

# Questions and Answers: National Animal Identification System Benefit-Cost Analysis

## Q. What is a benefit-cost analysis?

A. A benefit-cost analysis is a scientifically-based assessment from an economic perspective. It is an attempt to identify and express in dollar terms all of the effects of a program or policy.

## Q. Why was this analysis completed?

A. This benefit-cost analysis was conducted to look at the economic benefits and costs associated with the adoption of the National Animal Identification System (NAIS). The study considered a wide range of participation levels for the premises registration, bookend, and full traceability options in NAIS.

## Q. What is the difference between a bookend system and full traceability?

A. A bookend system provides two locations for tracing an animal—first, the birth premises or the location where the animal was first tagged and second, the current location or where the animal died.

A full traceability system provides the information on what locations the animal visits between those bookend points.

## Q. Who conducted the analysis?

A. The benefit-cost analysis was conducted by a multi-institutional team of economic researchers.

The team was led by Kansas State University, with contributions from Colorado State University, Michigan State University, and Montana State University. In total, the team was comprised of 10 researchers.

## Q. When did the analysis take place?

A. The analysis took more than a year to complete. It began in fall 2007 and ended in fall 2008. The researchers' final report was received by the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) in February 2009, reviewed by APHIS economists, and published in April 2009.

## Q. What species were examined in the analysis?

A. The analysis focused on the bovine, porcine, ovine, poultry, and equine industries. The report also includes some discussion about minor species groups.

## Q. What production chain sectors did the study consider?

A. The study looked at the benefits and costs for livestock producers (divided by production phase), livestock markets, and packer operations. The sectors and production phases were broken down by operation size to provide additional accuracy in the analysis. The benefits and costs for Federal and State governments also were examined.

## Q. What costs were considered?

A. The researchers were very thorough in their examination of costs. They took into account the following items in their calculations (where applicable to the species under examination):

### Tags and Tagging Costs

- cost of the tag
- cost of tag applicator and/or application service
- labor costs
- chute costs (for working animals)
- shrink (potential for animal weight-loss during sorting and tagging activities)
- potential injury to the animal during tagging
- potential injury to people during tagging

### Reading Costs

- cost of reading the tag electronically (cattle only)
- cost of reading visual tags and recording the ID number (swine, sheep)
- additional time spent in a chute for reading
- potential injury to animal during reading
- potential injury to people during reading
- cost of an electronic reader (wand or panel, depending on the size of the operation)
- data accumulation costs (computer, software)
- database storage costs
- Internet access costs
- printing costs (for labels where group/lot identification is utilized)

### Premises Registration Costs

- an individual's management time, mileage, and paperwork needed to register his or her premises (registration itself is free)
- costs for updating his or her own premises information

**Q. What were the results of the analysis?**

**A.** The NAIS Benefit-Cost Analysis report contains more than 400 pages of detailed analysis offering the researchers' best estimates of the anticipated costs and benefits.

**Key Findings Include:**

- 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.

For species-specific key findings, please see the individual species benefit-cost analysis factsheets. For an overview of the report, click here. The entire report is available at [http://www.usda.gov/nais/naislibrary/documents/plans\\_reports/Benefit\\_Cost\\_Analysis\\_NAIS.pdf](http://www.usda.gov/nais/naislibrary/documents/plans_reports/Benefit_Cost_Analysis_NAIS.pdf).

**Q. What do the results mean?**

**A.** In short, the report provides evidence that the cost of implementing the NAIS as a tool for increased

livestock traceability can be offset by modest and achievable gains in the private and governmental sectors. These gains can be expected as a result of the improved traceability and demonstration of a working system.

**Q. What are the estimated costs for implementing NAIS?**

**A.** Annual estimated costs for implementing NAIS today throughout the livestock (food animal) industries ranged from roughly \$143 million for a bookend approach with 90 percent participation, to \$228 million for full pre-harvest traceability with 100 percent participation, with other options falling in between.

**Q. Did the researchers encounter any challenges or limitations while completing the study?**

**A.** Yes. The researchers spelled out the limitations they encountered during the study in their report.

These limitations include:

- insufficient data for precise estimates (in some areas)
- a lack of reliable data from the hobby industries
- benefits and costs are based on current pricing and technology—both of which will change over time
- the rest of the world is assumed to be static, or unchanging
- costs listed are probable and benefits listed are potential

**Q. How were the limitations addressed?**

**A.** This is a forward-looking study. The estimates provided in the report are the most accurate forecasts of what is likely to happen. The researchers used the best data, models, and resources available to them to complete their analysis. Researchers supplemented the public data with industry expert opinion as needed.

Where the researchers had ranges of costs available, they tended to use median or upper range estimates. Therefore, the cost estimates are likely higher than what industry would experience. On the benefits side, the researchers focused on the animal disease management and likely market access affects of NAIS, leaving out the other benefits likely to accrue. As a result, the researchers indicated that the benefits were likely underestimated.

Many benefits of NAIS adoption listed in the study were not fully explored or quantified. This is an area where additional work would allow for numbers/estimates to be attached to those benefits.

The study is careful to provide as accurate an estimate of producer costs as possible by breaking the numbers down by size and operation type. Some species were broken down even further. The costs provided within these subgroups are averages. Producers

should look at the numbers for their type and size of operation for an idea concerning the potential range of costs. However, these costs are averages, and there are many operation-specific variables that can cause the costs to be higher or lower than those listed in the report.

**Q. What does this study mean for the future of NAIS?**

**A.** NAIS adoption will move forward.

The study was quite clear about the importance of traceability. Traceability, which NAIS provides, is becoming a global standard. When looking at the global marketplace, the United States is currently lagging behind its major competitors and its major markets in providing traceability. It will be necessary to have traceability in order to compete on the global market.

NAIS is a long-term investment in not only emergency preparedness and response, but also in the competitiveness of our livestock sector in international markets and consumer confidence in our food supply. In the case of an animal disease outbreak, NAIS would enable the United States to demonstrate that certain areas are free of disease, potentially limiting market closures (and the resulting economic impact).

Traceability, whether “farm to fork” traceability for food safety purposes or traceability for animal disease purposes alone, is also important to all producers and segments of the preharvest production chain for marketing purposes.

The growing importance of animal identification and traceability helps ensure that countries can manage zoonotic diseases, which do not recognize international borders and consequently pose risks to livestock and public health. The United States must have an internationally-recognized animal disease traceability system.

**Q. Why did it take so long to complete and publish the study?**

**A.** The study is very comprehensive. It took researchers considerable time to fully explore the topic. They needed to find relevant data for their calculations, complete the calculations, and then figure out what the calculations meant. To produce an accurate analysis,

this process could not be rushed.

Once the analysis was complete, the researchers provided their report to USDA, who commissioned the study. Before releasing the report, USDA had several economists who did not participate in the research review it to ensure that it was completed correctly and thoroughly. Technical experts on NAIS also reviewed the report to make sure the researchers’ assumptions about the program were accurate and that the analysis covered the topics requested in the proposal. Due to the length of the report, at more than 400 pages, this review process took several months.

---

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.