ADVANCING ANIMAL DISEASE TRACEABILITY ROAD MAP FOR KANSAS

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EXECUTIVE SUMMARY

The Kansas cattle industry is a significant component of the state's agricultural income, and Kansas is nationally one of the top two net importers of cattle. Since cattle are also the main livestock species considered in the federal ADT rule, this roadmap for ADT advancement in Kansas will focus on electronic infrastructure efforts directed toward the Kansas cattle industry. Efforts will be specifically focused on collaboration with accredited veterinarians and livestock market operators, resulting in a functional and efficient system.

The Kansas Department of Agriculture – Division of Animal Health (KDA-DAH) regularly participates in trace exercises, involving both real and test traces. Regardless of the reason for the trace initiation, most traces involved cattle that fell under the federal ADT regulation for identification and documentation and were sold through Kansas livestock markets at some point in their lives, often several times. This recognition helps us focus our efforts to build data sharing infrastructure specifically geared toward livestock markets for this funding request.

To advance animal disease traceability, it is essential to improve access to accurate information as quickly as possible. The efficiency of collecting traceability information from the field and completing data entry into USAHerds has made great strides in the past three years, but still remains a challenge area. Continued improvement in electronic information collection and transmission allows KDA-DAH the ability to be more proactive in disease surveillance and more responsive to emergency events. This can be enhanced through more timely submission of required reporting (such as backtag charts, CVIs, OCV charts, and test charts), giving us a real-time traceability of Kansas cattle.

This market improvement project is the culmination of years of ADT groundwork laid by KDA-DAH staff. Through these efforts, we have identified specific needs and provided several tools to make the entire process more functional. Our work has directly led to the creation of an electronic Certificate of Veterinary Inspection (eCVI/State's CVI), fillable livestock market charts and vaccination forms, and most recently the KDA BACKtag software program. These efforts have significantly increased the amount of electronic data transfer from veterinarians to KDA-DAH. Livestock market offices now submit required documentation electronically, and KDA-DAH is working to create a portal for them to remit calculated backtag fees online. This will allow for seamless upload of financial information into KDA's payment center and traceability information into USAHerds.

High-quality, electronic, origin-sourced data transmitted seamlessly to our USAHerds database will begin to lessen our substantial needs for data-entry personnel, as well as limit the wasteful need for duplicated data entry.

The KDA-DAH roadmap to traceability success will follow guidelines established by USDA in 2018 to implement the ADT Program and the four overarching goals to advance ADT:

1. Advance the electronic sharing of data among federal and state animal health officials, veterinarians and industry; including sharing basic ADT data with the federal animal health events repository (AHER);
2. Use electronic ID tags for animals requiring individual identification to make the transmission of data more efficient;
3. Enhance the ability to track animals from birth to slaughter through a system that allows tracking data points to be connected; and
4. Elevate the discussion with States and industry to work toward a system where animal health certificates are electronically transmitted from private veterinarians to state animal health officials.

The following plan outlines the path KDA-DAH will take over the next three years using USDA's guidelines to advance animal disease traceability in Kansas.

1) Key elements
   (a) A fully-functional animal disease traceability system includes an electronic record system based on Certificates of Veterinary Inspection (CVIs) transmitted to a State Animal Health Office prior to livestock leaving the state of origin. Those CVIs are then forwarded to the state of destination electronically. Several electronic platforms, both free and fee-based, provide veterinarians the ability to electronically create and submit their CVIs. Kansas veterinarians have increasingly adopted these electronic platforms for creating export CVIs, which, in turn, expedites our ability to push the information to the state of destination. Kansas veterinarians create more than 80% of their large animal export CVIs electronically since 2019. Kansas' primary database is USAHerds, an in-house electronic filing system for CVIs implemented in 2010.
   (b) The electronic record system must also include test charts, vaccination records, and backtag reports submitted electronically from accredited veterinarians and automatically uploaded in USAHerds.
2) Previous efforts to advance animal disease traceability
   (a) The KDA-DAH, with the help of the Kansas area USDA-APHIS-VS agency, has been successful in limiting the impact disease events have on the state, as referenced by Kansas's brucellosis and tuberculosis free statuses. Since 2010, we have been collaborating with veterinarians and markets to increase understanding of the overall goals and benefits of a functional ADT system. Hours of discussion, outreach and mutual education have built our understanding of the actual barriers to ADT and technology adoption for these stakeholders.
   (b) The ADT program will continue to expedite tracing efforts by identifying and recording animals covered under the national ADT regulation, minimizing time and money involved in traceback, and lowering the impact on animal agriculture associated with the traceback and disease control process.

