

Swine: Selection and Mating of Breeding Stock ¹

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SELECTION OF GILTS

Select gilts to be retained for the breeding herd at five to six months of age or when they weigh 200 lb or more. Separate from the market herd and grow them out on 4 to 6 lb of a balanced 14% to 15% protein ration.

CRITERIA FOR HERD REPLACEMENT

Gilts selected for herd replacements should meet the following criteria:

- (1) Select gilts that do not have any hereditary defects or from lines that do not have a history of hereditary defects.
- (2) Twelve or more prominent teats and from sow lines that are noted milkers.
- (3) From lines and or families with high fertility rate noted for large litters and early sexual maturity.
- (4) Large frame, structurally correct individuals, with quality bone and proper set to feet and legs.
- (5) Healthy individuals from healthy good doing sows.
- (6) Gilts should indicate a rapid rate of gain and have good feed efficiency.
- (7) Lean with ample muscling.
- (8) Where possible, utilize litter mate and sire records from Swine Evaluation Center.

Gilts should be fed a balanced ration (refer to Swine: Feeding, [Table 16 of Document AA084](#)) such that they will meet their genetic potential at breeding time and weigh

approximately 220 to 280 lb without being overly fat (6 to 8 months of age).

Breed gilts during their second or third heat period (6 to 8 months). They should be bred on first day heat is observed and rebred 12 to 24 hours later if possible.

- (1) In a commercial herd, double mating (best to use two different boars) may be employed. Research indicates an increase in litter size by approximately 1 to 1 1/2 pigs per litter by following the practice of breeding a second time 12-24 hours after the first service.
- (2) In a purebred herd, use the same sire for the second breeding.
- (3) Sows can be bred in the post weaning heat if pigs are weaned at 2 weeks of age or older and the sow is not in too thin a condition.
- (4) Boars should be approximately seven to eight months old before being used in a breeding herd. The boar is considered to be mature at 15 months of age or older. The suggested maximum number of services per boar are listed in [Table 1](#).
- (5) It is recommended that boars be kept in thin, thrifty condition so that they are able to breed gilts and sows. The weight of boars is controlled by the amount of feed fed. In some cases this may vary from 2 to 6 lb per day.

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SYSTEMS OF BREEDING

There is no one best system of breeding or secret of success for any and all conditions. Each breeding program is an individual case. The choice of the system of breeding should be determined primarily by the size and quality of the herd, equipment available, finances and skill of the producer and by his ultimate goal.

Purebreeding - A purebred animal is defined as a member of breed which possesses a common ancestry and distinctive characteristics and is either registered or eligible for registration in that breed. Purebreeding is the mating of two purebred animals of the same breed. The purebred producer has the responsibility of producing genetically superior animals for the commercial producer.

Inbreeding - Inbreeding is the system of breeding in which closely related animals are mated. This includes (1) sire to daughter (2) son to dam and (3) brother to sister. Inbreeding is suggested for only highly qualified operators who are making an effort to stabilize important traits in a given set of animals. Intensive selection is needed to reduce the risk of producing undesirable traits in breeding stock when inbreeding is practiced.

Linebreeding - Linebreeding is a system of breeding in which the degree of relationship is less intense than in inbreeding and is usually directed towards keeping the offspring related to some highly prized ancestor. The degree of relationship is not closer than half-brother half-sister matings or cousin matings, etc. Line breeding is practiced to conserve desirable traits of an outstanding boar or sow line.

Outcrossing - Outcrossing is the mating of animals of the same breed but which have no closer relationship than at least 4 to 6 generations. This is the general system that is practiced by most purebred breeders and is classified as a safe system in the purebred business.

Crossbreeding - Crossbreeding is the mating of two animals which are members of different breeds. This system is being practiced by the majority of commercial swine producers because of the resulting hybrid vigor which makes possible improved production efficiency. Table 2 lists the expected advantages of Crossbreds over Purebreds.

Crisscrossing or two breed rotation - Boars of two different breeds are used in alternate generations. Crossbred sows resulting from this mating are bred back to the breed of the grandsire on the dam side. An example would be cross

a Hampshire x Yorkshire sow, Yorkshire boar x crossbred Hampshire x York sow, Hampshire boar x crossbred Yorkshire x Hampshire sows, etc.

Another system of crisscrossing that might be followed would be Hampshire boar x Yorkshire sows - breed 1/2 Hamp 1/2 York sows to another Hamp boar producing 3/4 Hamp gilts which are crossed back to York boars. Boar rotation in this system - 2 Hamps 1 York.

