts of $22.2 million. [Source: State of Iowa, Department of Agriculture and Land Stewardship, Quick Facts about Iowa Agriculture, 2005 Livestock Summary. http://www.agriculture.state.ia.us/2006AgStats/06_76.pdf, www.agriculture.state.ia.us/quickFacts.htm and www.agriculture.state.ia.us/quickFacts2.htm. Accessed 01/02/08.]

An animal disease emergency can impact animal health, economics and possibly even human health. If a foreign animal disease is discovered, the impact could be felt in 24 hours because livestock and livestock product exports would be halted. Allied and reliant industries, such as restaurants, grocery retailers, food processors and distributors, and transporters have direct and indirect ties to agriculture and would be impacted significantly. Costs would also be generated due to the needed measures for eradication and control of the disease (e.g., disease surveillance, diagnostic testing, tracing of exposed animals and their movement, implementing and maintaining quarantines, depopulation costs, indemnity paid to the farmer), … the list and impact could be extensive. Some losses due to a foreign animal disease may take years to fully realize.
A healthy agriculture economy is vital to the U.S. economy as a whole. The U.S. food and fiber system accounted for 16.4% GDP, and added $1.5 trillion to the National GDP; the farm sector alone accounted for $69.8 billion (Edmonson, 1999). In 2006, the U.S. exported $70.9 billion in agricultural commodities (http://www.ers.usda.gov/data/FATUS/monthlysummary.htm); $12.2 billion came from animals and animal products. An animal disease emergency has the potential to create higher prices domestically and abroad, increase unemployment, reduce trade, and result in a concurrent negative impact on reliant industries. The occurrence of most of the high consequence listed diseases will result in trade disruption and embargos. Loss of confidence by importing countries or consumers can also lead to major economic repercussions. The loss of exports can have a negative effect on the economy and livestock producers. Approximately 17% (24 million people) of the total U.S. workforce is involved the food and fiber system in some manner (1999). These allied and reliant industries (e.g., restaurants, grocery retailers, food processors, distributors and transporters) with direct and indirect ties to agriculture would also be impacted by an animal disease emergency; the unemployment rate and loss of business could increase. (USDA Outlook Report, Nov 25, 2003 http://usda.mannlib.cornell.edu/reports/erssor/trade/aes-bb/2003/aes40.pdf)

The occurrence of an animal disease emergency can also impact human health. Some of the listed high consequence diseases are zoonotic (diseases of animals transmissible to humans). Illness in persons in contact with infected animals may lead to workforce disruptions. Following the necessary repercussions and control measures from an animal disease event, there may be a psychological or mental health impact. Depression, suicides and other mental health issue may occur in livestock producers, veterinarians and the local community, following the loss of livestock. Additionally, the public could be shocked by some of the images the outbreak produces and alter their buying habits as consumers. It is unlikely that an agroterrorist attack would create mass food shortages; but movement restrictions could complicate availability temporarily.

While most of the USDA and OIE listed diseases do not occur in the U.S., they do occur in other parts of the world. Trade and transport increases the possibility of introduction. This graphic shows some of the new or emerging animal diseases that have occurred worldwide in the last two decades.

What makes U.S. and Iowa agriculture vulnerable? Animals are raised in high concentrations (cattle feedlots, swine confinement units, poultry barns) which can lead to the rapid spread of a FAD. Animals are often transported great distances, sometimes over 1,000 miles, and mixed at auction markets. Auction markets allow for mixing of animals from around the state or neighboring states, presenting the opportunity for the exchange of infectious diseases such as FMD or hog cholera, and exposing others in a crowded setting. The U.S. is currently very inefficient in our ability to trace animal movement, making the tracking of disease outbreaks difficult. The USDA National Animal Identification System (NAIS) has progressed to get animal owners to register their location or premises. However, it is voluntary and the second step, animal identification, is not as advanced. Most severe, highly contagious diseases of livestock have been eradicated from the U.S., and vaccines are not used for these diseases, livestock have no immunity to FADs. Another concern is our centralized feed supply and distribution; feed can be an ideal vehicle in which to distribute an agent or compound. One feed manufacturer can supply hundreds or thousands of farms, unknowingly distributing an infectious disease agent throughout the country.
Vulnerabilities

- Diseases are widespread in other countries
- Expanded international trade and travel
- Border penetration: people, wild birds, mammals
- Inadequate on-farm biosecurity
- Inadequate foreign animal disease awareness

We are a global society and our international trade and travel has greatly expanded in the last quarter century. With the widespread distribution of infectious disease agents in other countries, we are very vulnerable to the accidental or intentional introduction of these pathogens. Our mobile society leaves our borders open for trade, making us vulnerable to agents or contaminated equipment being smuggled in if inspections are not thorough. Another concern is the lack of biosecurity for our animals and plants, which will be further discussed. Finally, there is also a great need to improve foreign animal disease (FAD) awareness and education among veterinarians and producers. We all must be able to recognize the signs and know how to report them in order to decrease our vulnerability to disease spread. Today’s presentation is designed to give you some of those tools.

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