

The Advantages of Crossbreeding: Producing Replacement Females

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The cost of replacement females for a cow-calf operation is significant. Selecting replacement females is challenging, especially when considering that decisions made now will impact an operation for many years. As commercial cow-calf producers evaluate the opportunity to add or replace females, it is important to review the value of crossbreeding.

The advantages of crossbreeding are well documented and can have a big impact on net return. Heterosis and breed complementarity are the primary benefits realized from a properly planned crossbreeding program. Heterosis is the increase in performance of an animal above what is expected based on the average of its parents. Breed complementarity allows a breeder to capitalize on the strengths of different breeds because no single breed excels at all of the traits that affect profitability. These include reproduction, growth and carcass traits, in that order.

Breed Complementarity

Capitalizing on breed complementarity involves evaluating the strengths and weaknesses of potential breeds and selecting those that complement each other. The result should be an animal that has a good compromise of traits of those breeds. For example, Brangus (Angus x Brahman) cattle combine the early maturity and carcass traits from Angus with the heat tolerance and maternal ability of Brahman cattle. Other examples include the Black Baldie (Angus x Hereford) and SimAngus (Simmental x Angus), but there are many other combinations. The traits that are most



important should be based on the goals of an operation.

Maternal Heterosis

Maternal heterosis is the advantage realized by using a crossbred cow versus a straight-bred cow. Research has shown crossbred cows can have many advantages, including a 6% increase in calving rate, an 8% increase in weaning rate, a 6% increase in weaning weight, a 38% increase in longevity (Kress and Nelsen, 1988) and a 30% increase in lifetime productivity (Gregory et al., 1999). To realize maximum economic performance, the breeds and individuals selected to create the crossbred cow must fit an operation's resources.

Capturing Maternal Heterosis

Perhaps the easiest way to capture maternal heterosis is to identify the type of desired female and buy her from a reliable, off-farm source. Depending on what is desired, this can be difficult. In addition, replacement heifers that are known for their quality and performance will command a high price. Because of this, many producers retain their own heifers as replacements. According to the USDA, 83% of replacement heifers are raised on the ranch where they will calve. Before deciding to raise replacements, be sure it makes sense economically and then develop a breeding plan that will capture heterosis.

Identify the cow type and breeds ►

that best fit available forage resources and feed inputs. If needed, ask those that advise you for assistance with developing a list of breeds that complement each other and are consistent with your production goals. Select from this list the breed or breed crosses that will produce a calf acceptable to the marketing endpoint. Consider that the maternal effect of breed can influence weaning weight more than 88 pounds (Williams et al., 2010), and considerable variability exists among individuals within breeds. Also, understand that most traits affect other traits, and there is a big difference between maximum and optimum. Consider associated costs like increased cow size and milk production. The optimum system to produce replacement heifers will usually result in less than optimal steer mates, and this should be considered when evaluating the economics of developing your own females.

Composite Breeds

Composite breeds offer cattlemen an additional opportunity to capture

heterosis. Composite breeds are gaining popularity, especially among producers with small herds that want to retain females. This is because optimum crossbreeding systems are difficult to implement in herds with less than four bulls (Gregory et al., 1980). Many composite breeds allow cattlemen to take advantage of some heterosis and breed complementarity while maintaining uniformity. Some composite breeds can still have considerable variation, but it should not be greater than the contributing purebreds. In some composite breeds, inbreeding will need to be managed. As with selecting any breed, be sure the animals fit the environment and will produce a desirable product. Common examples of composite breeds include Brangus, SimAngus, Balancer, LimFlex, Beefmaster, Santa Gertrudis, Braford and others.

Conclusion

The goal of many commercial cow-calf producers is to increase profitability. Determine the desired market

endpoint and work backward to select the type of animals that will produce the most profit within the constraints of available resources. Keep in mind that it will be much easier to maintain a crossbreeding program if it is simple. Using crossbreeding correctly can have a significant impact on net return. ■

Literature cited

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