

# National Animal Identification System Benefit-Cost Analysis

During 2007–2008, Kansas State University completed a benefit-cost analysis of the U.S. Department of Agriculture's (USDA) National Animal Identification System (NAIS). At the request of USDA, researchers developed the independent study to provide a comprehensive assessment of the economic benefits and costs of NAIS. The study's findings were published in an April 2009 report, which contains more than 400 pages of detailed analysis.

## About the NAIS Benefit-Cost Analysis

Researchers from four universities worked for more than a year to analyze the benefits and costs of NAIS adoption across multiple species and at varying participation rates. They also examined the benefits and costs for producers with various herd sizes and also for markets, processors, consumers, and State and Federal governments.

University researchers completed the benefit-cost analysis using the best data available and the most accurate modeling practices. As a result, the findings provide USDA, its stakeholders, and the public with the researchers' best estimates of what they anticipate would result from the adoption of NAIS.

To provide as accurate an estimate as possible of producer costs, researchers analyzed and reported numbers broken down by producer size and operation type. Some species groups were broken down even further for analysis. In certain cases, available data was insufficient for researchers to produce more precise estimates.

In the report, the costs estimates provided within producer subgroups are average costs. For an idea of the potential range of NAIS-related costs, producers should review the cost estimates in the report that correspond with their type and size of operation. However, because these costs are averages, there are many operation-specific variables that can result in costs that are higher or lower than those listed in the report.

## Key Findings

- As a result of NAIS, the Federal and State governments' savings in connection with the administration of animal disease control and eradication programs are significant, but they are only part of the overall benefits.
- Economic benefits in both the domestic and international marketplace resulting from enhanced traceability may be greater than the cost savings realized during animal disease control and eradication efforts.
- For industry, the effect of not implementing some aspects of NAIS (maintaining status quo) may result in significant losses—as great as \$1.32 billion on average per year over a 10-year period due mostly to reduced export market access.
- Implementation of NAIS becomes more cost effective as participation levels increase and actually may not be economically viable at lower participation levels.
- The cattle industry cost represents 91.5 percent of the total cost of NAIS; the swine, sheep, and poultry industries account for the rest. Identification tags and tagging cattle represent 75 percent of the cattle sector's annual adoption cost. Estimated tag and tagging costs vary among cattle producers with 50 head from \$3.30 to \$5.22 per cow, depending on current identification practices.
- The swine and poultry industries each have a lower cost because animal tracing requirements for these species require less infrastructure and often no individual identification devices.
- Traceability is becoming a global standard that will likely affect the ability of the United States to compete globally.
- The total cost for implementing NAIS in the cattle sector as described in the study is \$175.9 million annually (at a 90 percent participation level). Although significant, the cost is less than one-half of a percent of the retail value of U.S. beef products.

## Benefits of NAIS Adoption

- enhances animal health surveillance and disease eradication
- reduces economic impact of disease outbreaks

- eases re-establishing market access by regionalizing animal populations
- reduces producers' animal disease testing costs
- enhances animal welfare in response to natural disasters
- facilitates country-of-origin labeling requirements
- increases transparency in the supply chain

### **Cattle Industry Highlights**

- The annual cost of NAIS adoption for the cattle sector is estimated at \$209 million.
- Within the cattle sector, producers' current management practices can have a sizable impact on their cost of adopting an animal ID system.
- Smaller operations will likely be slower to adopt identification systems because they incur higher per unit costs. Average incremental costs for mid-sized producers, though, were similar to cost of the largest operations.
- A full traceability program would add an estimated average of \$5.97 per head to the cost of cattle marketed.
- The estimated cost of a bookend system is roughly 79 percent of the full traceability system.

### **Swine Industry Highlights**

- The annual cost of NAIS adoption for the swine industry is estimated at \$6.4 million.
- The majority of the cost is associated with recording/reporting data.
- Smaller operations will likely be slower to adopt identification systems because they incur higher per unit costs. Average incremental costs for mid-sized producers, though, were similar to cost of the largest operations.
- A full traceability program for swine would add an average of \$0.06 per head to the cost of hogs sold.
- The estimated cost of a bookend system is slightly less than \$2 million, which is less than 30 percent of the cost of a full traceability system.

### **Sheep Industry Highlights**

- The annual cost of NAIS adoption for the sheep industry is estimated at slightly more than \$3.6 million.
- The majority of the cost is associated with recording/reporting data.
- Smaller operations will likely be slower to adopt identification systems because they

incur higher per unit costs. Average incremental costs for mid-sized producers, though, were similar to cost of the largest operations.

- The costs for NAIS adoption do not vary greatly across sheep operations, which indicates higher rates of adoption might be easier to obtain in the sheep sector compared to other sectors.
- A full traceability program for sheep would cost an average of \$1.39 per animal.
- The estimated cost of a bookend system is slightly under \$2.5 million, which is only 67 percent of the cost of a full traceability system.

### **Poultry Industry Highlights**

- The annual cost of NAIS adoption for the poultry industry is estimated at \$9.1 million.
- Smaller operations will be much less likely to adopt identification systems because they incur significantly higher per unit costs.
- The average industry costs are not particularly high—ranging from \$0.0007 to \$0.0195 per bird, depending on the type of operation.

### **Equine Industry Highlights**

- The equine industry is complex, making it difficult to define and analyze.
- The total cost of 100 percent adoption of full animal ID/tracing is estimated at \$75.9 million per year, which constitutes only 0.20 percent of the industry's economic impact.
- The equine export market represents \$460 million annually, and any major disease outbreak would adversely affect this market.

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