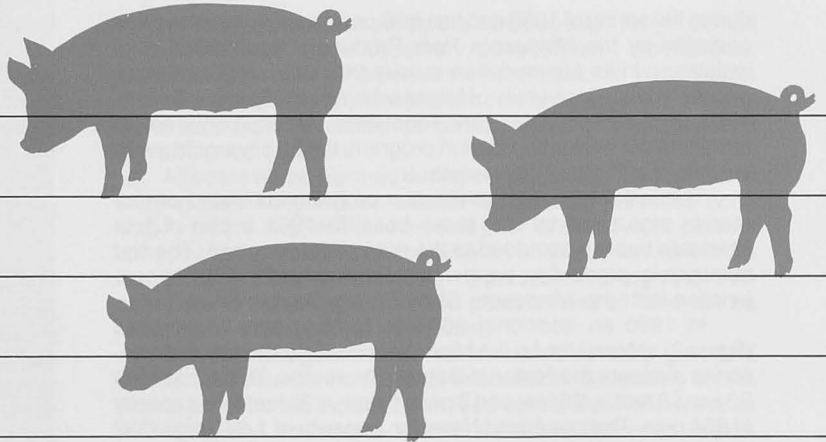


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# Swine Evaluation Station Programs for Purebred and Commercial Pork Producers



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Increasing profits through efficient production of high quality pork to meet consumer demand should be the goal of every progressive pork producer. Minnesota's swine evaluation station can be utilized by pork producers to select and identify these kinds of hogs under a uniform common environment.

Any pork producer who is a member of the Minnesota Pork Producers' Association is eligible to participate in various programs available through the central evaluation station located near New Ulm, Minnesota. Producers living in other states than Minnesota may participate on a request basis.

## Program Benefits

Both purebred and commercial producers benefit from the Minnesota Swine Improvement Program. The evaluation station helps pork producers identify breeding stock with superior gain, efficiency, and carcass merit. All data are collected under closely supervised environmental conditions. Through seasonal and yearly comparisons, producers can observe pork production trends.

Producers receive individual pig and sire progeny comparisons of growth rate, feed efficiency, structural soundness, and carcass excellence. This information is published in the *Minnesota Pork News*, *Hormel Farmer*, and breed association publications and serves both as a breeding stock reference source for commercial producers and as advertising for the breeder's herd.

## Minnesota's Swine Evaluation Stations

The first central evaluation station was started in 1957 when George A. Hormel and company provided a 30-pen hog barn located on old Highway 218 north of Austin, Minnesota. This station was run by the Minnesota Swine Producers' Association until the spring of 1969. The initial program consisted of a sire progeny test of three boars and one barrow.

In 1957, the state legislature allocated \$60,000 for establishing a swine evaluation station at New Ulm (figure 1). This station was started when a local group purchased five acres of land 2½ miles northwest of New Ulm. The station, which began operating



- ▲ Figure 1. The initial swine evaluation station at New Ulm began operating in the spring of 1958.
- ◀ Figure 2. An additional 360-foot building constructed in 1980 brought the total capacity to 1,246 pigs, making the Minnesota Swine Evaluation Station a national swine testing center.



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during the spring of 1958 and has a 98 pen capacity, is owned and operated by the Minnesota Pork Producers' Association. The legislature in its appropriation required that the program be supervised by the University of Minnesota, Animal Science Department. If the Minnesota Pork Producers' Association were to terminate the evaluation station program, the facility would revert back to the State of Minnesota.

The initial New Ulm evaluation program consisted of four market pigs sired by the same boar. In 1961 a pen of four littermate boars was added to the market progeny pen. The first commercial production barrow contest was held in 1967 in conjunction with the Minnesota State Spring Barrow Show.

