

Increasing Predictability, Uniformity and Efficiency: Where Should the Seedstock Industry Be Heading?

Kent Andersen

Director of Education and Research
North American Limousin Foundation
Englewood, Colorado 80155

INTRODUCTION

The seedstock industry should feel an increasing sense of pressure to provide genetics that work for all segments of the industry and the consumer. Being a customer-driven seedstock producer carries with it tremendous responsibility. Each time a single bull is merchandised, it is contributing genetics which influence the profit potential for everyone from the cow-calf producer to the packer, and which impacts hundreds of consumer eating experiences. In order to survive, seedstock producers must become obsessed with producing predictable cattle, which conform to the needs of the consumer, and each segment along the production chain.

EMERGING BEEF INDUSTRY

Historically, it is probably safe to say that the cattle industry has operated with a "trickle down" philosophy. As the "driver", the seedstock producer decides what direction to go and then assumes his commercial cow-calf customers want to go the same direction. Once cow-calf producers sell their calves, and once feedyards close out a pen of cattle, that is the end of their responsibility to the overall business. Equally as guilty are packers and retailers, who determine value based on averages and seldom communicate with other segments. If this mentality persists, it will spell doom for the beef industry in the years ahead.

Dr. Tom Field from Colorado State University has offered a model for the restructuring of the emerging beef industry (Figure 1). Dr. Field suggests that the seedstock producer will no longer be the "driver", instead seedstock producers will assume a service function (Field, 1993). It will be the seedstock producers' responsibility to listen to the wants of each segment, and then offer the

appropriate genetic inputs which are backed by dependable performance information.

THE SEEDSTOCK CHALLENGE

Seedstock producers ultimately serve at least four masters, cow-calf operators, feedyards, packers and consumers. Each of these masters operate with different constraints, and prioritize various traits of the seedstock product differently. Adequately serving the diverse needs of these segments is a humbling challenge for the conscientious seedstock producer.

A single animal, or for that matter a single breed, cannot be all things to everyone. It thus becomes the obligation of the seedstock producer to work closely with his cow-calf customer to insure that the seedstock product fits the needs of the breeding program and is used appropriately.

Most seedstock producers have spent considerable time attempting to produce that "needle in a haystack" bull which possesses extremely high performance in several traits. While we are always looking for such animals, in the future, it will likely be more important for the seedstock supplier to inexpensively produce a large number of bulls, none of which are expected to pass on genes which will cause major nonconformities in their offspring at any stage of production.

PREDICTABILITY

Today, information and time are money. Predictability is primarily a function of the amount and quality of available information. The saying "garbage in - garbage out" applies here. The more high quality information, the greater the expected predictability.

Expected progeny differences (EPDs) are available for a number of different traits. Because EPDs appropriately combine and weight available performance information, one key to increasing predictability is for seedstock producers to submit performance data in a timely fashion and provide all available EPDs to their commercial clients. As well, commercial producers should avoid purchasing animals that are not backed by complete EPDs and performance information. Compared to adjusted weights and ratios, EPDs have been shown to be as much as nine times more accurate at predicting genetic differences.

Progressive breed associations will be offering EPDs for all sorts of additional traits in the future. Futuristic thinking seedstock breeders should be actively engaged in contributing data on these traits. For example, the Limousin Foundation is currently developing EPDs for scrotal circumference and gestation length. One service that breeders should be aware of is the National Cattlemen's Association Carcass Data Collection Service, which can help track cattle through the packing plant and provide data for EPDs on carcass traits.

There are no prerequisites to be a seedstock producer. Cow-calf operators should be as picky about choosing their seedstock supplier as they are about seedstock selection. Never before in the history of the business has there been more economic incentive to be dishonest about performance information. Honesty and integrity as they relate to collecting, reporting and using information are extremely important. Select seedstock from a supplier you can trust, and who is willing to guarantee satisfaction.

NATIONAL BEEF QUALITY AUDIT - TOO MUCH VARIATION

Lack of uniformity in the cow herd, among feeder calves and fed cattle, and in the final end product is the result of both genetics and management. The National Beef Quality Audit states that the greatest opportunities for the beef industry to improve its competitive position -- through improvements in quality and consistency -- trace to genetic management. Table 1 identifies the dollar values assigned to quality problems outlined in the Quality Audit and items that are influenced by genetics.

The Quality Audit found that \$248.32 of the total \$279.82 (89%) worth of lost opportunities was from nonconformities that were under some degree of genetic control. What's more, \$219.25 of the \$279.82 was due to excessive fat production and problems associated with muscling.

Costs involving genetics fall into one of two categories: 1) mismanagement of acceptable genetics, or 2) genetic nonconformance (Executive Summary, National Beef Quality Audit, 1992).

While seedstock producers may not have much control over mismanagement of acceptable genetics, they do influence the production of animals which represent genetic nonconformance (misfits). This group includes extremely fat and light-muscle cattle, carcasses that grade Standard and cattle that must be fed to extremely heavy weights in order to acquire enough finish.

