

following weaning was approximately 2 pounds, while for the next eight-week period it averaged  $4\frac{1}{3}$  pounds and for the final or finishing period it was increased to 7 pounds of feed per pig per day. During these periods the actual losses averaged as follows:

	Per cent
From farrowing to 10 days following (including pigs farrowed dead)-----	27 $\frac{1}{2}$
From 10 days following farrowing to weaning.....	8 $\frac{1}{2}$
During next 8 weeks.....	4 $\frac{1}{2}$
During next 8 weeks.....	3
During balance of time until marketed.....	$\frac{1}{2}$

Based on these figures, in order to market 100 hogs it would be necessary to farrow 179 pigs.

### Care of Sows

These studies show that more careful management of the breeding herd, closer attention to sows and pigs at farrowing time, and the practice of better disease prevention and control methods will tend to lower mortality rates and contribute to greater vigor and efficiency in the pigs saved. Since a large part of the deaths occur at the time of birth and during the following 10 days, it is evident that efforts toward reducing the death rate must begin with the sow. Sows selected for breeding purposes should be free from extreme nervousness and irritability. They should be carried on a suitable ration during the period of gestation and be given ample exercise. Farrowing quarters should be sanitary and provided with guardrails to prevent mashing of the little pigs.

The young pigs and their dams during the suckling period should be limited to clean ground, such as a fresh pasture, so as to avoid danger of roundworms and other filth-borne diseases. The pigs should remain in such a place until they are at least 4 months old.

Immunization by the use of anti-hog-cholera serum will protect against cholera. Close supervision of all operations by a careful and well-informed owner will do much to bring greater returns and more satisfaction from the swine-raising industry.

C. D. LOWE.

**H**OG Profits Rest Largely on Care Brood Sows Get To produce a crop of pigs that are to be fed out to a profit, one must, of course, have good breeding animals. But even though he may have well-bred stock, he must use the right methods in management and feeding during the gestation and suckling periods. One of the greatest essentials for brood sows during the gestation period is plenty of exercise. To accomplish this a good plan is to require the sows to roam over a field to obtain part of their feed.

This question has been given considerable study, and various experiments have been conducted at the United States Animal Husbandry Experiment Farm at Beltsville, Md. The plan that has proved to be most successful is briefly outlined here.

### Economical Method of Feeding

When the sows are bred, they are placed in a field of about 15 acres which grew corn during the past year. Had a larger field been

available it would have been used. After the sows clean up the corn which has been left in the field they are given their corn ration during the entire gestation period by scattering shelled corn thinly over practically the entire area. In this way they gather only a small amount at one time, chewing it thoroughly and do not get too much, because they become tired traveling around and picking up only small quantities at a time. A sufficient amount is thrown out at one time to last the sows about a week.

Good third-cutting alfalfa hay is placed in a rack where it will be accessible at any time. Sixty per cent tankage or fish meal is also placed in a self-feeder so that the sows may eat it as they desire. In addition, a limited quantity of middlings or shorts is fed once daily in dry form in troughs, usually about 1 pound per hog per day. The quantity of shelled corn given is determined by the condition of the sow as the gestation period progresses. Usually about a 2 per cent ration will be sufficient—that is, 2 pounds of corn per 100 pounds of body weight of the sow. If the sows are not taking on sufficient flesh, the amount may be increased. It may be thought that by following this method too much tankage would be consumed, but this has not been found to be the case. On a percentage basis the feeds consumed by about 62 sows during the gestation period for spring pigs of 1927 was as follows:

Feed	Per cent
Corn.....	68. 14
Middlings.....	15. 47
Tankage.....	10. 37
Alfalfa hay.....	5. 85
Mineral.....	. 17

### Proportion of Protein Consumed

Naturally, sows during this period should consume a greater percentage of protein than they would during a fattening period. However, the percentage of protein feeds consumed by this system has not been excessive. These sows had a water supply from an automatic waterer during the entire period and were housed in ordinary hog houses with plenty of good, dry bedding. The sows were confined to their farrowing pens three days before they were due to farrow and treated according to the McLean County system of swine sanitation. The usual precautions at farrowing time are followed. The sows are not given anything to eat for the first 24 hours, and then the feed is gradually increased until the sow is given all she will clean up nicely. She should be back on full feed about 8 to 12 days after farrowing.

Three years of careful experimental work at the Beltsville farm has shown that the system of placing sows with their litters on self-feeders during the suckling period has not only proved to be better from the standpoint of the condition of the sows and pigs at weaning time but it has also shown a distinct saving of feeds. When the sows are on full feed after farrowing they are placed in a lot, sometimes with only two or three sows and sometimes with 12 or 15 on the same self-feeder, which contains shelled corn, tankage or fish meal, shorts or middlings, and a mineral mixture. (Fig. 118.) In this way the sows may eat any of the various feeds at any time they desire. After the pigs are about 3 weeks old they begin to eat and obtain their feed from the same self-feeder as the sows.