In 1980 an additional 360-foot building was constructed (figure 2) at New Ulm by the Minnesota Pork Producers' Association to evaluate the National Barrow Show pigs. This facility has 32 pens 8 feet x 25 feet and 3 pens 6 feet x 25 feet for a capacity of 854 pigs. The combined New Ulm capacity of 1,246 pigs (392 Unit 1 and 854 Unit 2) has made the Minnesota Swine Evaluation Station a national center for swine testing.

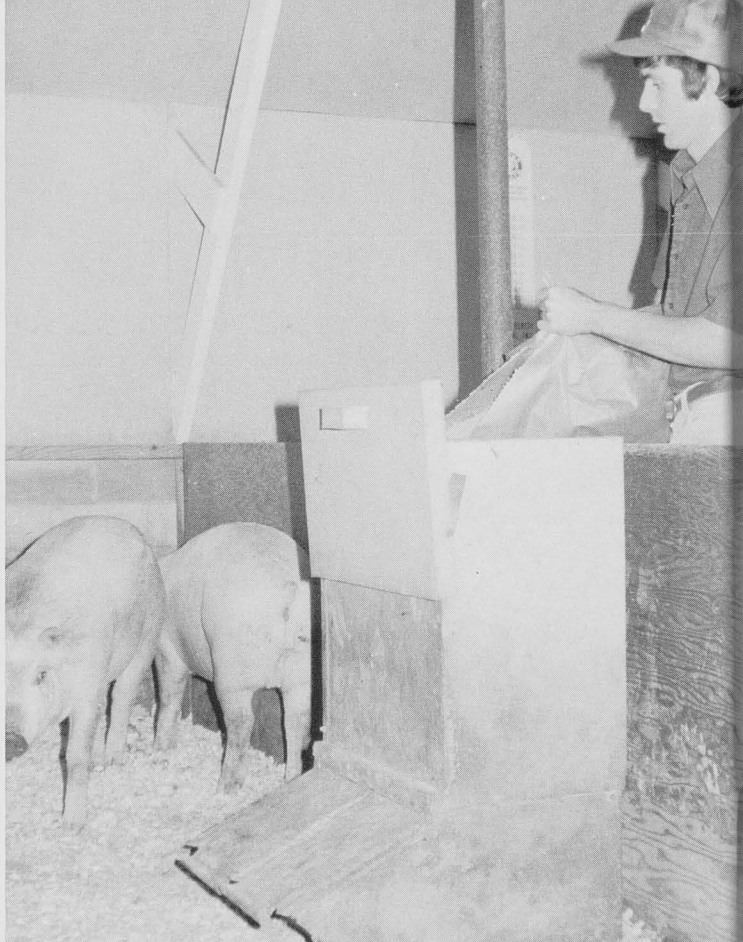
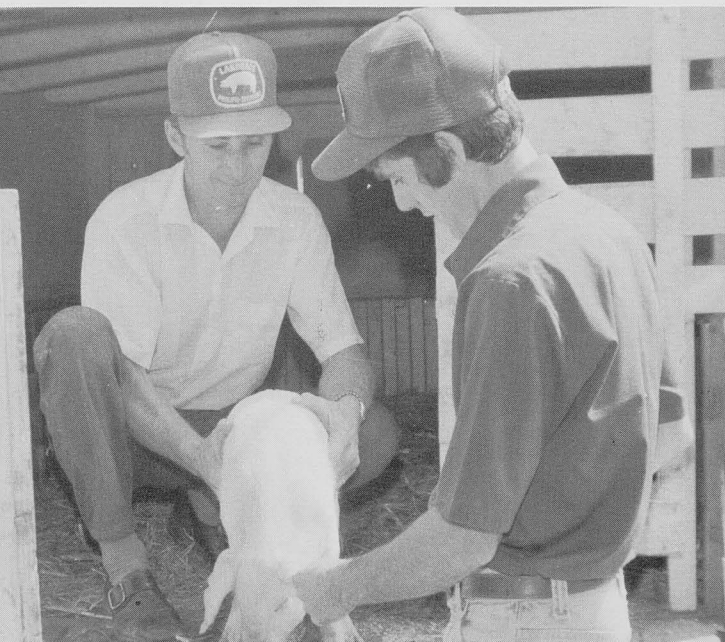
### General Rules of Programs—Market Progeny Pen Program

