Total Herd Reporting

In order to make good decisions in our breeding program, we require complete information on the performance of our cattle. Incomplete reporting could be compared to accounting for Enron or WorldCom. It may look nice at first, but it is misleading and counterproductive in the long run.

The implementation of total herd reporting represents a fundamental shift in the way we have traditionally thought about performance testing. The THE program shows that we are concerned about completeness of data and also that identifying the low end is as important as improving the top end of our product. For example, if we only report the top ½ of our calves, the group that is from the 50 to 75% range in our herd actually appears to be the bottom end. This can be referred to as data bias, or a bias shift.

Let's look at an algebraic analogy:
A+B = C
If A = 1 and B = 2 we can figure out that the total production of C = 3
1 + 2 = 3
If we don't report A, because it is too small and in the bottom half of the herd. A + B = C is now:
? + 2 = C
If we try to determine the average production in this herd we know that (1+2) / 2 = 1.5
Without reporting A, we can only guess.
And it is very difficult to accurately determine the genetic merit of either A or B.

This is very similar to the concept of total herd reporting.

Complete reporting does not make your poor cows look bad, but rather incomplete reporting on all calves, discounts your superior females.

In order to demonstrate the concept of data bias let's look at a weaning group of 7 calves. If a producer reports all of his weights the average 205 Day weight of the group is 646.4 pounds. By cutting the two bottom calves out of the group and not reporting them the producer has reduced the relative performance of his better calves (shown in the New Index column). For example, calf A goes from being slightly above average to below average.

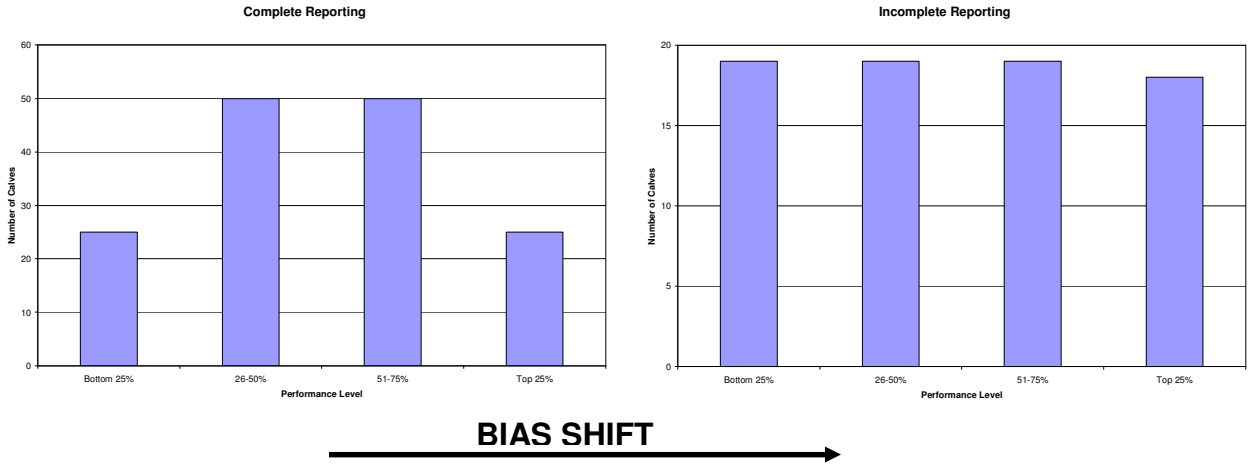
Calf	205 Day Adjusted Wt	Index	New Index	Sire
A	650	100.6	98.2	2
B	675	104.4	102.0	1
C	605	93.6	XXX.X	1
D	635	98.2	95.9	2
E	670	103.6	101.2	2
F	680	105.2	102.7	2
G	610	94.4	XXX.X	1

In this example the calves may also be from 2 different sires. If the two calves that were removed were from the first sire, we have inadvertently brought him closer to the other sire in the performance of his progeny. In the first example Sire 2's progeny have an average index of 101.9 and Sire 1's progeny have an average index of 97.5. By failing to report the bottom two calves in the group the indexes are now 99.5 (Sire 2) and 102.0 (Sire 1). We have effectively reversed the appearance of these two sires by failure to report all the data.

This concept applies to all aspects of data collection, including calving records. Relative birth weights can also be influenced by incomplete reporting in the same way. For example, not

reporting your heavy calves makes your light calves relatively heavier, when compared to the remaining calves.

If we look at the following charts, we can see that by only reporting the top ½ of the calves we have moved from comparing 150 calves, to only comparing 75. As well, we have moved half of the top calves into the bottom ½ of the herd, and changed the distribution within the group. We have reduced the variability and lessened our opportunity to make good selection decisions.



BIAS SHIFT

This has negative marketing and selection implications, as indexes are reduced on calves that should appear better.

In profitable beef production, fertility is paramount to success. Without the collection of complete breeding and production and fertility information it is impossible for us to identify those animals that carry optimal genetics. Even a trait as simple as pounds weaned per cow exposed requires knowledge of breeding and production data across the entire herd. If we look at the above charts as an example, we see that incomplete reporting washes out, or hides our superior animals. A good example, if the cow that is 5 years old and has only had 1 calf reported to the dataset. While the odds are good that her other calves may not have been of a quality to register, by failing to report them, we do not know if the dam was open for the first 3 years of her productive life, or simply failed to produce quality calves.

As well, collection of disposal information on females and calves may provide the potential to identify genetics for disease resistance, longevity, and other traits of growing importance to profit.

If we believe that beef production is a combination of genetic factors interacting with the environment, then it is vital that we collect as much information from all environments as possible.

Successful breed improvement programs revolve around the concept of measuring traits that are important, comparing those traits between animals and then selecting the superior animal. Total herd reporting allows us to do this objectively.

Data Collection

Breeding Information

Breeding information is collected on every female. It is important to know what cows were exposed to which sires. The reason for this is that in order to enhance fertility we need to know which cows were bred, and of those which ones successfully calved.

Calving Information

Calving information is collected, as this is the primary time for calf losses in the commercial industry. As commercial herds get larger, and more small producers work off farm, the need for unassisted, live calves continues to rise.

Weaning Information

Weaning information is collected because most commercial producers still market calves at weaning, based on live weight.

Weaning is also the point in time at which the direct impact of the cow on her calf's performance is ended. This means it is a very good time to take measurements on cows and calves in order to determine female productivity.

Yearling Information

Yearling data is collected as most commercial cattle go into feedlots and are typically marketed at around a year of age. Gains and weight at a year of age are therefore important to the profitability of cattle feeders. As well, measures such as pelvic size and scrotal are often collected at a year of age. These values are useful indicators of maternal and fertility traits in potential replacement females.

Ultrasound Information

Beef cattle ultimately end up as beef. In recognizing the importance of this, ultrasound data collected at around a year of age, allows us to get an idea of carcass characteristics without slaughtering the potential seedstock animal. Many animals are sold off feed on their carcass merit or a "grid" pricing system. For this reason ultrasound information is important to collect.

Carcass Information

Carcass information is collected for much the same reason as ultrasound data. While carcass information is not collected on those animals retained for breeding purposes, it is insightful to collect carcass data on cull animals, and progeny groups from organised breeding scenarios.