More specifically, the Quality Audit revealed that approximately 16% of carcasses surveyed fell into the yield grade 4 and 5 categories. Despite this level of outside fat, 8% of the carcasses audited had quality grades that were Standard or lower. Perhaps more alarming was the discovery that over 28% of the carcasses studied fell outside the optimum carcass weight range of 650 to 850 pounds.

In response to these problems, seedstock producers need to target production of bulls that represent sensible levels of mature size, are adequate in terms of muscle, and with the exception of some specialized maternal lines, free of the propensity to produce excessive levels of external fat. Targets to keep in mind include:

- Yield grade 2.9 and lower
(avoid fat, ribeye and carcass weight nonconformities)
- Choice and Select quality grades
(avoid quality nonconformities)

As time passes, it will become increasingly important for seedstock producers to be able to screen their cattle for indicators of toughness, extremely low levels of marbling and other contributors to inferior palatability. In the future, combining existing genetic evaluation

techniques with DNA technologies and instrument grading may enable us to accurately eliminate these types of nonconforming breeding cattle from our populations.

COW-CALF QUALITY AUDIT NEEDED

Closer to home, seedstock producers must also provide genetics which work for the cow-calf producer. Most ranchers want to build a cow herd with:

- High fertility
- Low maintenance
- Unassisted calving
- Convenience traits and longevity
- Milk and size appropriate to ranch constraints
- Ability to produce healthy calves with fast, efficient growth

Unfortunately, the seedstock industry continues to merchandise too many bulls that need too many warning labels attached to them. I am afforded the opportunity to attend a number of seedstock sales of several different breeds each year. There should not be a market for bulls with genetics representing a combination of high birth weight, low growth, low fertility, extremes in size, extremely light muscling and unacceptable disposition. Yet, surprisingly it is still possible to find these misfits. Eliminating these types should contribute to greater uniformity and more efficient production.

EFFICIENCY

Increasing production efficiency is one of the beef industry's greatest challenges. The 1992 National Cattlemen's Association Directions Publication points out that feeding costs vary widely for beef, pork and poultry. On a per-pound basis, the average 1990-91 feed cost for a beef animal from birth to an 1100 pound slaughter weight was 35¢ per pound. That compares to a 26¢ cost for pork and a 16¢ cost for poultry (Directions, 1992).

Unfortunately, it is difficult to measure feed intake on individual beef animals throughout the various stages of production. Thus, it is not currently feasible to select directly for feed efficiency. For the time being, selection

will have to be directed toward traits that are correlated with efficiency.

Seedstock producers need to help their customers become low cost producers through the bulls they merchandise. For the feedlot and packing segments, bulls which help eliminate production of excess fat can help move the industry in the right direction. Similarly, huge opportunities to improve efficiency at the cow-calf level exist in the area of improved reproductive performance, through production of bulls with large scrotal circumference. As well, simultaneous selection for sensible levels of birth weight, rapid early growth, moderate mature sizes and optimum levels of milk production should contribute to greater efficiency.

Seedstock producers should routinely document and print whole herd measures of efficiency. Seldom do you see purebred breeders publish statistics such as percent calf crop weaned and average weaning weight per cow exposed, percent open cows or calving distributions, yet these are measures that have dramatic economic impact on commercial herds. As time passes, it will become increasingly important for all seedstock producers to adopt inventory-based record keeping systems, which tract the production of all cows. Reporting information on all cattle produced also results in more reliable EPDs.

Commercial producers cannot overlook the advantages in efficiency that result from well-planned crossbreeding programs. While some crossbreeding systems may contribute to less uniformity because of fluctuations in percent blood from one generation to another, mating systems can be designed which overcome this problem. Further development of maternal synthetic lines, combined with terminal crossing can help match cows to the environment and offspring to the marketplace. Seedstock suppliers need to become crossbreeding experts, and be capable of helping their commercial clients design effective mating systems.

CONCLUSION

Where should the seedstock industry be heading? For starters, I believe seedstock producers need to become obsessed with quality and predictability. They must be relentless in their search for the "right" sires, and must

ruthlessly cull nonconforming cattle. Seedstock producers must be hungry for new technologies and flexible enough to adapt quickly, without shuddering at the thought of having to learn something new. they must be honest, able to admit mistakes and conscientious about their responsibilities.

As the divisions between industry segments blur, seedstock producers must listen to everyone from cow-calf producers to consumers, and be in tune with what genetic inputs are needed. Finally, seedstock producers must possess a positive attitude, and a spirit of wanting to learn as much as possible about the industry they serve.

REFERENCES

- Directions, The State of the Beef Industry. National Cattlemen's Association. 1992. Englewood, CO 80155.
- Field, Tom. 1993. Becoming a market-driven seedstock producer. American Gelbvieh Association's 1993 Annual Convention. Denver, CO.
- National Beef Quality Audit, Executive Summary. National Cattlemen's Association. 1992. Englewood, CO 80155.

