ASI Electronic Identification Transition Working Group Report

Compiled by the

American Sheep Industry Association

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EXECUTIVE SUMMARY

In recent years, USDA has indicated repeatedly that they want real time animal tracking/traceability to occur for cattle, sheep, pigs, goats. To this end, the following sentence appears on the USDA Sheep and Goat identification page:

> "APHIS is working with sheep and goat organizations to develop a plan for transitioning toward electronic identification to improve our nation's ability to quickly trace exposed and diseased animals in the event of an outbreak. "

Concerned that absent a plan developed by the sheep and goat industry the USDA will at some future time impose a plan of their own, the sheep industry began to consider how best to accommodate a transition toward electronic identification.

The ASI assembled a team to examine what might be needed for the industry to move in this direction. The group "met" via zoom meetings for just more than a year. Their "in-a-nutshell" conclusions are these:

1. The scrapie visual tag/ID system, while it has worked for scrapie eradication, is not suitable for real time traceability in the event of a rapidly spreading disease such as Foot and Mouth Disease (FMD) or Rift Valley Fever. Real time traceability is essential to ensure continuity of business for sheep producers.

2. To date, the only proven system that works for real time traceability is using low- frequency (LF) RFID (EID) tags, readers, and software. LF EID tags can be read very accurately at the speed of commerce. Visual tags cannot. Such systems are in place and providing real time national and/or regional sheep traceability in England and Australia.

3. Suitable EID tags, readers and software are available in the U.S. They are currently in use at selected livestock shows, sheep sales, processing plants, and individual flocks for management purposes.

4. EID tags have benefits over visual only tags. They can be read without having to handle the animals individually, saving time and reducing potential injuries to handlers and to the animals. The information from the tag is easily collected and used by producers in management decisions.

5. There are some concerns/impediments to setting up such a system nationally.
   - Persuading producers to acquire and install the tags. Recent years have seen a decline in producers installing mandated scrapie visual tags. This is in part due to changes in USDA subsidies for scrapie tags.
     - EID tags require an EID tag reader to offer any advantage over visual only tags. Readers that will store and upload the data can cost between $300 to $1500, others can be less expensive. There are circumstances when readers that capture data are not necessary. In such cases, less expensive readers are sufficient.
     - EID tags are more expensive than visual tags.

- - EID tags, unlike the larger visual plastic tags, may not be available in a wide enough range of colors from all manufacturers. Many producers like colored ear tags for management purposes.
    - There are also some EID tags that have a visual component. These combination tags may be preferred by producers.
    - Most producers in the U.S. have small herds and flocks. There is some concern that EID tags offer no material advantages to them over visual tags. However, at the 2021 ASI Convention, all members of a panel of producers who currently use EID in their operations, including small flock producers, indicated the benefits outweighed issues and costs experienced.)
  - A real time tracking system will not work unless _all_ points of concentration (auctions, livestock shows, feedlots, processing plant, sheep loading area) are equipped with readers and software to read the animals as they pass through them. The examples of where this is done successfully in Australia and the UK were shown to the EID working group and were impressive. However, the auction setups in those presentations were sheep-only facilities. On the other hand, most of the auctions in the U.S. are multi-species. Practically, there are challenges to converting multi-species facilities to be able to read LF EID tags in both small and large ruminants through the same setup, including renovation costs. A workable, practical solution to this is imperative.

6. Based on its work, the EID WG makes the following recommendations:
   - A collaborative federal, state and industry education and outreach campaign is needed to raise the level of compliance for NSEP traceability to flock of origin and to shift to a real-time traceability system in event of a foreign animal disease outbreak. Topics should include:
     - Elevation of the level of understanding for and compliance with NSEP traceability and recordkeeping requirements.
     - Emphasis on the disease and the progress made
     - That Animal ID is more than the NSEP; it is needed in the event of any major sheep/goat health event
     - EID tags, reader availability, differences in systems, including readers, among species
     - Persuade more producers to insert official tags, visual or EID, as something is better than nothing for traceability.
   - To be successful, government cost sharing in infrastructure will be required at points of concentration and for the acquisition of EID devices and possibly for readers. USDA will need to provide a great deal of the cost of making the changes necessary for real-time animal traceability of sheep and goats in the U.S.
     - If markets are not able to capture EID information, a mandatory EID program has no value even if all sheep are identified electronically.
   - All ages and classes of sheep be identified with EID/visual tags except for single source lots travelling directly from farm/ranch of origin to slaughter or animals hauled for other purposes under the complete control of the owner without change of ownership.
     - Goats – a focus on unique issues within sectors of the goat industry is needed to solve compliance issues. Unless these issues are resolved our ability to achieve scrapie-free status in small ruminants in the U.S. remains compromised.
   - A phased-in approach to start in one state/region and make a system fully functional in 1 year before all states must make the change and comply, then 2 years for the rest of country to make the transition

- o The requirements on the industry for the recording of animal movements should not be cumbersome. A smart phone-based recording system for animal movements should be considered.
- o Recommend a prompt review of criteria for EID approval. Currently the process is too onerous and time consuming, which negatively affects availability of sheep (and goat)-friendly devices
- o Producer willingness to utilize EID tags would be higher if USDA would provide support for their use.

The EID WG believes real-time traceability critical for the ability to maintain continuity of business in the event of a serious animal disease event and a requirement that animals be identified prior to leaving their home premises may need to be considered. During the 2021 ASI Convention Dr. Sam Mansley gave a presentation on the FMD outbreak in the UK that showed the role that sheep, as silent carriers of FMD, can play in the spread of FMD and underscores the need to be able to ensure producers can continue to operate in the event of an FMD outbreak. For this reason, the EID WG believes the industry should embrace EID when animals leave the farm of origin for any purpose that causes the animal to leave the control of the producer including when movement is made for change of ownership, to auction barns, sheep sales or livestock show events. Producers should consider that in the event of a disease outbreak, such as FMD, stricter requirements for identification will be imposed even for those animals that are moving between premises under the control and ownership of the producer, such as to grazing allotments. ID requirements in this case could include Group Lot ID or something similar. When movement occurs, the animal identification information should be sent to the Animal Health Official (AHO) in pertinent states and to the point of destination (i.e., new owners, auction barns, sheep sales and livestock show events).

Considerably more work is needed. ASI policy must be updated to address animal disease traceability. The EID WG has not yet discussed data capture and security. USDA involvement in, and assistance with pilot projects is needed. In 2021, ASI and its volunteers have spent considerable time and effort to get a pilot project off the ground to show the feasibility of EID in sheep at markets. Notwithstanding COVID-19, several obstacles have impeded progress of the study. Some coordination with APHIS Animal Disease Traceability staff, who have been involved in related pilot projects, may help to overcome these difficulties. We recommend if USDA APHIS proceeds with its effort to make EID the sole form of official ID, it needs to invest in an educational push and in working with industries and markets, to adopt the technology.