Three breed rotation or triple crossing - This system involves the use of boars of several breeds attempting to capitalize on the strong traits within each breed. An illustration: Hampshire x Yorkshire producing crossbred Hampshire x York gilts crossed with a Duroc boar. The three way cross gilt in turn would be crossed back to a Yorkshire boar and then repeat the system. The attempt here is to capitalize on the muscling traits of the Hampshire, mothering ability of the York and the growth ability of the Duroc or any such combination of breeds which suits the producer's need.

BREEDING PROGRAM

Hand or individual mating of boars, sows and gilts is recommended over field mating where feasible. If pasture mating is practiced, it is recommended that the following be done:

- (1) Divide the sow or gilt herd so as to have one boar per group.
- (2) Alternate boars in the sow or gilt herd. Use one boar or set of boars one day and another boar or set of boars the next day.
- (3) Boars of the same size and age can be run together during the off season. Boars of different ages should not be run together. Holding lots for boars should be constructed out of strong material that will restrain the animal adequately. Build pens narrow and long. To encourage exercise, feed at one end and water at the other. Furnish adequate shade and shelter for inclement weather.
- (4) It is recommended that gilts and sows be kept separate during the gestation period.
- (5) Sows and gilts may be either hand-fed or allowed access to a self-feeder every third day during the gestation period. Feeding can be controlled by:

- (1) feeding commercial cubes or shelled corn and supplement scattered out over the pasture to prevent boss sows from getting more than their share,
- (2) furnishing individual feeding stalls for greater control, or
- (3) by practicing every third day feeding.

When every third day feeding is practiced, one feeder hole per sow should be allowed. Give them access to feed for 2 to 6 hours (depending on sow condition) in every 72 hour period.

Gilts should be acclimated to every third day feeding by starting every other day for a period of ten days and then moving to a third day basis. Gilts should be allowed 2 to 6 hours on a self-feeder out of each 72 hour period. Depending on condition, allow one feeder hole per animal with round type feeders being the most desirable.

The use of individual feeding stalls offers the best opportunity for:

- (a) Feeding each sow or gilt to meet their needs.
 - (b) Elimination of “boss sow” effects.
 - (c) Reduction in feed wastage.
 - (d) Close observation of individual animals.
- (6) If pasture is used, allow 10 to 12 gilts or 8 to 10 sows per acre on good pasture such as millet in summer, and oats, rye, wheat, or lupines in winter.

[Table 3](#) . Swine Gestation Table (115 Days).

Table 1. Maximum Number of Services Per Boar

Boar	Hand Mating			Pen Mating Per Month
	Per Day	Per Week	Per Month	
Mature Boar	2	10	40	25
Junior Boar	1	7	25	18

Table 2. Expected Advantage of Crossbreds Over Purebreds

	First Cross	Multiple Cross
Boars	Purebred	Purebred
Sows	Purebred	Crossbred
Pigs	Crossbred	Crossbred
Litter size at farrowing	0%	5%
Survival	7%	12%
Litter size at weaning	10%	20%
Weight of ind. pigs at 154 days	11%	14%
Total litter wt. at 154 days	22%	30%
N.C.S.U. Experiment Station Bulletin 432, May 1967		

