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Care and Management of the Sow Herd

Richard Hollandbeck, Animal Sciences Department

Introduction

Hogs provide the largest portion of the total agricultural income on Indiana farms. According to the 1959 USDA census report, Indiana is the only state that can make this statement.

Through his industry and willingness to accept technological changes, the Indiana pork producer has risen in stature from raising batches of squealing pigs to become the envy of hogmen everywhere. His efficient production of the kind of pork the consumer wants has been his secret to success.

Reproduction

Reproductive efficiency is of primal importance. The sow must farrow pigs before they can be weaned, fed and converted into pork. Reports indicate that the sow carrying 10 pigs will normally consume about the same amount of feed during gestation as if she had only two or three. It remains then that the larger the litter the less costs you have for each pig.

The actual production of a herd is determined by the inherent breeding capacity of the animals on the one hand and by the skill with which they are managed on the other. To manage sows so that they will produce large litters is the first step toward having them wean large litters. What an operator does or fails to do influences survival of pigs a great deal more than it influences the number of pigs farrowed. However, many factors affecting the number farrowed can be favorably modified by good management. Successful breeders know which factors respond to management and

Figure 1. Large litters are essential to economical pork production. Sow herd production is determined by the breeding capacity of the animals and the skill of the herdsman.
how to best influence them to obtain large litters without wasting time on those that can’t be controlled.

The number of pigs a sow farrows first depends on the sow herself, then on the management she receives and finally on the boar to which she is bred. Good breeding, good feeding and good disease control, tied together by good management, team up to make good results for a most successful venture in the hog business.

More Pigs Per Litter Reduce Costs

Care and treatment of the sows and boar during and immediately before the breeding season pays off in results at farrowing time and subsequently. Large litters of strong pigs are achieved only when the herd has been carefully selected for breeding performance, is maintained in a high state of health and thrift by proper care and feeding and elimination of infections, and is given skillful handling by an experienced caretaker.

Large litters are essential to economical pork production. The total cost of carrying a sow in the breeding herd remains practically constant whether she produces two pigs or ten. Her value in the herd, on the other hand, is determined almost entirely by the number of pigs she weans.

Research conducted in 1957 by R. H. Bauman, Purdue Extension Economist, shows that approximately 30 percent of the total cost of producing pork was chargeable to the breeding herd.

Because breeding herd costs represent such a significant proportion of the total cost of producing pork, economical production requires efficient use of the entire breeding herd. The absolute capacity of a sow to produce pigs is limited to the number of ripened ova (eggs) shed. Theoretically, each ovum is capable of being fertilized and of developing into a normal pig. Full realization of this capacity is seldom if ever realized. It has been estimated that five percent of the ova are not fertilized and 40 to 50 percent more die during prenatal development. Another five percent are stillborn.

The inherent productivity of the sow cannot be improved by the herdsman. He can and should eliminate low producers as soon as they are discovered. Selecting replacements from sows that breed regularly and wean large litters of heavy, sound, desirable type pigs will, in a few generations, do much to take the guesswork out of the picture.

Management contributes to litter size. And, the herdsman has positive control of management. There are many opportunities to wean more pigs per litter. Some of the existing inefficiencies may be overcome by improved breeding techniques.

Identity of Heat Periods

Estrus, the time of sexual excitement in the sow, should be known. Hand-mating and artificial insemination make this a must. During estrus the sow is producing, or preparing to produce, the ripened ova. Its onset usually precedes ovulation by a day or two. The heat period proper, or that time during which the sow will accept the boar, usually lasts about two or three days. Numerous studies show that mature sows will stay in heat 12 to 15 hours longer than gilts.

Mother Nature has provided, or has taken advantage of, this period of sexual receptivity in order to synchronize, roughly, the arrival of the germ cells in the place of their union. This synchronization is important. Research has shown that sperm do not retain their vitality in the reproductive tract of the sow for more than 16 hours after service, and that the eggs retain their physiological capacity for fertilization for even a shorter period after ovulation. Fresh sperm fertilizing fresh eggs increase the opportunities for more strong pigs at birth. New tech-
The influence of advancing age of sows on litter size can be shown by the data in Table 1.

Table 1. Farrowing data collected from 156 sows farrowing 10 consecutive litters1/

<table>
<thead>
<tr>
<th>Litter</th>
<th>Number of pigs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>9.5</td>
</tr>
<tr>
<td>2nd</td>
<td>10.7</td>
</tr>
<tr>
<td>3rd</td>
<td>11.4</td>
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<tr>
<td>4th</td>
<td>11.8</td>
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<td>5th</td>
<td>11.9</td>
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<td>6th</td>
<td>11.7</td>
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<td>7th</td>
<td>11.3</td>
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<tr>
<td>8th</td>
<td>11.2</td>
</tr>
<tr>
<td>9th</td>
<td>10.8</td>
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<tr>
<td>10th</td>
<td>10.1</td>
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</tbody>
</table>


These and other data show that the sow may be expected to produce an increasing number of pigs up to and including her fourth litter and continue to produce at this level through four or five more litters. Her ninth and tenth litters will be about one pig less.

