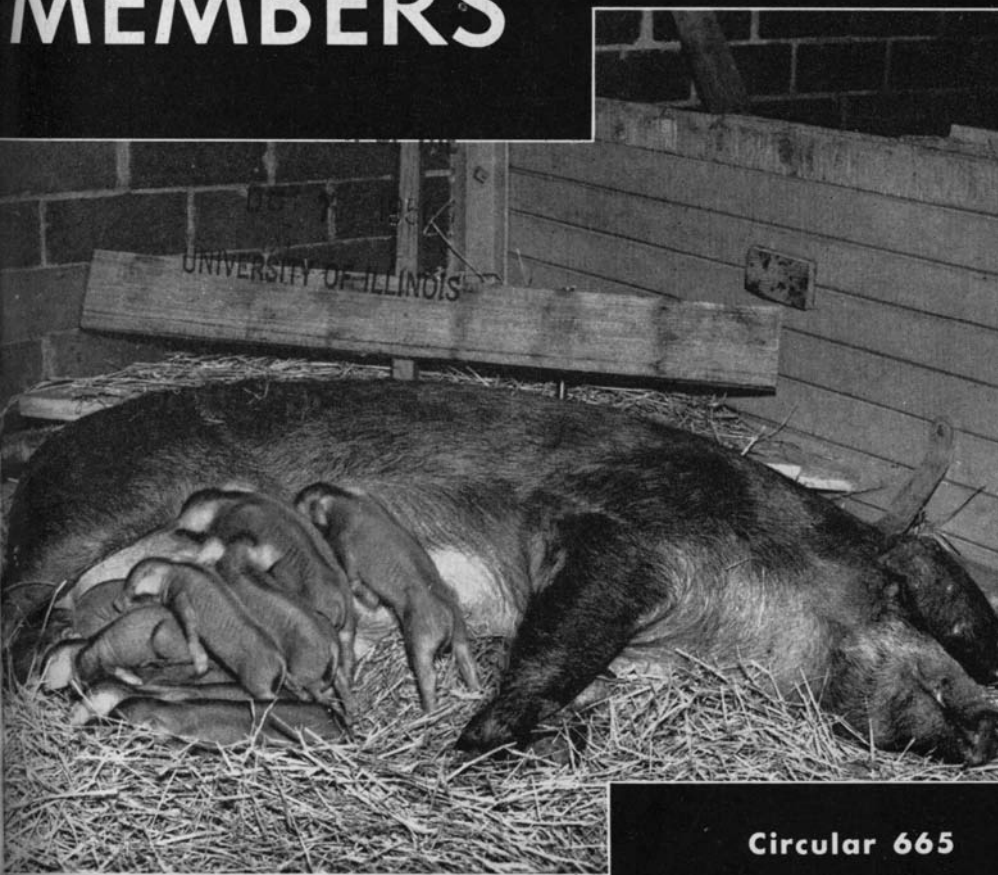


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SWINE MANUAL FOR 4-H CLUB MEMBERS



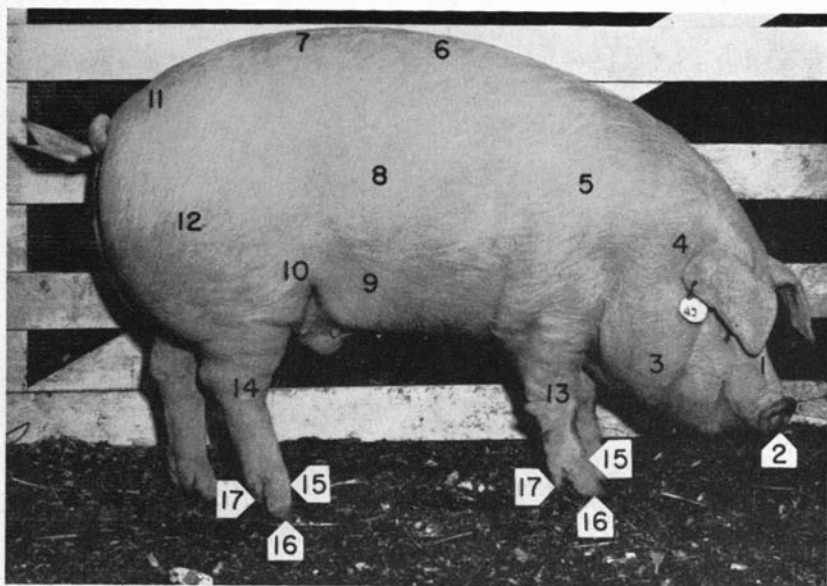
Circular 665

UNIVERSITY OF ILLINOIS · COLLEGE OF AGRICULTURE
EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS

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PARTS OF A HOG



- | | | | |
|-------------|-----------------|-----------|--------------|
| 1. Face | 6. Back | 10. Flank | 14. Hock |
| 2. Snout | 7. Loin | 11. Rump | 15. Pastern |
| 3. Jowl | 8. Side or ribs | 12. Ham | 16. Toes |
| 4. Neck | 9. Belly | 13. Knee | 17. Dewclaws |
| 5. Shoulder | | | |

A SWINE MANUAL for 4-H Club Members

By G. R. CARLISLE and R. O. LYON

THE SWINE PROJECT is among the most profitable and least risky of all 4-H livestock projects. Especially if you are just starting out, you will find that investing in a purebred gilt or sow is a good way to earn money quickly. You may prefer a beef or dairy animal, but find that you do not have the money to buy a good dairy animal or cannot afford to wait several years for the income from a beef cow. After you get your start with the swine project, you may want to use your earnings for the more expensive project. Or you may like the swine project so well that you will want to continue with it.