The market progeny pen program is designed for both purebred and commercial producers to evaluate a sample of their pigs for growth, feed conversion, and carcass merit. A pen consists of four market pigs sired by the same boar and has no more than two pigs from the same litter. Two or more market pigs must be barrows. We recommend entering a barrow and gilt from two litters. These entries should be from litters of eight or more pigs and be free from inherited defects such as scrotal and umbilical hernias, cryptorchidism (one or both testicles retained in abdomen), shakers, or blindness. Purebred pigs need not meet breed requirements for registration to be tested.

The pig entries must be delivered to the evaluation station before they are 70 days of age and must weight 35-55 pounds (figure 3). Pigs are placed on test at an average 60 pound pen weight and fed a standard 18 percent corn-soybean oilmeal ration for 30 days. A finishing 16 percent ration is fed until the pigs average 230 pounds (figure 4).

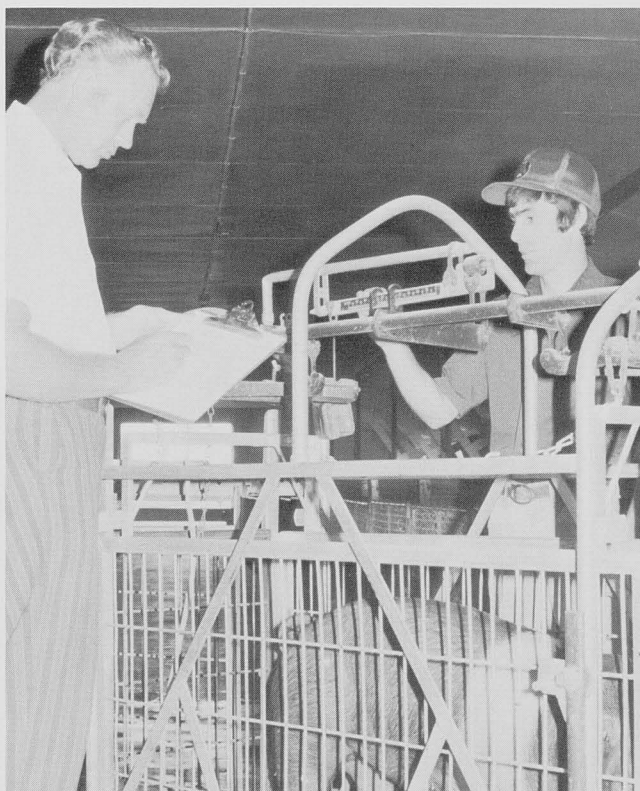
Individual pig rate of gain and pen feed efficiency is measured from the time pigs are placed on test until they are removed for slaughter (figure 5). Pigs are scored (1 through 6) for leg soundness (figure 6).

