

White Paper

Strategy Forum on Livestock Traceability

Information synthesized from the National Institute for Animal Agriculture's Forum, "Strategy Forum on Livestock Traceability conducted September 26-27, 2017, in Denver, Colorado. Full presentations are available online at www.animalagriculture.org.

DISCLAIMER: The information provided in this White Paper is strictly the perspectives and opinions of individual speakers and discussions at the 2017 Strategy Forum on Livestock Traceability

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Background

The forum, “Strategy Forum on Livestock Traceability”, conducted September 26-27, 2017, in Denver, CO, was the second livestock disease traceability forum hosted by the National Institute of Animal Agriculture (NIAA) and the United States Animal Health Association (USAHA). The forum brought together one hundred sixty four (164) livestock industry professionals, and included producers, representatives of livestock markets, fairs, and shows, veterinarians, representatives of identification technology companies, and regulatory animal health officials. The goal was to review the current state of livestock traceability and obtain stakeholder input regarding the advancement and direction of the USDA’s Animal Disease Traceability (ADT) program, the ideal method of livestock identification, database management and data sharing, recommendations for advancing livestock traceability and electronic health records, and global trade.

Over the last decade, livestock traceability has been the focus of numerous discussions. In 2013, the Animal Disease Traceability Rule became law. Four years after its implementation, the USDA has undertaken a comprehensive assessment of the ADT program. This Forum provided an opportunity for stakeholders to review criticism and recommendations to adjust the current ADT rule, explore the incorporation of technology into traceability, evaluate future implications of expanded traceability both nationally and internationally, and discuss points of consensus and challenge.

The NIAA is a non-profit, membership-driven organization that unites and advances animal agriculture for the challenges facing animal agriculture industries (aquatic, beef, dairy, equine, goat, poultry, sheep and swine). NIAA is dedicated to furthering programs for the eradication of diseases that pose risk to the health of animals, wildlife and humans; promoting the efficient production of a safe and wholesome food supply for our nation and abroad; and promoting best practices in environmental stewardship and animal health and well-being.

The USAHA is a forum for communication and coordination among State and Federal governments, universities, industry, and other concerned groups to consider issues of animal health and disease control, animal welfare, food safety and public health. It is a clearinghouse for new information and methods, which may be incorporated into laws, regulations, policy and programs. It develops solutions of animal health-related issues based on science, new information and methods, public policy, risk/benefit analysis, and the ability to develop a consensus for changing laws, regulations, policies and programs.

The 2017 Strategy Forum on Livestock Traceability was funded in part by Allflex, Datamars Inc., EZid LLC, Fort Supply Technologies, Global VetLINK, the Livestock Exporters Association, the USDA, Where Food Comes From Inc., and Y-TEX Corporation.

Purpose and Design of the Forum

The purpose of the forum was to bring together livestock industry leaders and animal health officials to specifically discuss livestock identification, traceability and electronic health records. The objective was to provide details on concerns and challenges in livestock traceability, and to identify potential solutions for advancing livestock identification and traceability. Forum participants gained unique insight into the views and initiatives of the various segments of the industry, which will enhance future collaborations for advancement of identification and traceability.

Forum Planning Committee Members

Mr. Glenn Fischer, Allflex USA Inc.

Dr. Sunny Geiser-Novotny, USDA-APHIS-VS

Chelsea Good, J.D., Livestock Marketing Association

Mr. Neil Hammerschmidt, USDA-APHIS-VS

Dr. Paul McGraw, Wisconsin Department of Agriculture

Dr. Eric Moore, Norbrook Inc.

Dr. Randy Munger, USDA-APHIS-STAS

Dr. Boyd Parr, Clemson University Livestock Poultry Health

Mr. Ben Richey, United States Animal Health Association

Dr. Aaron Scott, USDA-APHIS-VS

Forum Topics and Speakers

(in order given at the forum)

Welcome and Opening Remarks, Commissioner Don Brown, Colorado Department of Agriculture

Defining the Issues and Purpose of the Joint USAHA-NIAA Livestock Traceability Forum , Dr. Tony Forshey, State Veterinarian, Ohio Department of Agriculture & NIAA Board Chair and Dr. Boyd Parr, South Carolina State Veterinarian, Director, Clemson University Livestock Poultry Health & USAHA President

Overview of Forum, moderated by Mr. Terry R. Fankhauser, Executive Vice President, Colorado Cattlemen's Association

USDA Animal Disease Traceability (ADT) Program

Program Updates/Assessment Report, Dr. Sunny Geiser-Novotny, Cattle Health Staff/Animal Disease Traceability Veterinarian, USDA APHIS Veterinary Services

Feedback from 2017 Public Meetings and Outreach Efforts, Dr. Aaron Scott, USDA APHIS Veterinary Services, SPRS, NPIC

Panel Discussion: ADT "Next Step" Preliminary Recommendations, moderated by Mr. Neil Hammerschmidt, Program Manager, Animal Disease Traceability, USDA APHIS Veterinary Services and ADT Working Group Members

ADT Working Group Member Panelists:

Dr. Marty Zaluski, State Veterinarian, Montana Department of Livestock

Dr. Paul McGraw, State Veterinarian, Wisconsin Department of Agriculture, Trade & Consumer Protection

Dr. Randy Munger, Mobile Information & Animal Disease Traceability Veterinarian, USDA-APHIS-STAS

Dr. Sunny Geiser-Novotny, Cattle Health Staff/Animal Disease Traceability Veterinarian, USDA APHIS Veterinary Services

Panel Discussion: Enforcement Rules -Successes and Opportunities, moderated by Mr. Burt Rutherford Senior Editor, BEEF magazine

Panelists:

Dr. Charles Broaddus, State Veterinarian & Director, Virginia Department of Agriculture and Consumer Services

Dr. Paul McGraw, State Veterinarian, Wisconsin Department of Agriculture, Trade and Consumer Protection

Dr. Kristin Haas, State Veterinarian & Director of Food Safety & Consumer Protection, Vermont Agency of Agriculture, Food & Markets

Mr. Cody James, Director, Animal Industry Division, Chief, Livestock Inspection Bureau, Utah Department of Agriculture

