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Update on Animal ID

Sandy Johnson, livestock specialist

The confirmation of BSE in a single dairy cow in Washington on December 23 prompted a pledge from Secretary of Agriculture Ann Veneman to immediately adopt a national animal identification system. The actual implementation of an ID system has been slowed by a lack of funds, and it is not clear what it might look like or when it could go into effect.

The January issue of *Beef Tips* outlined the United States Animal Identification Plan (**USAIP**; *www.usaip.info*). Briefly, this plan represents an industry-wide effort to develop the standards and framework for a national animal ID system encompassing not only traditional domestic livestock but fish and other farmed wildlife species as well. Development of the USAIP has involved more than 100 animal industry and state/federal government professionals from more than 70 allied associations/organizations, including the National Institute of Animal Agriculture and USDA Animal and Plant Health Inspection Service.

Another national identification program, called National **FAIR** (Farm Animal Information and Records; *www.nationalfair.com*), has been under development since 1999 by the Holstein Association USA. This program is being piloted in four states: Wisconsin, California, New York and Pennsylvania. The Winter 2003-2004 report identified 608,535 animals in the system, 144,448 of which have radio frequency identification (**RFID**) tags. More than 95 percent of the 1,398 premises with RFID are in Michigan and Wisconsin. As of January 2004, the following groups were using the FAIR system: Michigan Department of Agriculture TB Eradication Project, New York State Cattle Health Assurance Program, Ohio State Department Johne's Program, Alta Genetics Progeny test herds, and American Veal Association.

Basics of an ID system

To track animals and premises that may have been exposed to a highly contagious foreign animal disease (**FAD**), certain data must be collected. A wide range of production environments exist across the country, so the system must account for animals that move individually or as a group. In addition, it must account for the animal that lives in only one location from birth to harvest and the animal that resides in multiple locations in its lifetime (including across state and national borders). Because animals can move and carry disease as individuals, each must have an individual animal identification number. It is also important to know where the animal has been to determine what animals and premises may have been exposed to a disease.

For some parts of the country, defining premises will be no problem. For example, if livestock are in a defined acreage all adjoining the animal manager's place of residence, one premise number is sufficient. In other situations, a producer may have pasture in many counties, which raises the question does each pasture need a separate premise number? If so, which ones? The challenge becomes defining a system that can minimize animal losses if a FAD outbreak occurs and yet is manageable from a producer and data-tracking standpoint.

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Upcoming Events

BIF Annual Convention
May 25-28
Sioux Falls, SD
www.beefimprovement.org

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Electronic ID

Records of which animals are moved and to what premises will be needed to trace disease transmission. To trace animals quickly (within 48 hours), RFID technology appears to be the most promising. It takes more time to read and record information from conventional tags, and there is a greater chance of data input error. Initially, some producers may use a second conventional tag with a visible herd ID number in addition to the RFID tag. The Canadian identification program originally used bar-coded tags but is shifting to RFID because the bar code often needs to be cleaned before reading. Brands do not track where individual animals have been and may not be unique when crossing state lines.

Statistics available from the latest national FAIR report illustrate the capabilities of some of the RFID technology. Of a total of 7,688 animals tested, 0.7 percent of tags could not be read, and 1.4 percent had lost tags. Tag placement was assessed in a subgroup, and 87.7 percent of tags were in the proper location in the ear. Regardless of the system or technology, some data will be lost, but with time that proportion is expected to be small.

Notable differences

The USAIP has identified international standards that will allow multiple manufacturers and service providers to participate in the program. The Canadian identification program is compatible with the USAIP. The technology designated as the USAIP standard for communication between a RFID tag and a reader (ISO 11785) is rather old, having been developed in 1995-96. Various issues related to read distance require animals to pass single file within a reader's range. The description of the FAIR program is less detailed, however, and currently only one manufacturer provides tags and readers.

