

SELECTING SEEDSTOCK

All breeds have certain valued characteristics. For the individual who wants to build a purebred herd, selection of the breed should depend to a large degree on his personal preference.

The same is true for the commercial producer in that the foundation gilts or sows should be selected from a cross of his favorite breeds, having the characteristics he considers of most importance. In cross breeding, the boars should be selected from a breed outstanding in the qualities the producer believes his sows are lacking or where the most improvement is needed. This will save one year in getting started with the best sows to build a foundation sow herd. In selecting foundation gilts, the choice should be made of a breed or crosses known to have a gentle disposition, to farrow large litters, and to have a good mothering ability. Large litters are essential to any successful hog operation.

The right meat type animals can be found in any breed the producer believes most suited to his needs, and whether the operation is purebred or commercial. Selecting a breed quite prevalent in the area makes it a little easier for the purebred breeder to get herd boars and replacement animals. It also provides a ready market for purebred boars and gilts the breeder may have for sale.

Breeders seldom buy expensive animals or build a good herd unless they know the breed and can select new animals with the characteristics needed to improve on the animals they already have. Unless he is of the type and has the qualities needed to improve weaknesses in the sow herd, the price paid for a boar is meaningless. Every herd can be improved, and you don't improve by buying just good boars. Animals extreme in the qualities the herd is weak in will probably make the desired improvement. Following this method, the extreme boar may sire pigs that lose or lessen certain strong favorable herd characteristics. This policy of boar selection may be continued, always looking ahead towards improving undesirable characteristics or weaknesses that may show up from time to time. To do this successfully, one must know the hog business and the specific breed or breeds he is dealing with.

Boars play a dominant role, about 70 to 80 percent² of the progress achieved per generation, in the development of and continued improvement of a swine herd. Never buy an animal unless you are satisfied that it is the one you want. No one will establish a top flight herd of hogs unless he selects boars that will improve his sow herd in some way with each generation. A purebred herd must always be improved toward breed type, and a commercial herd toward market demands. Gaining ability and feed efficiency are two qualities in a boar that every producer must strive for. If the boar has not been performance tested, a pen of his barrows or gilts should be fed out to get, as early as possible, a check on their rate of gain and feed efficiency. A purebred breeder should performance test the different lines in his herd.

Performance testing should be followed by carcass evaluation of market barrows to determine backfat, loin eye, length of carcass, percent of ham and loin to live weight and yield. In commercial production, market hogs that score high in these traits always bring top market prices. Boars from high gaining and efficient lines with good meat qualities, including low backfat thickness, good cutout value in square inches of loin eye, length, and percent of ham and loin to live weight are always in demand.

Boars should have a feed conversion of about 280 pounds of feed for 100 pounds of gain, and weigh at least 200 pounds at five months of age. They should probe no more than one inch of backfat, and littermate barrows should meet certification standards with at least 4.5 square inches of loin eye. Both barrows and gilts should have a feed efficiency of 300 pounds of feed per 100 pounds of gain.

Before selecting breeding stock, decide on the breeding program to be followed and where the herd replacements will come from.

In a commercial operation, a crossbreeding program must be followed to insure the greatest possible income. Crossbred sows usually show an increase in productivity and fertility. They also farrow larger pigs with an increase in rate of survival. Under normal conditions, the pigs are heavier at weaning and make more rapid daily gains from weaning to market. Crossbreeding appears to have little effect on carcass traits and feed efficiency.

Always organize a crossbreeding plan on paper before starting. One of the several systems available may be outlined⁶, or the operator may have another program in mind.

The single cross system is simply crossing two breeds. As an example, purebred Yorkshire sows are mated to purebred Hampshire boars. When purebred sows are needed for replacements they can be purchased, or several purebred Yorkshire litters can be raised when replacement females are needed.

Another plan using two breeds is called a rotational cross. Boars of two different breeds are alternated with each generation of pigs. Replacement gilts are selected from the herd and each gilt is bred to a boar of the same breed as the boar that sired her dam. This program maintains some hybrid vigor in the sow, but not as much the three breed rotation.

A third program is similar to the rotational cross except that three boars are used in place of two. Gilts are selected and bred to a boar of the same breed as the boar that sired the dam of the gilt's dam. This system appears to have some advantages over the two breed plan, especially in hybrid vigor.

The programs including three or more breeds, as well as the two breed rotation, can be continued indefinitely with little or no loss of hybrid vigor and without the need to start over with purebred gilts. Where a program of crossbreeding is planned, there is some advantage in starting with crossbred gilts of known ancestry and breeding in preference to purebred gilts. This permits the use of maternal heterosis from the start, rather than having purebred gilts mothers of the first generation of pigs.

During the four winters 1963-64 through 1966-67 crossbred pigs were compared with purebred Yorkshires at the Dickinson Experiment Station. Hampshire boars were used the first two years and Spot boars the last two years for the crosses. All crossbred pigs were farrowed by purebred Yorkshire gilts.

In three of the four years the litter weights of the first generation crosses were heavier at birth than those from the purebreds, and the crossbred market pigs were significantly heavier at the trial finish than the purebreds when handled under exactly the same conditions.

The performance of purebreds and crossbreds in trials at Oklahoma State University⁴, is shown in tables 1 and 2.

