How much does whole chain traceability cost?

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As the beef industry considers implementing a whole chain traceability system, one of the biggest questions is "How much is this going to cost me?" One of the biggest costs associated with a whole chain traceability system is the purchase of RFID tags and RFID reader or 'wand'. Cow-calf producers incur this cost early in the supply chain. The cost of special ear tags and readers, in addition to the cost of time and labor installing the ear tags ($2.00-$5.00 per head), may have discouraged many cow-calf producers from participating in traceability systems.

However, if the producer is already putting cattle through the chute system to vaccinate or to eartag the animal then the extra cost is much less. For producers who already put non-RFID eartags in their calves, the extra costs associated with the traceability system are the RFID tag (Figure 1), which can be between $2.00 and $4.25 per head, and $1,000 to $1,300 for an RFID reader wand. Note there is no additional cost to buy an ear tag applicator because RFID tags are designed to work with current ear tag applicators. Also, for producers who are already entering their herd management records into a digital system, such as CowSense® or CattleMax® (cost $150 - $2,000), no extra effort is needed to transfer information into the traceability database.

The added costs could be partially recovered in cost savings to producers further down in the beef supply chain, who can use the information to avoid costly duplication of vaccinations and other procedures. Estimated cost of a whole chain traceability system at the cow-calf operator scale. The calculations assume 40 head of cattle with 20 calves, wand cost of $1,000 to $1,300, and RFID eartag cost between $2.00 and $4.25 per tag. The wand is assumed to have a life of 10 years and the tags a life of 5 years.

When the benefits of implementing a whole-chain traceability system are considered, including cost-savings throughout the supply chain, the net costs are relatively small per animal. However, it is still a challenge that while most of the costs fall on cow-calf producers (because they install the RFID tag), most of the benefits (such as reduced vaccinations or better information about the animal's history) go to larger producers and processors further down the supply chain. Estimated costs to producers – including RFID eartags, installing the eartags, and amortized costs of RFID readers range from $5.95/head for small cow/calf producers to $0.41/head

Figure 1. There are a variety of ear tags available to cow-calf producers ranging in cost from $2.00 to $4.25 per tag.

for cattle feeders with more than 8,000 head. Costs for small cow/calf producers are higher than for large cattle feeders because, as the first stage in the supply chain, they pay for the RFID eartag and its installation, and because fixed costs of RFID readers and other equipment are spread over fewer animals. The OSU traceability system described in these fact sheets and accompanying videos helps to address this issue. Because those who benefit from the information cannot access it without permission from those who provide it, costs can be re-allocated to those who benefit most, so the benefits can be more evenly shared.

Once the initial obstacle of participation costs is overcome, and many producers participate, they can potentially benefit from additional value-added opportunities. Livestock producers can experience the benefits of "precision agriculture." Data on carcass and growth performance of progeny of individual cows can go back to cow-calf producers, allowing for improved management of those cows. Further, the "big data" collected in the system can improve confidence in expected progeny differences (EPDs) for important traits, improving value added to consumers. For example, by including information about sires in the data flow of commercial cattle, breed associations could more quickly isolate genetics with superior feed efficiency or tenderness. The information could help cattle feeders determine optimum time on feed, and more closely tie feeding rations to each animal's history and genetics.

One reason cow-calf producers have been justifiably reluctant to participate in a whole-chain traceability system is that it was not clear that the benefits would be greater than the costs. Also, they would have the greatest share of the costs while others in the supply chain would receive the greatest share of the benefits. The OSU traceability system, though, is structured to permit costs and benefits to be more fairly allocated. Moreover, the system allows producers to provide, and be reimbursed for, value-added benefits that can potentially far exceed the cost of participating.

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

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