

Commercial Producers Use The
Central Test Station

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This is the "Silver Anniversary Year" of public central test stations in the United States. The first station was opened in 1954 by Ohio State University with market litter testing. Central station testing of boars was initiated in Iowa in 1956. In 1957 both Indiana and Minnesota opened stations with market litter testing. During this 25 years central testing programs have been initiated in 27 states with over 40 stations (Bereskin, 1977). In 1978 some 50% of these stations had membership in NSIF.

It has been my privilege to have been associated, over the past 20 years with two of the original central test stations. As a graduate student at Iowa State, part of my graduate student stipend requirements were met by assisting Dave Huinker with record summarization and sale catalog preparation for the Iowa Boar Test Station program. As an Extension Specialist at Purdue University part of my extension education effort has been coordination and supervision of the Indiana Swine Evaluation Station program.

Through 1972, the Iowa and Indiana stations represented, in my opinion, the extremes in types of central station programs encountered in the United States. The Iowa Station has been, from its opening in 1956, a producer controlled, producer operated boar test station, with sales of qualified boars following completion of test. The Indiana Station has been, from its opening in 1957, a producer controlled, university operated station. A market litter testing program was followed through 1971. From 1972 a boar testing program has been followed with sales of qualified boars following completion of test. The Indiana station program is probably typical of many station programs. With many stations the early programs were sib-testing or market-litter testing and these stations have shifted to "boar testing" or "boar and slaughter sib testing". Bereskin (1977) reported that as of June 1976 37 of 40 public central test stations were testing boars.

Over the past 25 years the programs for the 40 plus stations have assisted the swine industry personnel in several ways. Education, testing and/or evaluation and promotion aspects have been inherent in all the programs. With boar testing programs an additional aspect has been the potential to merchandize superior performing boars. All of these factors are very real with the central test programs today.

Over the years each Station developed separate guidelines for its own program, largely independent of the programs in other states. As a result many differences evolved as to entrance requirements, feeding and management practices, and measurement and evaluation procedures. With the shift to boar testing in the late 1960's and early 1970's there was a real need for establishment of a uniform set of guidelines for central test station programs. This need was addressed and has become a reality through the action of NASTS and NSIF.

Two factors are inherent in boar testing, with sale of qualified boars, that were of somewhat less importance in sib- or market litter testing. These factors are health and physical soundness. With sib- or market litter testing all animals were slaughtered, thus health and physical soundness requirements

were not as stringent as those required with boar testing. These factors were addressed and suggested procedures are given in the NSIF Guidelines. In regard to soundness, the NSIF Guidelines state that boars may be culled because of soundness, but that the unsoundness should be of a genetic nature or be so severe that a boar cannot function. A scoring system of 1, 2 and 3 is suggested, with animals scoring 1 having severe abnormalities that obviously restrict the ability to move and/or stand.

The question raised by many people concerning boar testing mechanics, is should boars be conditioned following test? The obvious answer is yes, providing facilities at the station allow conditioning without excess labor and costs. As I indicated earlier many of the stations now testing boars were originally designed for sib- or market litter testing, in which there was no need for exercising or conditioning of animals following completion of test.

The remainder of my presentation today will deal with a survey conducted by the Indiana Boar Test Station to obtain information on soundness and breeding problems observed with young, 6½ to 7 month old boars sold through the station sales, and my impressions as to how these boars were used by the purchasers.

In the Indiana Boar Test Station program boars are evaluated on solid concrete in open-fronted, 6'x12' pens. The Station, consisting of three 32 pen buildings, was originally designed (1957) for market-litter testing (2 pigs/pen). In the 1972 Spring Test the Station program was changed to boar testing (2 boars/pen). The buildings, being designed for market-litter testing, did not readily allow exercising and conditioning of boars following completion of test. The Advisory Committee, after considering cost of remodeling, age and location of buildings - on Animal Sciences Department Farm, voted to operate the Indiana Boar Station without remodeling to allow boar exercising and conditioning prior to auction. Temporary exercise pens were constructed and used from 1972-1974. However, the location of these pens, coupled with the labor required and climatic stresses on the boars dictated that this "partial-conditioning program" be discontinued.

The Advisory Committee was concerned as to the possible soundness and breeding problems observed by purchasers with the young (6½ to 7 month), non-conditioned tested boars sold at the Station sales. After discussion, the Advisory Committee suggested that the purchasers of tested boars be surveyed primarily to obtain estimates of soundness and breeding problems with Station tested boars and to obtain suggestions for improving the Indiana Boar Station testing and/or sales programs.

The survey questions, developed by the author and Wayne Yake, Carmel, Indiana-Berkshire representative to the Advisory Committee, were reviewed and approved by the Advisory Committee. The survey, consisting of "herd information" and "specific boar information" sheets, when summarized would give estimates of soundness and breeding problems and a description of the swine industry in Indiana as related to purchasers of boars at the Indiana Boar Test Station. Copies of the "herd information" and "specific boar information" sheets and the cover letter mailed with the survey are enclosed.