Panel Discussion: Making ADT a Reality, moderated by Mr. Matt Deppe, Chief Executive Officer, Iowa Cattlemen's Association

Livestock Marketing Perspective, Mr. Tim Starks, Market Owner/Dealer, Cherokee, OK

Data Management Sharing & Other Tech Considerations, Dr. Keith Roehr, State Veterinarian, Colorado Department of Agriculture

Brand State Considerations, Dr. Dustin Oedekoven, State Veterinarian, South Dakota Animal Industry Board and Dr. Marty Zaluski, State Veterinarian, Montana Department of Livestock

Alternative Movement Documents, Dr. Tony Frazier, State Veterinarian, Alabama Dept. of Agriculture & Industries

Making Standards and Technology Work, Dr. Justin Smith, State Veterinarian, Kansas Department of Agriculture

Updates on Efforts to Improve Collection & Correlation of ID at Harvest, Claire Hotvet, DVM, MPH, CPH, District Veterinary Medicine Specialist, USDA-FSIS-OFO

Developing Traceability from a Common Sense & Business Perspective, Mr. Joe Leathers, General Manager, 6666 Ranch

Using RFID to Advance Traceability, Dr. Randy Munger, Mobile Information & Animal Disease Traceability Veterinarian, USDA-APHIS-STAS

Global Market Traceability Dynamics, Mr. John Saunders, CEO & Chairman, Where Food Comes From, Inc.

Implications for Livestock Used for Rodeo, Fairs & Exhibitions, moderated by Mr. R. Scott Stuart Chief Executive Officer, National Livestock Producers Association

Panelists:

Mr. Jim Tucker, General Counsel, International Association of Fairs and Exhibitions

Mr. Leon Vick, Senior Director, Rodeo & Horse Shows, National Western Stock Show

Ms. Abby Powell, Senior Events Manager, The Ranch Events Complex

Executive Summary

The Animal Disease Traceability (ADT) rule is designed as a basic bookend system allowing animal health officials to trace a covered animal forward from the location where the animal was officially identified and back from the animal's last location, which is often the termination point or slaughter plant. It may also include information on the animal's interstate movements. The system was set up as a foundation framework to be expanded over time. The two basic requirements are the identification of livestock with 'official identification', and documentation of livestock when traveling across state lines.

Four years after its implementation, the USDA has undertaken a comprehensive assessment of the rule performance and experience of stakeholders, to inform the next iteration of traceability. The USDA solicited stakeholder feedback through a series of listening sessions around the country. The ADT State/Federal Working Group condensed this feedback into a list of 14 preliminary recommendations developed to address the key issues brought forward by stakeholders.

NIAA ADT Strategy Forum attendees focused on four of the ADT working group's preliminary recommendations: the Electronic Identification Device (EID) system for cattle, public/private data sharing, exemptions from the Certificate of Veterinary Inspection (CVI) requirement, and the requirement of a uniform official ID ear-tag. If required, EID format must be a choice that is accessible, reasonably cost-effective, and offer ease of use by cattle producers; be supported by adequate infrastructure; and allow accomplishment of the goals of traceability. Producers and the industry have concerns regarding the amount of data that can be carried on an EID tag or CVI, the security of that data, and the ownership of the data. CVI exemptions in the current ADT are a significant source of confusion both to producers and veterinarians. Finally, while producers are not generally opposed to EID, and in fact often use EID tags for management purposes, the industry has yet to embrace the 840 tag.

Electronic ID enables and advances traceability. Initial cost is higher than visual dangle tags, though that investment is regained through the multiple benefits provided by EID. EID provides accuracy and saves time, allowing for traceability at the speed of commerce, reduces animal stress, and allows for tag retirement at slaughter, ultimately saving money. There are low frequency (LF) and ultra-high frequency (UHF) options for EID, with advantages and disadvantages to both.

Enforcement of the ADT regulations is not straightforward. Only about 60% of producers are even aware that there is an ADT rule, much less comply with it. It is difficult to enforce regulations with producers that are not even aware they exist. Several states have had success with a variety of approaches to ADT enforcement, including: passing state traceability rules; requiring mandatory premises ID registration; collaboration between the state departments of agriculture and motor vehicles; and leveraging the scope and reach of state livestock (brands) inspection. Many states have found that a concerted effort to educate producers, veterinarians, and state enforcement partners has significantly reduced the need for enforcement actions.

Much of the progression to functional traceability has rested on the shoulders of the livestock markets. Because more than three quarters of producers sell animals at livestock markets at least once a year, groups of diverse source animals are commingled regularly, and sale animals are often shipped out of state, markets are highly visible under the ADT rule. However, there is no mandate of unique market responsibility under the rule. There are significant costs incurred with the identification of animals. Markets owners and operators desire incentives to help offset the cost of traceability, and desire consistency of ADT enforcement across all sectors of the industry.

Another complication of traceability success is the collection and correlation of ID to carcasses at slaughter. This collection and correlation is the responsibility of the USDA Food Safety Inspection Service (FSIS). FSIS is proactively pursuing mitigation of numerous challenges to the system. Increased staff training, monitoring of diagnostic submissions for collection issues, and sharing of information and outreach to sister government agencies, are several of the tools being pursued in order to generate increased accountability in ADT.

Ninety-five percent of the world population is outside the United States, and as that population grows in economic status, the global demand for beef increases. The key to global export markets is traceability. Many top international exporters of beef employ traceability as a key component of their programs. Including traceability as a significant part of the United States export program can make the United States competitive in this world market.

If traceability is to continue to support the industry both nationally and globally, the data collected for livestock health and disease control must be taken into consideration. For traceability to operate at the producer level, it must occur at the speed of commerce. The data collected via electronic ID and generated by electronic CVIs must be able to move freely, but securely, between databases and data systems. Animal health officials must have real-time access to traceability data in the event of an animal disease incident, and producers must have the confidence that their data will be secure and protected.

