



## DETERMINING THE GENETIC POTENTIAL OF BEEF CATTLE THROUGH RANCH TO RAIL PROGRAMS

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### INTRODUCTION

In recent years the cattle industry has had to come to terms with itself with respect to survival in a very competitive market place. The challenges are very real and extend from the ranchers and seedstock producers through to the packers and retailers. The old way of doing things may no longer be valid and there are certainly no guarantees for survival. What is necessary is a willingness to gain new knowledge and technical expertise, and in combination with traditional wisdom, face this crisis head on. *Each farm and ranch enterprise must develop its own strategy and find that combination of production and marketing expertise that will result in a viable operation.* All of this must occur in a world that increasingly becomes more competitive.

For ranchers, it is imperative that they examine their operation and determine what they are capable of producing within their environment and with the available resources. This requires a complete inventory of all resources, which includes such things as the herd genetic base, available pasture, range, and feed supplies, and other production oriented resources.

In order to have any possibility of success, the genetic base must match the environment and the feed resource. *There is no point raising cattle that cannot meet their genetic potential and maximize profitability.* Additionally, extensive versus intensive production systems cannot be managed in similar fashion nor can they expect to be optimized using similar genetics.

Fine-tuning an operation and maximizing opportunities is no simple task, and each operation must determine its own production goals. Relative to genetics, it is necessary to ask the question: **“How do I determine the genetic potential of my herd?”**

Many ranchers sell their calves at weaning and do not solicit feedback about how their calves performed after they left the ranch. Often, the calves are marketed in a manner that makes it very difficult to track the calves because they may have multiple owners before they reach slaughter weight. Once the calves leave the ranch, it may require tremendous effort to acquire information on them. Additionally, most calves are sold in pen-lots when finished with no individual identification, so carcass information, other than on a group-average basis, is impossible to obtain. However, many calves can be tracked, at least to the point of slaughter, so production information can be obtained relative to days on feed, cost of gain, and animal health.

This feed-back can provide some insight into the genetic potential of the calves being raised on the ranch.

## **RANCH TO RAIL PROGRAMS**

Ted Schroeder, an Agricultural Economist with Kansas State University, at an IRM producer education seminar hosted by the NCBA, suggested cow-calf producers require information to enhance value of their calves and can do so by:

1. Producing and marketing calves that possess physical attributes conducive to efficient feeding.
2. Producing and marketing calves that have attributes to efficiently attain finish qualities that garner premiums when calves are sold on a value-based marketing arrangement.
3. Understanding and targeting calves for specific value-based marketing grids and managing calf production and cattle finishing to capture premiums and minimize discounts.
4. Having detailed, reliable, verifiable, and accurate information about the expected performance of calves being produced and using this information to the ranch's advantage.
5. Even with all of the above information, retaining ownership or entering into an alliance may be the only way to get full value for calves when they are marketed as finished cattle.

All of these points are interconnected with determining the genetic potential of the herd. *If there is no information on calves beyond the ranch gate, then a producer is severely disadvantaged in providing information to your customer relative to the potential of your calves.* This is particularly true now, in an era of value-based marketing. Feedyards and packers are looking for calves that will not only perform well, but will have carcass characteristics that will maximize their profit. If there is no feedback to the rancher on these points, then he has no way to determine if he is on track and genetics cannot be used to their potential to garner maximum profit for the rancher.

This concept of soliciting feedback is not new, and for many years ranchers, in different parts of the country, have used an innovative method to gain insight into the marketability, production and carcass evaluation of their calves. It has been called Ranch to Rail, Inside Beef, Steer A Year, Will it Work, and various other names, but the concept is the same. In brief, ranchers retain ownership on a certain number of their calves (anywhere from one to many calves) and place them in a feedyard along with other calves on the program. Calves are sorted into pens based on genetics, frame size, calf weight, flesh condition and predicted days on feed. They are then backgrounded and finished to a desirable weight and degree of finish.

