

## Records Can Provide Opportunities for Maximum Heterosis

By Kris Ringwall  
Extension Beef Specialist  
NDSU Extension Service



Uniformity within the cow herd is a goal of most beef producers. Once achieved, uniformity needs to be retained.

One of the privileges of working in a university environment is the opportunity to teach and interact with those exploring a career in agriculture. Recently, I asked a question regarding production records. If I might paraphrase one response: "Why would anyone keep records on a commercial cow?"

This is a common question, so after taking a deep breath and brief pause, I noted we would be starting from the basics. Seldom, in any group of students, will the concepts of performance recordkeeping in a commercial operation be well-ingrained. Generally, the students accept the concept within the bull buying segment of the industry by assuming the purebred producer is keeping some level of records.

So, starting from the basics, I present a principle accepted even in the commercial business: cows should not be mated back to their own sire. This is the principle of inbreeding, and inbred lines of cattle have, for all practical purposes, proven nonfunctional for many reasons. In general, reproduction, calf viability and general thriftiness suffer. Some type of identification system is needed to avoid these three problems, even within a commercial herd.

Inbreeding is not only a function of a sire daughter mating but also relationships on both sides of a pedigree. Anytime a bull or cow is on both sides of a pedigree, these relationships generate a percentage of inbreeding in the offspring. A common, and wrong, assumption is that the larger breeds do not have to worry about inbreeding relationships.

The North Dakota State University Dickinson Research Extension Center has used a pool of 21 Angus sires in an artificial insemination program. A critical look reveals the pool is not as large genetically as you might think.

A simple way to check is to do a quick review of the bull pedigrees which can be printed very easily from [www.angus.org](http://www.angus.org). These pedigrees go back three generations and seven male ancestors are listed for each bull. One way to look at how related individuals are, without going

back to calculate the actual inbreeding coefficient, would be to simply count how many times a particular bull shows up on the various pedigrees.

If none of the bulls are related, reviewing 21 pedigrees should produce 21 times 7 different bulls listed as ancestors, or 147 bulls. The quick pedigree review indicates several names repeated. Tehama Bando 155 shows up on nine of the pedigrees 10 times. The bull QAS Traveler 23 4 also shows up on 10 pedigrees. Other bulls that show up more than once are PS Power Play and N Bar Emulation Ext.

Purebred breeders search pedigrees often but back to the original question, "Why should commercial breeders keep records?" I could expound on several reasons, however in this case I will only pick on one, the negative effects of inbreeding do not belong in a commercial herd.

For the Dickinson Research Extension Center, what appears as a very large genetic pool from 21 Angus bulls does not actually exist. All these bulls have or will have daughters in the herd. In order to avoid inbreeding, related individuals should not be mated to each other. Of the 21 bulls, 10 bulls are related to Tehama Bando within three generations and nine are related to QAS Traveler 23 4 within three generations. Just out of curiosity, I checked these two bulls' pedigrees on the web site, and guess what, both bulls are sons of Band 234 of Ideal 3163. So in retrospect, 15 of the 21 bulls have Band 234 of Ideal 3163 as a common ancestor.

As a result, I better know which females I should mate to which bulls. Commercial cattle need the benefit of heterosis, not the negative effects of inbreeding depression.

May you find all your ear tags.

Your comments are always welcome at [www.BeefTalk.com](http://www.BeefTalk.com). For more information, contact the North Dakota Beef Cattle Improvement Association, 1133 State Avenue, Dickinson, ND 58601 or go to [www.CHAPS2000.com](http://www.CHAPS2000.com) on the Internet. In correspondence about this column, refer to BT0134.

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## Common Ancestors Within Three Generations of 21 Angus Bulls

<b>Bull Name</b>	<b>Percentage of Similar Pedigrees</b>
Tehama Bando 155	43
QAS Traveler 23-4	48
PS Power Play	24
N Bar Emulation Ext	24
<b>Within Four Generations</b>	
Band 234 of Ideal 3163	71

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