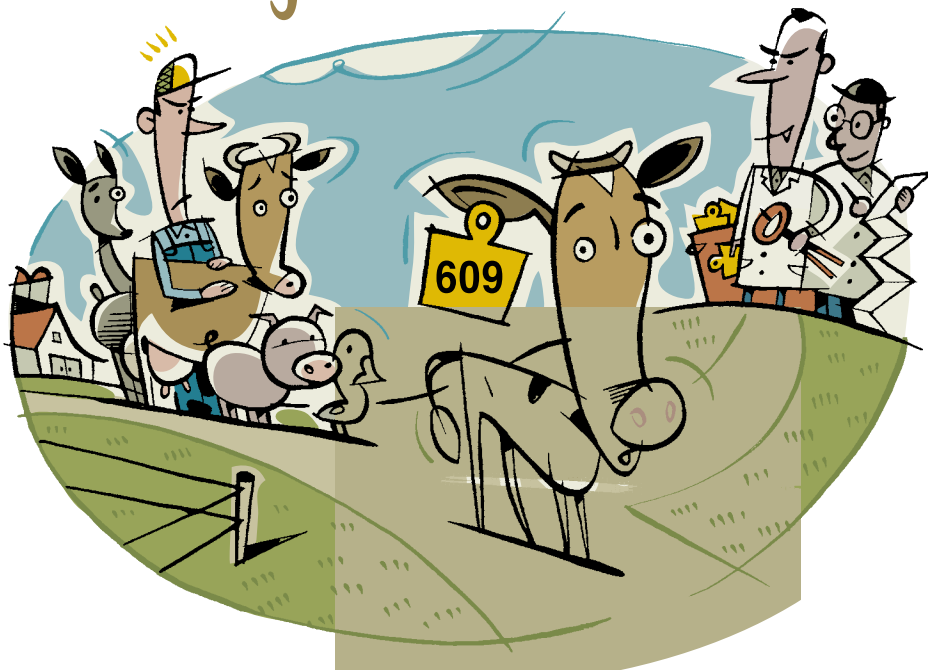


# Barnyard Boon or Bust?

## The National Animal Identification System (NAIS)

By Michael R. Pakko



producers could choose their level of participation in the program.<sup>6</sup>

Agriculture Department officials envision the identification system as a “public/private partnership.” However, the lack of a clear division of costs among various levels of government and producers has created uncertainty.

### Benefits and Costs

When evaluating public policy issues, a fundamental benchmark of analysis is a cost/benefit study. The principle is simple: It is worthwhile to implement or expand a program as long as the benefits exceed the costs. In practice, these costs and benefits can be difficult to quantify. Nevertheless, policies should not be implemented without a general consideration of this criterion.

With NAIS, no formal cost/benefit analysis has been undertaken, although work is under way on such a project. The *User's Guide* sketches out the general considerations.

The benefits of the program should be calculated as the saving made possible by improved trace-back of disease outbreaks. For example, if improved tracking allows for only 2,000 animals to be isolated and tested, rather than 20,000, the lower cost should be considered a net benefit. The nature of the issue makes this exercise, in part, an analysis of risk. The relevant calculations should include the probability of specific disease scenarios, estimates of the costs of these scenarios and estimates of the savings that improved tracking procedures could provide.<sup>7</sup>

The cost of identifying every U.S. farm animal has been the focus of much critical attention. Agriculture Department officials foresee state governments and producers paying for much of the program. Federal funding for the program was only \$18.8 million in 2004, with \$33 million per year in subsequent years. This funding level has been sufficient to pay for initial administration costs and to provide support to states for setting up premises identification.

States and producers will pay for the remaining costs, which are likely to be substantial.<sup>8</sup> Having established criteria for uniform

City residents might not have heard much about it, but a program to identify and track U.S. farm animals has many farmers and ranchers angry and suspicious.

Now being implemented by the U.S. Department of Agriculture (USDA), the National Animal Identification System (NAIS) calls for registering all premises involved with animal agriculture, tagging all farm animals and tracking these animals through a system of producer-reporting and state-managed databases.