ADT rules were written for the marketplace however, fairs, shows, and rodeos are increasingly finding that components of the ADT regulations apply to their events. The 2011 Ogden, Utah equine herpes virus (EHV) disease event emphasized the need for traceability at these events. To maintain business continuity, fairs, shows and rodeos need to consider development of a method for tracking of animals housed at their facilities, quarantine facilities and contingencies, a disease diagnosis notification system, a between-group cleaning and disinfection plan, and other considerations. Little EID is in use by fairs, shows, and rodeos. Only a few of the larger venues have started to address disease traceability considerations. Government officials must reach out to fairs and shows to support them, keep them up to speed with the ADT, and guide them to maintain animal health and business continuity.

Cattle producers are independent, trust their producer and industry organizations, and are wary of rules and regulations imposed on them from outside the industry. As an industry, they have voiced many concerns, including traceability slowing the speed of commerce; the requirement of mandatory participation in ADT; and ranch liability linked to electronic identification. These are real issues requiring complex solutions. Those directly affected are often those that are able to provide the best solutions to

the concerns at hand. The cattle industry must be proactive if the U.S. is to accomplish the comprehensive vision of animal disease traceability. Additionally, the ADT is unlikely to be accepted by the industry unless that industry contributes significantly to the rule. A group of industry stakeholders needs to be assembled to drive the ADT movement forward. Representatives of several producer groups attending the forum expressed their commitment to this model and process, and a desire to be part of the solution.

Regardless of who spearheads the effort, there is an urgency to the traceability movement. Global exchange of goods, services, and people continues to expand at an exponential rate, and we are only one plane flight or ship traverse away from the next Foot and Mouth Disease outbreak. We need to make this happen now.

Presentation Highlights

USDA Animal Disease Traceability (ADT) Program

Program Updates/Assessment Report Summary

Dr. Sunny Geiser-Novotny, *USDA-APHIS-Veterinary Services (VS)*

The Animal Disease Traceability (ADT) rule is designed as a basic bookend system, allowing animal health officials to trace a covered animal forward from the location where the animal was officially identified and back from the animal’s last location, which is often the termination point or slaughter plant. It may also include information on the animal’s interstate movements. The system was set up as a basic foundation framework to be expanded over time. The design is simple in requirements, but complicated in details. The two basic requirements are the identification of livestock with ‘official identification’, and documentation of livestock when traveling across state lines. The animal classes currently subject to the ADT rule are all sexually intact cattle and bison, all female dairy cattle, all male dairy cattle born after March 11, 2013, and all rodeo cattle and bison.

When the ADT rule was implemented, measures to document progress and identify gaps were also established. These are known as Traceability Performance Measures (TPMs). Two key factors are measured, both for imported and exported animals, by the TPMs: the location of official animal identification (ID), and the location from which the animal shipped. The baseline percentages of successfully completed TPMs were measured in 2014, when the ADT was implemented, and have continued annually. From the baseline TPMs in 2014 to the TPMs of 2016, trace success improved from 58-76% to 86-91%, and the time to find records improved from 4-11 days to 1-2 days (Table 1).

	2014		2015		2016	
#	National Baselines		1 st Comparison		2 nd Comparison	
	% Successful	Time	% Successful	Time	% Successful	Time
1	NA	NA	87%	39 hr.	97%	20 hr.
2	69%	88 hr.	88%	35 hr.	87%	29 hr.
3	58%	138 hr.	84%	42 hr.	86%	32 hr.
4	76%	264 hr.	88%	46 hr.	91%	41 hr.

Table 1. Traceability Performance Measures, 2014 to 2016¹. Four TPMs tracked: 1 = In what state was the animal officially identified? 2 = Where in your state was the animal officially identified? 3 = From what state was the animal shipped? 4 = From what location in your state was the animal shipped?

Gaps in the progress of ADT rule implementation include lack of electronic availability of official identification and collection and correlation of official ID at slaughter. Challenges moving forward

include moving away from reliance of visual tags, expanding the rule beyond interstate movement, and expanding the rule to include feeder cattle.

ADT 2017 State/Federal Working Group Preliminary Suggestions on Key Issues

Dr. Aaron Scott, *USDA-APHIS-Veterinary Services, National Preparedness & Incident Coordination Center*

Mr. Neil Hammerschmidt, *USDA-APHIS-Veterinary Services*, panel moderator

Panel: Dr. Sunny Geiser-Novotny, *USDA-APHIS-VS*, Dr. Randy Munger, *USDA-APHIS-STAS*, Dr. Marty Zaluski, *Montana Department of Livestock*, Dr. Paul McGraw, *Wisconsin Department of Agriculture*

Four years after its implementation, the USDA has undertaken a comprehensive assessment of the ADT program in 2017. APHIS prepared an in-depth assessment of ADT that was published April, 2017 (<https://www.aphis.usda.gov/traceability/downloads/adt-assessment.pdf>) and conducted nine public meetings to gather feedback on the initial framework of ADT. The result of the public meeting and federal registry posting was almost 500 public comments, identifying a number of concerns which are summarized at: <https://www.aphis.usda.gov/traceability/downloads/summary-of-feedback-adt-program.pdf>. Additionally a State-Federal ADT Working Group was established to assist APHIS in reviewing the ADT regulation, examine feedback from the public meetings and written comments, and provide input based on their experiences with disease traceability issues. The working group focused on aspects of ADT related to cattle and bison.

Concerns addressed issues such as whether the program should be voluntary or mandatory; concern that traceability will impede commerce; confusion about exemptions; inconsistencies in state regulations; difficulty of reading health certificate data; difficulty reading and recording NEUS bright tags; confidentiality; liability for injury during tag reading, both to animals and people; the enforcement burden for markets; ID collection and correlation at slaughter; cost distribution across the industry; lack of support for tagging beef feeders; and others. The ADT State/Federal Working Group evaluated the comments and concerns, then condensed them into 14 key issues, and provided preliminary suggestions to address those issues.

Concerns of ADT Strategy Forum attendees focused on four main key issues: the Electronic Identification Device (EID) system for cattle, public/private information sharing, exemptions from the Certificate of Veterinary Inspection (CVI) requirement, and the requirement of a uniform official ID ear-tag.