The pork industry has had a mandatory ID system in place since 1988. Because pigs often remain in a group throughout their lifetime, a system for a group or lot number rather than individual animal identification has been proposed in the USAIP. The FAIR program was designed for the dairy and beef industries. It is not clear what adjustments would be made for identification of other livestock species.

Legislative action

House and Senate versions of bills supporting each of these programs have been submitted.

- S 2070 and HR 3961 – United States Animal Identification Plan Implementation Act directs the Secretary of Agriculture to implement USAIP.
- S 2008 and HR 3822 – National Farm Animal Identification and Records Act and National Livestock Identification Act, respectively directs the Secretary of Agriculture to establish an electronic nationwide livestock identification system.
- HR 3787 – National Farm Animal Identification and Records Act requires the establishment of an electronic nationwide livestock identification system.

The bills that use the National FAIR name mention use of existing technology but do not give details on system design.

The USAIP bills, S 2070 and HR 3961, state that information collected by this system would not be subject to the Freedom of Information Act, and the Privacy Act would apply to any information collected. Protections for confidentiality of data are not specifically addressed in HR 3822 or S2008 but have been added to HR 3787.

In addition, there are several bills relating to BSE prevention that require tracing ruminant animals from birth to slaughter (S 2007 and HR 3714) or tracing livestock, meat and meat products and poultry and poultry products (S1202 and HR 3546) from birth to consumer. Country-of-origin labeling will be required on imported ruminant-derived products in S2007 and HR 3714.

In the Kansas legislature, HB 2593 received the governor's signature. It enables the Kansas livestock commissioner to cooperate with the USDA and others to define premises where animals are located, develop

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a premises registration system and to issue rules and regulations consistent with any national ID system. The bill also addresses the standard of care a producer must meet when presenting meat or meat products into the food chain. If the product has been inspected and passed in accordance with law, in no case shall a producer be held to a higher standard than that of ordinary care.

Funding and framework

On April 27, Veneman announced that $18.8 million would be transferred from the USDA Commodity Credit Corporation to provide initial funding for a national animal identification system (**NAIS**). The administration's FY 2005 budget includes another $33 million for the program. The goal will be to track animals within 48 hours.

The system will be implemented in three phases. In the first phase, USDA will evaluate current federally funded animal identification systems and see which could be used for the premises allocator as well as the national repository. USDA hopes to begin issuing premises IDs later this year. Phase II would involve implementation of the selected system regionally for one or more selected species. In Phase III the system would be scaled up to a national level.

Until confidentiality issues can be resolved, the system will remain voluntary. The current Animal Health and Protection Act gives USDA broad authority to protect animal health, which could include implementation of a mandatory animal ID system.

Key objectives outlined by USDA include a system that is flexible enough to accommodate existing ID systems and one that is technology neutral so that a variety of old and new technology can be used. It must also build on USAIP data standards, allow producers to incorporate market incentives for participation and avoid unduly increasing the role and size of government.

What should producers do now?

- Take an active role in the development process. Provide input to USDA and industry organizations to seek the best possible solution for the industry.
- Learn about ways that data from animal identification can be used to your advantage.
- Learn what services and technologies various companies have to offer and get a feel for their strengths. (See *www.beefstockerusa.org/rfid/*.)
- Don't hurry to buy equipment unless it is part of an existing program to which you have made a long-term commitment.
- *Stay informed.*

Cattlemen's Day Research Summaries

The following are a few of the summaries now available in the 2004 Cattlemen's Day report. You can get the entire report online at *www.oznet.ksu.edu/ansi/beefonly.htm* or contact your local K-State Research and Extension office.