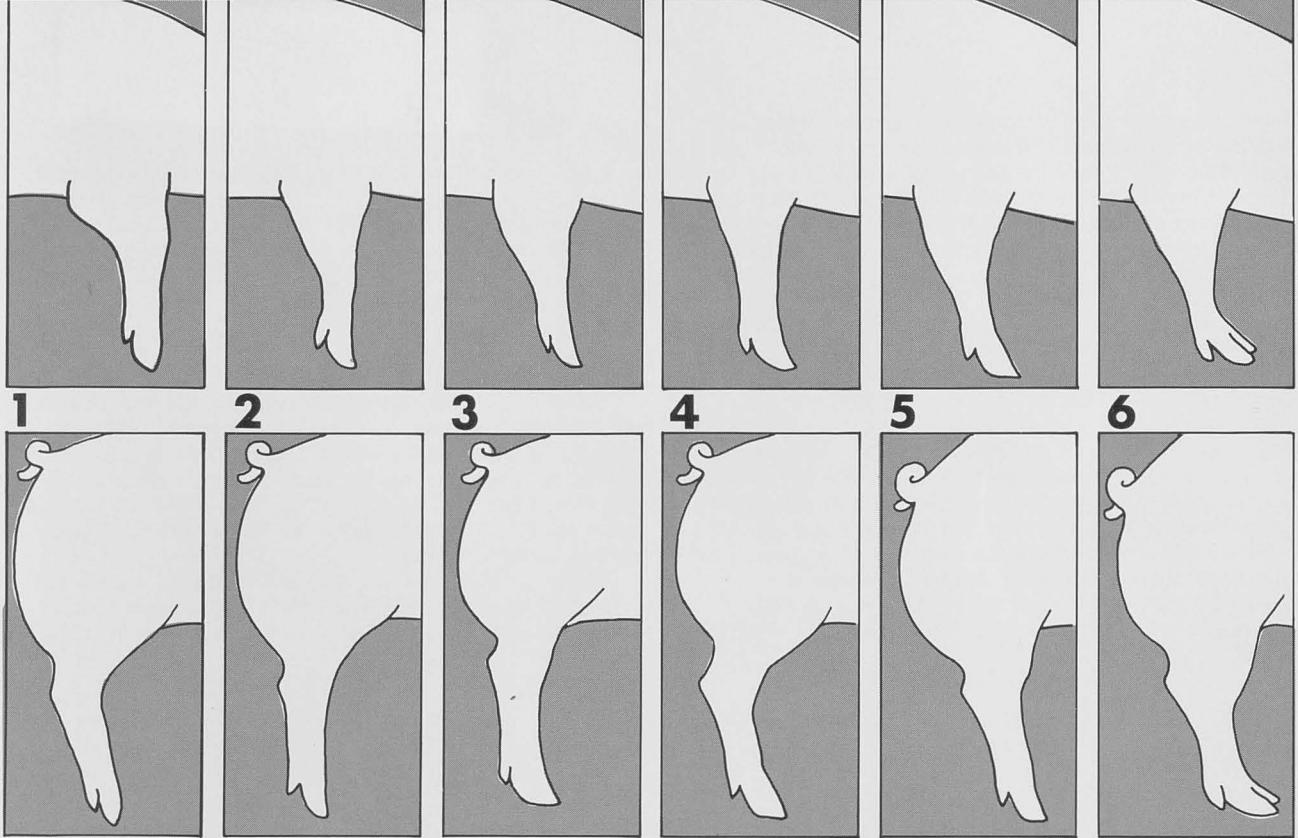
▼ Figure 3. Pigs are brought to the station before they are 70 days old.



▲ Figure 4. Pigs are fed a 16 percent finishing ration until they average 230 pounds.

▼ Figure 5. Individual weights are taken periodically until pigs are removed for slaughter.





▲ Figure 6. Pigs are scored for leg soundness.

Pigs are slaughtered at an average weight of 230 pounds. Each pig is given an individual tattoo number that serves as identification of the carcass (figure 7). The following carcass information is obtained: carcass weight, dressing percentage, length, 10th rib fat thickness, backfat thickness, loin eye area at 10th rib, percent lean, lean tissue color, firmness and marbling scores. These traits are combined into a performance pen index (table 1) and used to rank all pens evaluated during a calendar year.

The producer receives a performance report at mid-test and at the end of the test. The final report contains data concerning growth, feed conversion, carcass merit, health, and leg soundness.

The producer who enters the pen that meets the test station's certification standards and indexes highest, receives the Top Performance Pen Award. Individuals are recognized in each breed if there are at least 10 producers who entered pens during the calendar year. Those breeds with less than 10 producers competing are grouped into the "other breed" category. A separate commercial top performance pen award is given.