PROJECTS YOU MAY CHOOSE

The swine project has four phases, or units. Each one of these separate units is usually referred to, however, as a project. The four swine projects are *market hog feeding*, *grade herd*, *purebred gilt*, and *purebred herd*.

Market hog feeding. If you are a beginner, you may start with one to three barrows, but an older member should have ten or more. You may start any time up to June 1. Your record should begin whenever you begin your project.

Grade herd. This project may be begun any time up to January 1. The starting date may be extended to March 1 for beginners, and other members may *add* sows to their herd up to March 1. Records run the year round. Beginners may care for one grade sow. Older members may have one or more sows, or may care for the entire herd in partnership with their fathers.

Purebred gilt. In this project you care for one or two purebred gilts farrowed during the current year. These gilts should be registered in your name. The latest starting date is June 1, and your record begins whenever your project does.

Purebred swine herd. The starting date for this project is January 1, but as with the grade herd project, the date may be extended to March 1 for beginners, and older members may add sows during

January and February. If this project is a continuation of the gilt project, records should begin whenever the gilt project ends. Records run the year round. Beginners should have one purebred sow; older members may have one or more sows or may care for the entire herd in partnership. Register purebred animals in your name.

CHOOSING YOUR ANIMAL

Deciding on the Breed

In choosing which breed to raise, ask yourself at least two questions: First, what breeds are most common in your community? Second, what breed do you prefer? If a number of your neighbors are raising the breed you choose, it will be easier for you to get good animals at a reasonable price. But you should like the breed too, since your liking the animal will play a large part in the success of your project.

In Illinois as a whole, six so-called lard breeds and two bacon breeds are most common. The lard breeds are Hampshire, Berkshire, Chester White, Poland China, Spotted Poland China, and Duroc (Figs. 1 through 6); the bacon breeds are Tamworth and Yorkshire. Among breeds found in smaller numbers are the Ohio Improved Chester White (O.I.C.), Hereford, and certain new breeds such as the Minnesota No. 1 and Minnesota No. 2.

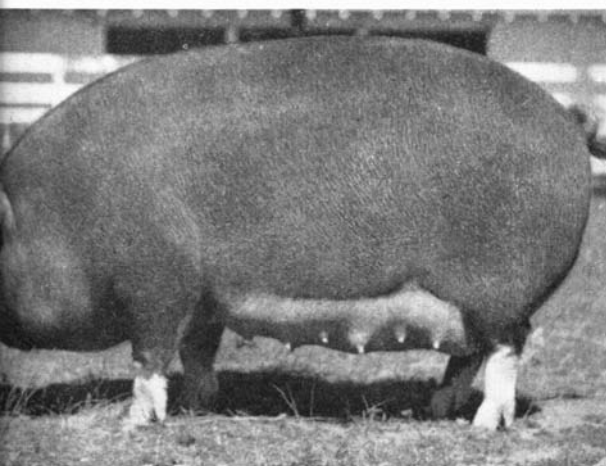
Selecting Animals for Your Project

It is a good idea, especially if you are a beginner, to ask someone with experience to help you pick out your hog. This person could be a purebred breeder, vocational agriculture teacher, farm adviser, youth assistant, or club leader. Swine are usually selected on the basis of at least three points: (1) individuality, or the form and general characteristics of the individual animal; (2) production, which is judged by the weight and size of the litter from which the animal comes; and (3) pedigree.

Individuality. Form (general outline) is quite important in choosing a pig. Look for an animal that is of medium type — in other words, medium in length, depth, and width of body, and in length of legs. The pig should be deep and wide through the hams and uniform in width from front to rear. Its legs should be set squarely under the body. They should be straight, with bone that is of medium size and of good quality, and with short, strong pasterns.

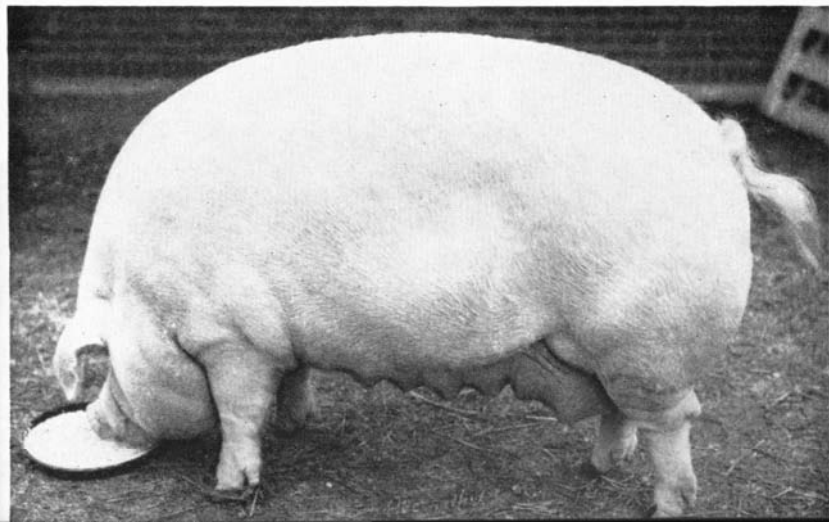


A good type Hampshire sow (courtesy Hampshire Swine Record Association).
(Fig. 1)