Considerable concerns were expressed regarding EID and the data associated with CVIs. There is general agreement that EID is a necessary goal, although many involved in the discussion expressed the opinion that 2023 is much too late a date for industry-wide adoption of EID. There was general agreement the choice for final EID format must be a choice that is accessible, reasonably cost-effective, and offers ease of use by cattle producers; is supported by adequate infrastructure; and allows accomplishment of the goals of traceability. In other words, the EID choice codified in rule *must* be the “right” choice. Identification devices must meet two standards: performance and technical communication. Standardization of tags and data system is the first and foremost objective. Producers

are not generally opposed to EID, and an increasing number of producers use EID tags for management purposes. Several tag manufacturers attending the conference noted that they are selling many EID tags. However, only 50% of those tags are 'official ID' 840 tags. EID 840 tags require a second step of acquiring a Premises ID (PremID). PremID acquisition is viewed among producers to be a hassle and a liability, thus the EID tags they choose for management are often not official ID tags.

Producers and the industry have many concerns regarding the amount of data that can be carried on an EID tag or CVI, the security of that data, and the ownership of the data. It is difficult to say who owns the data, but there is general agreement that whoever owns the data must be willing and able to share it in the event of a disease outbreak. The ADT working group recommendation is that options for data to be maintained in private systems be established to supplement those administered by States and APHIS, with the understanding that they the private systems will share that data with state and federal animal health official in the event of a disease outbreak. This arrangement requires communication between multiple databases, which is not a capability among the multiple data management systems that are currently in use. Additionally, this arrangement requires that privately held data be shared with the government, and many producers are fearful and suspicious of releasing their data. Producer concerns with respect to data-sharing include logistics; generation of marketing advantage; exposure to reputational risk; security of management decisions; and liability. Confidentiality of the data is key if we want producers to buy into the program. In addition, producers have voiced concerns regarding the cost of data maintenance in a private server, as well as the cost incurred in the process of collecting the data in the first place. Industry must be involved in the decisions about the ADT program – not just choosing the format of the EID and storage of the data but in all aspects of the ADT rule. Producers trust their industry groups. As those most intimately affected by the ADT rule, producer groups are in the best position to determine answers to all of the questions surrounding the ADT program.

Although the majority of concerns expressed by the ADT Strategy Forum attendees addressed EID and data sharing, a few other critiques and comments were offered on other key issues. For alternative movement documents, general support was expressed for the ADT Working Group to evaluate alternatives to ICVIs that can adequately provide movement information. Obtaining correct destination information needs to account for situations where the precise ship-to location is not known when movement documents are prepared.

Discussion of traceability in the United States versus the rest of the world highlighted the fact that the US is 'behind the ball'. In fact, well behind many other countries in terms of traceability. The future is global animal identification, and the United States should take lessons from other countries' successes and failures with traceability. Their experience demonstrates that national traceability success is often not about what technology is adopted as much as how those requirements are implemented. Finally, several ADT Strategy Forum attendees asked if a cost benefit analysis was associated with the ADT Working Group suggestions. The answer was no, largely because that cost is significantly affected by a number of factors not settled in the suggestions, such as which tagging system and level of traceability is implemented.

Panel Discussion: Enforcement Rules – Successes and Opportunities

Mr. Burt Rutherford, *Senior Editor, BEEF magazine*, moderator

Panel: Dr. Charles Broaddus, *Virginia Department of Agriculture and Consumer Services*, Dr. Paul McGraw, *Wisconsin Department of Agriculture, Trade and Consumer Protection*, Dr. Kristin Haas, *Vermont Agency of Agriculture, Food & Markets*, Mr. Cody James, *Utah Department of Agriculture*

Enforcement Introduction

Mr. Burt Rutherford, *BEEF magazine*

In surveys conducted nationwide by BEEF magazine, 87% of beef ranchers reported that they use individual animal ID tags. 84% of these employ individual animal ID for management purposes, and 90% of producers use bangle ear-tags. Less than 20% of producers use EID², although NCBA data indicates that this use of EID represents an increase over past 10 years. Accountability toward specific label claims, value-added verification for beef and breeding cattle, compatibility with the milking parlor, and general generational change are all potential drivers of RFID use. Although only 20% of producers use EID, 58% of those producers favor a lifelong national ID system to track cattle, and the great majority of those cite a reason for their support as disease traceback capability. This is a hopeful sign, and the trend toward increasing use of EID is a trend we need to support and encourage.

The companion to EID, traceability, suffers nationwide from a lack of awareness. BEEF magazine data indicates that only 67% of producers are aware of animal ID laws in their state, and only 62% of producers are aware of the ADT program³. It is difficult to enforce ADT rules with producers that are not even aware they exist. The panel for this discussion comprises broad geographic representation, with perspectives from animal health officials located in the east coast, northeast, midwest, and west.

Snapshot of Enforcement in Virginia

Dr. Charles Broaddus, *Virginia Department of Agriculture and Consumer Services*

Virginia passed a state Animal Disease Traceability (ADT) rule in 2014 based on the federal ADT rule. Virginia has decided to focus their energy and enforcement on the sales where cattle are commingled, the majority of which occur at livestock auction markets. All cattle subject to the state ADT rule must have official ID in order to move through one of these sales. Virginia officials acknowledge that this does focus more scrutiny on markets than other segments of the industry, as the majority of ADT eligible sales occur at these markets, and livestock inspectors are stationed in the markets. Despite this increased scrutiny, Virginia is committed to generating a level playing field and supporting producers and the industry as much as possible.

Historically, enforcement of ADT rules in Virginia has been difficult, as violation of ADT rules was considered a criminal offense and criminal prosecutors were too busy to take on ADT cases. Enforcement capability expanded last year with the passing of a law that allows the assessment of civil penalties for ADT violations. Enforcement is progressive, beginning with a livestock inspector visit to the offending party, followed by a letter, and only in the case of repeat offenders, a civil fine and potential referral to the USDA- IES.

Wisconsin's Enforcement Follows the Federal ADT Rule

Dr. Paul McGraw, *Wisconsin Department of Agriculture, Trade and Consumer Protection*

Wisconsin's ADT enforcement focuses on CVIs; licensing of markets, truckers, and dealers; and premises ID registration. Wisconsin has opted to adopt the federal ADT rule for state use. However, Wisconsin requires mandatory premises ID registration. If producers do not obtain specific PremID, they are ineligible for state indemnity in the event of a disease outbreak.