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INTRODUCTION

The American Sheep Industry Association's (ASI) Animal Health Committee has long been interested in an effective and rapid animal traceability system for the sheep industry in the event of a foreign animal disease such as FMD or Rift Valley Fever. The impact on the ability to continue in the sheep industry could be severe, as was seen in the early days of the COVID-19 pandemic. The 2020 pandemic, a human health disease with little impact on livestock, caused significant disruptions to supply chains, and would be substantially worse in the event of an animal disease outbreak.

Sheep and goats show minimal signs of FMD infection and therefore can serve as a means of silent transmission to other species, making them particularly important infection spreaders. In addition, the high percentage of long-distance sheep movement presents an equally high risk of widespread dissemination of the FMD virus. Control and eradication strategies potentially imposed by regulatory veterinarians (federal and/or state) could include:

- establishment of quarantine and other 'no movement' zones,
- destruction of flocks and herds that test positive,
- strategic vaccination, and
- bans on movements from farm to farm, such as for feed deliveries, veterinarians, shearers, etc.
- closing of auctions, fairs, and other activities would be indicated.

It is important to understand the role that a rapid and efficient animal traceability system would play in securing continuity of business. The ASI has a long history in working toward an effective animal disease traceability for the sheep industry. After the National Scrapie Eradication Program (NSEP) was established, the ASI created a working group to evaluate identification needs as part of the then proposed National Animal Identification System (NAIS). That working group evaluated the feasibility of achieving a tracking goal of full traceability within 48 hours of an animal health emergency. In its findings, the working group concluded that a purely visual identification (ID) system could not achieve the envisioned tracking goal unless an electronic method of ID were implemented (*The National Animal ID System Sheep Working Group Report*, Wolf, 2008, pg. 1).

At that time there were no proven electronic national ID and tracking systems for small ruminants. Today, several nations, including those with substantially larger sheep populations than the United States (US), have adopted, in part or in full, sheep traceability systems in utilizing electronic ID (EID). The United Kingdom (UK) has a mandatory EID traceability program that was instituted following their FMD outbreak in 2001. The Australian state of Victoria, a major sheep producing area, has also adopted a mandatory EID tracking system for sheep. Adoption of EID technology and the improvements in hardware and software capabilities in the last ten to fifteen years offer near real-time traceability for the sheep industry.

In 2016, there was a policy shift at the United States Department of Agriculture (USDA) when the department began exploring widespread adoption of EID as the sole form of official animal ID for the nation's Animal Disease Traceability (ADT) program. It is this policy shift that prompted the US sheep industry to examine transitioning from visual ID to EID. Traditionally the USDA has accepted several forms of animal ID as official for interstate movement and other events requiring official animal ID, but in 2020, the USDA proposed making EID the only form of official ID for cattle and bison covered by the ADT rule under this schedule:

a. As of January 1, 2022, USDA would no longer approve vendors using the official USDA shield in metal or plastic ear tags that do not have radio frequency ID (RFID) components.
b. As of January 1, 2023, RFID/EID tags would become the only ID devices approved as an official ear tag for cattle and bison pursuant to § 86.4(a)(1)(i).
c. The USDA would still recognize metal tag as an official ID device for the life of any cattle or bison that had official USDA metal tags in place before that Jan. 1, 2023.

In March 2021, however, the USDA withdrew their proposal to mandate EID as official ID in cattle and bison. Instead, the Department now proposes a rulemaking process related to their July 2020 proposal. Based on this history, as well as indication that most state animal health officials support EID and its real time capability in recording of animal movements, it's reasonable to conclude that EID for official ID purposes will be instituted. A timeline for the transition is unknown but can be assumed to be sometime in the near future.

NEXT: Section 1: Purpose and objectives of the Working Group

Section 1: Purpose and objectives of the Working Group

Recognizing the direction that the USDA and the states are moving, the ASI anticipates a policy shift toward use of EID as the primary, if not sole, method of official sheep ID, including for the National Scrapie Eradication Program. At this time, visual ID tags are the primary, though not the only official ID currently used in the US sheep industry. A move to EID as the sole form of official identification would represent a major change in the way the sheep are identified and raises concerns that disruptions to sheep movement and various production sectors will result.

As EID is not uniformly utilized by sheep producers, ASI's Animal Health Committee agreed it would be prudent to develop a transition plan from visual ID to EID in the event the technology becomes mandatory in the future. This might avoid subjecting producers to a "one-size-fits-all" mandate. The ASI Animal Health Committee recommended that the ASI convene a small working group of knowledgeable industry representatives and experts, led by the ASI Animal Health Committee Chairs, Dr. Cindy Wolf and Dr. Jim Logan, for the purpose of evaluating and planning for a transition to EID tags.

The EID Working Group (EID WG) was given a timeline of 18 months to develop a plan, and since the scrapie program affects both sheep and goats the EID WG also included representatives of the goat industry.

The EID WG were given the following objectives:

- Determine what can or cannot work for producers and markets if EID is mandated in the sheep industry.
- Develop recommendations for transitioning from visual only ID tags to EID.
- Provide industry recommendations to ASI for their consideration for eventually advising USDA how to move forward for the sheep industry.

NEXT: Section 2: Activities of the Working Group

Section 2: Activities of the Working Group

The ASI is fortunate to have qualified volunteers to serve on the EID WG who were able to provide the group with a well-rounded understanding of the use of EID both in the US and worldwide. Many of the industry leaders who participated in the ASI EID WG have been involved with the National Scrapie Eradication program (NSEP) from its inception. They helped mold the NSEP into a practical program and their familiarity with the NSEP adds value to the consideration of transitioning to EID in the sheep industry.

The group recognized areas that needed greater study to transition to an EID-only traceability program and identified two subgroups; one to gather information on the current use of EID in the sheep and livestock industry and another to determine if gaps exist in current practice that would need to be addressed to ensure a successful transition to EID traceability. The EID WG considered a wide variety of sheep ID topics to gain a comprehensive picture of the current trends and practices in the use of EID in animal ID and traceability throughout the world.

Key points about EID and its use in livestock:

- Worldwide, official ID of livestock is employed mainly for animal disease traceability, for breeding management, and for export purposes.
    - Traceability begins with individual ID, most commonly an ear tag. These tags can be visual only (metal or plastic), contain a bar code or utilize RFID.
    - Traceability systems initially focused on cattle with programs to trace swine, sheep/goats and cervids adopted later.
    - All countries with Official Sheep ID programs include goats to some degree in their programs. Tagging regulations differ for breeds with small ears.
- Low Frequency (LF) is the most proven and widely available technology.
    -
    - Most LF tags and readers comply with international standards (ISO 11784/11785) that define how tags store and send the information to the reader.
    - Any ISO compliant reader will read any ISO compliant tag and are therefore brand neutral – any manufacturers reader should read any manufacturers tags.
- Efforts to develop Ultra High Frequency (UHF) animal ID options are underway.
    - UHF has potential because its read range is much greater, but the technology is still in its infancy. There is currently no ISO standardization for UHF products regarding data transmission or product construction.
    - Therefore, at this time UHF product brands cannot necessarily be mixed and matched as done with ISO compliant LF products.

