Your Link to

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The 'great melting pot' theory

This country has been called the "great melting pot." A multitude of races, creeds and cultures make up our diverse population, and many say that is the key to our success. You can see the same degree of diversity in our current beef production system, but few would say it adds to the chance of success in terms of profitable cattle feeding.

Today, on a quiet drive through feedlot country, you can see several of the more than 80 breeds of cattle in the United States, occasionally all being fed together in the same pen. A closer look usually reveals additional within-pen variation, based on type, weight, frame and age. As much as the variation in our country's human population is an asset, variation in our cattle population is a liability, especially within pens.

The feedlot is the best place to witness the effects of the melting pot theory, but the degree of variation in the pot was probably determined long before they jumped off the truck at the feedlot.

"Put-together" cattle — those groups resulting from the commingling of cattle from several different herds representing several different breeds, ages, types and weights — are notorious for their variety. But let's not exclude the variation present within a group representing an entire calf crop from one ranch and primarily influenced by one or only a few breeds of cattle.

Regardless of source, the greater the variation in cattle, the more difficult they are to manage to maximize their value to the industry.

Variation is a given

In cooperation with Certified Angus Beef LLC (CAB) licensed feedlot Triangle H Grain and Cattle Co., Garden City, Kan., we analyzed a set of data representing more than 12,000 predominantly Angus and Angus-cross cattle fed there between 1997 and 2000 (see Table 1). These were cattle that most of the industry would consider uniform in breed, weight, type and kind. One of the major contributing factors to variation was the need to place entire calf crops from some cow-calf customers.

Table 1: Individual animal variation within lots of cattle, 1997-2000

	Average		Range in variation	
Variable	**Lot average**	**Variation**	**Low**	**High**
In-wt., lb.	738	324	114	664
Hot carcass wt., lb.	790	285	106	528
Avg. daily gain (ADG), lb.	3.53	2.82	1.06	6.18
Total carcass value, $	861.66	366.28	161.60	668.95
Carcass price, $/cwt.	108.98	24.68	5.00	46.66

** Analysis includes 151 individual lots of cattle representing 12,132 head of cattle.*

You don't have to choose

The same analysis on more than 12,000 head indicates the profit lies in selecting for cattle that will both gain and grade. There are hundreds of sires in the American Angus Association database that are above breed average for both growth and carcass traits.

Table 2: Mean values for lots distributed by percentiles based on average daily gain (ADG)

	Percentile					
Variable	**Top 10%**	**Top 25%**	**Top 50%**	**Bottom 50%**	**Bottom 25%**	**Bottom 10%**
ADG, lb.	**4.32**	**4.00**	**3.68**	**3.39**	**3.03**	**2.76**
Lot head count	61	101	82	82	68	78
In-wt., lb.	792	794	718	725	703	737
Out-wt., lb.	1,312	1,277	1,244	1,220	1,157	1,156
Hot carcass wt., lb.	834	815	801	787	748	755
Dressing %	63.6	63.8	64.4	64.5	64.7	65.4
Yield grade (YG)	2.6	2.6	2.6	2.6	2.4	2.6
% Choice or higher	77.0	63.5	64.9	62.7	62.4	58.9
% *Certified Angus Beef* ®	23.6	15.1	15.4	12.5	12.9	14.7
Total carcass value, $	904.41	870.73	868.54	860.70	824.55	846.82

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The analysis considered the variation in weight, performance and carcass value. Groups had an average in-weight variation of 324 lb. The most uniform pen ranged in weight by 114 lb. when placed on feed, while the least uniform group had an in-weight variation greater than 650 lb. Picture that latter pen: If the average in-weight was 650 lb., the lightest calf would have weighed 318 lb. and the heaviest, 982 lb.

A common myth is that variation will diminish as the cattle are finished. The reverse is true — cattle will grow further apart in weight as they continue on feed. Combine a wide variation in starting weight with a similar degree of variation in average daily gain (ADG) and it is clear that the spread will only get wider. The mean ADG for the set of data was 3.53 lb. with an average range among individuals of 2.82 lb. The most uniform group had a range in ADG of 1.06 lb., while the least uniform ranged more than 6 lb./day.

Sorting cattle aids in removing gross problems with uniformity, but it cannot remove everything. In some cases, sorting can barely overcome that tendency of fed cattle to grow further apart in uniformity from start to finish. When the individual sort groups in this set of data were analyzed (lots had to be sorted into at least three sort groups to be included), we found that in-weight variation was still

220 lb. This resulted in a 319-lb. variation in final live weight and a corresponding 206-lb. range in hot carcass weight (HCW).

Imagination time

Imagine how wide the range would have been if the cattle had not been sorted, but had sold on one day. The bottom line is value. The average carcass value in this set of data was a respectable $861.66, but with a variation in some pens of as much as $668.95. Imagine how much higher the average value in a pen like that would have been if you had not had the bottom 25% pulling it down.

You may think you are producing a uniform product, but there is probably more inherent variation than you realize. If seeing is believing, you may not believe the magnitude of the problem until you feed a pen of what you believe to be uniform calves.

The practical goal in aiming for uniformity should not be to remove all variation, but to minimize the amount of variation going in. Remember, the less variation in the beginning, the less there will be at the end of the finishing period. Imagine starting off on a hike along a precise compass reading. If you are off an inch in the beginning, you may be off by a mile in the end.

Variation makes it more difficult for a feeder to profitably maximize the genetic potential of your cattle. In spite of all the tools and management he may bring to bear, he must still feed them in a pen as a group. Uniformity is part of the recipe for success in feeding cattle. If you decrease the variation among cattle going in, you're bound to end up with a more consistent end result.

Whether you are trying to decrease the variation within your herd, optimize growth and carcass merit, or both, find out what you have before you begin. Gather the information through a CAB-licensed feedlot. If you know you already have cattle that can gain and grade, put them in a feedlot that will address the remaining issues of inherent variation by managing your cattle appropriately.