State animal health officials review all import and export CVIs. Like Virginia, they employ progressive enforcement actions, with serious penalties only for repeat offenders. Export CVI violations garner first a letter, then a visit from the district veterinarian, referral to USDA-IES, and for serious offenders, revocation of certification to write CVIs. As one NIAA ADT forum attendee pointed out, the best way to convince reticent veterinarians to come into compliance is to threaten their livelihood. Those producers illegally importing livestock into Wisconsin are subjected to quarantine and must hire a veterinarian to write the required CVI, and for repeat offenders, civil forfeiture through the district attorney.

The Wisconsin Department of Agriculture has had success with mandatory PremID, however, not all panel members agree with this approach. NIAA ADT Forum attendees weighed in as well. Dr. Thach Winslow of the Wyoming Livestock Board noted that PremID is useful for disease response, but offers no management advantage to the producer, leading to difficulty in gaining producer participation. An additional complication in many western states is that the location of the PremID could be 200 miles from the actual location of the livestock.

Two Successes in Vermont

Dr. Kristen Haas, *Vermont Agency of Agriculture, Food and Markets*

Vermont animal health officials have two unique systems in place that have led to ADT success in their state. The first is collaboration with the Department of Motor Vehicles (DMV). The Department of Agriculture provides officer training for those DMV agents that interface with livestock moving both inter- and intra-state, as well as provides personnel to jointly staff DMV checkpoints. The second is the requirement of official ID for all livestock moving intrastate. Any livestock that leave any premises in Vermont must have official ID. These two developments have led to significant success in traceability in Vermont.

Dr. Haas surveyed several northeast state animal health departments and compiled a short list of challenges among ADT personnel in the northeast. Most northeastern state agriculture departments are small and without dedicated ADT personnel. To this point, a question posed by ADT Strategy Forum attendees is that of staffing. If there is already a lack of enforcement staff, both at the state and federal level, how can an expanded ADT program be enforced? Suggestions from the panelists included the use of spot checks, education of market owners to increase compliance, and concentration on the segments of industry specific to the state that require more intensive traceability capability.

Some northeastern states are experiencing difficulty making the switch to eCVIs, even though they acknowledge that electronic data transfer is the best way to accomplish traceability. Colorado and

other states have increased veterinarian demand for electronic CVIs by increasing paper CVI fees more than five-fold.

Producers in these states tend to be small, niche, and resistant to the 840 ID system because there are already EID systems in place that they use comfortably. The requirement for PremID associated with 840 tags, discussed earlier in the forum, complicates adoption of 840 ID.

Finally, and not unique to the northeast, it is difficult to enforce ADT rules for out-of-state veterinarians. Dr. Keith Roehr of Colorado spoke to this point, highlighting Colorado's experience with out-of-state veterinarians. The Colorado requirement, backed by a phone call for the noncompliant, is that all incoming CVIs be filled out completely and legibly. This requirement alone has significantly increased out of state veterinarian compliance.

Tools Unique to the West

Mr. Cody James, *Utah Department of Agriculture*

The main tool unique to the western United States is their livestock (brand) inspection programs. The inspectors for these programs serve as the 'eyes and ears on the ground' for animal health in their states.

In 2012, Utah was experiencing increasing number of missing livestock. In response, agriculture officials reinvented the Utah brand program to be more proactive in seeking out missing livestock and enforcing existing regulations. The proactive approach is four-pronged: education, rodeo and show presence, state surveillance, and enforcement. The mindset is to focus on education instead of enforcement. Livestock inspectors are encouraged to take advantage of teachable moments, educating at all levels of the industry from 4H to rodeo, as well as including non-traditional industry partners such as animal control officers. Livestock inspectors have teamed with sheriffs and increased their visibility in the community and at the rodeo. The state surveillance plan supports livestock inspectors getting to know their communities and the livestock therein. Once all of the other pieces were in place, Utah found that their enforcement needs were significantly decreased. In the words of Mr. James, 80% of producers want to do what's right – once they know what it is! Utah's missing livestock numbers have consistently decreased every year since 2012.

Panel Discussion: Making ADT a Reality

Mr. Matt Deppe, *Iowa Cattleman's Association*, moderator

Panel: Dr. Tim Starks, *Livestock Marketing Association*, Dr. Keith Roehr, *Colorado Department of Agriculture*, Dr. Dustin Oedekoven, *South Dakota Animal Industry Board*, Dr. Marty Zaluski, *Montana Department of Livestock*, Dr. Tony Frazier, *Alabama Department of Agriculture and Industries*

Livestock Marketing Perspective

Dr. Tim Starks, *Livestock Marketing Association*

There are more than 800 Livestock Marketing Association member auction markets in the United States. These livestock markets represent a significant economic force in the livestock industry. Livestock markets sell \$40 billion worth of livestock annually⁴ and 80% of cattle producers sell animals at a livestock auction at least once per year⁵.

With such a pervasive presence in the livestock industry, markets are highly visible under the ADT Rule. Veterinarians and government officials have offices at many of these markets. However, while markets provide the location in which ADT applicable transactions occur, they have no mandate of responsibility to ensure their customers are following ADT Rules. Additionally, there are significant costs incurred when identifying animals, associated with but not limited to: hiring of extra personnel to accomplish tagging; development of tagging facilities and wear and tear on those facilities; stress and potential injury to animals during the handling necessary in tagging and tag-reading; adjustment or replacement of software systems to accommodate EID data formats; and cost due to slowing the speed of commerce. Markets need incentives to help offset the cost of traceability. Maintaining a facility in which to tag or to read individual tags would change the flow of animals through a facility, and in many cases require a newly developed receiving facility. This is impossible in some markets, and would give others with more accommodating facilities an unfair competitive advantage.

Markets are also concerned that, due to their high visibility in the industry and the nature of their business, they are an easy target for those enforcing ADT. In addition to incentives to offset costs associated with tagging and reading of tags, livestock markets are eager to see consistency in enforcement across all sectors of the livestock industry. Markets have particular concerns about small producers and private sales, which are subject to ADT but not very visible, thus not subjected to the level of enforcement scrutiny that markets endure. That said, it was pointed out by the South Dakota state veterinarian that all of South Dakota's tuberculosis tracebacks in 2017 were traced back to markets, and the market records were critical in locating affected animals.

