

Progress Through A Feed Efficiency Selection Program*

Dr. Gene A. Isler
Ohio State University

Throughout graduate school, while majoring in animal breeding, I remember struggling with what I knew as promotional aspects among seedstock producers and what should be a straightforward path towards genetic improvement. Perhaps some herd sires are purchased for their promotional potential or ribbon, instead of their genetic potential. Often the \$10,000 boar is bought and used widely in the herd because he has to be paid for. It is easy for a breeding program to flounder without a clear cut direction. Actually, animal genetics is a well understood discipline. There is a big void, however, from what is known to what is practiced and applied.

In describing our own breeding program, I should first start by saying that ours is a family farm with two brothers involved on the day-to-day basis. My brother Bill should probably be up here instead of me. The program I will describe is really nothing complex, but its main features are simplicity and a straightforward direction.

First, the breeder must establish a goal. If this goal is successful, the herd will be recognized for this achievement. Our goal fits with the definition of the best hog as "the most profitable one." About seven years ago, we decided an important part of this profitable hog would be the feed efficiency trait. Today, with \$4 corn facing us, feed efficiency is an important economic factor in pork production.

Feed efficiency is a trait that no one has the ability to see visually. Improvement has to come through the use of records. Therefore, we decided an on-farm litter testing program should accomplish this goal. Testing all boars in a litter is similar to the test station procedure. Testing several pigs in a litter gives a good prediction of the breeding value for feed efficiency. The genetic prediction is higher than if only one boar was fed individually, because the increased information from the records of several littermates makes up for the lost accuracy. This method requires more costly facilities and additional labor over the usual procedure. One cannot expect overnight progress, but instead, slow steady progress.

We built our testing facility seven years ago and it consists of an open front building with a curtain side. The pens measure 5' x 15' and 7' x 15'. Feed is bagged and weighed over a scale and then hand carried to each feeder where the feed record is recorded. A test station pellet grain ration is used. Boars are weighed on test between 70 and 80 pounds and fed until a pen averages 230 pounds. Actually, the fast growing boar in a pen will sometimes weigh 250 or 260 pounds. Therefore, one really selects these top growing individuals at a heavier weight than is sometimes visualized. Boars are grouped and moved to a Cargill building for hardening and sale. If moved at 5½ months, fighting is minimized.

The real payoff in this program is in the large number of pigs that can be tested on the farm and the advantage in gilt selection. Since we have a litter breeding value for feed efficiency, the fastest growing lean gilts can be mass selected from the most efficient litters. The sow herd is turned rapidly with one-third to one-half replaced each year. One needs to remember that the sow herd furnishes one-half of the genetics to the pig crop. It seems logical that if a sow is superior, then her daughters should be better yet if she is bred to a top boar.

We tend to use a lot of boars with 15 different sires being bred to our sows this winter (150 total). Five of these sires were bred by us. With the vast amount of genetic material in the breed, it seems logical to continually sample from this large population. For example, in the Duroc breed, one could expect to make some progress if selection could be made within the top one percent of the breed. Here, about 1,300 boars would represent this top one percent, and we feel the probability is good that we can find one of these. After adding a boar to the herd, we are in the position, in just a few months, to evaluate his contribution. Several boars have had a short life. About one-half of our herd sires have come from test stations. It is interesting to note that two test station boars from Ames and one from Purdue have had a significant contribution to our herd. Another boar, AE Oxen, purchased at the national congress, has consistently had the ability to sire low feed efficiency. We know that fat hogs are the ones that often skyrocket feed efficiency, so perhaps, the ultrasonic machine is more applicable today than ever before. Therefore, we ultrasonically scan all boars and gilts in the herd.

The question you may ask is how much progress has been made. It is impossible to know based on our feed efficiency records, although it seems to point downwards. I can best answer this by saying that in the past four years about one-half of the boars put into test stations have been high indexing for the test.

One aspect we have noted is that putting hogs in a small testing pen quickly uncovers any unsoundness. The tight structured hogs quickly eliminate themselves. To produce the most profitable hog, our definition has to include one that is tough, sound, problem free and confinement adaptable.

Little has been said about type. It is our belief that if the judge is on the right track, there is no reason why good performing hogs can't also be good as individuals. Some breeders have been successful in the showing and some in the test station. The real challenge is to put together hogs that are profitable and also meet the needs of the industry for the visual traits.

Has the extra testing effort paid for itself as we look at the bottom line? We believe so. Certainly the commercial industry knows the value of feed efficiency records. Our auction sales don't have the high tops one receives from the sale of breeder boars because our goals may be a little different from the latest fads. However, our job of selling commercial boars seems to be a little easier because we don't have much competition in providing a complete set of records on most boars sold. This is even more true today than ever before.

*Edited by Charles J. Christians from Isler's manuscript and oral presentation.