In 2020, the ISO committee was preparing to establish ISO standards, which are expected to take three to four years to complete.

Australia

As one of the world's largest sheep producing nations and out of concern that a major food safety or disease incident could jeopardize essential export markets,

- 2006 - Australia introduced an official ID and traceability system for sheep and goats.
- 2009 - the program became mandatory.
    - 2016 - the State of Victoria, which has a sheep population nearly 3X that of the US, implemented a traceability system beyond Australia's official visual tag system and implemented an EID system for sheep and goats. The EID system was implemented through a phased-in approach. The phased-in

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approach mandated that by 2022 all sheep and non-exempt goats will need to be identified with an official electronic tag before being moved off a property.
- o Financial assistance was provided by government entities to make the transition to electronic ID

Canada

The Canadian sheep industry invested in a mandatory, industry-led program to develop a full-scale livestock traceability system to address producer concerns about sheep health and consumer demands for quality assurance and food safety.

- o 2004 - sheep were mandated to be identified with a program visual tag.
- o 2010 - sheep industry agreed to move to EID tags in support of a national ID traceability program continues to work with stakeholders and government agencies toward that goal.
- o 1212 – mandatory EID for all sheep moving off-farm introduced.

United Kingdom

The UK implemented an animal ID program for animal disease traceability in response to the major economic damage following a nationwide FMD outbreak in 2001 and became mandatory 2010. An electronic movement reporting system was established in 2014, with requirements for the reporting animal movements into a national database.

New Zealand

New Zealand (NZ) has a combination of official, semi-official, and ad-hoc forms for animal ID systems. For sheep and goats, a declaration form must be completed when animals are moved from one property to another. In 2019, Beef & Lamb NZ indicated plans to develop a business case for sheep to join the nation's national animal ID and traceability system which is currently only mandated for cattle and deer.

NEXT: Section 3: Current Sheep EID Usage and Gaps in the US Subgroup Activity

Section 3: Current Sheep EID Usage and Gaps in the US Subgroup Activity

Two subgroups were identified to gather information on the current use of EID in the sheep and livestock industry and also to determine any gaps that may exist in current practice, which would need to be addressed to ensure a successful transition to EID traceability. The following is a summary of the findings of both subgroups.

Key points:
- The ID and recordkeeping standards within the NSEP currently serve as an accepted framework for ADT for Scrapie.
  - The NSEP can trace individual animals from flock of origin, through ownership changes, through private and market channels to adult surveillance or diagnosis endpoints (slaughter surveillance or necropsy). Records are required to be retained for 5 years, which would likely be the same for a comprehensive ADT program. At present, most animals identified through NSEP slaughter surveillance have visual only ID tags. [There is minimal use of EID within the NSEP. The NSEP traceability capabilities do not meet the 48-hour goal that is a feature of rapid animal disease traceability.]

- EID is currently used in some instances in the industry, and its adoption is growing.
  - Some integrated flock management systems utilize birth to death unique ID with flock management software for breeding, health, genetic selection (including DNA sampling with tag application), and movement to processing, necropsy or removal from the herd.
  - Transitioning from NSEP to a book end ADT system would require capture of EID at the packer level for all ages of sheep/goats to allow animals to be recorded as slaughtered in order to close disease traces involving these animals.
  - Fairs are also an industry sector that may currently employ EID for management purposes.

- There remain significant challenges to adoption of EID technology. In some sectors, motivation to ID animals is lacking because the data it can provide is not viewed as valuable to sheep producers with low management inputs.

- Auction and sale yards will have challenges in adapting to an ADT system. There is unease in the industry over adopting ADT if it will cause small sales yards, including those that only offer sheep and goats occasionally, to stop offering the service altogether.

- Cost is also seen as a challenge to adoption. Achieving a model that is cost effective for very small producers to transition to EID may be difficult but could be overcome if some level of subsidy is provided. For example, smaller producers may need to buy tags but should not be expected to buy readers.

Gaps Identified:
1. Livestock auction markets are an easily monitored and regulated point in the sheep and lamb marketing chain and are likely not a true "gap" in the official animal ID system. The percentage of untagged animals arriving at auction markets varies significantly from state to state and region to region. Sheep that are marketed outside of auction yards are often traded directly between the producer and either a broker, feeder, private dealer, and/or packer who are less regulated and theoretically less inclined to follow the current animal ID guidelines.

- Auction yards have legitimate concerns that increased costs of tagging when an EID system is implemented will drive a higher percentage of animals into less regulated pathways.
- The infrastructure cost to adopt EID technology, which often includes facility alterations, as well as reader installation, software management, time and cost of tagging animals at the market, creates a strong burden on the marketing sector.

- The easiest solution to the gaps identified at auction markets and those that operate outside of auction markets is some form of enforced tagging before an animal passes through the farm/ranch gate. This will not be popular among producers and may be a very difficult thing for USDA or states to enforce.

2. Under the current official animal ID guidelines for scrapie eradication, how lambs are marketed in the non-traditional/ethnic segment of the industry is a notable gap. However, this gap may not be as serious as others due to the age (less than 1 year of age) and class of animals (ewe and ram lambs) that are most frequently seen in this industry segment. Given the buyer and producer characteristics of this segment, animal ID regulations may be very difficult to enforce. Reasons include:

- A lack of perceived value or importance of official ID is an issue within this segment and a lack of effective training.

- On-farm harvest, small ethnic processing facilities, and producers considered to be off the grid or out of touch with the mainstream sheep industry unlikely to know about or willing to comply with requirements.

- A mistrust of regulatory requirements and governmental involvement could be an obstacle, and cultural aspects may impede compliance.

    Again, the easiest solution to identifying animals that enter this industry segment appears to be enforced tagging before leaving the farm/ranch gate as mentioned above.

3. Lack of recordkeeping compliance under the NSEP is a challenge and notable gap. For ADT, the reporting/record keeping for small flocks and those sectors that cannot use technology will also need to be addressed.

4. A collaborative federal, state and industry education and outreach campaign is needed to raise the level of compliance for NSEP traceability to flock of origin and to shift to a real-time traceability system in event of a foreign animal disease outbreak.

Conclusion
Animal traceability should add long term value to the sheep industry, but general acceptance may be a challenge. The cost of transitioning to a mandatory EID system will present a barrier to producer acceptance. Flexibility will be crucial to transition from a visual only ID to an EID system and a phased-in approach that includes a reasonable timeline for transitioning as well as adequate resources from state and federal agencies to facilitate the transition will be needed. Incentives, like those offered to sheep producers when the NSEP was adopted, will be needed to gain widespread sheep producer acceptance. An extensive educational campaign and collaboration between the sheep industry, USDA, and state animal health officials will be needed. It is likely that nationwide EID use in livestock may only occur if and when it is mandated.