Gaps that the markets perceive in ADT include education, consistency in enforcement, the prohibitive cost of visual tag retirement, and lack of producer buy-in. Consistency in enforcement is addressed above. Education and the lack of producer buy-in are inherently linked. The key to producer compliance is education.

Interoperability

Dr. Keith Roehr, *Colorado State Veterinarian*

Interoperability is the process by which data moves between databases and data systems without keystrokes. Interoperability allows for the capabilities needed today: traceability in minutes, and business continuity at the speed of commerce. However, there are many hurdles to interoperability. Different states have different databases. Regulations for data sharing differ from state to state. Both federal and state firewalls limit data accessibility. Finally, data formats differ from database to database.

The data needed for livestock health are location information (PremID), health information in the form of CVIs, brand movement identification, and diagnostic testing information. Uniform standards for the transmission of data are necessary to accomplish interoperability and thus traceability and business

continuity. USDA, State Animal Health Officials, and producers all have a role to play to make interoperability a reality. USDA must allow data from USAHerds and other state databases to migrate. State Animal Health Officials must ensure that CVI data is stored in a retrievable system, while maintaining data security. And finally, producers must officially ID all cattle at the birth herd location, and use one tag for all purposes. Once those tasks are accomplished, we will be able to achieve a degree of interoperability, with the potential for much more.

Brand State Considerations

Dr. Dustin Oedekoven, *South Dakota State Veterinarian*, Dr. Marty Zaluski, *Montana State Veterinarian*

A brand is an ownership ID, nothing more. A brand is not a health inspection, state entry inspection, or an individual animal inspection. Unlike CVIs, brands are used for animals leaving the state. At slaughter, while animal ID is retained with the carcass, brands are often long dissociated by the time of final disposition. However, brands do have a significant advantage over ear-tags and CVIs. Unlike ear-tags, brands are permanent and cannot be removed. Additionally, brands can be used to augment traceability. In the recent South Dakota tuberculosis (TB) trace, South Dakota animal health officials were able to conclusively determine that no TB positive animals in a commingled group had come from a certain producer, because that producer always branded his animals and none of the TB positive animals had a brand⁶.

In addition to providing documentation of ownership, brand inspections at change of ownership give the brand inspector a chance to physically see the animal, and thus collect and convey information to colleagues in animal health that may be useful in animal disease traceability. This sharing of information is efficient, strengthens the agriculture department, and better serves producers by providing an additional tool to support animal disease traceability.

Alternative Movement Documents

Dr. Tony Frazier, *Alabama State Veterinarian*

Alternative movement documents are state-approved documents that allow animals to officially move without a CVI (Fig 1). These documents don't require a veterinarian's signature, thus fill a gap in traceability that occurs with some frequency: lack of a veterinarian to sign the CVI.

Alternative movement documents are *not* owner-shipper statements. Owner-shipper statements give only information about where the animal originated, not where it is going. Alternative movement documents are documents that can be produced at the livestock market, give information about where the animal is going to, and accomplish traceability by dissociating it from animal health. Memorandums of Agreement (MOAs) can simplify the process - several southeastern states employ these documents and manage their content through MOUs (Fig 2). It is important to note that while alternative movement documents are not CVIs, they still need to be in electronic format to allow the information captured to be shared in electronic format in the event of the need for a thorough trace.

Making Standards and Technology Work

Dr. Justin Smith, *Kansas Department of Agriculture, Kansas State Veterinarian*

Kansas took the initiative to develop an electronic-format 'state' CVI that accepts a variety of electronic data, as long as that data is in XML data exchange format. The Kansas CVI accepts data from livestock markets, OCV tags, and testing charts and spreadsheets. The next step is to develop data standards so that they can accept other documentation types.

The challenge in this electronic state CVI data receipt system is the lack of interoperability between databases, which limits data exchange, as well as the impediment provided by state laws restricting data sharing. Deborah Wilson of BIXSco offered a solution to the lack of interoperability: instead of having databases talk to each other, states could consider maintaining their current database, but subscribing to a web-based management system through which data may be shared.

Kansas has been able to encourage veterinarians to significantly increase their submissions of electronic CVIs, and now receives 70 to 75% of their CVIs electronically. Outreach to veterinarians in the field, as well as significantly increasing the cost of paper CVIs, have contributed to their success.

Developing Traceability from a Common Sense & Business Perspective

Mr. Joe Leathers, *Texas Animal Health Commission, General Manager 6666 Ranch*

Animal disease traceability is a system with considerable potential for the producer. The data generated on the animals and the overall herd and the insurance against industry shutdown are where significant producer value comes into the system. The premium comes from the amount of data generated – data which allows the rancher to manage the herd to improve overall herd quality. Unfortunately, many producers don't see it that way. They don't trust the government, and that mistrust, combined with the uncertainty of incorporating widespread change to the way they manage their operations, leads to significant fear. This fear obscures the considerable positive aspects of the program, and keeps producers from recognizing that government officials are partners, protecting and working for the industry – not the enemy.

What is the vision for animal disease traceability? We've talked a lot about goals, but not really about vision. Federal and state government officials, and the group represented at this conference, need to develop that vision, sell it to the industry, then let the industry tackle solving the problems. The cattle industry needs to be proactive, developing the rules and the laws from the inside out. The ADT will never be accepted unless stakeholders in the industry are the ones who put it together. The industry needs to work in partnership with state and federal officials, but the effort needs to be industry-driven. A small group of 10 to 12 members should be convened, and should include representatives from large, medium, small cow-calf operations; large and small stocker operations; large and small sale barns; feedlots; heifer raisers; one or two state or federal officials as consultants; and one focused chairman of the group. The producers involved need to be able to think 'outside the box' and be willing to focus outside their world for the greater good. In this manner, and only in this manner, can the ADT be

crafted in a way that will be accepted by the industry? It's also important to start with a voluntary program to get the ball rolling. As mentioned in earlier talks, mandatory programs tend to have higher initial compliance, but rapid producer fatigue, and the necessary producer trust and buy-in that will make traceability work is much less likely to occur with a mandatory program.

