

## BeefTalk 768: Genetic Diversity is a Good Thing

*Crossbreeding various breeds of cattle produced calves that are genetically varied. This expanded gene pool has positive benefits on calf survival, growth and subsequent reproduction as mature cattle.*

Let me preface this BeefTalk by saying the world always is changing and the beef industry is not immune to those changes.

As a beef industry, if producers only read and visit about beef production and associated issues, the industry eventually will fail. That is not to say the activities that will replace the beef industry are better, but ignorance of change results in change.

A review of history certainly will substantiate that nothing is immune to change, so producers should strive to read something that is different. It could be something that irritates you a little but still informs.

The incredible speed at which knowledge is obtained is mind-boggling. The rate at which knowledge is implemented also is gaining speed. Since the advent of the Internet and increasing programming efforts using computer software, advances that took a decade to study and reveal to the world are now overnight news, so read.

Read what is happening around you and become aware of the trends subtly implanted in the thoughts of your friends and neighbors.

Let me share an example. This morning I was pondering how nice the weather was and how I was going to take 90 sixth-graders for a walk on the prairie. Actually, it is 90 sixth-graders each day for the next three days.

What a great opportunity because the value of interconnecting classrooms and the world is immeasurable. However, before I left, a short note that caught my attention came across the Total E-Clips website (<http://fbresearch.org/media-center/total-e-clips/>). Total E-Clips is a website produced by the Foundation for Biomedical Research in Washington, D.C. (<http://fbresearch.org/>).

The foundation does an excellent job of providing relevant and timely news articles involving animal research. This article was titled “Why Genetically Varied Mice Could Be Mightier” (<http://www.thestar.com/news/insight/2015/05/16/why-genetically-varied-mice-could-be-mightier.html>).

“Genetically varied” were two words that caught my attention. In the beef industry, that sounds like crossbreeding. The article started with a statement that genetic manipulation for personalized medicine will be prominent in research and medical circles in the future.

Unfortunately, the mice that are utilized in these studies are very much inbred and the experimental response is limited to these inbred populations of mice. The concern (this is a beef article) is that these inbred models will not reflect the real world, so the mice need to be crossbred to expand the gene pool. This particular research group will cross eight inbred lines of mice to produce an “outbred mouse” (crossbred cattle).

These outbred mice are anticipated to be genetically varied and have more capacity to respond to the many therapies the mice will be exposed to (sounds like hybrid vigor). The article went on to discuss CRISPR (clustered regularly interspaced short palindromic repeats) and how this technique can provide further refinement of the genomic makeup of individual mice.

I am not going to go there today, but suffice it to say that these laboratory techniques and subsequent applications to human medicine are applicable to all living systems. The positive and negative consequences are challenging, but this further understanding of “genetically varied” mice certainly expands our understanding of heterosis (outbreeding enhancement).

Crossbreeding various breeds of cattle produced calves that are genetically varied. This expanded gene pool has positive benefits on calf survival, growth and subsequent reproduction as mature cattle. Producer preference of purebred or crossbred breeding systems was and still is a point of discussion in cattle circles.

I guess that is why I could not help taking a quick look at an email that seemed interesting. In a matter of milliseconds after a quick scan of the information, my mind placed a few more solid facts in place on why crossbreeding is a good thing. Granted, the mice will remain in their little confinement homes and the cattle will continue to graze in their pastures, but there is a connection.

More recently, this concept of combined data pools and across-breed analysis of genetic traits continues to present itself within the beef breed communities. The impacts are real, and what we don't know today, we probably will know tomorrow.

Walking with 90 sixth-graders in tow as we stepped across last year's cow pies and noted the varied and expansive nature of the northern prairies, comfort was taken in that the beef industry is still ahead of the mouse because we already crossbreed.

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.

