



BeefTalk 646: An Evolving Beef Industry

SUPPORTING MATERIALS

Evolving Beef Industry

DNA codes are in genes and genes determine the herd. Producers select for genes. Selected genes pull with them the appropriate DNA, and cattle evolve as products of the selected DNA.

A newly purchased bull will add genes to the breed and ultimately make a genetic contribution within the herd and very likely within the breed as a whole.

The beef industry is evolving, and so are beef cattle. This is the time of year when producers buy bulls, and every bull that is turned out to cows contributes to the evolving beef industry.

Why do beef cattle evolve? The process is long, but continuous, just like herd selection. Selection, in the short

term, ends with the purchase of a bull. In reality, the newly purchased bull will add genes to the breed and ultimately make a genetic contribution within the herd and very likely within the breed as a whole.

Genes do not stay put. As replacement cattle are moved around in the industry, their genes move, too. Cattle house their genes on 60 chromosomes. These 60 chromosomes carry the genetic materials that make cattle what they are. If one might be allowed to expand one's thinking, ironically, some types of buffalo, as well as goats and some other types of four-legged, grass-eating ruminants, also have 60 chromosomes.

The chromosome number is not unique, and what makes a chromosome certainly is not unique. In fact, although very few four-legged, grass-eating ruminants interbreed, some do. That would be the reason cattle may have some genes that came from buffalo and buffalo may have some genes that came from domestic cattle.

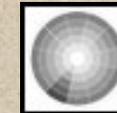
I am not trying to make the case for crossing cattle and buffalo. I'm only trying to expand our thinking as we view the concept of genes within living things, which, in this case, are cattle. If breeding cattle are maintained in the same herd or even in proximity, genes will migrate.

In previous times, the biggest inhibitors of roaming genes were physical barriers, which primarily were water and mountains or other obstacles that simply did not allow exposure to take place within breeding populations. However, as times changed and people brought their animals out of isolation, gene migration certainly became possible.

Although behavior and anatomical barriers between various types of similar four-legged, grass-eating ruminants still restricted gene migration, with newer reproductive techniques, such as artificial insemination, genes continue to migrate.



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The purpose of this discussion simply is to provide a broader picture of how genes can move and perhaps extend a better understanding as to what evaluating DNA means. DNA codes are in genes and genes determine the herd. Producers select for genes. Selected genes pull with them the appropriate DNA, and cattle evolve as products of the selected DNA.

For producers, no one ever questions that if cattle and buffalo are crossed, the obvious sharing of DNA is very evident. As bull producers, those same principles make up the genetic trend within a breed. The genetic trend lines are very revealing. If one made no effort at individual selection, the genetic trends of the breed still would be evident within a producer's herd.

For example, in many breeds, the genetic trend lines indicate that growth has increased within the breed. Expected progeny differences are meant to be indicative of the genes that are present for the particular trait that is being evaluated. As producers select for what they see or measure, they slowly concentrate those genes that are responsible for those traits.

The trends are slow, but with time, the genetic trend lines become very obvious for those traits that are easy to see or measure. However, even though every trait responds to producer selection, the trend is not always evident. If the trait is hard to measure, the trait still may be evolving to what the current environment wants, regardless of what the producer is doing. Cattle evolve.

With newer DNA technology, some difficult-to-measure traits actually may become measurable. As cattle evolve, producers will be able to better guide the genes that are present to fit their production environment.

However, in reality, good production programs already guide those genes that better fit their program. Being able to identify those genes earlier will allow for quicker adaptation. However, producers must never forget that cattle are evolving constantly and always will favor those genes that make life simple and responsive to the environment.

Sometimes we can outthink Mother Nature. At other times, Mother Nature will outthink us. Either way, if we measure genetic trends, we will know where we are going. Producers need to use the tools available to them, which is not a bad thing. Just be careful and don't try to fool Mother Nature.

May you find all your ear tags.

Your comments are always welcome at <http://www.BeefTalk.com>. For more information, contact the NDBCIA Office, 1041 State Ave., Dickinson, ND 58601, or go to <http://www.CHAPS2000.com> on the Internet.

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