▼ Figure 7. Each animal receives an individual tattoo number for carcass identification.

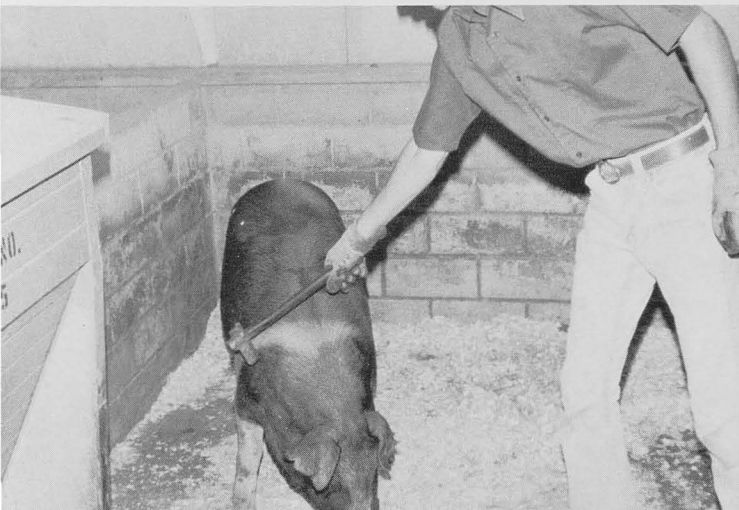


Table 1.  
Performance Pen Index

TRAIT	STANDARD	POINTS
Average daily gain	1.80 pounds	35 ± 1 point/0.01 lb.
Feed efficiency	290 pounds feed/ pound gain	35 ± 1 point/1 lb.
Length	30.0 inches	20 ± 1 point/0.1 inch
Backfat thickness	1.30 inches	20 ± 1 point/0.01 inch
Loin eye area	4.50 square inches	30 ± 1 point/0.1 sq. in.

**Example:**

Average daily gain ..... 2.0 lbs. = 35 + 20 = 55  
 Feed efficiency ..... 290 lbs. = 35 + 0 = 35  
 Length ..... 30.5 in. = 20 + 5 = 25  
 Average backfat thickness ... 1.00 in. sq. = 20 + 30 = 50  
 Loin eye area ..... .500 in. = 30 + 5 = 35

Performance Pen Index

200 Total Points

## Station Certification Standards

Market progeny pens must meet the following standards for certification. This qualifies the sire for the on-farm performance tested boar sales or top performance pen award:

- Pigs must weigh 230 pounds within 180 days of age
- Pen must not have required more than 325 pounds of feed for each 100 pound gain
- Their carcass length must be more than 29.5 inches
- Carcass average backfat thickness must not exceed 1.50 inches
- Loin eye area must measure 4.5 square inches or more
- Average quality score must be over 1.5

Performance records of all purebred pens are submitted to the respective swine registry association for meat certification. Breeders should submit the appropriate certification forms when pigs are delivered to the evaluation station.

## Health Regulations

Strict health regulations are followed in the operation of the station. Each entry must be accompanied by a health certificate signed by a licensed veterinarian certifying treatments (if any) for prevention of erysipelas. The herd should be free from communicable disease such as pseudorabies. The station disposes of diseased pigs considered a hazard to other entries.

All pigs are sprayed for external parasites (figure 8) and fed a wormer in the swine ration. This is done during the preconditioning prior to the official on test weight.

## Cost to Producer

Income from the sale of market pigs is used to meet testing costs. Therefore, the expense to the producer is the initial feeder pig cost. Upon delivery of the pigs to the station, the pigs become property of the Minnesota Pork Producers' Association. Any pigs that are found to be diseased, overage, overweight, or ineligible for an official test are retained by the station. All data collected on the pigs will be made available to the producer.