Purchasers of boars tested at the Station in 1975 and 1976 Spring and Fall Tests were chosen for the survey. All boars tested in these years were evaluated for: daily gain, pen feed efficiency, backfat, loin eye and visual score. Maximum visual score could be 100 points (30 for conformation, 30 for feet and leg soundness, 30 for underline and 10 for breed character). The 30 points for conformation consisted of: 8 for body length, 8 for bone size and 14 for body capacity. The 30 points for feet and leg soundness consisted of: 15 points

for front legs and 15 points for rear legs. Sale qualified boars were required to score 18 points or higher in feet and leg soundness (both front and rear legs), have acceptable underlines and index 80 points or higher using NSIF index

A total of 734 boars were tested in 1975 and 1976 and 287 (39.1%) qualified boars were sold at 8 auctions. Herd information and individual boar information sheets were returned by 80 purchasers of 155 boars (54.0% return rate) However, useable boar information sheets were returned by 79 purchasers of 143 boars (49.8% return rate). Useable boar information sheets were returned for: 2 Berkshire, 4 Chester White, 57 Duroc, 30 Hampshire, 4 Landrace, 1 Poland China 6 Spot, 37 Yorkshire and 2 HampxYork boars.

The herd information (80 purchasers) and boar information (143 boars) data were coded and summarized by purchaser type (purebred breeder, commercial producer, combination purebred-commercial producer). Abbreviated summaries of the herd and boar survey data were published in 1979 Purdue University Swine Day Brochure. A more complete summary of herd and boar information survey data, with tables, was published in Purdue University, Station Bulletin, August 1979. Copies of this publication may be obtained from the author.

A summary of the herd information data gives a profile of test station boar buyers production program. Of the 80 purchasers, 8 (10%) were purebred breeders, 58 (72.5%) were commercial producers and 14 (17.5%) were combination producers. Boar purchases by breeder type, for the 155 boars, show that 11.0, 79.4 and 9.7%, respectively, were purchased by purebred, commercial and combination producers. Boars used/year show that 6.3, 22.5, 21.3, 7.5, 11.3 and 30.0% of the purchasers, respectively, used 1, 2, 3, 4, 5, 6+ boars/year. Litters farrowed/year shows the 20% of the purchasers farrowed less than 50 litters, 26.3% farrowed between 50-100 litters, 15.0% farrowed between 100-150 litters, 13.8% farrowed between 150-200 litters and 22.5% farrowed over 200 litters.

Some 91.2% of the purchasers were farrowing in central houses (40.0% with solid floors and crates, 40.0% with slotted floors and crates, and 11.3% with solid floor and pens) and 6.3% were farrowing in isolets. None of the purchasers weaned at 3 weeks. Approximately 86.4% of the litters were weaned by 6 weeks, with averages of 18.8% at 4 weeks, 33.8% at 5 weeks and 33.8% at 6 weeks. Some 13.8% of the litters were 7 weeks or older at weaning, averaging 62.5% for purebred breeders and 10.3% for commercial producers.

Open-fronted, environmentally controlled and "other types" nursery facilities were used by 36.3, 45.0 and 18.8% of the purchasers, respectively. Similar values for growing-finishing facilities were 48.8% for open-fronted buildings, 16.5% for environmentally controlled buildings, 30.1% for others and combinations, and 3.8% for dirt lot or pasture.

Only 12.5% of the sows/gilts were bred in confinement and 87.5% in non-confinement. Over 80% of the sows and gilts were bred on dirt. Some 78.8% of the sows and gilts were on dirt during gestation, 48.8% on pasture and 30.0% on dirt lot.

A summary of the boar data gives a profile of the management practices followed with purchased boars in buyers herd, as well as an indication of the soundness and breeding problems observed.

Approximately equal percentages 37.8, 36.7 and 26.6%, respectively, of the boars were transported in open-sided, enclosed, open-sided covered top vehicles. After delivery only 24.5% of the boars were inspected by a veterinarian and only

14.0% of the boars were re-tested for brucellosis.

Nearly 100% of the boars were isolated after delivery to purchaser's farm. Overall, 42.7% were isolated 30 days or less and 57.3% were isolated over 30 days. Only 19.6% of the boars were isolated longer than 45 days. During the isolation period, 64.4% of the boars were on dirt and 35.7% were on concrete. While in isolation, 93% of the boars were hand-fed, 44% received medicated rations and only 10% received higher-fiber conditioning rations.

Over 80% of the boars were allowed to have fence-line contact with sow herd before use, with 44.1% receiving contact for less than 14 days, 24.3% for 14-21 days and 12.5% for over 21 days. Only 33.1% of the boars were test mated before used for breeding.

Approximately 80% of the boars had been used for breeding within 60 days following purchase. Time from purchase to first breeding was: before 15 days-3.0%; 15-30 days-18.8%; 30-45 days-32.3%; 45-60 days-27.1% and over 60 days-18.8%. Nearly 90% of the boars had been used for breeding by 9 months of age. Only 8.3% were used at 7 months, 47.4% at 8 months, 31.6% at 9 months and 11.3% at 10 months or older.