Table 3. Swine Gestation Table (115 Days), If Bred Jan. 1 - April 30

If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow
Jan 1	Apr 26	Feb 1	May 27	Mar 1	Jun 24	Apr 1	Jul 25
Jan 2	Apr 27	Feb 2	May 28	Mar 2	Jun 25	Apr 2	Jul 26
Jan 3	Apr 28	Feb 3	May 29	Mar 3	Jun 26	Apr 3	Jul 27
Jan 4	Apr 29	Feb 4	May 30	Mar 4	Jun 27	Apr 4	Jul 28
Jan 5	Apr 30	Feb 5	May 31	Mar 5	Jun 28	Apr 5	Jul 29
Jan 6	May 1	Feb 6	Jun 1	Mar 6	Jun 29	Apr 6	Jul 30
Jan 7	May 2	Feb 7	Jun 2	Mar 7	Jun 30	Apr 7	Jul 31
Jan 8	May 3	Feb 8	Jun 3	Mar 8	Jul 1	Apr 8	Aug 1
Jan 9	May 4	Feb 9	Jun 4	Mar 9	Jul 2	Apr 9	Aug 2
Jan 10	May 5	Feb 10	Jun 5	Mar 10	Jul 3	Apr 10	Aug 3
Jan 11	May 6	Feb 11	Jun 6	Mar 11	Jul 4	Apr 11	Aug 4
Jan 12	May 7	Feb 12	Jun 7	Mar 12	Jul 5	Apr 12	Aug 5
Jan 13	May 8	Feb 13	Jun 8	Mar 13	Jul 6	Apr 13	Aug 6
Jan 14	May 9	Feb 14	Jun 9	Mar 14	Jul 7	Apr 14	Aug 7
Jan 15	May 10	Feb 15	Jun 10	Mar 15	Jul 8	Apr 15	Aug 8
Jan 16	May 11	Feb 16	Jun 11	Mar 16	Jul 9	Apr 16	Aug 9
Jan 17	May 12	Feb 17	Jun 12	Mar 17	Jul 10	Apr 17	Aug 10
Jan 18	May 13	Feb 18	Jun 13	Mar 18	Jul 11	Apr 18	Aug 11
Jan 19	May 14	Feb 19	Jun 14	Mar 19	Jul 12	Apr 19	Aug 12
Jan 20	May 15	Feb 20	Jun 15	Mar 20	Jul 13	Apr 20	Aug 13
Jan 21	May 16	Feb 21	Jun 16	Mar 21	Jul 14	Apr 21	Aug 14
Jan 22	May 17	Feb 22	Jun 17	Mar 22	Jul 15	Apr 22	Aug 15
Jan 23	May 18	Feb 23	Jun 18	Mar 23	Jul 16	Apr 23	Aug 16
Jan 24	May 19	Feb 24	Jun 19	Mar 24	Jul 17	Apr 24	Aug 17
Jan 25	May 20	Feb 25	Jun 20	Mar 25	Jul 18	Apr 25	Aug 18
Jan 26	May 21	Feb 26	Jun 21	Mar 26	Jul 19	Apr 26	Aug 19
Jan 27	May 22	Feb 27	Jun 22	Mar 27	Jul 20	Apr 27	Aug 20
Jan 28	May 23	Feb 28	Jun 23	Mar 28	Jul 21	Apr 28	Aug 21
Jan 29	May 24	----	----	Mar 29	Jul 22	Apr 29	Aug 22
Jan 30	May 25	----	----	Mar 30	Jul 23	Apr 30	Aug 23
Jan 31	May 26	----	----	Mar 31	Jul 24	----	----

Table 4. Swine Gestation Table (115 Days), If Bred May 1 - August 31

If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow
May 1	Aug 24	Jun 1	Sep 24	Jul 1	Oct 24	Aug 1	Nov 24
May 2	Aug 25	Jun 2	Sep 25	Jul 2	Oct 25	Aug 2	Nov 25
May 3	Aug 26	Jun 3	Sep 26	Jul 3	Oct 26	Aug 3	Nov 26
May 4	Aug 27	Jun 4	Sep 27	Jul 4	Oct 27	Aug 4	Nov 27
May 5	Aug 28	Jun 5	Sep 28	Jul 5	Oct 28	Aug 5	Nov 28
May 6	Aug 29	Jun 6	Sep 29	Jul 6	Oct 29	Aug 6	Nov 29
May 7	Aug 30	Jun 7	Sep 30	Jul 7	Oct 30	Aug 7	Nov 30
May 8	Aug 31	Jun 8	Oct 1	Jul 8	Oct 31	Aug 8	Dec 1
May 9	Sep 1	Jun 9	Oct 2	Jul 9	Nov 1	Aug 9	Dec 2
May 10	Sep 2	Jun 10	Oct 3	Jul 10	Nov 2	Aug 10	Dec 3
May 11	Sep 3	Jun 11	Oct 4	Jul 11	Nov 3	Aug 11	Dec 4
May 12	Sep 4	Jun 12	Oct 5	Jul 12	Nov 4	Aug 12	Dec 5
May 13	Sep 5	Jun 13	Oct 6	Jul 13	Nov 5	Aug 13	Dec 6
May 14	Sep 6	Jun 14	Oct 7	Jul 14	Nov 6	Aug 14	Dec 7
May 15	Sep 7	Jun 15	Oct 8	Jul 15	Nov 7	Aug 15	Dec 8
May 16	Sep 8	Jun 16	Oct 9	Jul 16	Nov 8	Aug 16	Dec 9
May 17	Sep 9	Jun 17	Oct 10	Jul 17	Nov 9	Aug 17	Dec 10
May 18	Sep 10	Jun 18	Oct 11	Jul 18	Nov 10	Aug 18	Dec 11
May 19	Sep 11	Jun 19	Oct 12	Jul 19	Nov 11	Aug 19	Dec 12
May 20	Sep 12	Jun 20	Oct 13	Jul 20	Nov 12	Aug 20	Dec 13
May 21	Sep 13	Jun 21	Oct 14	Jul 21	Nov 13	Aug 21	Dec 14
May 22	Sep 14	Jun 22	Oct 15	Jul 22	Nov 14	Aug 22	Dec 15
May 23	Sep 15	Jun 23	Oct 16	Jul 23	Nov 15	Aug 23	Dec 16
May 24	Sep 16	Jun 24	Oct 17	Jul 24	Nov 16	Aug 24	Dec 17
May 25	Sep 17	Jun 25	Oct 18	Jul 25	Nov 17	Aug 25	Dec 18
May 26	Sep 18	Jun 26	Oct 19	Jul 26	Nov 18	Aug 26	Dec 19
May 27	Sep 19	Jun 27	Oct 20	Jul 27	Nov 19	Aug 27	Dec 20
May 28	Sep 20	Jun 28	Oct 21	Jul 28	Nov 20	Aug 28	Dec 21
May 29	Sep 21	Jun 29	Oct 22	Jul 29	Nov 21	Aug 29	Dec 22
May 30	Sep 22	Jun 30	Oct 23	Jul 30	Nov 22	Aug 30	Dec 23
May 31	Sep 23	----	----	Jul 31	Nov 23	Aug 31	Dec 24

