

If you want profit? Select for it.



On any given day ranchers make various decisions that impact the profitability of their operation. As bull buying season approaches genetic selection will gain priority versus the many other facets producers must evaluate. While attending a sale, eating a free lunch, and even buying a bull seems easy enough, one must consider the myriad of traits that a bull will leave behind; and how they will impact the cowherd, the marketability of the calf crop and collectively the profitability of the ranching enterprise. The longer producers stay tied to the calves resulting from their selection the more traits impact their profitability. Thus, ranchers who retain ownership and feed their calves will be more directly impacted by post weaning traits. Ranchers who retain and raise their own replacements will have their future cowherd shaped by those bull selections. Consider this: the bull you buy next spring should still have quite a few daughters producing in your herd by the year 2030. Maybe longer than that. So, shop wisely. The following strategies may help make bull buying season a little less daunting and much more user-friendly.

Step One: CROSSBREED.

The idea of cashing in on the huge benefits of heterosis is neither new or earth shattering. In fact, the benefits of heterosis have been documented for over fifty years. Plant breeders have changed not only where we can grow corn, but they have managed to improve yields to make the rising cost of farm equipment appear closer to doable. Pork and poultry producers have made significant gains in feed efficiency and consumer market share and today they hardly know what a purebred hog or chicken is. Even the auto industry has joined the party lately with hybrid cars.

Heterosis provides its most dramatic benefit on cowherd traits (fertility, longevity and overall cowherd efficiency). While we often brag about sale price or weaning weights it is these cowherd traits that ultimately have the greatest impact on profit. Dr. Bob Weaber, Professor of Animal Breeding from the University of Missouri summarized these benefits as follows: crossbred cowherds would produce 23% greater lifetime production than their straight-bred pasture mates, with only minor increases in production costs. Dr. Weaber also states that if we challenged these same cows through a drought situation, the difference could climb to well over 30% in favor of the crossbred cow.

All this begs the question, ***“Why don’t more commercial cattlemen put cross-breeding to work in their cow herds?”*** I believe the primary reason is because when crossbreeding came around the first time, cattlemen tried to utilize various breeds of purebred bulls in complicated breeding systems that resulted in large swings in biological type, used too many breeds and required multiple breeding pastures. Failed cross-breeding programs and/or the non-planned application of crossbreeding led to non-uniform mongoloid or rainbow herds.

The advent and eventual uptake of beef cattle genetic evaluations (EPDs) also slowed the beef industry’s uptake of crossbreeding. Because EPD models lacked an accurate method to genetically evaluate hybrid or composite cattle. This began to change in 1997 when

the American Simmental Association released the first multi-breed genetic evaluation. In the 20 years since, multi-breed evaluation certainly competes to be the norm, with over half of the major beef breeds utilizing the methodology. In fact, International Genetic Solutions (IGS) boasts an 18 million animal database - the largest beef cattle genetic evaluation in the world, and includes many of the major beef breeds here in the U.S.

User Friendly ways to harvest heterosis:

Composite seedstock (Hybrid bulls such as SimAngus) provide an easy way to implement a crossbreeding program that produces a uniform, solid colored calf crop while retaining sufficient levels of heterosis. There is no need for different breeding pastures. Over a couple of generations the producer can easily manage the ratio of Angus to Simmental in resultant calf crops through the hybrid/composite bulls they select.

These 18 month old SimAngus (Simmental/Angus) bulls offer the best additive genetic traits of both breeds, and come with heterosis as standard equipment.



Another easy-to-manage system works for producers who buy replacement females. Simply buy crossbred heifers, such as SimAngus hybrids to capture maternal heterosis, then use bull breeds that excel for those traits that maximize calf value. SimAngus Cows bred to a Charolais bulls is a good example of this system.

Producers who have larger herds can use both of these systems. Selecting Hybrid bulls to breed to crossbred females; from this mating replacement females are generated. Then the terminal Continental sire can be used on the mature crossbred cows with all calves (steers and heifers) being marketed.

Step Two: Utilize Complementary Breeds.