Table 1 - Performance of purebred gilts with purebred litters compared to purebred gilts with crossbred

litters ^a								
	Duroc Gilts		Hamp. Gilts		York Gilts		Overall ^b	
	pure	cross	pure	cross	pure	cross	pure	cross
No. litters	11	20	10	22	9	17		
No. pigs born	9.1	10.2	8.2	8.9	9.8	10.4	9.0	9.8
Pig birth wt.	2.72	2.48	2.34	2.59	2.18	2.19	2.41	2.42
Pig 21-day wt.	8.9	10.1	10.0	10.3	11.0	10.3	10.0	10.2
Pig 42-day wt.	23.7	24.7	21.9	23.7	24.7	24.1	23.4	24.1
Litter wn. wt.	132	182	158	197	192	193	144	178
No. pigs weaned	5.5	7.4	4.7	6.7	7.9	8.1	6.0	7.4
Percent raised	55.0	72.0	40.2	71.6	82.3	78.2	59.2	74.0
^a Includes spring 1971 farrowing season.								
^b Each breed group weighed equally.								

Feedlot Performance and Backfat Thickness

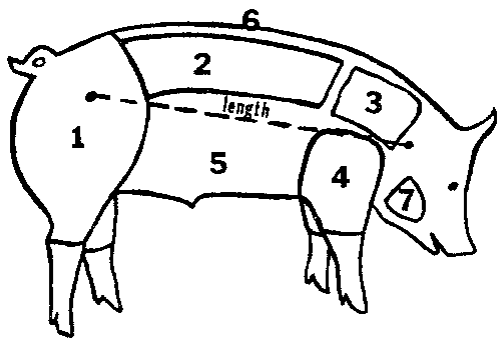
All pigs weaned at 6 weeks⁷ and moved to the confinement finishing facilities at Fort Reno when they were 8 weeks of age. Pigs were self-fed by breed in groups of about 16 pigs per pen until they reached 220 pounds.

Table 2 - Feedlot performance and probe backfat thickness for purebred and two-breed cross pigs ^a					
			Days to 220	Feed per lb	Probe

	Pigs	Daily gain	Days to 220 lbs.	Feed per 10. gain	backfat for gilts
Durocs	69	1.39	181.7	3.16	1.47
Hamps	70	1.33	185.5	3.14	1.20
Yorks	67	1.36	186.1	2.82	1.22
Duroc-Hamp crosses	132	1.48	173.9	3.04	1.24
Duroc-York crosses	153	1.51	171.6	2.94	1.31
Hamp-York crosses	124	1.49	174.1	3.03	1.28
Purebreds	206	1.36	184.4	3.04	1.30
Crossbreds	409	1.50	173.2	3.00	1.27

^aIncludes pigs from 1971 spring farrowing season.

The market barrow shows the whole sale cuts of the preferred meat type.



- 1 - Ham
- 2 Loin
- 3 - Boston Butt
- 4 - Picnic
- 5 - Belly
- 6 - Fatback
- 7 - Jowl
- 3&4 Shoulder

The ham should be well filled, the back strong, with a wide firm loin. The side should be smooth, with a balance

between the hams and shoulder. Feet and legs must be strong, showing good bone, with strength of pastern. The gait should be straight forward and strong, with straight legs set at each corner of the body. A clean cut head with a neat jowl is essential. In breeding animals the head should show the breed characteristics, including masculinity in the boar and femininity in the gilt or sow. On both the sow and the boar all nipples should be well set, evenly spaced and free from inverted or pin nipple types.

Some important breeds of swine showing the preferred meat type along with other outstanding characteristics of the breed are included in this section. The pictures provided are a good image of outstanding animal of each breed.

Other breeds, hybrids and crosses can be purchased in starting a foundation herd. Some are entirely satisfactory; however, take caution in purchasing animals of unknown breeding and background. In starting a hog operation, no gilts are worth more than the cost of good gilts of any one of the pure breeds.

It is best to purchase breeding stock outright, and not go into leasing program. Don't buy breeding stock from a dealer who claims he'll sell all the boars and/or gilts that can be raised at a premium, unless you thoroughly investigate the dealer's operation and are satisfied with his integrity. Many of these deals have left producers very disappointed with the development of their herd. In some cases the herds been disease ridden. In buying "seed stock", unless you go into a purebred operation with one of the recognized breeds, figure your income on the basis of selling your pigs as commercial animals for slaughter.

Don't buy any breeding stock not accompanied by a health certificate. Some organizations have hybrid boars for sale. Before purchasing such animals visit the setup and check the results some of their former customers have had. Never be led into lucrative sounding new type hog enterprise without a thorough investigation. More of these have had a sad ending than have been successful. No matter what the health background appears to be, caution in buying breeding stock from any herd fed antibiotics regularly. This type of operation can hold in check and/or cover up some diseases, which may show up late with disastrous results.

[Back to 1975 Research Reports Table of Contents](#)
[Back to Research Reports](#)

[Back to Dickinson Research Extension Center \(http://www.ag.ndsu.nodak.edu/dickinso/\)](http://www.ag.ndsu.nodak.edu/dickinso/)

[Email: drec@ndsuent.nodak.edu](mailto:drec@ndsuent.nodak.edu)