Some will fight this tooth and nail, and issues will still have to be worked out. It will take 1 to 1.5 years for the cattle industry, cowboys, and ranchers to become comfortable with the changes in technology and requirements. But a stakeholder-driven ADT rule is the only real way to move forward.

Using Electronic Animal Identification to Advance Traceability

Dr. Randy Munger, *USDA-APHIS-VS*

Why adopt EID? It enables and advances traceability. The main benefit of visual only tags in a traceability program is the low initial cost to acquire the tag. However, that low cost is countered by the cost to the animals in stress and injury during restraint to read those tags and the time spent and inherent inaccuracies of manual ID recording. EID provides accuracy and saves time, allows for recording animal IDs at the speed of commerce, reduces animal stress, all of which provides potential savings to the various sectors of the cattle industry. In addition, EID allows for tag retirement at slaughter and enhances the ability to provide carcass data back to the producer.

There are currently two official identification options available for cattle in the U.S.: low frequency (LF) and ultra-high frequency (UHF) tags (Table 2). Low frequency tags are less expensive and currently enjoy a degree of market penetration, both as official ID tags and as management tags. Additionally, Canada, Australia, and New Zealand currently require low frequency tags as official country ID, and Mexico uses low frequency tags on many export cattle. However, low frequency tags have a limited read range, thus requiring some degree of animal restraint for reading, and have minimal data storage capacity. UHF tags have a large read range, and reading them requires no animal restraint. UHF data storage capacity is significant, providing management value to the producer. However, UHF is considerably more expensive, and has limited current market penetration. Significant infrastructure development would be required if UHF tags were to become the animal disease traceability standard, both in the United States and abroad.

ELECTRONIC ANIMAL IDENTIFICATION OPTIONS	Low Frequency (LF) 134.2 kHz	Ultra-High Frequency (UHF) 902-928 MHz
Expense	Lower <ul style="list-style-type: none"> HDX = \$2.37/tag (CattleTags.com) FDX = \$2.04/tag (CattleTags.com) 	Higher <ul style="list-style-type: none"> UHF = \$3.22/tag (Fort-Supply.com)
Existing Infrastructure/ Market Penetration	Moderate <ul style="list-style-type: none"> Est. 9 -12 million tags annually 1000+ readers sold 	Limited <ul style="list-style-type: none"> no international standards USDA Interim Tag Data Standard 2016 (840/NUES)

ISO Standards	Existing standards <ul style="list-style-type: none"> • ISO 11784 & 11785 	No existing standards <ul style="list-style-type: none"> • ISO working group creating international standard for encoding IDs
Read Range	Short distance <ul style="list-style-type: none"> • 12"-18" • Animals restrained/single file • Only read one at a time 	Long distance <ul style="list-style-type: none"> • 8'-16' • No need for single file • Read many tags at once
Additional User Memory	No	Yes
Traceability in Other Countries	In use internationally <ul style="list-style-type: none"> • Mexico • Canada • New Zealand • Australia 	Not currently in international use

Table 2. Electronic Animal Identification Options: LF vs UHF⁹

Global Market Traceability Dynamics

Mr. John Saunders, *Where Food Comes From, Inc.*

Animal traceability is a global dynamic. Several countries around the world have well developed beef programs that include traceability as a key component; among these, are three of the top five international exporters of beef, Australia, Brazil, and Ireland^{10,11}.

The #1 traceability dynamic at play today is the competition of the United States with the rest of the world. President Donald Trump opposes Chinese trade, but the reopening of United States beef to China would open up a huge export market. The United States is seen as a black sheep regarding animal disease traceability in the rest of the world, with its minimal of mandatory animal disease traceability. However, mandatory participation complicates confidentiality, and leads to rapid producer fatigue. Voluntary participation in the ADT program would protect confidentiality and may be better accepted nationally, but would complicate trade negotiations with the rest of the world, who don't understand how the public-private partnership works. Among the increasing global middle class, beef is the most desired protein. But the United States largely corn-fed beef supply encounters environmental resistance issues internationally that are largely avoided by other countries' chicken, pork, and grass-fed beef. The precautionary principle, such as the EU ban on technology to enhance production, runs up against the 'show me it's a problem' approach common in the United States. And finally, the United States tends to have a different view of sustainability from the rest of the world, preferring the view that sustainability is the provision of a viable future for your family as opposed to the worldview of sustainability as protecting the environment.

95% of the world population is outside the United States. As the economic status of the poorer nations representing a significant portion of this population improves, the demand for beef increases. The United States will only be successful if we can reach this population and address the US versus the world issues.

The NWSS rodeo involves timed event cattle, bucking stock, rodeo horses, and contract animals, some of which are not subject to health and traceability regulations. CVIs are an excellent tool, but most rodeo events don't require it or even use it. NWSS developed a declaration form, providing a single form for competitors to track stall locations (Fig 4). This single form is simple enough to garner good compliance, and allows a significant degree of traceability in the case of an animal disease event.

NATIONAL WESTERN
Stock Show

2017 Rodeo Contestant Declaration
ONE TRAILER PER DECLARATION FORM

Contact Information:
 Responsible Party (person in charge of horse(s) at the event): _____
 Cell Phone Number: _____ Email Address: _____
 Address: _____
 Arrival Date: _____

Horses in Shipment:

Name of Horse	Owner Name	Health Certificate # (REQUIRED)	Sex	Color

Origination Information (rodeo from which the horse(s) was moved to the event):
 Rodeo _____ State _____
 Dates _____

Horse Health Declaration:
 I, _____ declare that the horse(s) named above has/have been in good health, with body temperature(s) below 102°F, eating normally and has/have not shown signs of infectious disease for the three (3) days preceding arrival at this event.
 Signature _____ Date _____
 Print Name _____

Fig 4. National Western Stock Show (NWSS) Declaration Form¹³

The 2011 Ogden, Utah equine herpesvirus (EHV) disease event was a wake-up call for the Ranch Events Complex. It forced them to look at the logistics of animal health and business continuity. Where is each group of animals housed? Where would a quarantine occur? How soon would they know about a diagnosis of disease? What about non-livestock groups that use the facilities, such as groups sheltering from a fire or flood? These questions apply to all fairs, shows, and exhibitions where unfamiliar animals commingle, and many facilities have not begun to address them. These questions inform the future of fair, show, and exhibition facilities. Building materials need to be clean and sanitizable. Quarantine areas must be planned. Technology availability should be in place for EID scanning and reading. Fairs, shows, and exhibitions need EID, otherwise how can they be accurate and accountable? They need veterinary support, to write CVIs and check animal health and identification credentials. Government officials must reach out to fairs and shows to support them, keep them up to speed with the ADT, and guide them to maintain animal health and business continuity.

