

THE CENTRAL TEST STATION'S ROLE
IN BREEDING PUREBRED HOGS

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As many of you know, central test stations began in the 1950's, and have grown in number and breeder use since that time. In 1977, more than 6,500 boars were tested in central stations throughout the country.

Data collected at the Iowa Swine Test Station, Ames, Iowa, indicates the improvement made in boars and barrows tested there over the past 22 year period.

BOARS

	<u>Backfat</u>	<u>Daily Gain</u>	<u>Feed Efficiency</u>
1956 Spring Test	1.46	1.89	285
1978 Spring Test	.83	2.14	238
Improvement	-.63	+.25	-47

BARROWS

	<u>Length</u>	<u>Backfat</u>	<u>Loin Eye</u>
1956 Spring Test	29.1	1.64	3.22
1978 Spring Test	30.9	1.28	5.26
Improvement	+1.8	-.36	+2.04

Genetics are not totally responsible for all of the improvement shown. Nutrition, health, management and environmental factors have played their role, too.

Along with the central test stations, other programs have played their role in genetic improvement. They include:

1. All breed meat certification program
2. Sire performance test program
3. On-the-farm test program
4. Barrow, carcass and breeding animal shows

Since boar test stations began, great improvement has been shown in daily gain, feed efficiency and backfat. However, within recent years, improvement has been at a standstill, causing swine industry concern.

Since 1972, the National Hog Farmer has summarized information from all U.S. central test stations. The following figures are taken from those summaries:

BOARS

	<u>No. Tested</u>	<u>Daily Gain</u>	<u>Feed Eff.</u>	<u>Backfat</u>	<u>Loin Eye</u>
1972	3,649	2.03	257	.86	5.60
1977	5,623	2.02	257	.83	5.59
Difference		-.01	0	-.03	-.01

I've reviewed where we've been in the past and where we're at today. Now let's take a look at how central boar testing stations have played a role for purebred breeders and breeds.

Central test stations have affected purebred breeders' genetic programs and their merchandising in many ways. In my opinion, here are some areas where stations have had an effect:

1. Genetic progress. As mentioned earlier, genetic progress has been made by purebred breeders because of test station testing. Breeders who have "plugged" these figures into their breeding programs, have been rewarded with improvement in the traits for which they selected. However, the vast majority of purebred breeders have not used test data to a very large degree, and thus have limited their genetic progress.
2. Educational tool. Test stations have been an excellent educational tool for breeders, enabling them to improve their visual selection for such economic traits as growth, leanness and muscle.
3. Record verification. Purebred breeders have tested boars at stations, to verify the records compiled from their on-the-farm testing programs.
4. Comparison. Many purebred breeders use central test stations to compare their results with those of herds from within their respective breeds, and other breeds. This type of comparison is similar to seed corn companies using test plots to compare results.
5. Identification of breed traits. Test stations have been beneficial in recognizing and identifying strengths and weaknesses of breeds. This information gives commercial producers an idea of what to expect from given breeds. The same information serves purebred breeders and breed associations well, in determining which traits are strong and which traits need improvement within their respective breeds.
6. Identification of bloodline traits. Test stations have aided in sorting out individual bloodlines within a breed for given genetic differences. More of this information needs to be accumulated and made available to breeders by breed associations. Within the Hampshire breed, several bloodlines have emerged that excel in growth, feed efficiency and leanness. Their future perpetuation depends upon the association informing breeders of the bloodline's merit. As an example, at a recent National Hampshire Boar Test, 3 of the 4 top indexing boars were sired by 3 different sons of a given boar. These tested animals excelled in growth, leanness and loin eye. In addition, this herd boar, plus his sons and a grandson sired 12 pens of boars which were top indexing Hampshires at various test stations. Of those 12 pens, 6 were also top indexing pens of all breeds.

7. Advertising and merchandising. In my opinion, the biggest economic benefit received by breeders who consign high performing pens to test stations, is in the sale of commercial boars off the farm. In visiting with test station managers, breeders and breed association fieldmen, they report many commercial producers may not buy a boar from a tested sale, but certainly want a boar or boars from herds which have tested at a central test station.

8. Genetic verification. Test stations can successfully verify genetic value of herd boars serving in purebred herds. Many boars presently being used in leading purebred herds have no test station background. However, the test station can measure performance of their offspring to verify if the boar can add to herd improvement. This has been done successfully in the Hampshire breed within the past year. During 1978, 21 pens of Hampshire boars have been top indexing of all breeds in various test stations. Nine of the 21 pens were sired by boars with a showing record, including a National Barrow Show champion boar and a National Hampshire Conference champion boar. Only 2 of the 21 top indexing pens were sired by boars which were central test station graduates. I mention these facts because both our showrings and test stations are places where boars can be evaluated for economics of pork production. I mentioned earlier that in comparing test figures from boars of all breeds tested in 1972 and 1977, very little change had taken place in daily gain, backfat, feed efficiency and loin eye. However, Hampshires over that same 5 year period improved growth rate from 2.01 to 2.11; feed efficiency went from 258 to 253; backfat went from .79 to .74; and loin eye went from 5.89 to 5.68. This was accomplished by using test records and visual appraisal through the showing.

In looking to the future, tremendous progress can still be made in the swine industry by purebred breeders, through the use of test station records.

What genetic improvement is possible in the future?

Several boars have surpassed the 3 pounds per day gain figure in past station tests! Pen feed efficiency slightly under the 200 pounds of feed used per 100 pounds of gain has also been recorded in test stations!

Fast growing boars probing under .50 of an inch of backfat have also been tested in central stations!

These records indicate the genetic potential which is available in the U.S. swine industry, and must become challenges for purebred breeders of the future.

Within the Hampshire breed, our goal is to provide seedstock which is capable of producing as many pounds of lean pork, as fast and efficiently as possible.

Using test stations, breed progress can be measured. In our first National Hampshire Boar Test in 1977, the top indexing boar had figures of: 2.65 daily gain; .76 backfat; and a 6.0 loin eye scan. That boar offered a great amount of profit potential. However, at the same test in 1978, the top indexing boar had the following record: 2.68 daily gain; .69 backfat; and a 6.3 loin.

He represented the gradual and steady improvement the Hampshire breed is seeking.

I do feel breeds will hold more national boar tests in the future, and design those national tests to best satisfy breed improvement. Different breeds will use different standards.

I would like to review a suggested test plan, which will be studied by the National Hampshire Boar Test committee.

HAMPSHIRE TOTAL TEST PROGRAM

1. Productivity Test
 - a. All boars entering test must be from a litter of 8 or more pigs weaned if from a gilt litter, or 9 or more pigs weaned if from a sow litter.
 - b. All entries must meet a birth weight standard on litter.
 - c. All entries must meet a 21 day weight standard on litter.
2. Performance Test
 - a. All entries would be officially weighed on test at a given age.
 - b. All entries would be weighed again at 4 months, 5 months and 6 months.
 - c. Purpose of four weighings would be to determine progression of growth.
3. Product Test
 - a. All entries would be probed and scanned at 5 months and again at 6 months of age.
4. Visual Test
 - a. All entries meeting above requirements would then be visually appraised and scored for:
 1. Skeletal pattern
 2. Muscle design
 3. Underlines
 4. Mobility
 5. Structural design

This program is an attempt to put all genetic and visual factors together in one test. If it gets into use, it would be constructively studied and evaluated, with changes and improvements in mind.

You may not agree with this suggested plan, but I challenge you to remember that all improvement is a result of change--but not all change results in improvement.