

“Real world” Studies Show Traceability Pays

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Skeptical food company executives have told us over the years that, while traceability is probably the wave of the future, it hasn't yet been proven to work in the real world. They want to see large-scale trials and statistically significant results.

Large-scale data with rigorous statistical analysis, in addition to anecdotal evidence, are now available from several different sources. These newly published studies demonstrate that what we call “value traceability” can deliver a return on investment of 300% or greater.

Iowa State University recently published “The Value of Third-Party Certification Claims at Iowa's Feeder Cattle Auctions” by John Lawrence, a renowned ISU agricultural economist, and his colleagues. The study extensively analyzed the sale of over 150,000 animals from 105 auction barn sales at nine different Iowa auction markets comprising 20,051 different lots of cattle with a median lot size of five head.

The study sought to determine how much value was added by a third-party traceability claim in a real-world, buyer-seller relationship. The researchers acknowledged the difficulty of their task:

“While auctions are very efficient at bringing buyers and sellers together for price discovery, signaling the value of cattle at auctions framework is often a challenge. This is particularly true for unobservable traits such as vaccinations and previous management of the cattle ... The root of the problem is that buyers cannot assess the quality of cattle at a low cost, and sellers have incentive to overstate the condition of their animals. Third party programs, such as state-sanctioned green or gold tag preconditioning programs, or similar private company programs, have potential to mitigate this problem provided that buyers trust the integrity of programs and procedures.”

The experimental design looked at two up-stream cattle management practices – preconditioning vaccination and a 30-day weaning period for the animal (two animal-specific attributes), and whether the information about the animal came from (1) a third-party traceability certification system, or (2) only the seller's word. For the first time, a study separately tracked the value of *both* the process performed on the upstream food products, *and* the value of providing third-party traceability to ensure downstream purchasers that certain upstream processes and practices had actually been performed.

Econometric equation

The study showed that third-party traceability clearly added substantial value to the animal, providing better than a 330% return on investment. To reach this conclusion, the study created an econometric equation for determining the final market price for an animal, given a number of animal-specific and market-specific variables including the study design process and traceability variables.

The predictive equation had an r-squared value of 0.72, with a p value less than .0001. In lay terms this means that about 72% of an animal's market price variation can be explained by the identified study variables (a predictive level high for most econometric analyses), and the researchers can make this statement with a very high level of confidence (1 chance in 10,000 that the results came from random chance). In addition, the equation allows the researchers to pinpoint the exact value created by a third-party traceability system.

Looking at the coefficients of this equation, one determines that animals that are claimed to have both pre-conditioning vaccinations and 30-days of weaning, and have these claims backed by a third-party traceability system, provide a \$6.15 premium per hundred weight (cwt) over the control group of typical market animals with no claims and no third-party traceability system.

Animals with the same claims but only supported by the seller's word and not supported by a third-party traceability system produced premiums of only \$3.40 cwt. The difference between these two premiums (\$6.15/\$3.40) is \$2.75 per hundred-weight. This is the implied value the market is placing on establishment of a formal "value traceability" system.

For a typical 600 pound animal arriving at the market, the premium from a third-party traceability system would amount to about \$16.50 ($\2.75×6). With a typical cost of about \$5 per head for all costs associated with individually identifying an animal, tagging it, and enrolling it with a third-party traceability provider, the total return to the grower is about 330%.

The study report also made clear that for real-world value to be received, both pieces must be present – the actual upstream value-added practice and a third party certification system to show the process has been administered.

As the concept of "value traceability" becomes even more understood in the business world, the return on investment may be even higher than 330%. The marketplace still does not fully recognize all of the benefits of either the upstream pre-conditioning attributes studied, nor the full benefit of having a third-party traceability system supporting the claims.

In our opinion, it is likely that when these concepts are more commonplace, the value associated with an animal with these upstream attributes and with a third-party traceability claim will increase the \$6.15 per hundred-weight premium noted in this study. If more attributes than just pre-conditioning and weaning days are certified to downstream purchasers, it is likely that additional value will be added.

And there may be even more value for the whole chain when downstream purchasers, many owners removed from the upstream owner who administered the value-added processes, realize additional benefits from the attributes that are certified. In the cattle example from the Iowa State study, there are many downstream owners of the calves who realize the superior performance of healthy calves and the probability of a more satisfactory eating experience for the consumer.

Considering only today's real-world markets, today's understanding of the value of third-party traceability and today's understanding of the pre-conditioning benefits, the return on investment is 330%. And the result is statistically significant on a very large number of real-world, market animals. How many other investments can today's agri-food executives make that will yield this type of return?

Third-party verified claims

The Iowa State study is not unique in its findings. A second recently published study by Pfizer Animal Health and Colorado State University documents the value of third party verified claims. Using sale data from seven Superior Livestock auctions, the Pfizer-CSU study analyzed more than 422,000 cattle from May to September 2006 and isolated the value of each claim, including age and source verification, preconditioning, natural, or

other claims. The economic analysis provided by Pfizer Animal Health was conducted independently by researchers at Colorado State University.

In a beef cattle preconditioning program such as Pfizer's SelectVAC program, the added value of preconditioning with third party verification is over \$7.60 per hundred-weight (or \$45.60 per head on a 600 pound steer). This \$7.60 per hundred-weight premium found by the Pfizer-CSU study is in line with Iowa State's observed value of \$6.15 per hundred-weight premium.

As expected, when more upstream attributes are certified by the third-party traceability system, additional value is added. Pfizer's data shows that an additional value of \$1.77 per hundred-weight (\$10.62 per 600 pound steer) is added to the animal for adding age and source verification to the preconditioning attributes (vaccinations and minimum weaning period). The implication remains that when additional attributes that have market value are added, the return on investment can continue to increase.

Other data from proprietary studies outside the livestock industry are reinforcing these results, showing that "value traceability" produces a return on investment at about this same level or higher.

Clearly, these large scale, statistically reliable studies are showing the same high return on investment results as earlier, smaller-scale anecdotal studies. The clear implication from all these studies is that agri-food executives can improve their profitability by adding "value traceability" programs to their current operations. It's time for many companies to get off the sidelines and onto the playing field!

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