Some 82.7% of the boars were pen mated at initial breeding with 83.5% of the matings being made on dirt. Approximately 87.2% of the boars did not require help at first mating, and 90% of the boars exhibited normal sex drive at first breeding.

Only 28% of the boars had soundness problems. Only 5.8% of the boars became unsound within 7 days following delivery. By 14 days after delivery only 6.5% were unsound and by 30 days after delivery only 8.7% were unsound. However, 9.4% became unsound between 30-60 days after delivery and an additional 9.4% became unsound after 60 days on the purchaser's farm. Thus, of the unsound boars 21, 11 and 68%, respectively, became unsound within 7 days between 7 and 30, and after 30 days on purchasers farm.

Purchasers reported that 75% of the boars did not have breeding problems. A description of the numerous reasons for breeding problems showed that only 9.0% was due to unsoundness, 12.8% due to no interest or no sex drive, and 20.3% was due to other reasons.

To further evaluate the soundness-breeding problem complex, records of boars having soundness problems were evaluated for kind of soundness problems as related to time of first breeding use. Over 76% of the soundness problems developed after initiation of breeding. With boars classified as having "lameness in front legs" only 33% the boars had soundness problems develop after initiation of breeding. For boars classified as having "lameness in rear legs" some 83.3% of the soundness problems developed after initiation of breeding. With boars classified as being "unsound" 80% of the problems developed after initiation of breeding. For boars classified as "stiff" 50% of the problems developed after initiation of breeding. With boars classified as having "sore or poor feet" 75% of the problems developed following initiation of breeding. For boars classified as having "sow injury problems" 100% of the problems developed following initiation of breeding.

Of the 143 boars with useable records, only 8 (5.6%) were not used for breeding. Five (3.5%) of the boars died, 3 (2.1%) within 30 days after purchase and 2 (1.4%) over 60 days after purchase. One boar was severely lame in right-rear leg within 7 days after purchase - breeder refunding purchase price. One boar was listed as having arthritis within 7 days after purchase -

breeder replaced with another boar. One boar developed breathing problem over 60 days after purchase and was sold.

In regard to the suggestions for improving the Indiana Boar Test Station program. Some 15 commercial producers and 11 purebred and combination breeders offered suggestions. Only 1 of the 15 commercial producers suggested that boars be exercised, compared to 4 of the 11 purebred and commercial breeders.

Several factors are evident from the survey summary which I have presented. First, the young 6½ to 7 months, non-conditioned boars had a "darn good track record" with approximately 94% of the boars being used for breeding. Approximately 36.3% of the boars were purchased by producers producing over 150 litters/year, and 22.5% of the purchasers produced over 200 litters/year. In general daily gain, feed conversion, index value and backfat ranked higher than visual score, health and sale price as reasons for purchase of boars. Thus, purchasers are using the Station as a source of superior boars to increase production efficiency in their herds. Personal visits with purchasers indicate that in some of the larger commercial herds the purchased boars are used on small groups of elite sows to produce replacement herd boars.

Boars tended to be used for breeding to soon after purchase. Only 19.6% of the boars were isolated longer than 45 days following purchase. Some 87.3% of the boars had been used for breeding by 9 months of age, with 81.2% being used within 60 days after purchase.

Some 28.0% of the boars were reported to have soundness problems. Only 5.8% of the boars became unsound within 7 days after purchase, 6.5% by 14 days and 8.7% of the boars became unsound after 30 days. Of the unsound boars 21, 11 and 68%, respectively, within 7 days, between 7 and 30, and after 30 days on purchasers farm.

Some 75% of the boars had no breeding problems. With the problem boars 9% was due to soundness, 12.8% no interest and 20.3% other factors. An evaluation of the records for the boars with soundness problems as related to time of first breeding showed that over 76% of the boars became unsound following initiation of breeding. Proponents for "conditioning at stations" can use the above value as a reason for "conditioning". In like manner, others can give this value as a reason for more conditioning on the purchasers farms.

We must keep in mind that the boars sold from central test stations are on the average less than 7 months of age. Thus, they need to age about 60 days before they are mature enough for breeding use. Where and how do these boars spend the 60 plus days?

I have no reason to doubt that these survey results, in regard to soundness and breeding problems, would have been different had "conditioned" boars been used.

In regard to the soundness - conditioning complex inherent in boar test station programs, I am in agreement that "unsound" boars should be culled. As I view the "condition problem", some stations have facilities which allow partial conditioning of boars, others do not. Regardless of whether the station does or does not have the potential for conditioning of boars, this survey indicates to me that purchasers of "test station boars" need to allow a longer time period from purchase to use.

References

- Bereskin, Ben. 1977. Evaluating and Using Performance Records of Boars at Central Testing Stations. ARS-NE-82.
- Drewry, K.J. 1979. Indiana Boar Test Station Survey. Purdue University Station Bulletin No. 236.
- Drewry, K.J. 1979. Indiana Boar Test Station Survey. Purdue University Swine Day Brochure, September 6, pages 47-52.
- NSIF. 1978. Record of Proceedings National Swine Improvement Federation Conference and Annual Meeting. C.J. Christians, 101 Peters Hall, University of Minnesota.