*This is not a retained ownership program but rather a system that allows producers to learn more about their calf crop and the factors that influence value beyond the weaned calf phase of beef production.* It is also not a contest to compare breeds or breeders. It creates an opportunity for producers to determine how their calf crop fits the needs of the beef industry and provides the information needed to determine if changes in genetics and/or management factors are warranted in order to be competitive in beef production. *In short, it allows a producer to determine the genetic potential of his herd.*

The oldest of these programs is the Texas Ranch to Rail program. Over many years, hundreds of producers have entered thousands of calves in a couple of locations in Texas. Feedback from producers who have been involved in these programs throughout the U.S. has been extremely positive because it has allowed them to keep back a few calves each year and follow them through the feedyard to finish and finally slaughter. Some programs offer producers the option to tour the packing plant, watch the cattle be graded, and ask questions of the grader.

Upon arrival at the feedyard, steers are eartagged, weighed and processed, and assigned a value based on current market calculations to serve as a basis for calculating theoretical break-evens and the financial outcome of the program. Management factors such as processing, medical treatments, and rations fed to the steers are the same as the other cattle in the feedyards. Final reports consist of production information (days on feed, average daily gain, feed cost, and total cost of gain), carcass information (quality and yield grade, carcass weight, fat thickness, ribeye area) and financial information (profit/loss, net return per head, animal health costs).



This program allows ranchers to become involved in a segment of their industry that they may never have been exposed to, which includes the feedyard and packer. Many ranchers have never seen their calves hanging on the rail and do not understand grading standards or the packer perspective. *By using the information learned from this program, they gain new knowledge that assists them in determining which direction their genetics and breeding program should take back on the ranch.*

The extremes and variability that exists in the industry is also evident from these programs. Financial returns for the producers are based on many variables, as described above. Returns normally range from positive to negative in any given year with a large difference separating top from bottom profitability for the steers. This is a reflection on production and animal health, but more significantly, genetics. Many steers do not perform well and do not possess carcass characteristics conducive to profitability. In a value-based system, these steers are discounted, resulting in lower returns to the cow/calf producer. It is imperative the ranchers understand what they are producing.

Utah initiated the Ranch to Rail Program in the fall, 1998 and has continued since that date. Calf entries into the program are limited to a maximum of fifteen per ranch and five per breeding group. There is variability among the steers relative to genetics and initial calf weights, with steers coming from a variety of environments.

At the feedyard, steers are maintained on rations and are treated as any other commercial custom-fed calves. Steers are weighed every 28 days and are initially sorted into short-, medium- and long-keep calves. At approximately 80 days prior to slaughter, calves are scanned via ultrasound using Kansas State University sorting software that assists in determining optimal days on feed. This program takes steer carcass characteristics (backfat, marbling and weight) and market prices into account. As steers approach market weight, they are scanned again and they are sorted off and sold if it is determined they will grade USDA Choice. Producers are notified of the decision to sell and provided an opportunity to hold them longer if they wish and to see the cattle graded at the packing plant. The company grader takes the producers through the grading procedure and describes the carcass characteristics of each steer, pro and con. A final economic assessment of each calf is determined after all steers have been marketed, as well as a summary report for that year's program.

## **WHAT CATTLEMEN ACROSS THE U.S. THINK OF RANCH TO RAIL PROGRAMS**

Comments from producers who have entered calves reflect the necessity to determine the genetic potential of their calves. Producers do not wish to retain ownership, as this can create unnecessary risk. *By keeping back a few calves that represent the majority of their herd, or*

*particular breeding groups, they are able to gain valuable insight into their genetic potential.* Calves that are entered based on breeding groups assist producers in determining value of particular breed types, genetic lines or crosses and this allows them to take a snapshot that can be used to make adjustments or validate their management.

**G. B. Parks, Millsap, Texas:** In an effort to study the grade of carcasses from his breeding program, Parks sent a small group of crossbred calves to the Texas A & M Ranch to Rail program. “The three years I sent calves to the program they finished in the top 10 percent. That made me feel pretty good. I didn’t realize they were as good as they were. I believe the Ranch to Rail Program is one of the greatest things the Extension Service has done for the livestock industry in Texas. It’s a great opportunity to learn what you are producing.” (Taken from the Angus Journal.)

