



CattleTrace Inc. Pilot Project Findings:

August 1, 2018 – June 30, 2020

PROJECT HISTORY:

In early 2018, the CattleTrace collaborators began working to develop a purpose-built infrastructure to track cattle movement through the supply chain. CattleTrace utilized ultra-high frequency technologies to collect the minimal data necessary, including an individual animal identification number, a GPS location, and date and time, to track animals in the event of a disease outbreak. Tag readers were located at producers' operations, livestock markets, feed yards and beef processors. The CattleTrace Inc. Pilot Project was a collaborative partnership between Kansas State University, the Kansas Livestock Association, the Kansas Department of Agriculture, USDA, and individual producer stakeholders. It was jointly funded by public and private resources.

GOAL:

The goal for the CattleTrace Pilot Project for Animal Disease Traceability in Kansas was to:

- Develop a purpose-built infrastructure for an animal disease traceability system,
- Evaluate the infrastructure,
- Determine the value proposition of the system at each production segment and across the industry.

OBJECTIVE #1 - Develop a purpose-built infrastructure

Number of participants – representative sample of each production segment

Participant Segment	Number of Participants	Industry Representation	Target
Cow/Calf Producers and Backgrounders*	117 producers	29,608 head	20K head
Auction Markets	14 locations	1,445,785 head sold in 2018	5-7 locations
Feedyards/Backgrounders (w/ readers)	17 locations	833,700 head total capacity	10-12 locations
Packers	4 locations (3 packers)	Cargill Meat Solutions, Tyson Foods, Inc. and National Beef Packing Company, LLC	3 major packers in Kansas

Stakeholder Reach

Early in the project, it was determined that educational and marketing efforts would be needed to reach the intended audiences of the project. Throughout the project, in-person and virtual educational meetings took place. The total outreach for the educational meetings was **10,178 industry stakeholders**.

Total Tags Distributed by Pilot Project

Ultra-high frequency (UHF) ear tags were sourced and acquired from the United States Department of Agriculture (51,760 in total). Another 30,000 Anitrace UHF tags were purchased and received from Fort Supply Technologies. Using state of Kansas funds, 5,000 of the UHF strip tags from Fort Supply. In total, **74,139 tags** were distributed by the pilot project.

Production Scenario	Participant Segment	Number of Tags Distributed	Target
Whole Path	Cow-Calf Producers & Backgrounders	29,608	20,000 tags
Direct Sales	Feedyard Customers--Direct Buy	10,000	10,000 tags
Auction	Auction Markets	12,968	15,000 tags
Contingency	Feedyard Customers--Direct Buy	3,987	10,000 tags
	Veterinarians – Help identify producers	2,576	
Out of State	Missouri	3,000	
	Oklahoma	12,000	
Total		74,139	55,000+ tags

Examples of data capture/distribution technologies and plan for implementation

Technology companies for the project included Fort Supply Technologies and Micro Technologies. Each had programmed their reader set-ups to send the time, date, GPS location and individual identification number for every sighting of an ultra-high frequency tag. Site surveys were conducted at participating auction markets; USDA funds were used to purchase readers for these locations. In addition, surveys were also completed at participating feedyards and packers with those operations required to purchase their own reader set-ups for the project. Technology partners, including Micro Technologies and Fort Supply Technologies, worked with their respective customers and locations (auction markets and feedyards) to install the equipment, and set up the data transfer process.

Number of head moved through each scenario* (and recorded via UHF readers)

**Cattle movements were captured with handheld readers, alleyway readers, chute readers and readers along the packer trolley line.*

Location Type	# Sightings Recorded
Cow/Calf Facilities	235
Backgrounder Facilities	23,542
Livestock Market Facilities	34,222
Feedyard Facilities	431,592
Packer Facilities	99,877
Total Reads	589,465

Average read rates recorded throughout the project

Location Type	Reader Set-Up	Overall Head Reported	Average Read Rate
Cow/Calf	Ranch	1710	99%
Livestock Market	Salering exit	1786	95.18%
Livestock Market	Salering entry	569	97.73%
Feedyard	Alleyway	648	89.57%
Feedyard	Single file	1108	92.46%
Packer	Alleyway	72	88.9%
Packer	Trolley single file	638	84.07%

OBJECTIVE #2- Evaluate the efficiency and capabilities of the animal disease traceability system and infrastructure.

Observation about tag technology

The lack of options for ultra-high frequency tags could be a hindrance to adoption in the industry for the use of EID for disease traceability and management practices. **Therefore, our recommendation is for the USDA to streamline the process for a UHF tag to become an official, approved Animal Disease Traceability compliant tag.**

The industry has shown a strong desire to utilize UHF tags, and we see the need for more USDA official tag options on the market. We have observed a greater interest from multiple tag manufacturers in developing and improving UHF tags and technology, and a final standard would further encourage their investment in and focus on providing additional options to the industry.

