Economic Reasons to Improve and Maintain Biosecurity
Grade A Large Egg Prices

- December 2014
  - Avian influenza confirmed
Barrows and Gilts Prices

April 2013
PEDv reported
Nebraska Steer Prices

May 2003
BSE confirmed in Canada

Dec 2003
BSE confirmed in US
Biosecurity and Markets

- There **may** be an opportunity to benefit from market price changes due to outbreak of disease in the country.
- You have the opportunity to benefit **IF** you are one that does not get the disease.
Economist Thomas Elam,
- The cost of those lost birds was $1.57 billion
- the further costs to businesses that support farms, to egg and poultry wholesalers, and to food service firms, pushed the loss to $3.3 billion.

One of the perverse impacts of disaster is there are winners not always considered in economic analyses.
- Those who clean up and rebuild
- Those who have higher prices from supply shortages
Cost of 2013-14 PEDV Outbreak

- Farrowing sows: decreased 0.25%
- Pigs Saved per litter: decreased 3.0%
- Number of pigs slaughtered: decreased 4.6%
- Carcass Weights: increased 3.3%
- Price of pork: increased 10.3%
- Overall economic situation for US hog producers: benefit
- Economic situation for producers breaking with PEDV: massive losses.

(Schulz and Tonsor. 2015. J. Anim. Sci.)
Brad Moline, a third-generation turkey farmer from Manson, Iowa, were forced to destroy their entire flock, 56,000 turkeys housed in 12 barns. Lost at least two-thirds of their income for the year. Incurred the costs of composting dead birds and disinfecting the barns. Faced the uncertainty of not being able to restock with baby birds.
Economics of Biosecurity

1. Hazard Assessment: Prioritize different hazards
2. Management strategies and methods
3. Cost estimates of disease outbreaks
Hazard Assessment

Risk = probability x impact

- Probability
  - of entry
  - of spread

- Impact or likely consequences
Management Strategies

- Prevention
- Eradication
- Containment
- Control

Problem: private producers are not necessarily interested in diseases that cause large trade disruptions but where production losses may be modest (Heikkila, 2008)
Preventative actions are the best strategy given the uncertainties involved and the difficulties of controlling disease reactively.

Preventive actions
- focus on reducing the probability of a disease outbreak
- Cost money with uncertain payback
Cost of preventing another Avian Influenza outbreak

- Rob Knecht, president of the Michigan Allied Poultry Industries,
  - Require farms to book the episodic crews they use for short but labor-intensive tasks such as moving large flocks from barn to barn, and not sharing them with other farms.
  - Create worker “locker rooms” at local hotels, with clothing and boots provided, and driving them back and forth in disinfected vans.
  - Construct new shower facilities on farms, for every worker to use, or procuring mobile shower units that are delivered to farms by truck.
  - Build disinfecting troughs and tire sprayers at every farm entrance and assigning workers to monitor the gates so that every vehicle goes through disinfection.
Management: Trace back capability

- A case study of foot-and-mouth in the Texas High Plains
  - Control costs of the outbreak significantly increase if tracing does not occur until day 10 as compared to the baseline of day 2.
  - Control costs significantly increase if trace back were to drop to 30% from the baseline of 90%.
- Trace back is enhanced by premise ID
Cost of disease prevention

- Most preventive actions incur costs
  - Buildings and equipment
  - Management time
  - Employee training
- Look for costs that can be linked to benefits
  - Modified buildings may yield energy savings
  - Training employees may yield productivity improvements
Hazard Estimation: cost of disease outbreak

- Immediate cost of disease to the producer
  - reduced production
  - death
- Intermediate cost of disease – failure to meet contract specs leading to loss of contract
IF your farm experiences disease outbreak, how do you manage the farm finances?

- **Develop a plan. Costs time and money.**
  - If disease occurs, will give guidance when busy with other activities.
  - If disease never occurs, probably helped in managing the business in other ways.
- **Financial plan needs to consider the worst case scenario**
  - manage a period without farm income and additional expenses
  - Specifically address:
    - Mortgage obligations
    - Communication with suppliers and buyers or contractor
    - Estimate cash needs and degree of cash shortage
    - Plan various options to fill that cash shortage