Very little EID is currently in use by fairs and shows. The NWSS uses and captures a lot of EID, but only among livestock exhibitors, not in their rodeo and horse show events. There is often a rigid check-in process when competitors arrive at a venue, but the leaving process has minimal controls. Animal ID is often collected when prize money is awarded, but there is no mechanism in place to manage this ID for the purpose of disease control. Planning for business continuity may be the key for these venues,

including planning for quarantine, as the ability to isolate disease-affected animals is key to minimizing an animal disease event.

NIAA ADT Strategy Forum Attendee Discussion - Major Points of Consensus and Discord

The process of bringing ADT to reality requires several important considerations. First, the traceability development process must take into account existing models. Significant traceability capability exists, both within the cattle industry and within unrelated industry sectors, and this capability can be leveraged to inform ADT. Other countries have working traceability systems in place, and have experienced many of the issues for which the United States has concern. Second, the current phase of ADT is the priority and expansion to other classes such as beef feeders. At the point we currently find ourselves, would only serve to further confuse producers and limit cooperation. Finally, when designing these rules, clarity, brevity, standardization of data management, and education are paramount.

Cattle producers are very independent, trust their producer and industry organizations, and are wary of rules and regulations imposed on them from outside the industry. The animal disease traceability rule is relatively new and complicated, and cattle producers are compelled to comply by the government. As an industry, they have voiced many concerns, including traceability slowing the speed of commerce; the requirement of mandatory participation; and ranch liability linked to electronic identification. The uncertainty and lack of education regarding animal disease traceability leads many producers to fear, mistrust, and ultimately resistance of the rules.

To address traceability slowing the speed of commerce, technologies must be adopted which maintain current speed of commerce. There is significant current technology around data management, although it varies from state to state, and between states and the federal government. We must acknowledge that there are multiple databases and multiple systems, and find a way for them to work together.

There is no consensus regarding the answer to the question of mandatory versus voluntary participation. A mandatory requirement generates greater, faster participation, but that tends to be followed by a rapid decline. Participation levels grow more slowly, but are palatable, and likely to be longer-lasting, if voluntary. Further palatability could be fostered if participation can be driven in a value-added manner.

An increasing number of cattle producers use EID tags for management purposes, demonstrating an increasing comfort level with the technology available. However, only half of those purchasing EID are buying 840 tags – the official Animal Identification Numbering system tag required under the ADT program. There is a disconnect between the embrace of technology and the embrace of traceability related to EID tags. Three approaches are suggested to motivate the cattle industry to join the animal disease traceability effort and move forward. First, producers need to know the value-added benefits traceability can have for them. From a production standpoint, there are two main advantages: it's an insurance policy against effects of disease control on industry (the cost of an outbreak is a lot more than

the cost of tagging and data management); and EID reduces stress on cattle by minimizing restraint in ID recording, leading to better carcass value. Second, to address the concern for liability, the data stored on and produced by electronic identification and traceability needs to be owned by the industry – shared with the government for traceability purposes only when necessary to address animal disease. Finally, and many argue most importantly, industry must take a leadership role in the design and implementation of future rules regarding traceability.

We need to put together a group of industry stakeholders to drive the movement forward. Those directly affected usually come up with the best solutions, and producers trust their trade associations. Ross Wilson of the Texas Cattle Feeders Association challenges the national producer associations to plan a meeting by the end of 2017. Their goal should be to review, prioritize, and determine next steps for the ADT working group's 14 'Preliminary Recommendations on Key Issues'. Representatives of the National Cattleman's Beef Association (NCBA), Livestock Marketing Association (LMA), National Livestock Producers Association (NLPA), Livestock Exporters Association (LEA), South Dakota Stockgrowers Association (SDSA), and American Farm Bureau (AFB) all expressed their support and commitment for this challenge. They voiced issues – livestock market operators have a lot to lose and want to spread the risk and liability; stockgrowers have concerns about privacy, liability, cost, and having to adhere to a mandatory program; and producers have a significant need for education with respect to rule requirements – but all want a seat at the table, so that they can be a part of the solution.

Enforcement of traceability rules and regulations must be accomplished to ensure compliance in traceability, and states must take on a portion of the responsibility. However, the limitation that states can enforce federal regulations must be taken into account, as well as the significant issue of staffing.

Finally, many are concerned that the urgency regarding traceability is missing. Global exchange of goods, services, and people continues to expand at an exponential rate, and we are only one plane flight or ship traverse away from the next Foot and Mouth Disease outbreak. We should not wait for the technology that may be available in the future, but rather utilize what is currently accessible. 2023 is too late – we need to make this happen now.

Footnotes

¹ Geiser-Novotny, Sunny VMD, MS

² BEEF Magazine

³ BEEF Magazine

⁴ USDA – Grain Inspection, Packers & Stockyards Administration (GIPSA)

⁵ Cattleman’s Beef Board

⁶ Kizer, Barbara DVM, USDA-APHIS Wyoming, and Szymanski, Tahnee DVM, Montana Department of Livestock

⁷ Frazier, Tony DVM

⁸ Frazier, Tony DVM

⁹ Munger, Randy DVM

¹⁰ USDA – Foreign Agricultural Service (FAS) - https://apps.fas.usda.gov/psdonline/circulars/livestock_poultry.pdf

¹¹ Ireland Department of Agriculture, Food and the Marine – Beef Analysis 2025

¹² Colorado Department of Agriculture, Animal Health Division

¹³ Vick, Leon

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