Full industry support is necessary to establish an effective animal traceability program, whether mandated or voluntary. Flexibility will be needed with respect to EID products and technology to accommodate the varying needs of producers and industry stakeholders, and to be truly effective, animals should be tagged prior to leaving the farm/ranch/premises of birth. If mandated, a sheep EID ADT program will require a phased-in approach to implementation that includes a plan for how electronic information is to be collected and recorded. Federal funding for infrastructure development will be critical.

NEXT: Section 4: Recommendation

Section 4: Recommendations

The EID WG members developed the following recommendations for transition from visual only ID only tags to EID tags. A summary of the work done by the subgroups that led to these recommendation follows, with detailed reports included in the appendices.

- The scrapie visual tag/ID system, while it has worked for scrapie eradication, is not suitable for real time traceability in the event of a rapidly spreading disease such as Foot and Mouth Disease (FMD) or Rift Valley Fever. Real time traceability is essential to ensure continuity of business for sheep producers.
- To date, the only proven system that works for real time traceability is using low- frequency (LF) RFID (EID) tags, readers, and software. LF EID tags can be read very accurately at the speed of commerce. Visual tags cannot. Such systems are in place and providing real time national and/or regional sheep traceability in England and Australia.
- Suitable EID tags, readers and software are available in the U.S. They are currently in use at selected shows, sales, packers, and individual flocks for management purposes.
- EID tags have benefits over visual only tags. They can be read without having to handle the animals individually, saving time and reducing potential injuries to handlers and to the animals. The information from the tag is easily collected and used by producers in management decisions.
- There are some concerns/impediments to setting up such a system <u>nationally</u>.
  - Persuading producers to acquire and install the tags. Recent years have seen a <u>decline</u> in producers installing <u>mandated</u> scrapie visual tags. This is in part due to changes in USDA subsidies for scrapie tags.
    - EID tags require an EID tag reader, which can cost between $300 to $1500.
    - EID tags are more expensive than visual tags.
    - EID tags, unlike the larger visual plastic tags, are not available in a wide range of colors from some manufacturers. Many producers like colored ear tags for management purposes.
    - EID tags can't be read visually at any distance and therefore are not a direct substitute for visual
    - Most producers in the U.S. have small herds and flocks. There is some concern that EID tags offer no material advantages to them over visual tags. However, at the ASI Convention, all members of a panel of producers who currently use EID in their operations, including small flock producers, indicated the benefits outweighed issues and costs experienced.

    A real time tracking system will not work unless <u>*all*</u> points of concentration (auctions, shows, feedlots, packers, ranch/farm loading area) are equipped with readers and software to read the animals as they pass through them. The examples of where this is done successfully in Australia and England were shown the EID group and were impressive. However, the auction setups were sheep-only facilities. Most of the auctions in the U.S. are multi-species. Practically, it is more difficult to convert multi-species facilities to be able to read LF EID tags in both small and large ruminants through the same setup. A workable, practical solution to this is imperative.

- Based on its work, the EID WG makes the following recommendations:
  - A collaborative federal, state and industry education and outreach campaign is needed to raise the level of compliance for NSEP traceability to flock of origin and to shift to a real-time traceability system in event of a foreign animal disease outbreak. Topics should include:

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- Elevation of the level of understanding for and compliance with NSEP traceability and recordkeeping requirements.
- Emphasis on the disease (that is, Scrapie) including what its historic impact has been and the progress that has been made toward eradication.
- That Animal ID is more than the NSEP; it is needed in the event of any major sheep/goat health event.
- EID tags, reader availability, differences in systems, including readers, among species
  - To be successful, government cost sharing in infrastructure will be required, particularly at points of concentration, to adapt facilities, acquire EID devices and possibly for readers. USDA will need to be responsible for a great deal of the cost of making the changes necessary for real-time animal traceability of sheep and goats in the U.S.
    - If markets are not able to capture EID information at the speed of commerce, a mandatory EID program has no value even if all sheep are identified.
  - All ages and classes of sheep should be identified with EID tags except for single source lots travelling directly from farm of origin to slaughter or animals hauled for other purposes under the complete control of the owner without change of ownership.
    - Goats –a focus on unique issues within sectors of the goat industries is needed to solve compliance issues. Unless these issues are resolved our ability to achieve scrapie-free status in the U.S. is compromised.
  - A phased-in approach to start in one state/region and make a system fully functional in 1 year before all states must make the change and comply, then 2 years for the rest of country to make the transition
  - The requirements on the industry for the recording of animal movements should not be cumbersome. A smart phone-based recording system for animal movements should be considered.
  - Recommend review of criteria for EID approval as the current standards are too onerous now, which negatively affects availability of sheep (and goat)-friendly devices.

Continued work is needed to address the gaps and needs identified by the EID WG and the Subgroups. A pilot project to determine feasibility in an auction market setting is underway. Greater involvement from USDA APHIS would be welcome as several impediments to a successful pilot project have been identified. Experience gained from other pilot projects may help resolve those issues in a timelier fashion. In addition, there appears to be increasing concern over the ability to achieve scrapie free status for the US. It is recommended that a meeting between USDA APHIS and industry be convened as soon as possible to address the information and recommendations shared in this report.

NEXT: Section 5: Next Steps

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An area that needs further consideration is recordkeeping and data capture, including where the data is housed for an ADT system.

There are differences in where responsibility for movement records lies between nations that have mandatory ID from birth to death.

In the UK, responsibility lies with the producer and the producer is subject to "spot audits" by the national government. In addition, where data from EID is housed varies. For example, England, Scotland, and Wales have each kept separate databases for each species, which are housed with dedicated government authorities—although these will be transitioning to single multispecies databases.

In the US, the cattle industry has provided the option to house EID data with US CattleTrace, a private non-profit membership-based entity. And the USDA holds other databases including those for the official ID records, NSEP traceability and program related data, and for emergency response. State Animal Health Officials have databases as well that are maintained for animal disease traceability. These hold various types of data, which, again, varies between states.

An ADT system needs to be simple. Its requirements need to be easily understood by all producers. Similar requirements for multi-species would make it easier for producers, stakeholders, and government.

If the ADT system is complex, producers will struggle with knowing what to record within their records and when official ID is needed. This confusion will result in the movement of unidentified animals and records that don't meet NSEP or ADT needs.

It is recognized that a paper system results in more errors and inefficiency in tracking animals.

Furthermore, a database/tracking system needs to identified and effective before implementation.