Opponents of NAIS worry about data security and cite objections to the program on constitutional and religious grounds.<sup>1</sup> Small farmers, in particular, oppose the program, because they say it will cost too much.<sup>2</sup>

### About the NAIS

According to the USDA, the plan will enable the federal government to trace, within 48 hours, the origin of any animal in the food chain found to be infected by disease. Working groups comprised of industry and government representatives are developing implementation plans for cattle, swine, sheep, goats, horses, poultry, bison, deer, elk, llamas and alpacas. For example, the cattle working group has recommended radio frequency identification (RFID) ear tags to identify cattle.<sup>3</sup>

The plan has three phases:

- **Premises identification:** The first phase, under way in most states, calls for the registration of all premises housing farm animals. Each

location will get a unique seven-digit premises identification number.

- **Animal identification:** The second phase calls for assigning a 15-digit animal identification number to each farm animal. Methods of identifying animals may differ from one species to another, with species working groups establishing the standards. Animals that move through the production chain as a group (e.g., swine and poultry) may get 13-digit group identification numbers.
- **Animal tracking:** When the program is fully operational, all animal movements that involve possible commingling will be reported and stored in standardized databases that will be run by state governments and industry groups.

The Agriculture Department's draft strategic plan originally called for the system to become mandatory in 2008.<sup>4</sup> Responding to criticism of this timetable, the USDA has backed away from mandatory features of the program and has begun emphasizing voluntary participation. An implementation plan published in October 2006 set milestones and benchmarks, envisioning a fully functional system in operation by January 2009. The plan noted that “allowing market forces ... to drive producer participation in the NAIS is preferable to mandatory federal regulations.”<sup>5</sup> A newly released *User's Guide*, published in November 2006, emphasized voluntary participation even further, describing how individual

record-keeping, the Agriculture Department is authorizing private database managers to collect animal tracking information and is authorizing particular manufacturers to provide official identification tags. Individual states may allocate some funding, but individual producers probably will pay for a large share of tagging and tracking animals.

Researchers at Kansas State University developed a spreadsheet that estimates how much producers will have to pay to implement RFID technology for cattle. As the figure shows, the cost per head of implementing the system varies in proportion to herd size. The authors point out that not all the costs included in their analysis would necessarily be associated with NAIS.<sup>9</sup> In particular, some smaller producers would probably not have to buy chip-reading equipment and computers for data management. Nevertheless, the technology itself is not scale-neutral: Fixed costs raise the cost per animal for small farmers, while economies of scale help keep the unit cost down for larger operations.

Herd sizes in the U.S. beef and dairy industry tend to be fairly small. According to the 2002 Census of Agriculture, the median number of cattle and calves per farm is fewer than 50.<sup>10</sup> Opposition to a national animal identification system tends to come from these smaller producers. Ranches with more than 50 head represent only one-third of all farms, but account for 87 percent of all cattle and calves.

### Additional Considerations

One important feature of risk analysis is the general principle of diminishing returns. As in many economic analyses, the mitigation of some risk can be relatively inexpensive, but the cost can increase as more risk is addressed. It is often cost-effective to follow policies that mitigate some risk, but rarely can risk be totally eliminated. In this particular exam-

ple, efforts to include the smaller producers face this escalating cost schedule.

Supporters of NAIS sometimes argue that the benefits of an animal identification system include improved management tools for producers, as well as enhanced opportunities in domestic and international markets. This may be the case, but these benefits would largely accrue to the producers directly and would not necessarily justify the NAIS program itself. These considerations are relevant to the cost-benefit analysis of individual farmers, but not necessarily to the ID system as a whole.

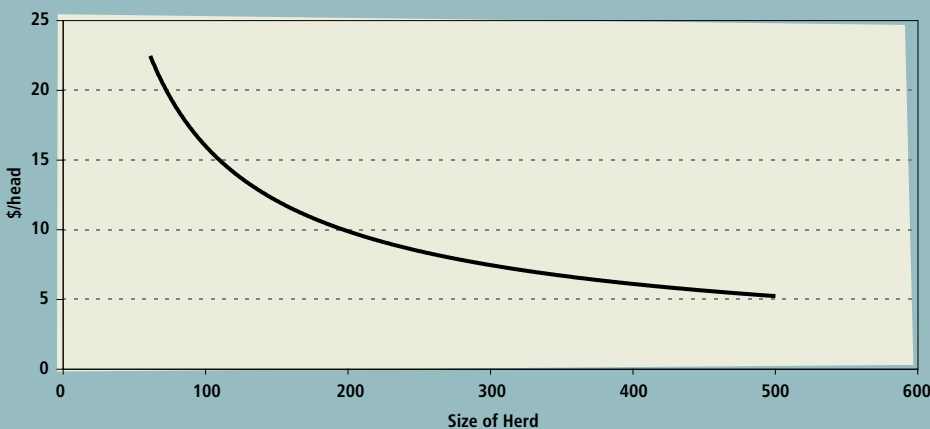
Nevertheless, these factors are relevant for evaluating the voluntary nature of current plans. Large-scale producers are far more likely to reap benefits from improving their inventory and marketing technologies and are likely to find it economical to participate voluntarily in the NAIS.