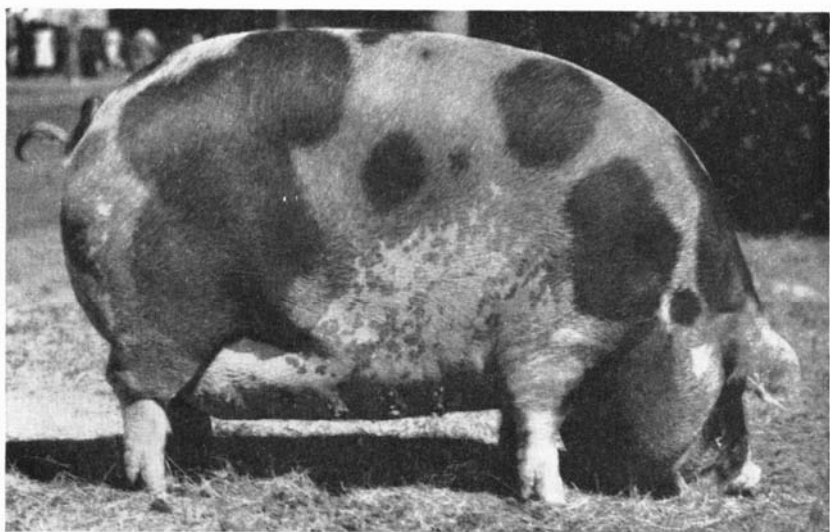
A good type Berkshire sow (courtesy American Berkshire Association).
(Fig. 2)

A good type Chester White sow (courtesy Chester White Record Association).
(Fig. 3)





A good type Poland-China sow (courtesy Oscar Anderson, Leland, Illinois). (Fig. 4)



A good type Spotted Poland-China sow (courtesy Wayne L. Davis, Mahaska, Kansas). (Fig. 5)



A good type Duroc sow (courtesy United Duroc Record Association). (Fig. 6)

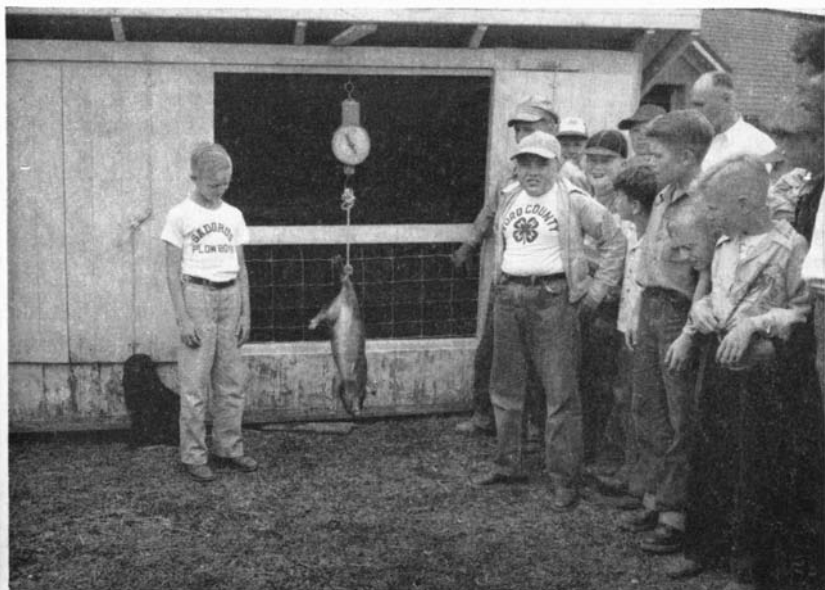
Avoid a pig that is too short in body and legs (chuffy). It will be carrying market finish before it reaches market weight and its gains will be more expensive than the gains of a medium-type pig. Also, chuffy brood sows ordinarily do not farrow and raise as large litters of pigs as do sows with more length of body.

On the other hand, avoid an extremely long-legged, narrow, shallow-bodied, "cat-hammed," rangy type of animal. Hogs of this type do not reach a market finish with a weight of 200 to 240 pounds, the weight at which most hogs are marketed. Instead, they usually have to be fed to heavier weights before they are fat enough to be sold. Sows of this type are usually good mothers, however, and farrow large litters.

If you want to know more about selecting swine on individuality, see Illinois Circular 579, "Judging Livestock."

Production. The profit from your swine project will depend largely upon the number of pigs raised per litter. So make as sure as you can that any young animals you are going to use for breeding will be good producers. They should come from large litters farrowed by sows that are good milkers and good mothers.

Probably the easiest way to select breeding stock on the basis of



By weighing pigs at weaning time you can learn something about the producing ability of the sow. If she has produced a large litter with good weaning weights, her pigs will probably be good producers too. (Fig. 7)

production is to study the total weaning weight of the litter from which an animal comes (Fig. 7). Weaning weights of 275 pounds for a litter farrowed by a gilt and 320 pounds for a litter farrowed by a sow are considered satisfactory. Many good-producing sows, however, farrow litters which weigh much more. If you can't get the litter weaning weights, at least be sure that the animal comes from a litter in which a satisfactory number of pigs (eight or more) were farrowed and raised.