Table 5. Swine Gestation Table (115 Days), If Bred September 1 - December 31

If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow	If Bred	Will Farrow
Sep 1	Dec 25	Oct 1	Jan 24	Nov 1	Feb 24	Dec 1	Mar 26
Sep 2	Dec 26	Oct 2	Jan 25	Nov 2	Feb 25	Dec 2	Mar 27
Sep 3	Dec 27	Oct 3	Jan 26	Nov 3	Feb 26	Dec 3	Mar 28
Sep 4	Dec 28	Oct 4	Jan 27	Nov 4	Feb 27	Dec 4	Mar 29
Sep 5	Dec 29	Oct 5	Jan 28	Nov 5	Feb 28	Dec 5	Mar 30
Sep 6	Dec 30	Oct 6	Jan 29	Nov 6	Mar 1	Dec 6	Mar 31
Sep 7	Dec 31	Oct 7	Jan 30	Nov 7	Mar 2	Dec 7	Apr 1
Sep 8	Jan 1	Oct 8	Jan 31	Nov 8	Mar 3	Dec 8	Apr 2
Sep 9	Jan 2	Oct 9	Feb 1	Nov 9	Mar 4	Dec 9	Apr 3
Sep 10	Jan 3	Oct 10	Feb 2	Nov 10	Mar 5	Dec 10	Apr 4
Sep 11	Jan 4	Oct 11	Feb 3	Nov 11	Mar 6	Dec 11	Apr 5
Sep 12	Jan 5	Oct 12	Feb 4	Nov 12	Mar 7	Dec 12	Apr 6
Sep 13	Jan 6	Oct 13	Feb 5	Nov 13	Mar 8	Dec 13	Apr 7
Sep 14	Jan 7	Oct 14	Feb 6	Nov 14	Mar 9	Dec 14	Apr 8
Sep 15	Jan 8	Oct 15	Feb 7	Nov 15	Mar 10	Dec 15	Apr 9
Sep 16	Jan 9	Oct 16	Feb 8	Nov 16	Mar 11	Dec 16	Apr 10
Sep 17	Jan 10	Oct 17	Feb 9	Nov 17	Mar 12	Dec 17	Apr 11
Sep 18	Jan 11	Oct 18	Feb 10	Nov 18	Mar 13	Dec 18	Apr 12
Sep 19	Jan 12	Oct 19	Feb 11	Nov 19	Mar 14	Dec 19	Apr 13
Sep 20	Jan 13	Oct 20	Feb 12	Nov 20	Mar 15	Dec 20	Apr 14
Sep 21	Jan 14	Oct 21	Feb 13	Nov 21	Mar 16	Dec 21	Apr 15
Sep 22	Jan 15	Oct 22	Feb 14	Nov 22	Mar 17	Dec 22	Apr 16
Sep 23	Jan 16	Oct 23	Feb 15	Nov 23	Mar 18	Dec 23	Apr 17
Sep 24	Jan 17	Oct 24	Feb 16	Nov 24	Mar 19	Dec 24	Apr 18
Sep 25	Jan 18	Oct 25	Feb 17	Nov 25	Mar 20	Dec 25	Apr 19
Sep 26	Jan 19	Oct 26	Feb 18	Nov 26	Mar 21	Dec 26	Apr 20
Sep 27	Jan 20	Oct 27	Feb 19	Nov 27	Mar 22	Dec 27	Apr 21
Sep 28	Jan 21	Oct 28	Feb 20	Nov 28	Mar 23	Dec 28	Apr 22
Sep 29	Jan 22	Oct 29	Feb 21	Nov 29	Mar 24	Dec 29	Apr 23
Sep 30	Jan 23	Oct 30	Feb 22	Nov 30	Mar 25	Dec 30	Apr 24
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