It is important to rank breeds based on the traits that have the greatest economic relevance then select breeds that will complement one another. For example, Angus will provide more calving ease and marbling while Simmental will provide greater maternal calving ease and better yield grades. No single breed can provide the best genetics for every economically relevant trait. The Meat Animal Research Center (MARC) has long held that a 50% British 50% Continental breed makeup will maximize profit in both your cow herd and feeder calves.

The MARC data in Germplasm Report 22 is an excellent resource to investigate breed differences.

Table 1: 2013 MARC Across-Breed Comparison & GPE Report 22

Trait	Simmental Rank vs. Major Continental Breeds*	Angus/Red Angus Rank vs. Major British Breeds**
Marbling Score	First	First
Carcass Weight	First	First
% Retail Product	Second	First
Feed Efficiency	First	Second
Weaning Weight	Second	First
Post Weaning Gain	Third	First
Shear Force	First	First
Calving Ease	First	Second
% Puberty	First	First
% Pregnancy	Second	Second

Source:
 2013 MARC Across Breed EPD Tble, GPE Repot 22, MARC, USDA
 *Major Continental Breeds – Simmental, Gelbvieh, Limousin, Charolais

Producers should also consider availability of desired coat color and horned/polled genetics. Based on these considerations and MARC Report 22, Simmental and Angus would be a logical choice for a two-breed cross breeding program.



Step Three: Select for Profit - (Life Cycle Indices)

EPDs have revolutionized genetic improvement in the livestock industry. Only EPDs fully leverage all available information (phenotypes weights and measure, pedigrees and DNA tests) to predict genetic value. That said, simply predicting genetic levels for a trait or traits will not tell us which animals are most profitable. The overall value of an animal is determined by the impact it has on the operation's bottom line — which is a cumulative function of how it sizes up in many traits, rather than that animal's relative genetic merit in any single trait.

Sifting through all of the traits that impact profitability is a daunting task. In the past, beef producers have typically relied on their gut - maybe a few had a spreadsheet using independent culling levels - either of these methods fall short in applying the proper economic weighting to each trait. Enter, the economic selection index, essentially a genetic accounting tool. Since their introduction in the 1940's, economic selection indices have been accepted by animal geneticists as the most effective approach to select for profit.

Though relatively new to the beef industry, economic indexes have been used by the poultry, swine and dairy industries for many decades. In fact, you would be hard pressed to find a pig, chicken or dairy cow that was not built using an economic selection index.

While there are several economic indices currently employed by different breeds. Only those developed by IGS (International Genetic Solutions) have the capability of evaluating hybrid/composite cattle and include female longevity as major component of cowherd profitability.

Female longevity trumps every other trait when it comes to cow/calf producers' profitability. Given SimAngus as a logical choice for many producers' cross-breeding programs, the two indices available are **API** (All Purpose Index) and **TI** (Terminal Index), which are defined as follows:

API: *Compares differences in sires' relative profitability when used on the entire cow herd (bred to both Angus first-calf heifers and mature cows) with the portion of their daughters required to maintain herd size retained and the remaining heifers and steers fed and sold on a value-based grid.*

TI: *Compares differences in sires' relative profitability when used on mature Angus cows with all offspring being fed and sold on a value-based grid.*

Determine which index fits you.

If you raise your own replacements use API. If you buy your replacements, use TI.

The units for both API & TI are Dollar\$. Since either index describes relative differences in profitability, the following example can help demonstrate how the indices can help establish differences in value when selecting bulls.

Bull A has an API of \$160

Bull B has a breed average API of \$120

We would expect an additional \$40 in profitability for every cow mated to Bull A.

If these bulls are exposed to 25 cows per year over 4 years they are exposed to a total of 100 cows.

Bull A's \$40/cow x 100 cows = \$4,000 added value

Summary:

These three strategies don't increase your cost or require more labor. In fact, overall production costs should decrease as increased fertility and longevity reduce expenses related to heifer development and lower replacement rate. In addition both SimAngus steers and heifers are highly valued as feeders and replacements, and Charolais cross steers "dollar-up" as well as any on the market. This is one instance where you can have your cake and eat it too. Your calves will earn bigger paychecks and your cows will be more productive, more efficient and last longer.

It takes courage to break away from the pack, but if you want more Profit - Select for it!