## County Pork Producers' Association Central Test Program

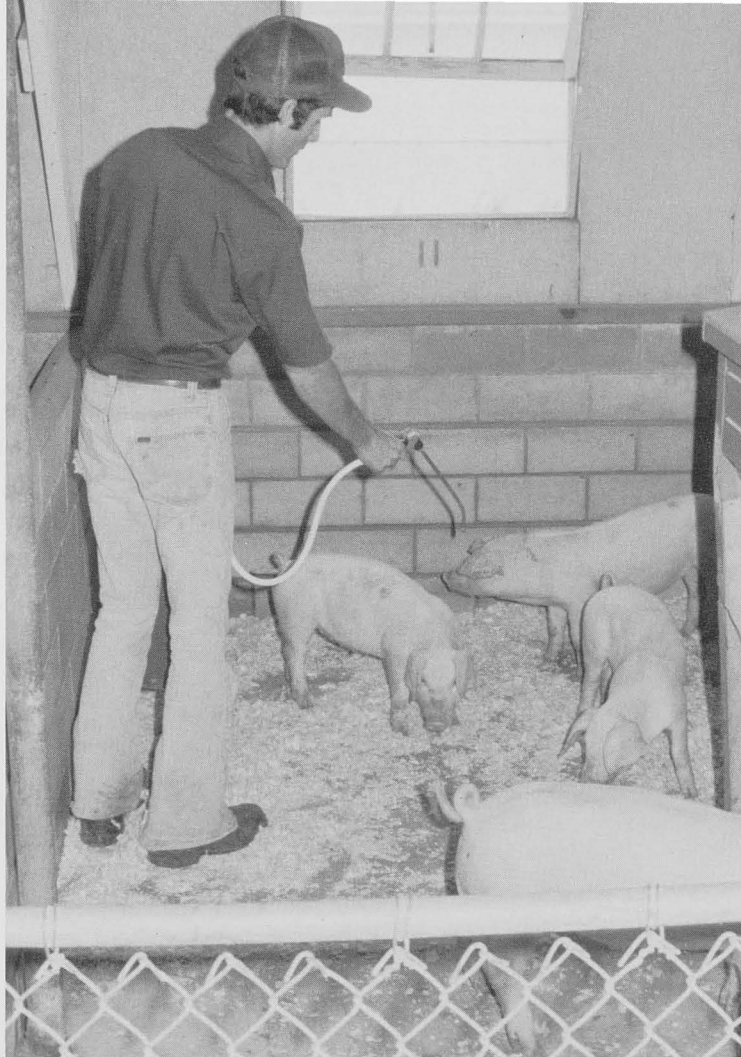
County or area pork producers may enter barrows in the central evaluation station through their organization. Each producer may enter one or more barrows. If four barrows are entered, feed conversion will be evaluated on a pen basis. These pens are eligible for the top commercial performance pen award. If less than four barrows are entered, pigs are grouped by initial weight. These pigs will be managed and evaluated as described in the Progeny Pen Program.

Producers are encouraged to view the barrows while they are on test. A county barrow show can be held in conjunction with the central test where award money and trophies can add to the competition (table 2).

## State Central Production Barrow Contest Program

State Central Production Barrow Contests are held in conjunction with the Minnesota State Fair and the Minnesota Spring Barrow Shows. Pigs are delivered to the station approximately 90 days prior to the live show. The Minnesota State Fair entries are due in late May, while those for the Minnesota Spring Barrow Show are brought to the station in late October.

The contests are usually 12 weeks in length. Barrows are given a one week preconditioning period and grouped by initial weight. These barrows must not weigh more than 80 pounds



▲ Figure 8. Pigs are sprayed for external parasites before going on official test.

