Texas Cooperative EXTENSION
The Texas A&M University System

Individual Cattle Identity Records for Cow-Calf Producers: Ways to Make Records Cost Effective*

The beef cattle industry is moving towards individual cattle identification to provide trace-back capability for food safety issues, cattle age verification, and a potential voluntary country of origin labeling (COOL) program. This paper identifies a number of areas where the commercial cow-calf producer can use individual animal identification data in addition to the reasons listed above to make their cow-calf operations more cost effective. Some of the cautions or limitations in use of the data are also reviewed.

Breeding Cattle Inventory

Individual animal identification can be used to provide precise inventories by category of cattle. This category data can then be used to monitor and evaluate performance of the individual as well as for the entire breeding herd. Some important performance measures include:

- Reproduction performance of individual cows, age of cows, and herds
- Evaluation of reproduction performance and calving interval
- Cow age for replacement numbers management
- Age of heifers as an important replacement selection criteria
- Health program – animal testing and treatment records
- Body condition scores for nutrition management
- Field observation identity of select cows or calves for treatment
- Grazing land performance by calculating head day data by pasture
- Management practice monitoring and evaluation
- Cow herd reconciliation for financial reporting purpose

Female Culling

Individual breeding cow data has been promoted as a major benefit in making cow-culling decisions; however, cows in a commercial operation are usually culled from the herd for one or more of the following reasons:

- Pregnancy status – open heifers or aged cows
- Physical problems – udder, eyes, cripple, and other visible problems
- Age and/or physical conditions of cows
- Disposition of cows
- Sell late calving cows to shorten herd calving interval or breeding season

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None of the reasons listed above requires the individual animal's identification or individual historical production performance records, only pregnancy-testing of the breeding cows. However, if any cows are culled due to visual identification of a "poor calf", a mistake could be made if reasons other than the cow's genetics and historical performance caused her to raise a "poor calf". This error could be prevented only with the cows' recorded production history of previous calves weaned.

Management practices that include a controlled breeding season, pregnancy testing, and rigorous selection of replacement heifers must be adopted before individual animal identification and historical records are cost effective.

Additional culling decisions made with individual animal identification are as follows:

- Identify cows that are to be culled for reasons other than those identified above, most likely because of weight and/or quality of the calf.
- Use the dam's historical production data to select replacement heifers after they have met other heifer selection criteria.
- In case of herd downsizing, individual animal performance data is very valuable to determine which cows to save.

Carcass Data for Female Selection

Collecting individual animal carcass data has been promoted as an important industry movement. An important question with respect to this movement is "Where would individual carcass data assist in producing cow selection in commercial herds?" The timing of the carcass information availability related to when the cow-culling decision is made is an important issue. In addition, only after all visual and other selections are completed would carcass data likely be used to identify a poor cow. The question is, "is the culling of a producing cow really justified by carcass characteristics when one accounts for all the non-female genetic factors determining carcass quality?" Can carcass data be used in replacement heifer selection from cows with historical records?

Timing Issues

Timing is critical for information being used by decision makers. There are some real limitations of beef cattle carcass data due to the length of the beef production cycle. This limitation is illustrated in the timeline for the production cycle shown below and can be recognized by reviewing the potential for use of the data for female selection and the months between heifer selection and availability of carcass data.

- Selection of heifer at weaning, 7-9 months from the start of the cycle
- Selection of heifer for breeding, 13- 15 months from the start of the cycle
- First calf, 24 months from the start of the cycle
- First breed back, 27 months from start of cycle

- Wean first calf, 31-32 months from the start of the cycle
- Second calf, 36 months from start of cycle
- Cow bred back for third calf -39 months from the start of the cycle
- First calf slaughtered – 39-43 months from the start of the cycle

A cow is likely bred back for the third calf before carcass data would be available that could be used in selection. This data would only be on the first calf, which may have some limitations in terms of estimating performance.

While the genetics of the calf set the upper limit for performance, management practices such as the use of implants and herd health programs, age of the calf at slaughter, days the calf was fed and finished weight of the calf have a tremendous impact on carcass quality. It's difficult to sort out the "feedyard effect" from the cow-calf producer's genetic selection decisions for heifers.

Other Benefits – Individual Data

A benefit of having individual data can be found in the merchandising of replacement heifers and bred females. Having performance records can support a higher sales price for replacement heifers and bred cows. Culling cows using culling records may, however, be a signal to potential buyers that the less desirable cows are being sold, which actually leads to a discount. Some producers can run individual sire or sire groups to get useful performance information.

Seed Stock

The burden of genetic selection must be placed on the seedstock sector. Individual animal data is collected and processed through the breed association. Commercial cattle producers benefit from this activity in purchase of sires. The seedstock producer recovers costs, as bulls with good performance data should have higher values. However, the transfer of data back to the seedstock producer data must be "standardized" for appropriate decision making. If data reveals poor performance it can be used to make changes to genetics to respond to market needs.

Terminal Sire Selection

As opposed to multi-trait selection for maternal, growth, and carcass parameters in herds where females will be selected, the use of terminal sires for producing market calves offers a number of advantages. The combination of breed complementarity and heterosis are important attributes of crossbreeding that can be optimized in calves where replacement heifer selection is not an issue. This also provides the greatest opportunity to improve growth and carcass characteristics in a relatively short time. Traits such as feedlot gain, ribeye area, carcass weight, and retail product yield may be rapidly improved following a single cross. The use of terminal sires may be a possibility under management situations where later born calves are terminal prospects and the calves born in the first cycle will contribute to replacement females. Several scenarios can be utilized with artificial insemination followed by terminal sire natural breeding.

For commercial cattle producers purchasing terminal sires the feedyard data would be available soon enough to make decisions related to sire selection. Some system of identification of calves by sire group would have to be utilized. Examples of how this could be accomplished are by age of dam, pasture, color differences, or by date of birth.

Branded Beef Products

Many branded beef product marketing agreements or alliances do require animal traceability and documentation of management practices for compliance control. Due to greater control over management practices carcass data can be more useful, (less feedyard variation), for measuring genetic performance. The production and economic performance of management practices can be measured providing for better supply chain information feedback.

Cost of Cattle Identification - Unknown

There are no scientific studies done that quantify the cost of individual cattle identification and the associated management information systems needed to make effective use of the data. With the uncertainty of what requirements will be imposed, it is impossible to determine a good estimate of the cost of computer software to process individual animal data ($150-$800). The data collection learning curve and interpretation is very time consuming and costly as it demands precision. To get good production data calves must be weighed and data recorded at weaning.

The key, irrespective of what the system is mandating, is to make the investment and effort to get more out of the data for monitoring and managing cattle. This is where there will be a positive payoff – make it as cost effective as possible. Merely meeting identification requirements is not going to generate decision-making information. For years many commercial herds have made individual cattle records cost effective for the uses identified above. Now there is an opportunity for everyone in the industry to reap the benefits and to offset the mandate's increase in cost to cattle producers.