

University of Missouri Extension

G2033, Reviewed August 1989

Utilizing Performance Records in Commercial Beef Herds

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Herd profitability is based on costs and total herd production. Evaluation of herd production, in a simplified and straightforward way, can be extremely enlightening and result in obvious management deficiencies that can be changed many times easily. Today many commercial beef producers are using simple performance evaluations to determine which animals to cull. A pregnancy exam would be a simple performance evaluation. Too often selection and culling decisions are based on visual appraisal. Although this can be highly valuable with a few traits, it generally results in some serious errors when considering most growth and reproductive traits.

The two sets of performance records important to commercial production are total herd performance and individual performance. Total herd performance is the combined reproductive and growth performance of each animal in the herd. The keys to total herd performance are:

- Total growth of all individuals in the herd
- The number of open cows
- Length of calving season
- Death loss

Herd performance data in all of these four key areas will give a good assessment of management level and economic adaptability to the environment. These measures are economically the most important traits that producers should keep records on. Poor performance in any one of these is a clear signal to cull.

The reproductive rate of a cow/calf operation is definitely affected by management. All performance record systems for commercial herds should be designed and used to evaluate the four keys to total herd performance.

Fertility is a trait generally considered to be of low heritability. Therefore, the environment in which cattle must live and produce is an important factor in determining the reproduction level. Performance records established under a given environment and management system should be used to select or cull cattle within that environment and management system.

Records should be used for more than just deciding whether a cow is culled or not. They should indicate how many cows are calving in the first 21 days of the calving season and the number calving in each subsequent 21-day period. If a computer program is used to summarize the cow data, it should include a computation of days from last calf. A summary of this information is the best indicator of the herd's reproductive efficiency

Reproductive efficiency unquestionably is associated closely with profitability.

Producing a live, healthy calf early in the calving season is the most significant performance record a commercial cow can establish. A cow calving in the first 21 days of the calving season is more valuable than a cow calving in the second, third, or later 21-day periods. The second most important item a cow's record should contain is if she rebreeds on schedule. This is important if she is to have her next calf within 365 days, give or take 10 days. Proof that a cow's calf was weaned is the third important item to record. The fourth important item is the relative weaning weight ranking of a cow's calf compared with all other calves produced.

Individual cow records should be kept when it is economical and practical to do so. Keep the records uncomplicated by recording only necessary observations.

These records should include:

- Cow ID (ID can incorporate age)
- Date of first exposure to bull
- Results of pregnancy examination — early (will calve in first 40 days), medium (will calve in next 20 days), late (will calve later than 60 days)
- Date calved
- Problems at calving time (pulled calf, weak calf, cow did not claim calf)
- Days from last calf
- Days of age at weaning
- Weaning weight (if possible; if not, then an estimate of size — large, medium, small)

A first record on a cow might contain this information:

- 1001 (Cow ID--first calf born in 1981)
- 04/01/82 (date first exposed to bull)
- Pregnancy medium (means settled in third heat)
- 02/24/83 (calving date)
- Hand-pulled calf (problem at calving time)
- Not available (days from last calving)
- 219 (days of age at weaning time)
- 460 pounds or medium size (actual weaning weight or size)

For the second year, the record format would be the same, but would include the time interval (days) from last calf. This is all the information needed to decide whether a cow should be culled or not. When all open, old, unsound cows and cows that fail to wean a calf are removed from the herd, the opportunity to do further selection based on performance is limited to a small number of cows. Additional culling should be done using the calf's actual weaning weight or size score.

The two example cow records shown illustrate the simplicity of commercial cow herd records. Even though these records are simple, they are quite enlightening. Cow 9001 has been producing a calf every year, but that is as far as her commitment toward product output has gone. Notice that she has fallen later in the calving season fairly consistently and produced only small- and medium-sized calves. 9001 does not represent the type of productive cow you would want to select replacement heifers from. Cow 8103 shows the opposite extreme in productiveness. Although she was a little late calving the second year, 8103 did nothing wrong after that year. During her third and fourth years, 8103 moved up in breeding schedule (the first 21 days of the calving season). At the same time, 8103 is producing calves falling in the large weaning size category. 8103 is a prime candidate for raising replacement heifers.

In commercial herds of 300 or more, the time required for individual lifetime records on all cows may not be economically justified. However, there is a practical way around this dilemma. First, you must individually identify all new replacement stock from now on and maintain that identification. Second, keep the simple records outlined above for the first and second years of calf production. Research has shown that heifers producing in the upper level of their own age group (for instance, all replacement females born in 1982) for the first two calf crops will have a high probability of continuing this level of production as mature cows. As these cows get older and you need to make culling decisions based on production factors, the records from the first and second calvings can be invaluable. During the first 2 years, be sure to breed the cows to bulls of similar performance in order to avoid adding confusion to your records.

Replacement heifers should be selected to increase your odds of early reproduction and high growth rate. This is done by selecting heifers born in the first 40 to 45 days of the calving season and showing up in the medium- and large-size category groups. However, be careful in selecting only for large size. This may eventually lead to cows too large for your management and environmental situation. Close observation of your herd records may show which size cow works best under your farm or ranch conditions.

The best opportunity for genetic improvement in the cow herd comes from sire selection. Your current herd bulls contribute 50 percent to the genetic improvement of the calves. However, because you have to cull cows based on things other than productivity over time your herd bulls contribute much more than 50 percent of the herd improvement, perhaps close to 90 percent.

Simple reproduction and growth records will steer your herd improvement program in the right direction. They will allow for sounder decision making and help a management program result in greater profits. Without some type of records showing the facts, odds are that a herd will just hold its own and not be competitive with small profit margins.

Example record format

Cow Data				Calf Data				
ID	Birth year	Date first exposed	Preg. check	Calving date	Calving comments	Days from last calf	Weaning age	Weaning size
First cow								
9001	1979	6/01/80	M	4/15/81	Hand pull	NA	190	8
9001	1979	6/01/81	E	3/29/82	No assist	348	210	M

9001	1979	6/01/82	M	4/21/83	No assist	388	187	M
9001	1979	6/01/83	M	4/26/84	No assist	370	182	8
9001	1979	6/01/84	L	5/15/85	No assist	384	163	S
			Averages	April 21		373	186	28 and 3M
Second cow								
8103	1978	6/01/79	E	3/12/80	Hand pull	NA	227	M
8103	1978	6/01/80	M	4/14/81	No assist	398	194	M
8103	1978	6/01/81	E	3/30/82	No assist	350	209	L
8103	1978	6/01/82	E	3/12/83	No assist	352	222	L
8103	1978	6/01/83	E	3/12/84	No assist	360	227	L
8103	1978	6/01/84	E	3/14/84	No assist	367	225	L
			Averages	March 21		365	21 7	2M and 4L

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Related MU Extension publications

- G2005, Value of Beef Performance Records
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2005>
- G2034, Using Performance Data in Judging Classes: BIF Fact Sheet
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2034>
- G2036, Culling the Commercial Cow Herd: BIF Fact Sheet
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2036>

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■ Issued in furtherance of the Cooperative Extension Work Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Director, Cooperative Extension, University of Missouri, Columbia, MO 65211
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