NEXT: References

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APPENDICES

A. Working Group Members

B. Current Industry ID Usage Subgroup report

C. Industry Gaps Subgroup Report

APPENDIX A
American Sheep Industry Association
Electronic ID Transition Plan Working Group

The Electronic ID Transition Plan Working Group (WG) will consist of an engaged, diverse, and knowledgeable group of industry representatives as listed below.

Chairs:
- Jim Logan, DVM – Wyoming State Veterinarian (retired); Chair, American Sheep Industry Assn. Animal Health Committee.
- Cindy Wolf, DVM – Sheep, goat and beef producer and veterinarian; University of Minnesota College of Veterinary Medicine, Ret.; Chair, American Sheep Industry Assn. Animal Health Committee

Members:
- Pierce Bennet – Livestock Marketing Association
- Benny Cox – Sheep and Goat Sales Manager for Producers Livestock Auction; Past President, American Sheep Industry Assn.
- Anita Dahnke – Exec. Dir. American Goat Federation, goat producer
- Mike Fletcher – Shearwell Electronic ID Industry Representative
- Amy Hendrickson – American Sheep Industry Assn. consultant, Exec. Dir. Wy Wool Growers
- Travis Hoffman – North Dakota State University Sheep & Goat Extension
- Brandon Manning – Allflex Electronic ID Industry Representative, goat producer
- Jimmy Parker – Sheep producer; Chair, American Sheep Industry Assn. Production, Education and Research Council
- Dan Persons – Shearwell Electronic ID Industry Representative, sheep producer
- Stan Potratz – Premier1 Electronic ID Industry Representative, sheep and goat producer
- Reid Redden, PhD – Texas A&M AgriLife Sheep and Goat Extension
- Joan Rowe, DVM – American Dairy Goat Association (ADGA), Professor, Population Health & Reproduction, University of California School of Veterinary Medicine, goat producer
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- Dr. Diane Sutton – USDA APHIS
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APPENDIX B

Electronic ID Working Group
Current Industry ID Usage Subcommittee Report
November 12, 2020

Purpose
- Review current usage of identification for sheep/goats in the scrapie program.
- Review current use of Electronic Identification (EID) for the sheep/goat industries.
- Review benefits of EID for the sheep/goat industry.

Objectives
- Explore the purpose of EID in each age/sex/production group and industry segment for sheep/goats.
- Identify where EID is needed and where it may not be needed for sheep/goats.
- Consider how a successful transition from current Scrapie identification usage for sheep/goats to an official animal disease traceability identification program for sheep/goats can occur.
- Determine how EID can be implemented in priority areas for sheep/goats, including auction markets.

Summary of Findings
Electronic identification (EID) devices (ear tags, leg bands, implants) are used in intensive management systems for integrated flock/herd management systems (carcass trait evaluation, breeding selection, milk production, husbandry practices) in some large scale commercial and smaller scale breeding stock operations. However, expense, management factors, and production system factors limit widespread use of EID in the sheep industry.

EID use for carcass trait evaluation is available at some lamb processing plants. These animals are typically market age animals not currently required to be identified under the National Scrapie Eradication Program (NSEP) and official 840- series tags may or may not be utilized. Fair (exhibition) lamb tags and other management program tags 900-series manufacturer tags may be used. These animals are often moving direct to slaughter and often not through auction markets before arriving at the processor. There is a need to further investigate all current uses of EID and see how to expand their use as a long-term goal of expanding traceability capacity.

EID may not be feasible in all production systems. Some production systems have low inputs and operate on narrow margins. Finding ways to exempt certain categories or continue visible ID options while maintaining traceability will likely be needed. Additionally, EID systems that work in large-scale auction markets may not be best for smaller-scale auction markets or where sheep and goats are a minor component of the auction market operations. Adaptability in multispecies venues to utilize readers and needs of the facilities will vary by auction market, fair, processor, and other points of commerce, and it may not be feasible to have equipment/facilities dedicated to use only for minor species.

Flexibility in accepting the use of external (ear tags, possibly leg bands) and internal (implanted microchips) EID devices provides the opportunity to achieve the greatest usage of the program and meet producer needs. Strategies that build traceability capacity by leveraging existing usage will lead to the highest producer/market acceptance while minimizing disruption of existing practices.

Key Points for Consideration
- Importance of emphasizing Animal Disease Traceability (ADT) instead of just Scrapie ID in the way we discuss or develop education and outreach activities related to small ruminant identification, transitioning the culture from Scrapie ID/traceability to ADT ID/ traceability.

- In addition to ADT for disease response purposes, increasing expectation of traceability of foods to the farm of origin in the future would be addressed through ADT transition to EID and other efficiencies in animal traceability.

- Education and outreach will need to focus on the benefits of maintaining secure sheep and goat supply and maintaining continuity of business in the face of a disease outbreak or other major market disruption.

- Education of U.S. producers about foreign animal disease events around the globe would help increase producer awareness of need for traceability. Efforts should embrace the Secure Sheep and Wool Plan and similar goat industries initiatives.

- What would a transition to EID look like? Timeline, phases, sectors involved – lessons are to be learned from cattle EID transition; financial assistance offered to cattle industry may similarly be needed for EID transition to be feasible in sheep and goats.

- Complexities of industry segments, auction markets and animals in commerce is such that a one size approach will not fit all. Need to remain flexible, as one uniform standard may not fit all markets/ sectors. Key may be to identify starting points that industry segments can get on board with, for example breeding stock and expand to other classes of animals as usage increases.

- In a transition to a more comprehensive ADT ID objective than mandated under the NSEP, what ages, uses, additional categories of animals should be considered for inclusion? Are there state requirements that are more stringent than federal requirements that should be considered?

- Record keeping, reporting, data access and accuracy are core to a successful ADT program. Complacency and lack of awareness/ urgency of importance of traceability under NSEP have grown as the disease nears eradication. User (at all levels) education and engagement in importance of traceability are vital to success. Records systems that address the many types of operations/ owners and provide useful management information to bring value beyond movement reporting would be key to expanding traceability capacity and enhancing the management and sustainability of sheep flocks and goat herds.

Current Gaps Identified
- Records compliance and retrievability is a current vulnerability in NSEP. Under ADT, greater completeness of records and speed of retrieval would be needed.

- To plan for transition to EID for NSEP, we would need to identify cost/benefit of EID devices and identify situations where exemptions/ alternatives are needed for animals currently required to have official ID under NSEP (see section above).

- Need to identify points in commerce (or disposal/necropsy) where ID must be captured and data stored, summarized, transmitted for retention as needed.

- Would need to determine hardware/software needs & limitations for data storage & retrieval. Data retrieval & export should be producer/market/ packer-friendly and allow simple export of essential data. (In addition to CVI/ accredited vet data systems for movement already in use).

- To propose EID strategy for ADT, we would need to map out, by age, sex, and purpose (e.g., breeding, slaughter, browse) where official and unofficial EIDs are currently used/ are available to identify which animals are either unaccounted for or may be identified multiple times.