3) Ability to fit USDA's framework for animal disease traceability

This plan fits directly with USDA's traceability framework by addressing the key points in the 2013 published rule, including collecting individual animal identification and electronic animal movement data. Further, it builds on USDA's guidelines and four overarching goals to advance traceability.

4) Support of animal health information systems within Kansas

CVIs; vaccination and test charts; backtag reports; and tag distribution, allocation, and retirement records are sent to the KDA-DAH are entered into the USAHerds database. Information requested on these records (physical addresses of sender and receiver, official identification and species/breed/sex of animals shipped, date of movement, veterinarian contact, etc.) populates the database, which continually strengthens the traceability functionality of USAHerds.

5) Support of animal health information needs with other States and USDA nationally

USAHerds in Kansas is compatible with other state's data storage systems, meeting USAHA's prescribed data standards. It is electronically accessible by Kansas animal health officials at any time, while maintaining information confidentiality. This program allows Kansas officials to quickly search multiple data points to complete or assist with animal or disease traces. However, the need for an efficient method of data sharing between states, and between state and federal databases remains a high priority.

6) Projected costs for FY2022, FY2023 and FY2024

Projected costs for the ADT plan in Kansas are expected to remain steady moving forward. The nationwide effort to increase the use of electronic platforms to create and submit data will decrease time needed for data entry and eliminate the wasteful need for duplicated data entry. However, the cost to build data-capture infrastructure and enhance data-sharing capabilities will increase. Ultimately, Kansas will continue to be a major livestock importer, and the need for high-quality, efficient data capture and transfer will remain paramount.

CURRENT TRACEABILITY SITUATION
1) Primary constituents
   - Kansas Department of Agriculture Division of Animal Health
   - Kansas area USDA-APHIS-VS
2) External constituents

Kansas livestock industry stakeholders are consulted regarding outreach and education, and direction of disease traceability in Kansas. These direct external constituents then have contact with their own constituents whom the ADT program impacts.

3) Internal traceability data usage

Traceability data collected in Kansas will remain secure and confidential in the cloud-based USAHerds database. The data will be used at the discretion of KDA-DAH or Kansas USDA officials for traceability purposes. Confidential data will not be available or accessible to external users.

4) Animal disease traceability stakeholders

Kansas livestock industry stakeholders represent the multiple facets of the Kansas livestock industry. These stakeholders include representatives from:

- Kansas Category 2 accredited veterinarians
- Kansas Cattlemen's Association
- Kansas Farm Bureau
- Kansas Livestock Association
- Kansas Livestock Marketing Association
- Kansas Pork Association
- Kansas State University
- Kansas State University Research and Extension
- Kansas Veterinary Medical Association
- Livestock market operators/ managers
- USDA-APHIS-Veterinary Services, Area Veterinarian in Charge
- Kansas Livestock Investigators

5) Animal disease traceability definition

Animal disease traceability is the process of knowing where diseased or at-risk animals are, where they've been, and when. This process is essential in aiding a rapid response in an animal disease event, reducing the number of animals involved in an investigation, minimizing the time needed to respond, and decreasing the cost and impact to producers and the government. Animal disease traceability is a cross-cutting system in KDA-DAH that correlates with Animal Health Planning, disease eradication programs and finalization of the National Bio and Agro-Defense Facility in Manhattan, Kansas.

6) Measures of traceability capability

The past Kansas disease traceability system was based on a 100-year-old paper system, wherein paper files were mailed to the State, categorized and filed. The measure of animal disease tracing capabilities was limited to the successfulness of an actual disease trace-out. To advance animal disease traceability, it is essential to improve access to accurate information as quickly as possible. As data is continually entered into the USAHerds database, trace back becomes more efficient. Traceability performance is measured by the time elapsed in executing a trace-back. Minimizing the time elapsed will continue to meet USDA's performance standards.

7) Coordination within KDA-DAH

The Kansas Animal Disease Traceability Coordinator facilitates the Kansas program and directly communicates with other members of the KDA-DAH for program support.

8) Coordination state-wide

State-wide coordination is facilitated by the Kansas ADT Coordinator and other KDA-DAH officials, and focuses on collaboration with key industry stakeholders to develop and support a functional and efficient traceability system.

9) Coordination with other existing agencies/units

The KDA-DAH has open communication with other state agencies and area USDA animal health officials. Meetings are held as needed to inform and gather feedback from these partners.

10) Standards for traceability

The performance standards specified in USDA's ADT guidance are the measurement of actual and test trace exercises.