Practicing livestock judging will give you experience that will help you to select the best animals for breeding. (Fig. 8)

Pedigree. A pedigree is a written record of an animal's ancestors, usually going back two generations, and sometimes further. If you are choosing pigs for a market swine project, you won't have to pay much attention to pedigree, since you will probably sell the animals when you have finished the project. But animals used for breeding projects should be purebred. In selecting them, you should therefore give some thought to the pedigree. This does not mean that an animal's pedigree has to be full of the names of outstanding show winners, for many excellent 4-H projects are based upon animals from little known bloodlines. If an outstanding animal does appear in a pedigree it should be in the first or at least second generation of the pedigree. If it is any farther back it probably won't have much effect on the animal being considered.

FEEDING SWINE

It's a little harder to feed swine than to feed either sheep or beef cattle. It isn't that a balanced ration is any more important for swine than for these other animals — it's just that a little more care is needed to provide swine with everything they need.

That's because a hog has a simple stomach while sheep and cattle have four parts to their stomachs. Sheep and cattle can eat large amounts of hay and other roughage — feeds which are rich in vitamins, protein, and minerals. A hog can't digest so much roughage.

Another advantage of the paunch in sheep and cattle is that bacteria which live in it produce certain B vitamins. These vitamins can be used by the animal. A hog does not produce these vitamins to any great extent in its simple stomach.

A hog's needs can be taken care of by adding protein and vitamin supplements and minerals to its grain ration. Also, whenever possible, hogs should be on good green pasture.

Farm Grains Usually Fed to Hogs

Corn. Corn makes up the largest part of the ration fed to most corn-belt hogs. It is one of the best fattening feeds available, but like all farm grains it is low in protein, some vitamins, and minerals. Thus corn, or any other farm grain, should not make up the entire ration. A good protein supplement and a good mineral mixture should be fed with the grain.

Since pigs weighing 150 pounds or less usually chew corn thoroughly, you don't need to grind the corn for them. When pigs weigh 150 pounds or more, 6 or 7 percent of the corn may be saved if it is ground. This means that if corn is worth \$1.12 a bushel, you will have to get it ground for 8 cents a bushel or less to make grinding pay.

Oats. Since oats are a growing rather than a fattening feed, they should not make up more than a fourth of the grain fed to fattening hogs. For breeding animals, however, it is desirable that one-fourth to one-third of the ration be oats. The oats will help keep the animals from getting too fat.

Oats have a hull which hogs do not like, so they should be finely ground before being fed to hogs. This grinding makes the hull less noticeable.

Barley. Not much barley is available for hog feed in Illinois. If barley is fed, it should always be ground. Scabby barley is not a good feed for hogs.

Wheat. It usually pays to grind wheat for hogs. Wheat should be coarsely ground and mixed with some other ground grain such as oats. Finely ground wheat fed alone makes a doughy mass which pigs do not like. Ground wheat is about equal, pound for pound, with shelled corn in food value. However, pigs will not fatten quite so fast on wheat as on corn, but will tend to grow a little more.

Rye. Rye, like wheat, should be coarsely ground for hogs. If it has much ergot in it, it is not a good hog feed.

Protein and Vitamin Supplements

Protein supplements have a double value in practical feeding. They furnish not only protein but also vitamins not found in large enough amounts in the rest of the ration fed in drylot. For this reason protein supplements could well be called "protein and vitamin supplements."

Pigs on good pasture usually get all the vitamins they need from the growing plants. The vitamin content of protein supplements is most important, therefore, when pigs are in drylot and not on pasture.

Alfalfa meal and legume hay are especially good sources of vitamins, as well as of protein. If at least 10 percent of the total drylot ration is high-quality alfalfa meal or green, leafy ground alfalfa hay, you can be sure that the vitamin problem is taken care of. This does not mean, however, that the ration always has to include this much alfalfa meal or hay. The animal will of course get part of its vitamins from the other ingredients of a good supplement.

Composition of protein supplements. Good protein supplements may be home-mixed. Such supplements are usually cheaper per pound

Table 1. — Suggested Protein Supplements for Various Classes of Swine

Supplement No.	Drylot supplement				Pasture supplement	
	Bred Sows	Nursing Sows	Pigs to 75 pounds	Pigs over 75 pounds	6	7
	1	2	3	4	5	
				(pounds)		
Meat scraps	30	25	30	30	20	10
Soybean meal	25	30	38	36	50	82
Linseed meal	..	10	..	..	..	..
Alfalfa meal	40	32	30	33	26	..
Limestone	2	1	1	..	..	3
Bone meal	1	..	..	..	2	3
Iodized salt*	2	2	1	1	2	2
				(percent)		
Protein	32	34	36	36	35	40
						38

* Ordinary salt can be used in Supplements 5 to 7.

of protein furnished than are most ready-mixed ones. A number of supplements are suggested in Table 1, although other combinations of oil meals and animal by-products would probably work just as well. The necessary minerals are included in these supplements, but minerals may be fed separately (page 12). Most of these supplements can be self-fed.

Most hog producers like to use some animal proteins, such as tankage or meat scraps, in their protein supplements. But if animal proteins are quite high-priced, an all-plant protein supplement like No. 7 may be used on good pasture.

You may have enough skim milk on your farm to feed your hogs. Skim milk is an excellent source of protein. When pigs have plenty of skim milk or buttermilk to drink, they usually don't need any other protein supplement in the ration.

How much protein supplement to feed. From Table 2 you can learn what percent of the ration should be protein. Table 3 gives an idea of how many parts of supplement you should feed to make sure that the hogs are getting the right percentage of protein. Some of the protein is of course furnished by the grain and some is furnished by good pasture.