Plasma Metabolites of Receiving Heifers and the Relationship Between Bovine Respiratory Disease, Weight Gain and Carcass Characteristics

S.P. Montgomery, J.S. Drouillard, J.J. Sindt, M.A. Greenquist, W.F. Miller, J.N. Pike, E.J. Good, E.R. Loe, M.J. Sulpizio and T.J. Kessen

Six hundred sixty-five crossbred beef heifers initially weighing 495 lb were used to evaluate rectal temperature and plasma glucose, lactate and urea nitrogen at initial processing as indicators of health status of newly arrived receiving cattle. We also evaluated the relationship between bovine respiratory disease (BRD), weight gain and carcass characteristics. An increased number of treatments for BRD was associated with lower (linear, $P<0.01$) plasma glucose and lactate concentrations at initial processing. Elevated rectal temperatures at initial processing were associated with a greater number of treatments for BRD (linear, $P<0.03$). Initial body weight, final body weight and average daily gain during the receiving period were progressively less (linear, $P<0.01$)

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as the number of treatments for BRD increased, whereas grazing-period gain was progressively greater with more frequent treatment for BRD during the receiving period (linear, $P<0.01$). Finishing-period gain, final body weight, hot carcass weight, fat thickness and marbling score were linearly decreased ($P<0.05$) with increased treatment for BRD during the receiving period. These data suggest that initial plasma glucose and lactate concentrations might be associated with the health of newly arrived receiving cattle and that increased incidence of BRD in cattle is associated with lower weight gain and carcass quality.

Near Infrared Spectroscopy as a Potential Method to Detect Bovine Respiratory Disease

J.T. Fox and M.F. Spire

Bovine respiratory disease continues to be the leading cause of illness and death loss from weaning through finishing. There is no objective method to evaluate a live animal's severity of sickness or response to treatment. A pilot study was conducted at a commercial feedyard to evaluate the ability of near infrared spectroscopy to differentiate between cattle identified as healthy and those identified as having undifferentiated Bovine Respiratory Disease (BRD). At processing, 215 randomly selected 900 lb heifers were evaluated to determine tissue oxygen saturation (StO_2) levels. Mean ranks of the StO_2 values were 176.86 ± 5.50. One hundred cattle pulled for clinical signs of bovine respiratory disease were evaluated in the hospital. Animals were classified as 1st pull, 2nd pull and 3rd pull on the basis of clinical observations. First-pull animals were those having no previous history of being treated for respiratory disease and having signs of BRD, with rectal temperature at or above 104°F. Second pulls and 3rd pulls were those animals failing to respond to either a first treatment or a second treatment for BRD as evidenced by no improvement in clinical appearance or by rectal temperature remaining above 104°F. Mean StO_2 ranks were 110.42 ± 11.29, 120.08 ± 14.48, and 132.83 ± 19.00 for 1st, 2nd, and 3rd pulls, respectively. A significant difference was found between the rank of the StO_2 values in cattle at processing and those classified as 1st, 2nd or 3rd pulls ($P<0.05$). No difference was found between the three pull classifications. Results provide the basis for further research in the evaluation of BRD with near infrared spectroscopy.

Influence of Fall Protein Supplementation with a Self-Fed Liquid Supplement on Performance of Beef Cows Grazing Tallgrass-Prairie Range

D.A. Llewellyn, B.T. Gray, T.T. Marston and C.A. Bandyk

We evaluated the effect of providing a liquid, high-protein supplement during the fall grazing period on beef cow and calf performance. Mature, pregnant, spring-calving cows (n=122) grazing native range were assigned to supplementation treatments. All calves were weaned on October 15. Control cows received no fall supplementation and then were hand-fed a dry supplement (40% crude protein; as-fed basis) from December 17 until calving. Supplemented cows were either allowed access to a liquid protein supplement (40% crude protein; as-fed basis) approximately 2 months before weaning until calving (fall supplementation from August 14 to December 17) or from weaning until calving (fall supplementation from October 15 to December 17). Supplement intake of the control cows from December 17 until calving was adjusted to match the estimated supplement intake of the liquid-fed groups and was prorated and fed three days a week. Supplementation was terminated upon calving, at which time all cows were treated similarly. Provision of liquid supplement during the fall increased cow body weight and body condition in the post-weaning period. However, cows not supplemented during the fall phase were able to overcome their lesser previous nutrition when they were suitably supplemented.