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**Selecting Swine Breeding Stock**

Cooperative Extension South Dakota State University

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Selecting Swine Breeding Stock

South Dakota Swine Testing Station

Cooperative Extension Service
South Dakota State University
United States Department of Agriculture
Selecting Swine Breeding Stock

by L. J. Kortan, extension livestock specialist

The pork producer’s primary objective is the efficient production of high quality pork. He needs to select swine for: (1) high sow productivity, (2) rapid and efficient gains, and (3) high carcass merit.

Maintaining a highly productive breeding herd through successive generations is perhaps the most difficult problem of the swine industry. Genetic research work in recent years has added greatly to man’s knowledge of how specific characteristics are transmitted from one generation to the next. The swine producer doesn’t create new inheritance in animals; he finds animals that are superior in the desired genetic traits and mates these animals to combine their best qualities in the offspring. Research has given the knowledgeable breeder considerable control over some aspects of this selection and has indicated that a breeder no longer can select genetically superior breeding stock by visual inspection alone. Modern swine selection programs emphasize performance records and carcass cut-out value.

**PERFORMANCE RECORDS**

One of the most important things a producer can do is select replacement gilts from his own herd. This involves two things—RECORDS and GOALS.

**Records**

Scales for obtaining weaning and market weights are not only essential to selection, but aid in the orderly marketing of hogs at the most desirable weights.

Ear notch each pig at birth. Record the date and number of pigs farrowed. Include information on the birth weight of pigs and on any defects.

Record the age and weight of pigs at market time (200 pounds). Adjust weights to a standard age for the purpose of making comparisons.

Using a small steel ruler as a probe, measure the backfat thickness of prospective replacement gilts when they weigh between 190 and 200 pounds. Adjust the backfat measurements to a 200-pound basis for making comparisons. Charts are available for this purpose.

**Goal**

Your ultimate goal is putting your records to use in selecting the right boars and gilts.

**PUREBREEDING OR CROSSBREEDING**

**Purebreeding**

The commercial producer with a purebred breeding program may sell most of his hogs on the market. However, some of the better individuals may be sold as purebred breeding stock.

It is desirable to mate sows to unrelated boars possessing the desired characteristics, especially for those traits generally deficient in the sow herd. Hybrid vigor within a breed may be obtained by crossing several more or less distinct strains or lines within a breed. Boars from these distinct lines could be used in a rotation crossing program similar to that described below under crossbreeding.

**Suggested Guide for Selecting Breeding Stock**

<table>
<thead>
<tr>
<th>Litter size</th>
<th>Boars</th>
<th>Gilts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at 200 pounds</td>
<td>8 or more</td>
<td>8 or more</td>
</tr>
<tr>
<td>Teats on underline</td>
<td>150 days or less</td>
<td>165 days or less</td>
</tr>
<tr>
<td>Feet and legs</td>
<td>12 or more</td>
<td>12 or more</td>
</tr>
<tr>
<td>Pounds of feed required per cwt. gain</td>
<td>Wide stance, both fore and rear, short pasterns and adequate bone</td>
<td>Wide stance, both fore and rear, short pasterns and adequate bone</td>
</tr>
<tr>
<td>Probed backfat thickness</td>
<td>Less than 320</td>
<td>Less than 340</td>
</tr>
<tr>
<td>Less than 1.3 in. at 200 pounds</td>
<td></td>
<td>Less than 1.5 in. at 200 pounds</td>
</tr>
</tbody>
</table>

| Cut-out information on relatives weighing 200 pounds or less: | | |
| Carcass length | 29 in. or more | 29 in. or more |
| Backfat thickness | 1.6 in. or less | 1.6 in. or less |
| Loin eye area | At least 4 sq. in. | At least 4 sq. in. |

| Percent lean cuts (ham, loin, picnic, and Boston butt): | | |
| Live weight | 36% or more | 36% or more |
| Carcass weight | 52% or more | 52% or more |

| Percent of ham and loin: | | |
| Live weight | 25% or more | 25% or more |
| Carcass weight | 36% or more | 36% or more |
Commercial producers concentrating on the production of the highest quality market hog may wish to obtain their foundation stock from purebred breeders who are participating in certification programs.

**Crossbreeding**

A three- or four-breed rotational topcrossing program seems to be most practical for utilizing hybrid vigor in market hog production. The choice of breeds to include in rotational crossbreeding should be based on availability of tested boars and knowledge of how the various crosses compliment each other for the economically important traits of sow productivity, rate and efficiency of gain, and carcass qualities.

This is an example of a three-breed rotation crossbreeding program:

![Crossbreeding Diagram](image)

**Figure 1. Crossbreeding Schedule for Producing Market Hogs**

The most important benefit from crossbreeding is the larger litters from crossbred sows. Crossbreeding offers some advantage in faster and slightly more efficient gains. Crossbreeding allows for raising replacement gilts.

**EAR NOTCHING**

The guide illustrated in figure 2 for litter and individual ear notching is used by the majority of purebred swine breed associations. Commercial hog producers also may find it simple and convenient to use.

![Ear Notching Diagram](image)

**Figure 2. Ear Notching Guide**


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