11) Requests for information

Currently, requested information not restricted by confidentiality regulations is available from authorized personnel during regular business hours.

12) Funding's impact on capability

Federal funding supports data entry personnel's salary, as well as funding outreach efforts and infrastructure improvements to support producers and veterinarians using available and emerging technologies (electronic recordkeeping, RFID, etc.) to improve traceability efficiency. Increasing the use of electronic ear tags and the ability to capture and transmit data efficiently is also a priority.

STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS OF KDA-DAH AND THE ADT PLAN

1) Strengths
   - Excellent working relationship with Kansas-area USDA-APHIS-VS personnel
   - Capabilities and accessibility of KDA information technology personnel
   - KDA-DAH personnel's in-depth knowledge of the Kansas livestock industry
   - Volume and accuracy of information in USAHerds database
   - Availability of electronic, standardized CVIs, and an online permitting system
   - Kansas's in-depth emergency management plans
   - The knowledge and involvement of Kansas livestock industry stakeholders
   - Support by Kansas livestock producers and agribusinesses
   - Novel ADT programs using private and state funding
   - KDA-DAH support for private veterinarians utilizing electronic recordkeeping systems

2) Weaknesses
   - Ability to automatically or logistically capture individual identification contained on imported documentation
   - CVIs – non-approved documents based on illegibility, missing/incorrect information, etc.
   - Livestock markets – data collection is not electronic at all locations
   - Missing target audience members outside formal organizations
   - Outdated state movement regulations

3) Opportunities
   - Encouraging the use of RFID tagging and electronic documents
   - Functionality is being created to automatically capture individual identification
   - Obtaining more premises identifications; more physical addresses
   - Producer and affiliate education about ADT

- Communication – outreach and education
- Incorporating electronic information gathering into livestock markets; increasing number of electronic CVIs sent to KDA-DAH
- Export dollars for Kansas products
- Updating state movement regulations

4) Threats
- Risk of poor disease response performance due to lack of timely traceability information
- Loss of industry trust, due to inability to adequately respond to a disease event
- Risk of transboundary or emerging disease introduction from importing countries or states

SWOT ANALYSIS
1) Avoiding potential threats
   Mitigate negative public perception by focusing on education and transparent communication
2) Usage of available resources
   One of our best resources, personnel, will be better able to conduct trace-backs as electronic information about animal movement is more readily available. This will lower costs associated with traceback, including personnel hours and other necessary resources.
3) Enhancement of networking opportunities
   This plan enhances information networking opportunities as USAHerds is incorporated in additional states, and the USAHerds User Group shares ideas across user states.
4) Threat of non-implementation
   There is an extraordinary amount of livestock movement into and through Kansas, which contributes to a significant economic impact to producers and other industry partners. Failure to quickly and efficiently respond to a disease event due to lack of timely traceability information could have severe consequences, both direct and indirect.

INVENTORY OF EXISTING INFRASTRUCTURE AND SUITABILITY ASSESSMENT
1) Human resources
   - Kansas Animal Health Commissioner and assistant commissioners
   - ADT Coordinator
   - KDA-DAH field veterinarians and administrative USAHerds team
   - USDA-APHIS-VS veterinary medical officers, animal identification coordinator and animal health technician
2) Space availability
   KDA office space and meeting rooms
3) Connectivity resources, both in office and in the field
   IT infrastructure provided by KDA

4) Paper record organization

Archived paper records are organized by year and maintained in climate-controlled storage facility for ten years, per the KDA-DAH retention schedule.

5) Automated data capture capability

Several forms of electronic data are uploaded directly into USAHerds: Global Vet Link, AgMove, Ft. Supply and Vet Sentry proprietary CVIs; the free "States' eCVI"; KSVDL lab results; KDA BACKtag data (backtag charts from livestock market veterinarians). Other resources for automatic data capture continue to be researched and developed.

TRACEABILITY REQUIREMENTS

1) Strategic goals
   a) Advance the electronic sharing of data among federal and state animal health officials, veterinarians and industry; including sharing basic ADT data with the federal animal health events repository (AHER)
   b) Use electronic ID tags for animals requiring individual identification to make the transmission of data more efficient
   c) Enhance the ability to track animals from birth to slaughter through a system that allows tracking data points to be connected
   d) While working cooperatively with the USAHerds User Group, finalize an up-to-date, user friendly, system where animal health certificates are electronically transmitted from private veterinarians to state animal health officials. This system should not cost money for private veterinarians to use with the intent of optimizing usage of both large and small animal veterinarians.
   e) Maintain and improve a state-wide infrastructure of animal disease traceability for interstate and intrastate movement of livestock in Kansas
   f) Increase the tag distribution records submitted to KDA-DAH
   g) Tag retirement