**Table 2.**  
**Barrows are ranked on pounds muscle per day on test:**  
 **$\frac{\text{Final test pounds of muscle} - \text{Initial test pounds of muscle}}{\text{Days on Test}}$**

**Where:**  
**Final test pounds of muscle =**  
 **$2.0 + (0.45 \times \text{hot carcass weight}) + (5.0 \times 10\text{th rib loin eye area})$**   
 **$- (11.0 \times 10\text{th rib fat depth})$**   
**Initial test pounds of muscle =**  
 **$0.40 \times \text{initial weight}$**

On test weight will be compensated for by adding (days on test  $\times$  0.002) for each pound below on test weight or subtracting for each pound above on test weight.

when placed on test. All barrows are managed like the progeny performance pigs.

All barrows are ranked on pounds muscle per day on test and must meet certification standards. Prize money is presented on the final ranking. If the barrows are shown alive at the show, additional awards are given. Proceeds from the market pigs are used to meet testing costs.

## National Barrow Show Production Contest

In cooperation with the National Barrow Show at Austin, Minnesota, producers throughout the United States and Canada may enter a barrow in the national test. To qualify for showing breeding stock at the National Barrow Show, exhibitors are required to have a barrow on test in the Production Tested Barrow Contest. The entry must represent the breed or breeds of boars or gilts the breeder intends to exhibit. Exceptions to this rule are exhibitors who have never exhibited breeding stock at the National Barrow Show.

These barrows are brought to the New Ulm Station in mid-May and grouped by initial weight in pens of 25 each. All barrows are fed the same rations and managed under a uniform environment.

At the completion of the test, barrows performance for average daily gain and carcass merit is combined in the pounds of muscle gained on test formula. Those barrows that had an average daily gain less than 1.3 pounds per day or weighed less than 190 pounds are disqualified from the contest. Barrows gaining more than 1.3 pounds are evaluated alive by a Champion Judge Committee and scored for soundness. The show will be held at the New Ulm Test Station the last week of August rather than at the National Barrow Show.

Barrows that have a soundness score of 1 (severe structural abnormality) are eliminated from the contest. Those individuals that have a soundness score of 2 (slight abnormality but not serious for animal movement) are eligible for live contest competition. Pigs awarded 3 scores (free of structural weakness) will have 3 soundness points added to their Production Tested Barrow Contest score.

Photographs are taken of all the live barrow winners and top carcasses and are shown at the National Barrow Show Awards Banquet.

## Central Boar Testing Program

Central Boar Testing is conducted to compare individual performance of potential seedstock boars under uniform conditions. The program estimates the genetic differences in boars for rate of gain and backfat. Where boars are fed out by sire progeny, an estimate of feed conversion is feasible. Both backfat thickness and loin eye area are ultrasonically measured.

The Minnesota program encourages breed associations to reserve space for a minimum of 25 to 40 boars per breed. The evaluation station offers reliable data for individual and breed comparison within testing groups. The station program is designed so producers can obtain maximum genetic information on growth, feed conversion, carcass merit and soundness. A breeder is encouraged to evaluate at least one market progeny pen for each herd sire that has progeny in the central boar test. Facilities are available to evaluate from 4 to 25 pigs per pen.

## Entry Requirements

Boars should weigh between 40 to 65 pounds with a range 0.60 to 1.2 pounds per day to age. The on test weight is  $70 \pm 5$  pounds per pig pen average. All boars must have 12 nipples and meet breed association registration requirements. The breeder

and his veterinarian must certify the herd has been free of clinical evidence of TGE, swine dysentery, pseudorabies, tuberculosis, and brucellosis during the period six months prior to the time pigs enter the station. An interstate health certificate must accompany out of state pigs. All boars must be vaccinated for erysipelas and five strain leptospirosis.

All boars will be wormed during the adjustment period prior to starting test. They will be treated for external parasites upon station arrival, two weeks later, and prior to sale. An 18 percent corn-soy starter ration that contains an antibiotic will be fed the first 35 days, then switched to a 16 percent finishing ration. All boars are to be evaluated to 240 pounds, and all data will be reported to a 230 pound equivalent.