Table 2.—Protein Required in Rations of Various Classes of Swine

Class or weight of swine	Percent protein needed	
	In drylot	On pasture
Bred sows and gilts.....	14—15	11—12
Nursing sows.....	15—16	12—13
Weaning to 75 pounds.....	20—22	16—17
75 to 125 pounds.....	17—18	14—15
125 to 200 pounds.....	15	12
Over 200 pounds.....	12—13	9—10

If supplements are self-fed, pigs over 100 pounds may eat more than they need, thus making their feed too expensive. You can make the protein supplement less appetizing to them by adding 1 part alfalfa meal to 2 parts of supplement.

If skim milk is the only protein supplement, weanling pigs should have all they can drink. As pigs grow older, they need less protein. After they reach 40 or 50 pounds, 4 to 6 pounds (2 to 3 quarts) of skim milk per head each day, plus a full feed of grain, will provide a balanced ration on pasture. At least 6 pounds of skim milk per head per day, plus grain, is needed in drylot.

Table 3. — Proportions of Grain to Protein Supplement Required by Various Classes of Swine

Class or weight of swine	Parts of grain to parts of supplement	
	In drylot	On pasture
Bred sows and gilts.....	3 to 1	10—11 to 1
Nursing sows.....	3 to 1	10 to 1
Weaning to 75 pounds.....	3 to 2	3 to 1
75 to 125 pounds.....	2 to 1	4— 5 to 1
125 to 200 pounds.....	3 to 1	9 to 1
Over 200 pounds*.....	6 to 1	10—11 to 1

* On very good legume pasture pigs over 200 pounds will make economical gains on no protein supplement at all.

Skimmilk is low in vitamin A and vitamin D, so if pigs are fed very long in drylot, with skimmilk as the only protein supplement, some green, ground, legume hay should be added to the grain ration.

Mineral Supplements

Farm-grown hog rations are low in salt. It should therefore be added to all rations fed to hogs. Salt in the ration of pregnant sows should contain iodine. This kind of salt is called iodized salt. If the sows don't have enough iodine, weak, hairless pigs may be born. It is a good idea to use iodized salt in all rations. Then the hogs that need it will be sure to get it. Iodized salt does not cost much more than regular salt.

Many rations are likely to be low in the minerals calcium and phosphorus. It is therefore good insurance to add these to most rations. A simple and easy way to do this is to always keep a mixture of 2 parts feeding limestone, 2 parts steamed bone meal, and 1 part iodized salt before the hogs. Another way which some people consider even more convenient is to include the mineral mixture in the protein supplements. This has been done in the suggested supplements in Table 1.

Pastures for Pigs

Good pastures save feed, help to furnish needed minerals, protein, and vitamins in the ration, and help to keep pigs healthy. In general, pastures can be divided into three main groups: (1) legume pastures, (2) winter and early-spring rye pastures, and (3) emergency pastures.

Good legume pastures are the foundation of a pasture program for hogs. Alfalfa, red clover, lespedeza, and, in recent years, Ladino clover are widely used for hogs in Illinois. Except for lespedeza, these legumes

can be pastured from about the first of May in most parts of Illinois, and will furnish pasture until frost in the fall. Usually 15 to 25 pigs can be carried on an acre of legume pasture, depending on how good the stand is and how fertile the soil. If the pasture crop gets too high early in the season, it should be clipped, so that the pigs will have a young growing crop to pasture. A ton per acre of first-cutting alfalfa hay was taken from the hog pastures at the University of Illinois in June, 1948.

Rye seeded in the early fall or late summer makes good winter and early-spring pasture for bred sows and for sows and litters. At the University of Illinois Balbo rye is seeded about September 1 at the rate of $1\frac{1}{2}$ bushels an acre. This rye is used either for winter pasture for bred sows, starting about November 1, or for early spring pasture for sows and their litters. Rye is ready for spring pasture about March 15, which is at least six weeks before the legume pasture is ready. The rye that is used for winter pasture for sows is not used for spring pasture for sows and their litters.

Rye used for winter pasture will carry six to eight sows to the acre if it gets a good start before the sows are turned on. In the spring rye will carry at least eight sows and their litters to the acre. If you have only one or two project sows you can have plenty of winter and early spring pasture if you have only $\frac{1}{3}$ to $\frac{1}{2}$ acre of rye.

Emergency pastures should be used when legume pastures are not available. While they are not as good as legume pastures, they are much better than no pasture at all. Here are two suggested emergency pasture mixtures:

(1)

$1\frac{1}{2}$ bushels oats
5 pounds rape
per acre

(2)

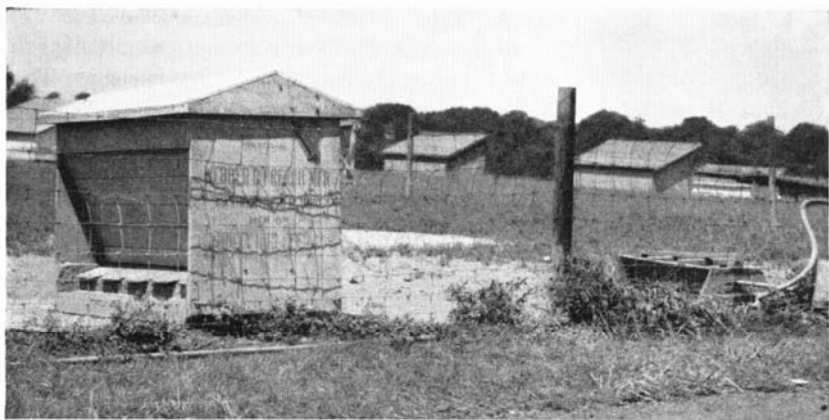
$1\frac{1}{2}$ to 2 bushels oats
2 pounds red clover
2 pounds sweet clover or alfalfa
2 pounds alsike
2 pounds timothy
2 pounds rape
per acre