- Under ADT plan, would need to identify additional points in commerce, movement, or exposure where ID and inventory/movement data might be needed beyond those under NSEP traceback.

- Further need to identify how official ID could replace management-series ID numbers and devices with those meeting official ID standards.

- Work with EID manufacturers to determine ID and reading devices, applications that would bring producers, markets, packers and veterinary health professionals the best value and broadest application for EID and data handling strategies/systems and what would be needed to achieve this. Remember that we are a small part of a larger global market, so keeping in mind how to evolve systems that take advantage of larger global usage would help maintain competitive markets for device manufacturers. Streamlining processes for device approval is critical to attracting manufacturers to the US market and sustaining choices and affordability for producers.

- Proprietary tags for fairs, management uses would need to be purchased as 840-series tags/implants to be considered official ID for NSEP, same for other management applications involving commerce.

- How to assure only one official ID per animal (other uses would need to allow assignment of existing 840 number), for fairs, transport, regulatory purposes (same concept as calf EID tags and Brucella OV EID tags in cattle).

- Transition from Scrapie flock ID to 840-series tags – The state code in the scrapie flock ID provides useful visible information to veterinarians and producers. While 840-numbered tags are ordered through the PIN and maintained in 2 data sets (Premises ID & Scrapie flock ID), the current scrapie tags have an advantage of providing visible information of flock of origin. This is useful to veterinarians for CVIs and other work. Some users may also have access to state premises codes for cross-reference or ID labeling. Options about what can be printed on an EID tag would be important to explore. Would it be possible to have EID number printed on the Scrapie ID tags?

- National Premises ID numbers and Scrapie flock ID numbers are allocated differently and are maintained in separate federal databases. At what point would these databases be merged? Scrapie flock numbers are specific to sheep/goat premises while Premises ID numbers are specific to the premises location itself and not a species residing on that premises. Some state animal health offices keep these numbers together within the respective state animal health database.

- There are currently relatively inexpensive EID tags available. Readers require a greater investment. Readers may be needed by auction markets, brokers, buyers, processors/ packers, producers, transporters, fairs, accredited veterinarians, diagnostic laboratories, renderers, and other commerce points. Each may have varied need for readers, software and data downloading, and reporting capabilities. Needs also depend on whether a bookended or sighting program is implemented.

Resource Library

Extensive resources were assembled for reference for the working group. Relevant files were referenced directly or added as appendices to this subgroup report. These documents, along with working group presentations, meeting notes and subgroup meeting notes, were available as a comprehensive resource for all working group members.

Summary of Committee Discussions on Purpose & Objectives

The subgroup considered the following assumptions on animal identification:

1. APHIS program changes announced 2017 ended universal availability of low-cost NSEP tagging options.

2. APHIS has requested sheep/goat industries to propose plan for transition to official EID tags for Scrapie traceback.

3. Scrapie program identification/ records standards serve as currently accepted framework for Animal Disease Traceability (ADT).

4. The only current acceptable numbering system that could be utilized in the U.S. in/on EID devices in sheep or goats as official identification would be the Animal Identification Number (AIN) system. Each AIN is 15 digits with a 3-digit prefix indicating the country/territory of origin (840 for devices applied in the United States) and only RFID devices bearing AINs could be used for official purposes such as the NSEP/ADT unless additional RFID devices are approved by USDA bearing different, federally approved, numbering systems.

5. Animals of all ages and uses would require individual or group-lot identification for a comprehensive traceability program. Impact/needs to achieve this should be considered as part of a comprehensive examination of all considerations for EID adoption. Official ID requirements for current NSEP excludes some categories of animals.

6. Goal of NSEP program is to trace individual animals from flock of origin, through ownership changes, through private and market channels to adult surveillance or diagnosis endpoints

(slaughter surveillance or necropsy). Records retention requirements for NSEP (5 years), for comprehensive ADT would likely be the same.

7. For complete ADT in an outbreak of a rapidly transmitted disease, goals of traceback and records details for movements and/or types of records required may differ from NSEP records. This is pertinent to EID discussion because EID systems may allow more rapid and/or complete tracking of animal movement which may be needed in diseases with short incubation periods.

Assumptions About Sheep and Goat Management Systems
Subcommittee considered the following general groups and identified needs & limitations of each system:

1. Intensively managed flocks/herds with management ID uses

2. Extensively managed range flocks/herds, traditionally managed by group with no individual records or individual animal markings/brands/tags to signify management status (Western/ Southwestern U.S.)
   - Main movement commerce is market channels or direct market to slaughter of lambs and culls
   - Are there different considerations if grazing public vs private land?

3. Use of Group-lot & haulers' statements.

4. Industry sectors to assess usage & needs: Meat, fiber, utility sheep & goats:
   - Commercial (Traditional)
   - Small Flock (Traditional)
   - Commercial (Non-Traditional)
   - Small Flock (Non-Traditional)
   - Show (Sheep, Goat; Breeding, Wether-dam, Market)
   - Dairy (Goat, Sheep) – additional considerations and ID uses in milking processes

Purpose: Current usage of identification for sheep/goats in the National Scrapie Eradication Program (NSEP)

National Scrapie Eradication Program Standards

Currently Accepted Forms of Official Identification Under NSEP
1. Flock Identification (ID) tags: typically purchased by producer; newly registered flocks/herds may be eligible for a limited quantity at no cost from USDA

2. Serial Tags: assigned to a producer; dealer; or approved tagging site per 9 CFR § 86.1

3. Animal Identification Number (AIN) Tags: 840 prefix for USA born animals; available as visual or RFID tags; premises number is required to order - federal Premises Identification Number (PIN) or state Location Identification Number (LID)

4. Animal Identification Number (AIN) RFID Implants: for subcutaneous use at base of ear or tailfold/underside of tail; official when used as required under the USDA's NSEP Standards.

5. Registration Tattoos: Approved breed registry and State-issued tattoos; registration numbers required on all official paperwork; animals may be required to be accompanied by registration papers during movement (registry has responsibilities).

6. Sheep or goats moving with a group ID and owner/hauler statement.

Animals Required to Be Officially Identified Under NSEP

Some states have identification (ID) requirements that are more strict than federal requirements.
1. All sexually intact sheep and goats not in slaughter channels.

2. All sheep and goats over 18 months of age as evidenced by eruption of the second incisor.

3. Animals for exhibition, including sexually intact sheep and goats of any age and wethers 18 months of age and older. There is an exclusion which would rarely apply for animals that have never been in interstate commerce, that have not resided on premises where animals have been received that have been in interstate commerce or from which animals have moved in interstate commerce and are not owned by persons who engage in the interstate commerce of animals, that are moved to exhibitions conducted at remises where animals have not been received that have been in interstate commerce or from which animals have moved in interstate commerce and where none of the animals exhibited has been in interstate commerce and where the State and the exhibit does not require the animals to be identified. Note: Many States and exhibitions require official identification of all sheep and goats.