With benefits of animal tracking technology increasing and costs decreasing for larger herds, there is likely to be a threshold level where participation in NAIS provides a net benefit. The distribution of herd sizes suggests that even a fairly low level of participation among producers could cover a large proportion of the nation's animals. Broader participation in the program could be encouraged by program design to keep down the costs.

As the most recent *User's Guide* indicates, this level of voluntary participation is likely to be far more economically efficient than the original plan of mandatory 100 percent participation. Indeed, much criticism about the NAIS has focused on the high cost of the initial mandatory proposals. Assuming that the overall benefits of the program make its costs worthwhile, a system based on voluntary participation is far more likely to result in an efficient distribution of costs than a mandatory program.

*Michael Pakko is a research officer at the Federal Reserve Bank of St. Louis.*

## Total Annual Cost of Radio Frequency Identification System



SOURCE: Dhuyvetter, Kevin C.; and Blasi, Dale.

### ENDNOTES

- See, for example, Zanoni (2006).
- A recent article in *USA Today* describes the intensity of opposition that has arisen in some parts of the country; Hall (2006).
- This article focuses on cattle as an example, but many of the points likely carry over to other species groups covered under the plan.
- USDA (2005).
- USDA (2006a), p. 2. Although the program is voluntary at the federal level, some individual states are requiring compliance with premises identification.
- USDA (2006b).
- An example of methodology is already established: Disney et al. (2001) showed how to evaluate both the costs of animal tracking systems and the benefits of trace-back after a disease outbreak. Although details of the study did not reflect some specific features of the NAIS proposals, it did find that a tracking program may or may not be cost-effective, depending on the assumed risks of disease outbreak and the cost of technologies used.
- Tagging 40 million new calves born each year at a cost of \$2.50 per tag, the cost of identifying cattle alone could exceed \$100 million annually.
- The costs include electronic tags, a wand/stick reader, a laptop computer and software, and other costs (including labor for implementing the technology). The costs do not include labor costs for the maintenance of centralized NAIS databases.
- The average (mean) herd size nationwide is 94. For Missouri, the average is 69.

### REFERENCES

- Disney, W.T.; Green, J.W.; Forsythe, K.W.; Wiemers, J.F.; and Weber, S. "Benefit-cost analysis of animal identification for disease prevention and control." *Rev. sci. tech. Off. Int. Epiz.*, August 2001, Vol. 20, No. 2, pp. 385-405.
- Dhuyvetter, Kevin C.; and Blasi, Dale. "A spreadsheet to estimate the economic costs of a radio frequency identification (RFID) system." Kansas State University, 2006. See [www.agmanager.info/livestock/budgets/production/beef/RFID%20costs.xls](http://www.agmanager.info/livestock/budgets/production/beef/RFID%20costs.xls).
- Hall, Mimi. "Animal ID plan angers some farmers." *USA Today*, Oct. 27, 2006. See [www.usatoday.com/news/nation/2006-10-26-animal-id\\_x.htm](http://www.usatoday.com/news/nation/2006-10-26-animal-id_x.htm).
- "Tracking animals with RFID." *RFID Gazette*, Nov. 26, 2005. See [www.rfidgazette.org/healthcare/index.html](http://www.rfidgazette.org/healthcare/index.html).
- U.S. Department of Agriculture. Animal and Plant Health Inspection Service. "National Animal Identification System (NAIS) Draft Strategic Plan 2005 to 2009." April 25, 2005.
- \_\_\_\_\_. "National Animal Identification System (NAIS): Strategies for the Implementation of NAIS." October 2006a.
- \_\_\_\_\_. "National Animal Identification System (NAIS): A User Guide." November 2006b.
- Zanoni, Mary. "The 'National Animal Identification System': A New Threat to Rural Freedom." *Countryside & Small Stock Journal*, January/February 2006. See [www.countrysidemag.com/issues/1\\_2006.htm#article4](http://www.countrysidemag.com/issues/1_2006.htm#article4).