Feeding the Growing, Fattening Market Hog

Your market-hog project will probably begin with either a weanling pig you have bought from some hog raiser in your community, or with pigs you have produced yourself. You will therefore have to feed the animal so that it will both grow and fatten at the same time. A pig weighing 50 or 60 pounds needs a ration fairly high in protein (Table 2). The ration should also be well balanced in minerals and

vitamins. The protein and vitamin supplements in Table 1 are good examples of supplements to feed.

The growing pig may be either self-fed or hand-fed. If you are starting out and have just one barrow or pen of barrows, you will probably want to hand-feed. But if you have several animals you will probably save time by using a self-feeder (Fig. 9) with grain in one compartment and protein supplement in another. A self-feeder, however, will not take the place of plenty of attention. If you use one, visit your pigs at least twice a day to see that they are all right and have plenty of feed and water.



Self-feeders and an automatic water supply take much of the labor from swine raising. If the pasture is some distance from the building lot, water may be hauled in a large tank. (Fig. 9)

Slopping pigs. Many 4-H members who are hand-feeding mix the grain and supplement together and grind the mixture, often feeding the ground feed as a slop, especially if skim milk is available. Usually, grinding shelled corn will not save enough grain to pay for the grinding; and slopping of pigs, except during show time, will make so little difference in gains that it will not pay for the labor it takes.

However, many breeders who show hogs year after year feel that slopping pigs puts a "bloom" on them that they will not get on dry feed. So if you want to do the best possible job with your pigs and are willing to spend a few extra hours getting them in the best condition for showing, it may be worth while to give them part of their ration as a slop. A suggested ration would be a mixture of ground shelled

corn and ground oats in equal parts as a slop twice a day. Just feed what the pigs will clean up in about 15 minutes. At the same time give them all the shelled corn and supplement they want in a self-feeder. If shelled corn is not available, keeping ear corn before the pigs at all times will do just as well.

Keep pigs on pasture. People used to think that barrows had to be extremely fat at show time. As a result, many project barrows were shut up in a small pen and almost "fed off their feet." Today, a meaty rather than a fat hog is in demand. So it is not a good practice to shut your market hogs up in a pen. If possible keep them on a good legume pasture.

A good green pasture will furnish much of the protein and almost all the vitamins and minerals that a pig needs. Pigs fed good rations on pasture will gain as fast as or faster than if they had been shut up in drylot with no pasture. And because they can get plenty of exercise they aren't so apt to get overly fat and flabby. Rather, they will tend to put on a good firm finish. Good pastures are cleaner than most hog lots, so that pigs on them have a better chance to stay healthy. In addition to all these other advantages, a good pasture will make the feed bill less.

Feeding Young Breeding Stock

Since most club members start their first-year projects with a gilt bought at weaning time, this section will deal largely with feeding young breeding stock after weaning. Feeding the sow and litter is discussed on pages 16 through 19.

Young animals to be used for future breeding stock should be well grown, healthy, and sound in their feet and legs. To have these characteristics, they need the right kind of feed. It is highly important that their rations have enough protein, minerals, and vitamins.

In many ways feeding young breeding stock is like feeding hogs which are going to market. This is especially true of pigs up to 200 pounds in weight. Much of the discussion on the preceding pages about feeding the growing barrow also applies to young breeding animals.

Pasture is important. Like market hogs, young breeding stock should be kept on green growing pasture as much as possible. This will help keep them healthy, will furnish much of the protein, minerals, and vitamins they need, and will help them become big, thrifty, sound pigs which will make suitable breeding stock.

Slopping may be worth while. As with the barrow, feeding part of the ration as a slop will probably put a little extra bloom on the pigs, but it does take more work. If you have time, you might give pigs on pasture a feed of slop twice a day. They should also have shelled corn and supplement, whether they are getting slop or not. Dry feed may be given in a self-feeder, at least until the pigs weigh 200 pounds.

Keep animals from getting too fat. After boars and gilts have reached 200 pounds, they are likely to get too fat if kept on a full feed of shelled corn and supplement. There are several ways to keep this from happening. One way is to hand-feed the hogs enough corn to keep them growing well, but not enough to make them too fat. Along with the corn feed about $\frac{1}{2}$ to $\frac{3}{4}$ pound of supplement per head each day if the hogs are on pasture, and $\frac{3}{4}$ to 1 pound of supplement if the hogs are on drylot.

A second way to keep young breeding stock from becoming too fat is to include considerable oats in the ration. If you want to self-feed your young gilts and boars after they have reached 200 pounds, you might put a mixture of 25 percent ground oats and 75 percent ground shelled corn in one compartment of a self-feeder, with supplement in another part. You may have to adjust this mixture according to the condition of the hogs. If they seem to be getting too fat, add a little more oats to the mixture and cut down on the corn. If they don't seem to be gaining fast enough, cut down on the oats and add more corn. The supplement to use depends on whether the hogs are on pasture or in drylot (Table 1).

Feeding the Brood Sow and Baby Pigs

Good feeding is especially important for the brood sow while she is pregnant and while she is nursing her pigs. In fact, these two periods are the times when poor feeding is most apt to cause poor results in the project.