4. All exposed and high-risk animals, including all low-risk exposed animals, genetically susceptible exposed animals, genetically less susceptible exposed sheep, and genetically resistant exposed sheep.

5. All suspect and test-positive animals.

6. Sheep and goats from noncompliant flocks.

Animals Not Required to Be Identified Under NSEP

See NSEP Program Standards, p. 52. Note that many management uses of EID (for example value-added processor carcass quality feedback for market lambs) utilizes unofficial forms of EID.

Records required under NSEP (including who is responsible for the records for 5 years):
• Animal moving in commerce, party applying tag is responsible for initial tagging records.

• Owner/breeder at flock/farm of origin

- "Tagging center" – auction yard, veterinary clinic, non-owner with assigned program tags, regulatory veterinarians (Note that some fairs, cooperative extension offices provide EID tags to exhibition market animals for exhibitor/fair/processor activities, believed to be non-840 series, so not official ID and no mandatory scrapie records requirement for that ID device except with possible change of ownership facilitated by fair?)

- Owners maintain/are responsible for change of ownership records.

- Accredited veterinarians and regulatory authorities maintain CVI (health certificate) movement records (mostly interstate)

- Transporter records, auction yard records maintain movement and/or change of ownership records.

- All records must be maintained for 5 years.

- Record keeping compliance is of considerable concern. Further producer education and possible enforcement measures needed. Enforcement efforts can be difficult to do in timely way, so majority effort is best directed at producer education. One issue is how to reach nontraditional stakeholders who do not utilize major marketing channels.

Records NOT required by NSEP but could be needed for comprehensive ADT of rapidly transmissible Foreign Animal Disease (FAD)
- For full traceability, records from birth through processing or necropsy or death/lost to follow-up accounting would be needed, with rapid availability of movement records (time needed would depend on incubation period of disease. This appears to be a major gap in moving towards full ADT.

- The Federal standards will need to be expanded to include all ages of animals and to keep track of where they may have been in contact with other animals.

- Moving forward with full ADT producers must be able to see the cost of doing nothing vs cost with full ADT using solid economic models showing the financial cost of not containing a FAD.

Purpose: Review current use of Electronic Identification (EID) for the sheep/goat industry.
- At present, there is minimal use of EID with tags purchased through NSEP flock ID/Premises ID.

- Majority of animals identified through NSEP slaughter surveillance have non-EID tags.

Types of EID Systems
- Refer to EID Working Group presentations posted in Resource Library.

Current Uses of EID Systems
- Integrated flock management systems with birth to death unique ID, flock management software for breeding, health, genetic selection (including DNA sampling with tag application), and movement to processing, necropsy or removal from herd.

- Rapid animal ID and data capture/transfer, integrated records analysis & archive in auction yards and other market channels.

- Carcass trait evaluation feedback to producers based on use of EID tags on market lambs.

- Transitioning from NSEP to ADT would require capture of EID at packer for all ages of sheep/goats to allow for "book end" approach and 840 EIDs could be retired. (All USDA certified beef packing plants have EID readers).

- Industry sectors – Examples of usage, scrapie program ID compliance & need for EID:
    - Commercial (Traditional)
    - Small Flock (Traditional)
    - Commercial (Non-Traditional)
    - Small Flock (Non-Traditional)
    - Show (Sheep, Goat; Breeding, Wether-dam, Market)
    - Dairy (Goat, Sheep) (additional uses for milk production testing and genetic evaluation milk production)

- Dairy animals – EID ear tags, subcutaneous implants or EID leg bands can be used in combination with proprietary management software, especially in larger scale intensively managed commercial herds, for management purposes including feeding management, in-parlor milk weight recording, DHI testing/sampling, animal group management, etc.

- American Dairy Goat Assn. (ADGA) records 840-series EID implants (ear/tail; subcutaneous) as supplemental ID to ear/tail tattoos; LaMancha (small ears) not able to use ear tags. Dairy breeds have thinner ears than Boer goats.

- Significant numbers of EID implants are being used in registered dairy goats and in commercial and registered meat goats and are in frequent use in registered companion (Pygmy) goats. Two accepted sites are base of ear and tail web/underside of tail. Additional ear/tail (E/ET) tattoo is required as visible indicator of implant. 40-series EID implants are marketed by two distributors. Of concern is to be sure that official ID is used (840) and that implants are placed in accepted site (ear or tail) under NSEP to assure food safety, and that implants are not placed in more typical sites used for pets (e.g., between shoulder blades). It appears that the 2 marketed (840 ISO) implants are 134.2 kHz fdx-B devices.

Industry Sectors – Examples of Usage or Concerns:

- Fairs – Tagging sites, official vs nonofficial ID, many lambs/kids would arrive with preexisting official ID. Fair tags are management EID. In Texas, EID tags are distributed to youth via Cooperative Extension Service. In CA, fairs purchase the tags and apply them to the animals on site or distribute the tags to youth exhibitors for application.

- Commercial "extensively managed" hair-sheep in Southwest & Texas – Sense is that there is low on-farm tagging rate. Lack of motivation is because data is not valuable to many hair-sheep producers with low management inputs enabling a sustainable enterprise. In the Southeast,

more auctions are requiring that animals be tagged before arrival, as these sales yards do not want to be in tagging business or maintain the paperwork.

- One concern is that if we add requirements or mandatory equipment, smaller auctions or auctions where sheep/goats are a small part of the overall business, it could harm the industry as many of those auctions would simply stop selling sheep and goats.

- Need to be able to preserve ability to utilize ID with batch entry, conventional records or animal ID EID only with paper records.

Other Challenges
- Speed of commerce readability in markets – might also include time to record information and to trace back when needed.

- Software ability/access for intended use.

- In some other countries the governments have provided grant funding to software developers to help them integrate EID into existing auction market software and applications for producer reporting of movements.

- Cost of device, readers, hardware & maintenance.

- It will be very difficult to come up with a model that will show it is cost effective for very small (less than 50 head) producers to transition to EID without substantial subsidy. Smaller producers may need to buy tags but should not be expected to buy readers. This would be another of the gaps in moving towards EID. For ADT, the reporting/record keeping for small flocks and those sectors that cannot use technology will need to be addressed.

- Cost of software/updates, development of new applications.

- Maintenance of systems under field conditions (and temperature extremes) – maintenance costs must be figured into the total cost of adopting EID approaches.

- Adaptability and affordability of devices & software to small scale enterprises.

- Adaptability and value to large scale, extensively managed production systems (especially flocks without genetic selection goals).

Manufacturing/Marketing Challenges
- Size of US vs global market for EID tags – Impact on what devices, colors, configurations of 840 devices could be available and the need to streamline approval process to allow best availability and manufacturer participation and maximize options for producers.