## Access to Pasture Desirable

If pasture is available, it is always best to give the sows and pigs access to it. (Fig. 119.) The pigs should not be weaned until they are 10 weeks of age, and it is often desirable and beneficial to wait

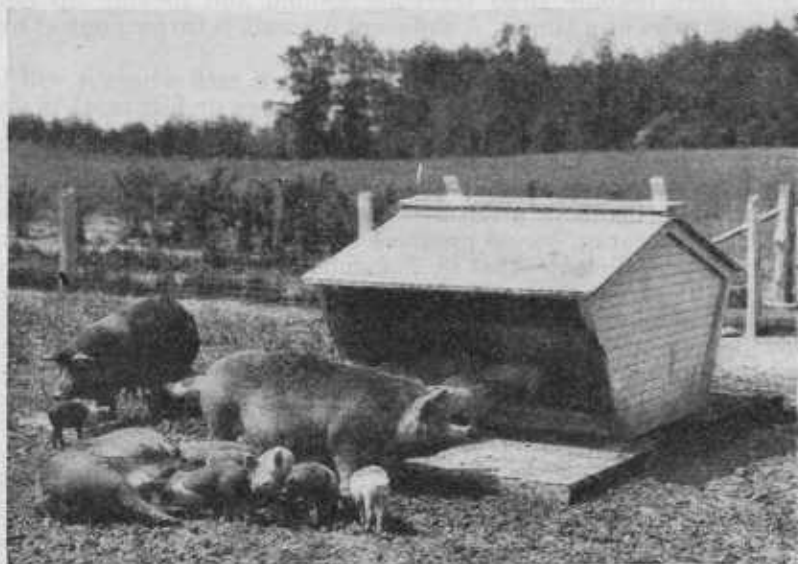


FIG. 118.—Sows and pigs at self-feeder, illustrating equipment and types of animals

until they are from 12 to 13 weeks old. Weaning the pigs is very easy and successful under this plan of feeding. When weaning time approaches, a fence about 3 feet high is built around the feeder. Two



FIG. 119.—It is always desirable to have good pasturage for the sows and pigs during the suckling period

or three creeps are provided so that the pigs may continue to have access to the feeds, but, of course, the sows are shut off. Being practically at the end of the lactation period the sows will soon dis-

continue giving milk when the feed is taken from them. Usually the pigs will not try to nurse after three or four days from the time the sows are shut off their feed. The sows can then be driven away and the pigs allowed to remain on the feeders as they have been during the whole suckling period. This plan has produced fewer runts than any other system tried.

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## HOG Raising by One or Two Litter System Is Feed Supply Problem

The production of either one or two litters from a sow during the year are fundamentally the only two systems of hog production, although many variations and combinations of these two systems are used. Usually the one-litter system employs young gilts as breeding animals in the production of spring pigs, the time of farrowing coming early or late, as desired. After weaning time the sows are usually fattened and sold and a new breeding herd is selected from their offspring. The two-litter system usually employs old sows and gilts as breeding animals, and the spring farrow must be early so that fall litters may be weaned before cold weather. As old sows pass their usefulness for breeding purposes, they are replaced by gilts from the stock hogs.

A variation from these systems is the production of one litter from gilts the first year and two litters from the sows, or the entire herd may be carried over without the production of fall pigs. Three litters may be produced during the year by keeping two distinct breeding herds—one of tried sows under the regular two-litter system and another of gilts producing late spring pigs under the one-litter system. This one-litter herd then becomes the regular two-litter herd for the following year.

The distribution of the one and two litter systems in the Corn Belt follows closely the production of corn, the one-litter system being used most extensively where corn production is high and the two-litter system where it is lower.

Iowa, eastern Nebraska, northwestern Illinois, and States on the north of the Corn Belt follow more generally the one-litter system. Ohio, Indiana, central and southern Illinois, Missouri, southern Iowa, and Kansas follow more generally the two-litter system. The quantity of corn produced on a farm is the result of three factors: (1) The yield of corn per acre, (2) the percentage of the farm area in corn, and (3) the size of the farm. Thus a small farm with a high yield may have as much corn to market as a larger farm with a lower yield. As the quantity of corn to be marketed per farm changes, the method of marketing it through hog production, cattle feeding, or cash sale changes.

### Reasons for the Two Systems

There are good economic reasons for these systems of hog production. A given quantity of feed is most efficiently utilized in pork production when the two-litter system is followed and the pigs are fattened to lightweights. This system is followed most extensively where there is a relatively small quantity of corn per farm. The farmers are short on corn and the system must be economical with the supply. Under such conditions the quantity of corn and other feed grains is the limiting factor to increased hog production.