Feed heavily at breeding time. The brood sow should be fed so that she is gaining weight rather rapidly at breeding time. This practice is called "flushing." Hog producers believe that flushing brood sows helps make sure that they will settle promptly and that they will have large litters. The ration used at breeding time should be well balanced in protein, minerals, and vitamins. Feeding shelled or ear corn and one of the supplements in Table 1 is satisfactory. About 1 pound of supplement should be fed per head per day if the sows are in drylot and $\frac{1}{2}$ to $\frac{3}{4}$ pound if the sows are on pasture. If at all pos-

sible the sows should be on pasture during the breeding season, so that they will get all the vitamins they need.

Cut down ration after breeding. After the sows have been mated and are settled in pig, the ration used in flushing should be cut back a little. Otherwise the sows will get too fat. A sow should gain 80 to 100 pounds while she is carrying a litter, or slightly less than a pound a day. You will have to use your own judgment as to whether your sow is becoming too fat. Remember that she should be in at least good condition at farrowing time, or else she will not milk well.

Pregnant sows can be either self-fed or hand-fed. If they are hand-fed they should get enough grain to keep them in good condition, and enough supplement to balance the ration. Many people like to self-feed bred sows. To keep the sows from becoming too fat, the ration should have quite a lot of bulk. One suggested ration for self-feeding is:

30 pounds ground shelled corn
30 pounds ground oats
30 pounds ground alfalfa hay or alfalfa meal
4 pounds tankage
4 pounds soybean meal
2 pounds simple mineral mixture
<hr/>
100 pounds

This ration would be fed during the winter when pasture is not available. You may need to adjust it according to the condition of the sows. If they tend to get too fat, cut down on the corn and add more oats or alfalfa. If they aren't gaining fast enough, give them more corn and less oats.

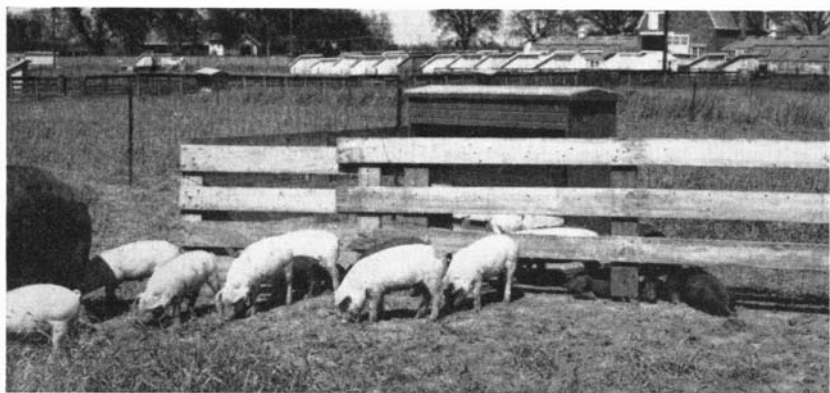
Feed lightly at farrowing time. When a sow is shut up in a pen to farrow, cut down on her feed to some extent, but not enough to make her lose weight. The ration used for self-feeding during pregnancy is still good, but she should get less than a full feed of it. Some hog men like to throw a double handful or so of bran in the sow's feed at each feeding. The bran will help keep her from becoming constipated. The day the sow farrows, give her only a light feed, but be sure she gets all the water she wants.

Increase ration after farrowing. Starting a day or two after the sow farrows, gradually increase her feed until she is on full feed ten days or two weeks after she farrows. If you use a ration like the one suggested above, gradually add corn and supplement at the same time. By the time the sow is on full feed, she should be getting mostly corn and supplement, since she needs a rich ration to milk heavily. More

care and time is needed to bring a heavy milking sow or a sow with a small litter to full feed than one with a large litter or one that is a poor milker. You will have to use your own judgment in this matter or ask your father or 4-H club leader for advice.

If the pigs are to gain fast, the sow must be fed to milk as heavily as possible while she is nursing her pigs. She may be hand-fed or self-fed—the important thing is that she always has all she wants to eat. If one or two or just a few sows and their litters are kept in a lot together, hand-feeding will probably work just as well as self-feeding. But if several sows and their litters are run together, self-feeding the brood sows will probably result in somewhat better gains for the pigs and slightly fewer death losses. Also, self-feeding will take less work. Shelled corn and supplement in separate compartments of a self-feeder give very satisfactory results. If ear corn is hand-fed, it is a good idea to feed supplement in a self-feeder.

Feed baby pigs in creep. When pigs are two to three weeks old, they will begin to want some other food besides their mother's milk. At this time they should have a creep in the corner of the lot where the sow cannot get at their feed (Fig. 10). If this creep is near where the sow eats, the pigs will learn to go into it sooner. A creep is more important if the sow is hand-fed and if there are several sows in a lot, than if the sow is self-fed or there are only one or two together in a lot. However, to keep pigs gaining so that they will not lose their "baby fat," providing a creep is always a good practice.



Feeding pigs in a creep before weaning gives them a good start and helps to keep them from losing weight when they are weaned. Many swine men prefer vertical bars to the horizontal bars pictured, because the pigs don't have to stretch to get under the bars. (Fig. 10)

As to feeds to put in a creep, shelled corn and a pig supplement such as No. 3 or 4 (Table 1) fed in a trough or small self-feeder work very well. If some skim milk is available, the creep is a good place to feed it to the pigs. Be careful that the feed in the creep does not become dirty and sour. If it does become soiled, it should be taken out and fresh feed put in its place.