2) Programmatic goals
   a) Industry Stakeholder collaboration to advance ADT in Kansas
   b) Perform test traces and optimize lapsed trace times
   c) Provide electronic Official Calfhood Vaccination tags to accredited veterinarians in the event that free RFID OCV tags from USDA are discontinued
   d) Provide appropriate traceability information to APHIS and other states for disease or test trace purposes
   e) Maintain a secure, electronic, searchable database for traceability records
   f) Support APHIS in ADT compliance and enforcement activities

3) Monitor CVI data quality
   a) Maintain and enhance our Standard Operating Procedures to ensure consistency and integrity of data entry and maintenance
   b) Periodically check for misinformation and duplicate information in USAHerds, continually updating quality of data in the system

     c) Follow up with veterinarians to correct inaccurate CVIs and increase quality of future CVIs

     d) Report non-compliant, repeat offenders to USDA's IES

4) Input data into appropriate systems
     a) Continue to populate USAHerds with premises information and individual animal identification
     b) Maintain and enhance the KDA BACKtag data collection software and increase the number of livestock market veterinarians submitting data through the software

5) Improve retrieval of available traceability information
     a) Periodically conduct test traces to test ability to meet performance standards
     b) Ensure data received meets USAHA's data standards

6) Meet data-sharing standards for sharing data with other states and USDA when needed

7) Enhance IT infrastructure
     a) Continue to explore enhancements of USAHerds
     b) Stay abreast of the latest technology that may increase data collection and transfer possibilities
     c) Develop data retrieval systems that will increase data collection possibilities
     d) Automatically capture individual animal identification
     e) Improve functionality of KDA BACKtag, for data collection of backtag reports

8) Maintain tag distribution record system in conjunction with USDA

ANIMAL DISEASE TRACEABILITY PERFORMANCE MEASURES

The KDA-DAH will continue the process of measurably improving animal disease tracing capabilities across Kansas.

To evaluate tracing capabilities, a reference animal is selected and a trace-out performed on that animal. Animals are eligible to be used as reference animals if they were moved intrastate on or after the date they are officially identified and only if they are identified with an official identification number. These eligibility criteria ensure only animals moved interstate under the traceability criteria could serve as reference animals.

To determine the effectiveness of these improved technologies as they relate to disease traceability, four performance standard measures are used, which are consistent with USDA-APHIS-VS's performance standards for interstate animal movement:

- Time to report to the State/Tribe of official tagging/identifying of a reference animal that has moved interstate.
- Time for the State/Tribe of first officially tagging/identifying a reference animal that has moved interstate to provide a record of the official tag distribution.
- Time to report to the State/Tribe from which a reference animal has moved interstate.
- Time for the State/Tribe from which reference animal has moved interstate to provide the location and contact information from which the animal was moved interstate.

1) The **first performance standard** measures the time required for the State/Tribe of destination to notify the State/Tribe in which the reference animals were officially identified. Since this is already a relatively simple process, this should be accomplished 95 percent of the time within 1 business day.

2) The **second performance standard** measures the time required for the State/Tribe of tag origin to validate the application and/or issuance of the reference animal numbers for which they were notified (in performance standard 1). This can be accomplished using distribution records that contain contact information for the business or operation to which the numbers were issued. This process should be phased in to provide achievable standards in the short term and higher standards in the long term. Currently, records of tags applied are in paper-based systems, which take more time to research than electronic databases. When the performance standards are first evaluated, the activity should be accomplished 75 percent of the time within 5 business days. As official identification records become easier to search, the time required to find the origin of an identification device will decrease. At that time, the activity should be accomplished 95 percent of the time within 2 business days.

3) The **third performance standard** measures the time required for the State/Tribe of destination to notify the State/Tribe from which the reference animals were shipped. This standard should be phased in. Initially, the activity should be accomplished 95 percent of the time within 7 business days. As traceability systems mature, the activity should be accomplished 95 percent of the time within 3 business days. Increasing the use of electronic CVIs will make achieving this performance standard easier.

4) The **fourth performance standard** measures the time required for the State/Tribe of origin to validate the movement of the reference animals for which they were notified (in performance standard 3) from their State/Tribe to the State/Tribe of destination. This can be accomplished using required CVI information, which includes the location where the inspection by an accredited veterinarian takes place and the location to which the animals are moved interstate. A movement permit or other document may be used when the equivalent information reflecting the shipped from location and location of destination are able to be determined. This standard should progress over time. Initially, the activity should be accomplished 75 percent of the time within 5 business days. As the system matures, the activity should be accomplished 95 percent of the time within 2 business days.