- Animal disease traceability – Use of official ID (840 tags) and management/validation type ID tags on individual animal.

- Discussion on recommendation for official id to be a standard color. Any recommendation of mandating a uniform color for all tag types should consider potential industry concerns and potential producer concerns. Two-piece tags may have a color-coded EID female to visually differentiate tag type and use in other species. Where these exist, if a country chooses to mandate one color it should only apply to the male portion of the two-piece EID tag. It may simplify potential problems that can occur from the producer or government in a multi specie traceability program. Although a mandated uniform color can provide efficiencies, it may hinder producer acceptance. From the producer perspective, there are additional considerations because colors are often used for visual management coding. Many operations use tag color to denote age (birth year) of animals. Other producers use color to differentiate ownership where they may have adjoining pastures/ranges or multiple owners on one operation. Benefits, costs, challenges of transition to EID for producers.

- Lack of recordkeeping compliance is major challenge – American Goat Federation (AGF) has developed educational materials, records templates and records support to assist producers. (www.americangoatfederation.org)

Current and Potential EID Benefits for Animal Health Management
- Improve/reduce time to traceback of animals during a FAD outbreak.

- Bigger picture – regional, state/provincial, or national movement records, including real-time interstate movement records (CVI) are moving toward EID and data transmission, advance electronic sharing of animal health movement data.

- External EID devices with biosensing capability (ear tags with probe for temperature or motion sensors, leg bands with pedometers) may be cost effective if earlier detection of disease and reduced use of antibiotics, more efficient breeding management.

- Internal EID devices with biosensing capability (EID implants with temperature sensing, EID rumen boluses with multiple uses), earlier detection of disease.

- Greater treatment compliance and tracking of medicated animals facilitated by rapid methods of identification.

APPENDIX C
Electronic ID Working Group
Industry Gaps for EID Subgroup Report

Purpose:
- Identify areas where EID is not being utilized for sheep/goats.
- Identify areas where EID is being utilized but needs to be improved to eliminate any gaps.

Objectives:
- Identify implementation methods where current gaps exist in auction markets and processing plants.
- Identify implementation methods in each age/sex/production group/industry segment for sheep/goats.

Key Points for Consideration

- A mandated or voluntary animal traceability program will require full industry support to be successful.
- A mandated or voluntary traceability program will require an enforcement mechanism to be successful.
- A mandated traceability program will require a phased implementation approach that includes how electronic information is to be collected, recorded, funding for infrastructure, and used to add value to sheep producers.
- A mandated traceability program will need to be flexible with respect to EID products and technology to accommodate the varying needs of producers and industry stakeholders.
- A solution to identifying and tracing animals is tagging animals prior to leaving the farm/ranch/premise of birth.

Summary of Findings

Livestock Auction Markets
Livestock auction markets are an easily monitored and regulated point in the sheep and lamb marketing chain and are likely not a true "gap" in the official animal identification system. The percentage of untagged animals arriving at auction markets varies significantly from state to state and region to region. Sheep that are marketed outside of auction yards are often traded directly between the producer and either a broker, feeder, private dealer, and/or packer who are less regulated and theoretically less inclined to follow the current animal identification guidelines. This creates an uneven playing field and auction yards have seemingly legitimate concerns that increased costs of tagging when an EID system is implemented will drive a higher percentage of animals into less regulated pathways. Unless enforcement is applied and compliance monitored at more steps along the sheep and lamb marketing chain, this is likely to remain an issue and to increase noncompliance as costs increase. The easiest solution to the gaps identified at auction markets and those that operate outside of auction markets is some form of enforced tagging before an animal passes through the farm/ranch gate. It is

well noted that will not be popular among producers and may be a very difficult thing for USDA/APHIS or states to enforce.

Ethnic/Non-Traditional Markets
Under the current official animal identification guidelines for scrapie eradication, how lambs are marketed in the non-traditional/ethnic segment of the industry is a notable gap. However, this gap may not as serious as others due to the age (less than 1 year of age) and class of animals (ewe and ram lambs) that are most frequently seen in this industry segment. Given the buyer and producer characteristics of this segment, animal identification regulations may be very difficult to enforce. This segment is perceived as being mistrusting of regulatory requirements and governmental involvement. Cultural aspects may also inhibit compliance. A lack of perceived value or importance of official identification is an issue within this segment and effective training may be a challenge. On-farm harvest, small ethnic processing facilities, and producers considered to be off the grid or out of touch with the mainstream sheep industry are some of the biggest concerns. Again, the easiest solution to identifying animals that enter this industry segment appears to be enforced tagging before leaving the farm/ranch gate as mentioned above.

Mandatory Electronic Animal ID vs. Voluntary ID
Animal traceability should add long term value to the sheep industry, but general acceptance may be a challenge. The cost of transitioning to a mandatory EID system will present a barrier to producer acceptance. EID tags are more expensive than visual ID tags. If a mandatory program were to expand beyond the current National Scrapie Eradication Program (NSEP) requirements, meaning all classes of animals would need to be identified for a more comprehensive traceability, then producers will also face the additional cost of tagging a greater number of animals. Flexibility will be crucial for producers if mandated to transition from a visual ID to an EID system. A phased-in approach that includes a reasonable timeline for transitioning as well as adequate resources from state and federal agencies to facilitate the transition will be needed. Incentives currently being offered to the cattle industry as it transitions to mandatory EID will be needed to gain widespread sheep producer acceptance. Mandates are often met with resistance by sheep producers. Education and outreach on animal disease traceability and the potential use of EID for flock management will benefit the transition. Changes to official animal identification requirements will require an extensive educational campaign and collaboration between the sheep industry, USDA/APHIS, and state animal health officials. The greatest concern is that a disease outbreak will need to occur to get the industry's attention in order to make a mandatory animal identification palatable to the average sheep producer, though long term that may be the only effective solution that provides a true animal disease traceability program.

Record Keeping
Lack of recordkeeping compliance under the NSEP is a challenge and notable gap. As outlined in the *Electronic ID Working Group Current Industry ID Usage Subcommittee Report* there is a need for education and outreach to raise the level of compliance for NSEP traceability to flock of origin; additional records may be needed for an effective EID system to achieve real-time traceability in response to a foreign animal disease outbreak; and education/outreach is needed to introduce producers to the potential management and production benefits of EID systems.

ACKNOWLEDGEMENT

The ASI wishes to express its appreciation to the volunteers who comprised the EID Working Group. Their dedication and willingness to consider the future needs of the sheep industry are of immense value to the industry.   As was proven in the UK in 2001, a serious animal health event can happen anytime that has devastating effects on livestock agriculture. Animal disease traceability was a key factor in arresting the spread of the disease. The US sheep industry is ahead of the curve in that it already employs a disease traceability program for sheep. Transitioning to a more efficient identification system would improve traceability in the event of a major animal disease outbreak such as the UK experienced, while maintaining business and operational benefits to producers.