Many sows in Indiana are sold for slaughter before they reach their peak performance. Sometimes gilts are sold after farrowing only 2 litters because of a so-called tax advantage resulting from capital gains. An economic analysis by R. H. Bauman shows that average net returns per litter increase through the 7th litter and then decrease slightly if the tax rate is not considered. Returns per litter increase through the 6th litter when the tax rate is computed at 20 percent. And they increase through the 5th litter when the tax rate is 30 percent. Bauman states, "...the decline is so small above these numbers of litters that it is not very significant. Furthermore, such decline is probably offset by other

Effect of Age of Gilt or Sow on Litter Size

The effect of the age of the gilt or sow is quite marked and should be an important consideration for pork producers. In fact, the age of the sow has the largest, the most regular and the most predictable influence on the size of litter farrowed of all known factors, except for the irregular effect of individuality of the sow.

Gilts produce more ova at each succeeding heat period. The number goes up sharply for the first three to five cycles then increases at a slower rate. By the time the gilt is 10 or 11 months old at first breeding, the age effect has practically ceased to be a factor in determining the size of her first litter. The wisdom of delaying the breeding to take full advantage of this increased potential is questionable. Most of the increased potential will be gained if the gilt is first bred at 8 or 9 months.

Figure 2. Tender loving care is a basic ingredient of sow herd management.
factors... (and that) it appears advisable to keep the sow as long as she is doing satisfactorily."

**Feed and Care Before and During the Gestation Period**

The physical condition of the sow at breeding time is important. She should be in medium condition, not fat. Gaining weight during the breeding season stimulates the reproductive organs and such sows are more likely to settle on first service. Experimental evidence indicates that about one-fourth to one-third of the eggs shed during the heat period perish before they are implanted in the uterus. Good feeding can reduce this early death loss.

Life of the pig begins when a sow is bred and settled. Feeding the unborn pig is one of the most important problems that confronts the pork producer. Heavy death losses will occur in pigs the first week after farrowing, regardless of care given, unless the sow has received a balanced ration.

About two-thirds of the fetal growth is made during the last 4 weeks of gestation; however, the number, size, strength, vigor and livability at birth depends largely upon proper feeding of the sow throughout the entire gestation period. A 2 1/2 pound pig at birth has five times greater chance of being weaned than a 1 1/2 pound pig.

**Forages are Needed**

The first step in producing a strong vigorous litter is to provide as near a year-around pasture program as possible. Pasture is an excellent source of essential vitamins, minerals and proteins. High quality pasture has some unknown factor or factors which are essential for satisfactory reproduction and lactation. On good legume or legume-grass pasture, allow 10 to 12 sows per acre.

Either corn or grass silage can be satisfactorily fed to bred sows. Corn silage is extremely low in protein and minerals. It should be supplemented with 1 to 1 1/2 pounds of good protein supplement and free choice minerals. Supplement grass silage with 1/2 to 1 pound of good protein supplement and 2 pounds of corn daily. Each sow will eat about a half ton of silage during the gestation period. Purdue tests have shown that silage fed sows farrow from 1 to 2 more pigs per litter on 20 percent less feed cost than do sows fed a conventional ration.

**Control Gains**

Sows should be fed to gain 75 to 100 pounds during gestation so that they will be of medium fleshing at weaning time. Keep sows from getting over fat during gestation. The extra weight is a waste of feed, causes difficulty at farrowing time and decreases the number of pigs per litter.

Two principal points -- During gestation the ration must nourish the sow and her developing litter. And, feeds fed and method of feeding must be economical and adaptable to the farm conditions.

![Figure 3. These sow feeding stalls were made from a basic portable shelter framework. Posts were installed along the sides and partitions built between them. The stalls permit feeding sows individually, each according to her needs.](image)
Feeding Methods

Hand feeding is generally recommended over other methods. Each sow can be fed according to her needs and insure against wasteful over-feeding. A recent development, individual sow feeding stalls, makes hand feeding fit on practically every farm in Indiana. Individual sow feeding stalls take the commotion out of hand feeding, allow sows of various weights to run together but be fed separately, allow sows and gilts to be penned together but be fed separately, make limit feeding practical, reduce fighting at the feed trough, save feed and increase litter size.

When sows and gilts are self fed, the number per linear foot of feeder space, or self feeder hole should be: Pasture 3 to 4; drylot 2 to 3.

For hand feeding or watering in troughs the linear feet of space required per gilt or sow is 1 1/2 to 2 feet.

When alfalfa hay is fed in a rack, 4 sows may be fed per linear foot of rack space.

Bred sows and gilts may be used to clean corn fields if an excessive amount of corn is not on the ground and supplement is available. Feed 1 to 1 1/2 pounds of 35 percent protein supplement daily. Also, a good mineral mixture needs to be available at all times.

One automatic watering cup should be provided for each 12 gilts, or for each 10 sows. Additional watering space may be required during hot weather.

The housing or shade requirement for summer time is as follows: A gilt needs 17 square feet; a sow 20 square feet; and for winter they need 15 and 18 square feet of housing respectively.