

# Using RFID and traceability systems in stocker operations



A. M. Stehle, C. C. Craige, M. D. Buser, and B. D. Adam

NWCTI-05

The National Whole Chain Traceability Institute (NWCTI) is a traceability research and extension program at Oklahoma State University. This institute is focused on the continued development and expansion of their stakeholder-driven whole chain traceability system. For this system cow-calf and stocker operators are critical links in initiating the traceability system records for individual animals in the beef production supply chain. The NWCTI traceability system requires digital record keeping using a cattle management software, ear tags with RFID capability and a RFID scanner to properly read the ear tags while processing cattle.

RFID tags are available from multiple suppliers in various forms. It is recommended that producers use U.S. Department of Agriculture (USDA) certified RFID tags. Current USDA animal traceability requirements for livestock handlers require that the tags are linked to the producer's unique farm premise ID number. Additionally, the first three digits of the tag number specify the animal's country of origin with the United States being designated as 840. The two most common forms of RFID tags are button tags or full tags with a readable identification number. Producers can purchase standardized or customized tags online from brands including Allflex™, Destron Fearing™, Temple™, and Y- Tex™. Button tags (half duplex EID) cost about \$2.12 per unit while the cost of full tags (half duplex combo tag) is about \$3.86 per unit. The tags are applied with a standard ear tag applicator and should be placed in the middle of the ear to prevent snagging or losing the tag.



Figure 1. Full and button RFID tags with the official 15-digit tracing number and USDA certification. RFID tags are read using a special “wand”. Source: [eartagcentral.com](http://eartagcentral.com)



Figure 2. Using a chute with a head gate makes reading an RFID tag easy with the appropriate RFID reader. Source: [biomark.com](http://biomark.com)

To read RFID tags, a producer will need to use an RFID reader. Like tags, there are several reader brands available from numerous retailer and on-line vendors. To identify the tag, the reader is held within a few inches of the RFID tag until the software registers the number. The reader will beep or vibrate once the tag has been successfully read. The reader cost ranges from about \$1,000 to \$1,300. Despite this relatively high cost, proper implementation of an RFID tagging system can benefit producers and stockers in terms of reducing labor, paperwork, and animal stress during routine practices of working cattle.

Once a tag is scanned, the reader stores the identification number for future download or if the reader is connected to a computer, through a RS232 or Bluetooth adapter, the data can be immediately transferred to the user's cattle management software. software immediate transfer of the identification number to the user's software. If the producer is using the reader while working cattle and downloading the identification numbers directly to a management software, the producer can enter additional data into the software once the identification number is transferred. This data might include: weight, vaccinations, castration, dehorning, and other preconditioning procedures. Once a producer has finished working their cattle and entering data into their on-site cattle management software, they can upload and store the recently completed records to the NWCTI system once they have Internet access. The records can then be reviewed, edited, and/or shared (in full or in part) by the producer or data owner (Figure 3). Complete and thorough record keeping is a key to managing costs and animal welfare in today's cattle operations. RFID technology and using whole chain traceability software are excellent tools to improve your record keeping.

The image shows two side-by-side screenshots. On the left is an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1			7/16/2015		4/21/2015		
2		EID	Off Weight	ADG	On Weight	NF Tag	
3	36	982000370013030	909	-9.58	824	140238	
4	1	982000370013031	925	-10.03	830	140239	
5	2	982000370013032	910	-9.83	815	140240	
6	3	982000370013033	950	-10.4	840	140241	
7							
8							

On the right is a screenshot of the 'Wholechain Traceability Login' web page. It features the Oklahoma State University logo at the top. Below the logo, it says 'Log in as Producer' and 'Producer Processor'. There are input fields for 'E-Mail Address' (with 'tashwin@okstate.edu' entered) and 'Password'. There are 'Clear', 'Login', and 'Register' buttons. At the bottom, there are two small images of cattle in a field.

Figure 3. An excel sheet may automatically be populated with the data associated with the RFID tag, or it may be uploaded directly to a traceability server. This facilitates faster operations by reducing time spent manually

For more information about the NWCTI system, contact Dr. Michael Buser using the information below. YouTube videos related to the NWCTI system can be viewed at: <https://goo.gl/MwPhoS>.



THE SAMUEL ROBERTS  
**NOBLE**  
FOUNDATION

**U of A**  
DIVISION OF AGRICULTURE  
RESEARCH & EXTENSION  
University of Arkansas System



This is a publication of the  
**National Whole Chain Traceability Institute.**  
Funding Agency: USDA National Integrated Food Safety  
Initiative – Project Agreement No. 2011-51110-31044

Collaborators include the Oklahoma State University Departments of Agricultural Economics, Biosystems and Agricultural Engineering, Computer Science, and the Food and Agricultural Products Center; the Samuel Roberts Noble Foundation; University of Arkansas, Dale Bumpers College of Agriculture, Food & Life Sciences – Food Science; Top10 Produce.

Visit <http://nwcti.okstate.edu/> for more information or contact:  
Dr. Michael Buser, Associate Professor  
113 Agriculture Hall,  
Stillwater, OK 74078  
buser@okstate.edu

Oklahoma State University, in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, and Title IX of the Education Amendments of 1972 (Higher Education Act), the Americans with Disabilities Act of 1990, and other federal and state laws and regulations, does not discriminate on the basis of race, color, national origin, genetic information, sex, age, sexual orientation, gender identity, religion, disability, or status as a veteran, in any of its policies, practices or procedures. This provision includes, but is not limited to admissions, employment, financial aid, and educational services. The Director of Equal Opportunity, 408 Whitehurst, OSU, Stillwater, OK 74078-1035; Phone 405-744-5371; email: [eeo@okstate.edu](mailto:eeo@okstate.edu) has been designated to handle inquiries regarding non-discrimination policies: Director of Equal Opportunity. Any person (student, faculty, or staff) who believes that discriminatory practices have been engaged in based on gender may discuss his or her concerns and file informal or formal complaints of possible violations of Title IX with OSU's Title IX Coordinator 405-744-9154. Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director of Oklahoma Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Vice President, Dean, and Director of the Division of Agricultural Sciences and Natural Resources and has been prepared and distributed at a cost of 20 cents per copy.