Due to the lack of competition within the UHF industry, coupled with a key observation that areas of the industry are entrenched in low-frequency technology, CattleTrace is working on accepting an automatic transfer of data from those segments utilizing low-frequency technology.

Percent of the traceability system/process determined to be “hands-free”; Identify the roadblocks to hands-free and potential opportunities

As U.S. CattleTrace expands, challenges and opportunities have been identified to ensure the “hands-free” principle continues and remains a priority, all because UHF technology allows groups of cattle to be read at one time and/or single animals to be read as well.

Challenges	Opportunities
Capturing data from both existing LF readers and UHF readers.	Setting the standardized format to receive data from multiple sources and technologies. Partnerships with organizations to receive data from multiple sources (e.g. IMI Global, breed associations).
Lack of options of UHF technology available on the market. Strong producer and beef value chain interest in UHF technology, but they need more options.	Provide feedback to tag and reader manufacturers on the interest in UHF technology and desire for more and better options. (Additional UHF tag options are being field tested now, which is promising.)
USDA movement toward RFID tags for covered cattle and retraction of the guidance.	The cattle industry is now more aware of current ADT practices and has a renewed interest in RFID technologies. Additional time to encourage manufacturers to produce more UHF tags and readers to assist USDA in the advancement of disease traceability and the use of RFID technology.

OBJECTIVE #3: Determine the value proposition of an animal disease traceability system

Dollar cost for each production segment

The following is an excerpt from a K-State Agriculture Economics cost analysis for an animal disease traceability system, which focuses on costs associated with implementing a full industry system utilizing UHF technology. The summary can be found [here](#).

“When considering economies of scale, the cost of implementing CattleTrace ranged from \$2.84 to \$6.06/head for cow/calf producers. For backgrounders, the cost of implementing CattleTrace ranged from \$0.40 to \$0.83/head. The average cost for sale barns was \$0.14/head, and the cost of implementing CattleTrace for feedlots ranged from \$0.33 to \$0.55/head. The average cost to packers ranged from \$0.02 to \$0.18/head. The implementation of a national disease traceability program is inevitable, and beef industry stakeholders are helping to guide and shape the structure and characteristics of such a system. Understanding the implementation costs will allow producers to better understand how a national system will impact their operation. Additionally, by participating in the CattleTrace pilot program, producers and beef industry stakeholders can have input and directly impact the development of a national disease traceability system.”

Roadblocks and opportunities for implementation at each production segment

Challenges		Opportunities	
Cow-Calf Producers			
<ul style="list-style-type: none"> • Lack of knowledge around current ADT rules and the need for a full traceability system • Lack of (UHF) tag options available • (UHF) reader cost; few options 		<ul style="list-style-type: none"> • Education on current ADT rule and the need for a full traceability system • Utilizing RFID technology for management practices in addition to disease traceability • Management software for cow-calf producers using UHF technology 	
Backgrounders / Stockers			
<ul style="list-style-type: none"> • Lack of knowledge around current ADT rules and the need for a full traceability system • Lack of (UHF) tag options available • (UHF) reader cost; few options 		<ul style="list-style-type: none"> • Education on current ADT rule and the need for a full traceability system • Utilizing RFID technology for management practices in addition to disease traceability • Management software for producers using UHF technology 	

****Continued on Page 6***

Auction Markets	
<ul style="list-style-type: none"> • Lack of knowledge around current ADT rules and the need for a full traceability system • Producer/customer sentiment is sometimes negative. Don't want backlash • Fear of losing business if traceability expands and they are cut out of the value chain • Buy-in from market veterinarians • (UHF) reader cost; few options 	<ul style="list-style-type: none"> • Education on current ADT rule and the need for a full traceability system • Utilizing RFID technology for management practices in addition to disease traceability • Management software for markets using RFID (UHF) technology – e.g. use to complete eCVIs
Feedyards	
<ul style="list-style-type: none"> • Lack of knowledge around current ADT rules and the need for a full traceability system • Lack of (UHF) tag options available • (UHF) reader cost; few options • Want the ability to use the technology for management purposes to justify the cost for disease traceability 	<ul style="list-style-type: none"> • Education on current ADT rule and the need for a full traceability system • Utilizing RFID technology for management practices in addition to disease traceability • Management software incorporating UHF technology
Packers	
<ul style="list-style-type: none"> • Lack of knowledge around current ADT rules and the need for a full traceability system • Challenges in reader set-up at the plants 	<ul style="list-style-type: none"> • Education on current ADT rule and the need for a full traceability system • Connect companies specializing in UHF technology to fine tune the readers in packing plants • Management opportunities for value added programs – e.g. seamless communication between the feedyards and plants