RESOURCE REQUIREMENTS
1) There is a need for standardized and user-friendly computer systems in Kansas livestock markets that can electronically capture traceability information and seamlessly transfer it to KDA-DAH, as well as provide a service for market veterinarians. This service may include automated population of electronic CVIs to lessen the burden on market vets to fill out and report this data.

2) Efforts and funds will concentrate developing the methods necessary for capturing, integrating and transferring the traceability data from state's livestock markets. Contractual IT services may be used to create software if needed for use at the markets

to capture, collate and transmit data within the market. They will also create an API hub for data transmission to an intermediate repository.

3) Hardware needs for data transmission within markets may include networking cables, wireless routers or other broadband infrastructure and any necessary installation. This funding request will not be used to pay for internet services.
4) Both Low Frequency and Ultra-High frequency readers will be utilized depending on the specific needs of individual markets. Existing UHF readers and other equipment installed through the CattleTrace project will be leveraged.
5) Veterinarians, market staff, and KDA-DAH staff will be trained on the use of the software and equipment as it is installed.

ORGANIZATIONAL NEEDS
1) Additional resources that may be leveraged within the current KDA administrative structure may include grant-writing or other fundraising strategizing. Financial support may be acquired through grants or legislative support to help fund a uniform technology system for Kansas livestock markets.
2) Other leveraging includes using the KDA's communication division to help advertise traceability progress and available technology (such as electronic recordkeeping tools and RFID ear tags) more thoroughly throughout the state.

POLICY
1) Existing statute K.S.A. 47-674 discusses the KDA-DAH protocol for registering premises where animals are located, voluntary premises registration and animal identification and tracking system with development and implementation by the animal health commissioner. This statue has been reviewed and is aligned with current goals and objectives for the Kansas ADT plan.
2) Kansas Animal Health Regulations specify interstate livestock import requirements, which also align with current goals and objectives for the Kansas ADT plan.

OUTREACH AND EDUCATION
1) Accredited Veterinarians
   a) Accredited veterinarians, their staff, and their clients are all instrumental to advancing ADT focusing on outreach and infrastructure improvement for livestock movement.
      i) Advertise, encourage and support the submission of electronic forms (i.e. CVIs, OCV charts, and test charts) to the KDA-DAH office
      ii) Encourage the use of RFID and OCV-specific RFID tags to veterinarians through data-capture and data transfer infrastructure improvements
      iii) Educate veterinarians on the availability of free USDA RFID tags
   b) Benefits expected
      i) Provide veterinarians with information that will assist in providing sound solutions to his/her clientele with respect to animal identification questions

ii) Decrease time and resources dedicated to data entry, as electronic information is automatically transmitted to KDA-DAH

iii) Increase the number of Kansas animals that are officially identified with electronic identification prior to leaving the premises of origin.

2) Livestock market operators
   a) Efforts to work with livestock market operators include:
      i) Collaborating with individual livestock market operators or managers to create a workable system
   b) Benefits expected:
      i) Enhanced individual electronic animal identification and data collection
3) Livestock producers
   a) Encourage use of electronic ear tags before livestock leave the premises of origin
   b) Benefits expected:
      i) Enhanced individual electronic animal identification from farm of origin
      ii) More efficient trace-back abilities due to producer participation

DATA REPORTING

1) The following data will be reported for quarterly reports to USDA-APHIS-VS:
   a) Specific plan of action for infrastructure improvement at livestock markets
   b) Functioning market software program(s) and data-transmission mechanism
   c) Trained software and hardware users
   d) Completed traceability recording system
      - Number of traces (test or actual) participated in
      - Number of successful traces

TRACEABILITY IMPLEMENTATION

1) Ranking priorities for advancement

   The approach to the breadth of elements encompassed in advancing animal disease traceability in Kansas will be through collaboration with stakeholders. This ongoing work will identify and prioritize projects for funding over the next three years. It will be the basis of comparison for the annualized cooperative agreement work plans. Any specific projects not listed in this road map will be justified within the annual work plan for USDA approval.

2) Implementation of objectives

   Accepting that each year's cooperative agreement work plan will likely be a collection of objectives, KDA-DAH will continue to expand upon each of the objectives prioritized above and describe how each project will be conducted or approached. Objectives will continue to be prioritized for each of the planned three years, aligning with the three-year budget plan.