TABLE 1. Dollar values assigned to quality problems outlined in the National Beef Quality Audit and identification of items that are influenced by genetics.

Quality Defect	Dollar Loss per Steer/Heifer	Influenced by Genetics
Waste - \$219.25		
Excess external fat	111.99	Yes
Excess seam fat	62.94	Yes
Beef trim corrected to 20% fat	14.85	Yes
Muscling	29.47	Yes
Taste - \$28.81		
Palatability	2.89	Yes
Marbling	21.68	Yes
Maturity	3.80	
Gender	.44	
Management - \$27.26		
Hide defects	16.88	
Carcass pathology	1.35	
Liver pathology	.56	
Tongue infection	.35	
Injection sites	1.74	
Bruises	1.00	
Dark cutters	5.00	
Grubs, blood splash, calloused ribeyes and yellow fat	.38	
Carcass weight - \$4.50		
Carcass weight (625 - 825)	4.50	Yes
Total	\$279.82	\$248.32

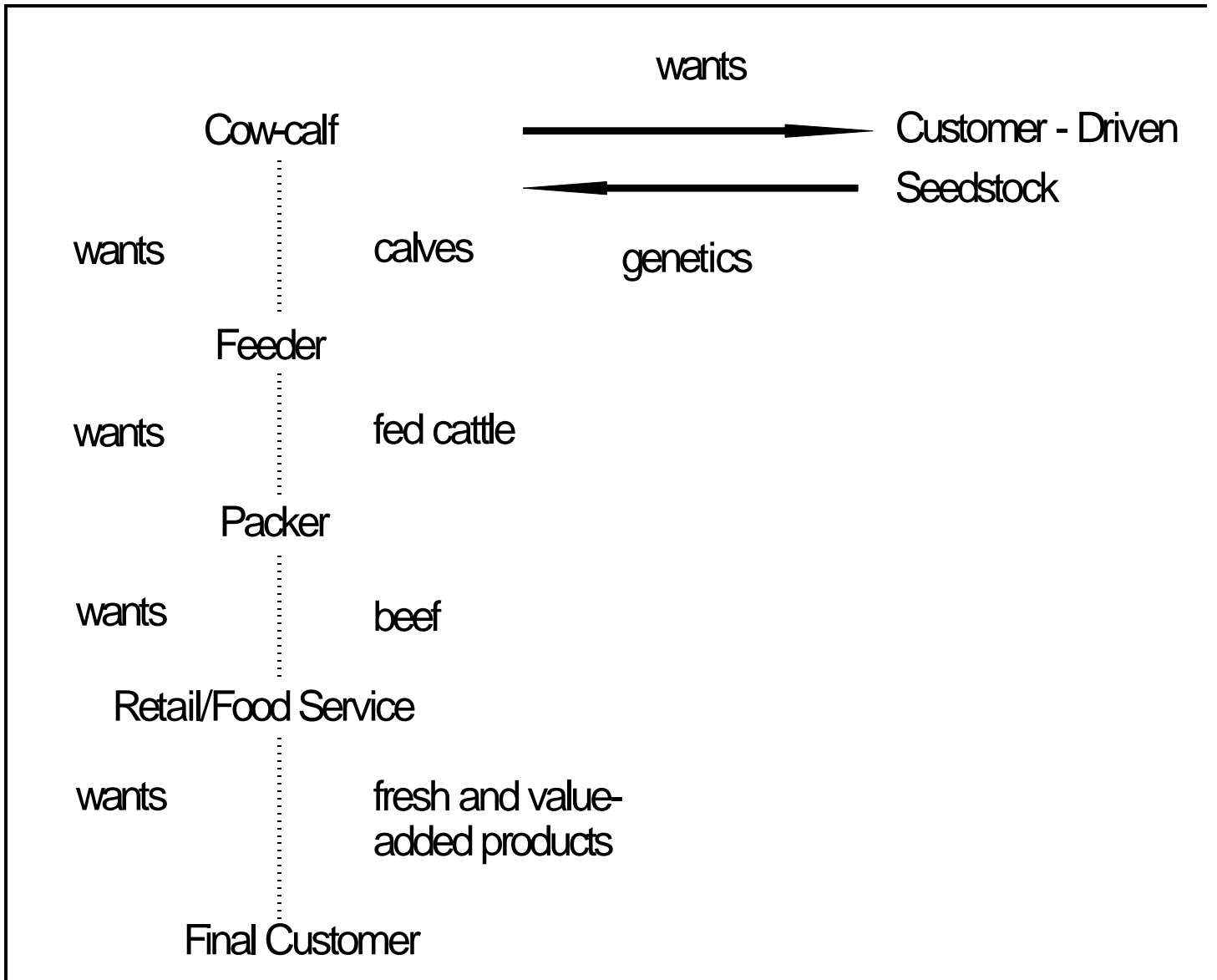


Figure 1. Emerging beef industry.