**Hank Hoogmoed, Wellsboro, Penn:** Because carcass traits are important to Hoogmoed, he sent four steers to the Cornell University feedlot test. They did well with three out of four grading Choice. “I think this is an excellent way for a breeder to learn what their breeding program is producing. With the beef industry getting more involved with value-based marketing we need to know what the consumer wants and how to meet that need.” (Taken from the Angus Journal.)

**Ben Olivarez, Mission, Texas:** “I use Ranch to Rail to evaluate bulls. It helps me identify sires with carcass characteristics we want. I also use the information to eliminate cows from the herd.” (Taken from Progressive Farmer.)

**Bobby Lovett, Cuthbert, Georgia:** “In the feedlot your cattle must gain over 3 pounds a day to have a chance at showing a profit. Once I cleared that hurdle I started looking at carcass quality. The industry is going to value-based marketing. Through the Georgia Beef Challenge I am moving my herd in that direction.” (Taken from Progressive Farmer.)

**Howard Jensen, Troy, Kansas:** “I recommend that cow-calf producers, from any size operation, participate in a carcass feedback project at least once. *Even if your cattle don’t work in this particular situation, consider it tuition to learn what you are producing.*” (Taken from the Angus Journal.)

## **WHY SHOULD I CARE ABOUT CARCASS TRAITS IN DETERMINING GENETIC POTENTIAL**

Carcass traits are moderately to highly heritable. This means that the carcass characteristics of a bull will be passed on to his progeny, similar to average daily gain or weight per day of age. We also know that there is as much variation within a breed as there is between breeds (Reynold Bergen, 1998).

Backfat, ribeye area, and marbling are the major traits that should be assessed. Conformationally, this would mean looking at the muscling and overall condition of the animal. These measurements can be determined with ease and are quite accurate with new ultrasound technologies.

The fat measurement or fat depth gives an indication of the animal’s fleshing ability. Calves from a bull with no fat may finish too slowly in the feedlot and in females it is related to their ability to reach puberty at an early age, produce milk, rebreed and maintain a short calving interval. Excessive fat in a bull may result in reduced fertility if not managed properly. Extremely lean (high cutability) and extremely fat (low cutability) carcasses are not desirable. We should look for moderation.



Overall carcass muscling can be determined by looking at the ribeye area. Ribeye area is influenced by body weight and the heaviest bull often has the largest ribeye, so the score should be weight adjusted.

Marbling is an important consideration in determining quality grade. Again, there can be large differences between and within breeds. Management (feeding) only slightly affects marbling and it is predominantly genetically influenced, although certain implant strategies may also have a marked effect on marbling and intramuscular fat deposition. In value-based marketing, marbling has merit on its own, but must be considered in combination with other carcass traits. The most desirable carcasses are choice grade or higher, which takes into account marbling.

## CONCLUSION

The importance of production and carcass trait information is very significant. *Producers who can provide this to clients or potential buyers will have a greater opportunity for increased profits than those who continue to breed their calves with a disregard for, or an understanding of their animals genetic potential.*

When a consumer goes in to purchase a new pickup, they go to a dealer with an understanding of what they are after. Much of this is based on performance and service records provided by consumer reports or word of mouth (reputation). The dealer unfolds for their benefit a history of the model, specifications, testimonials and other relevant information in an effort to convince them of the necessity to own that particular vehicle. This is marketing. The more information provided, the greater the likelihood a purchase will occur from him. Ranchers and cattlemen can learn from this example. Provide good solid information to your customers and if it is a quality product, they will return because of the opportunity for profit.

Building a solid herd with sound genetics is not a random event. It requires using all the tools available to produce an animal that will meet today's consumer demand. It also requires the ability to change and continually look for opportunities. *By knowing the potential of your herd you will be more able to make management decisions that will maintain or enhance profitability in a very competitive industry.*

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