Station management will collect average daily gain and backfat measurements. Optional information, depending on the testing procedures, includes pen feed conversion, loin eye area estimates, and soundness scores. Additional littermate market pig data will be furnished if market progeny pen is evaluated (table 3).

**Table 3.**  
**All boars will be ranked by the nationally accepted NSIF boar index:**

$$100 + 110 (DG - \overline{DG}) - 105 (BF - \overline{BF})$$

**Where:**

*DG* = boar's test daily gain

*DG* = average ADG of all boars on test

*BF* = boar's backfat adjusted to 230 pounds

*BF* = average backfat of all boars on test

**If boars are fed out in progeny groups and feed conversion is available, the NSIF boar index is:**

$$100 + 60 (DG - \overline{DG}) - 75 (F - \overline{F}) - 70 (BF - \overline{BF})$$

**Where:**

*F* = pen feed efficiency (F/G)

*F* = test group average feed efficiency

## Cost of Boar Testing

Depending on the breed association request, Minnesota Pork Producers' Association testing committee will negotiate the testing cost for each test. This cost will reflect labor, feed, facility, and sale expenses. The availability of the facilities and producer interest in the program are primary criteria.

## Performance Tested Boar Sales

**Central tested boar sales** will be conducted upon the request of the breed association that sponsors the Central Boar Test.

The breed association may conduct its own sale. The Minnesota Pork Producers' Association testing committee will appoint a boar testing sale committee in cooperation with the purebred breed association.

Boars with an index of 80 or higher are offered for sale. Boars structurally or reproductively unsound will not be sold. All regulations by the Minnesota Board of Animal Health are required.

**On-farm tested boars** may be sold at Minnesota Pork Producers' Association sponsored sales. These boars must be littermates or half brothers to pigs evaluated at the evaluation station, and the market progeny pen must have averaged above certification standards. On-farm records for growth and backfat for each consigned boar must be verified by an uninterested party.

These boars must reach 230 pounds in 180 days or less and scan less than 1.00 inch of backfat. Breeders are limited to sell two boars per qualifying sire for each sale. A maximum of six boars per sire may be sold within two calendar years after test completion at the evaluation station. If fewer than 30 boars are nominated for the sale, a third boar nominated by the breeder will be accepted.

The sale order will be according to the market progeny pen index. The top indexing boar progeny of each breed will sell first, followed by the highest index regardless of breed. Each boar in a progeny pen will be ranked by his own performance.

All boars sold are guaranteed under the code of fair practices adopted by the National Association of Swine Records. The consignor or seller is responsible for settlement of all claims. All boars older than six months are guaranteed breeders, except when they are allowed to run with the sow herd. All requests for adjustments should be made within a reasonable time after date of delivery. The seller has the right to reserve a trial period of 30 days before final adjustment on a boar that fails to serve or settle females.

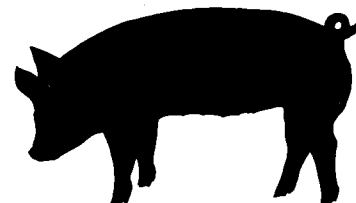
## Applications

Applications for evaluating pigs are accepted any time during the year if space is available at the station. To apply, contact the Minnesota Swine Evaluation Station, Box 134A, New Ulm, MN 56073, or Minnesota Swine Improvement Program, 101 Peters Hall, University of Minnesota, St. Paul, MN 55108, or your local county extension office.

## Remember

Selection of superior animals results in offspring superior to their parents. A serious pork producer needs to retain his top animals and purchase the best he can afford. The selection of herd replacements that have superior performance records is a wise investment. Only a few individuals from a herd can be evaluated in the station; therefore, an effective breeding program includes on-farm testing.

By using central evaluation programs, a producer can identify his herd weakness, locate top performance sires, and evaluate his progress in the production of high quality, lean, efficient pork.



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