

How traceability is used in beef carcass processing



T. J. Bowser, C. C. Craige, M. D. Buser, and B. D. Adam

NWCTI-07

Before entering consumer markets, beef cattle pass through several supply chain stages. One of these is the packer, the entity that slaughters and processes the cattle into marketable products (chuck, round, rib, sirloin, brisket, etc.) for distribution. Upon arrival at a packing plant, the cattle are placed in a holding pen and their identification is verified. Cattle information is then transferred to the packer. This information may be in the form of a physical bill of sale from the owner, brands, ear tags, or radio frequency identification (RFID) tags. The included information can be anything from the animal's date of birth, ownership history, veterinary records, genetic bloodlines, etc. All of the data is collected and maintained by the packing house. Retention of some of this information is required by the U.S. Department of Agriculture (USDA), while other data is unique to the packer. Upon completion of digital records entry and confirmation of the animal's identification, the packer will begin slaughter (Figure 1). As the carcass is split into smaller pieces, a barcode or other identifier, unique to the carcass or cut of meat, will be attached to the piece as it travels through the processing plant (Figure 2). This barcode contains identifying information about the animal and meta information such as when the animal arrived, when processing began, who processed the animal, etc. The barcode is only used in the processing plant for identification and information purposes and, in general, will not leave the packing plant.

Tracking data records through a whole chain traceability system could greatly benefit meat packers. Because a diverse set of information in differing formats is given to the packer, it takes time for personnel to enter data into a digital system, at which point key pieces of information may be missed and/or entered incorrectly. This may cause confusion later on and incorrect data may be used for decision making downstream in the supply chain. The whole chain traceability system will alleviate some of these issues and could facilitate more efficient in house operations. Real-time product tracking could be utilized in the plant which would be invaluable in tracking throughput. Further, the advanced records system would simplify the identification of meat products involved in a recall. It would also ensure that only products suspected of contamination would be removed from the supply chain. Instead of removing an entire unit of production to "be safe", specific lots could be removed.



Figure 1. Packer halving the beef carcass with a backsaw. Each piece of the carcass is labeled with a barcode as it is broken down.



Figure 2. A barcode attached to the beef carcass allows all information to be instantly known about the product with a single scan.

Packers are in a unique position to benefit from whole chain traceability. Because many quality measures cannot be quantified until an animal has been processed, a traceability system would enable packers to track the source of cattle that produce high-quality cuts. However, this can only be done if records are kept throughout the supply chain, from the cow-calf operators through the stockers and feeders. By providing premiums to feeders and stockers for better quality meat, packers can facilitate the adoption of whole chain traceability throughout the supply chain. An example of how this process might work is shown in Figure 3.

Information sharing obtained through a whole chain traceability system has many positives for beef cattle packing. As consumers and distributors purchase various cuts of meat, the purchase information can be passed back to the producers. This information can make it back to cow-calf operators, who can adjust their herd management strategies to produce cattle with higher quality meat. Additional benefits in consumer food safety, food quality, and cost reductions can be obtained through the use of whole chain traceability in beef cattle packing facilities.

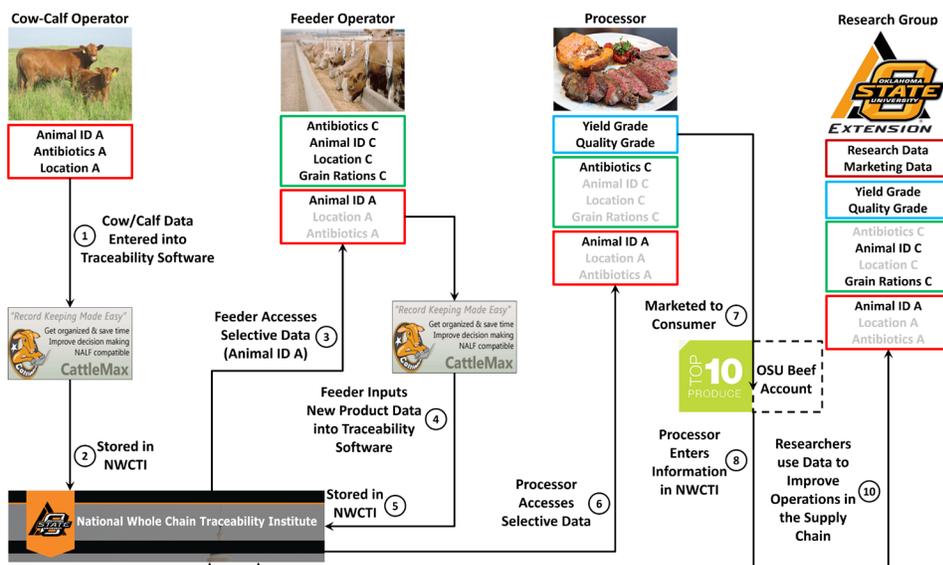


Figure 3. Example of how entities in the supply chain could share data among themselves, and up/down the supply chain.

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>.



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

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