MANAGING THE SWINE PROJECT

Sanitation

A strict sanitation program is the most important step in managing a swine project. Even if you buy the right kind of animals and feed them the right rations at all times you won't have a successful project without sanitation. A good sanitation program is the basis for all control of disease and parasites.

One of the most effective programs for swine sanitation is the McLean County System. There are four steps in this program (Figs. 11 through 14):

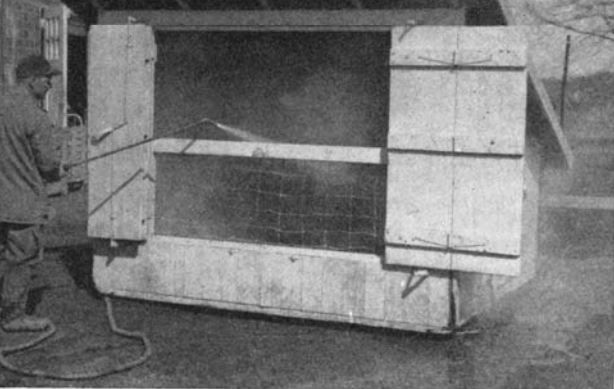
1. *Thoroughly clean and scrub out the farrowing pen.* This is hard work, but it is necessary for good sanitation. First take out all dirt and old bedding that can be scraped out of the pen. Then thoroughly scrub the pen with boiling lye water. Use 1 pound of lye in each 10 to 15 gallons of water. If you can get hold of a steam cleaner, it will do an even better job and do it easier. However, a steam cleaner is apt to be too expensive to be practical.

2. *Wash the sow with warm water and soap* before she is put into the farrowing pen. In cold weather, it may not be advisable to wash the sow completely, but her feet, legs, udder, and sides should always be washed. Washing the sow will help to keep the little pigs from getting a mouthful of worm eggs the first time they nurse.

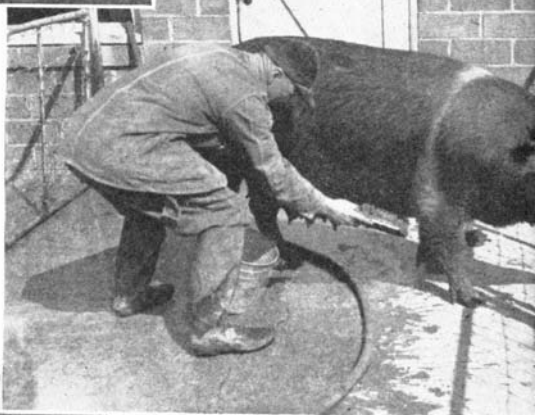
3. *Have the sow farrow in a lot or field where there have been no hogs for a year or two.* Or if it is desirable to have her farrow in a pen around the main buildings of the farm, haul her and her litter out to clean ground when the pigs are a week to 10 days old. The idea is to keep the little pigs from ever running on ground where there have been hogs during the past year.

4. *Keep the young pigs out on the clean ground, pasture preferred,* until they are at least 4 months old. It is better if they never come back into the old hog lots, but if they are kept on clean ground until they are at least 4 months old, roundworms will not cause too much damage.

**THE FOUR STEPS
IN THE
McLEAN COUNTY SYSTEM
OF
SWINE SANITATION**



Thoroughly clean the farrowing pen. A steamer does a good job but is expensive to use. A broom and hot lye water will also do the job. (Fig. 11)

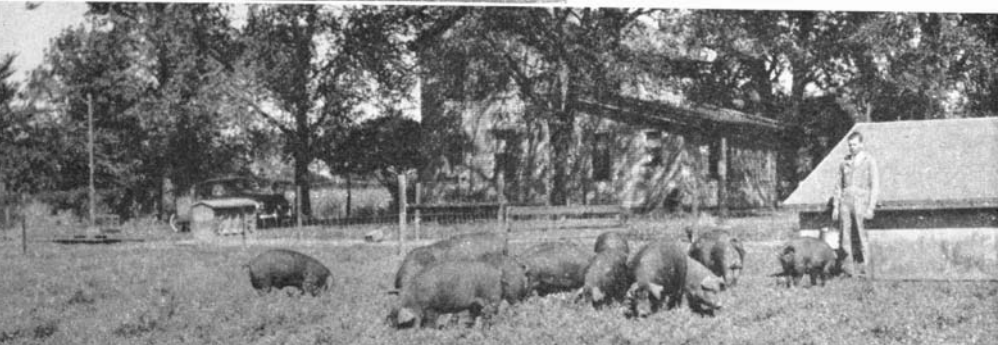


Wash the sow with soap and water to remove dirt and worm eggs. (Fig. 12)



If the sow has farrowed in a pen at the main farm buildings, haul her and her pigs to clean ground. Do not leave them over yards infested with worm eggs and diseases. (Fig. 13)

Keep the pigs on the clean ground. Returning them back in old pig lots is infested with diseases and worms. Good legume pasture will also save grain and help provide needed minerals, vitamins, and protein. (Fig. 14)



Disease Prevention

Two diseases of swine are quite widespread in Illinois. However, they can be largely controlled if you take the trouble to prevent them. These diseases are hog cholera and brucellosis or Bang's disease.

Hog cholera is easily prevented by vaccinating the pigs when they are quite young. There are two methods of vaccinating — the simultaneous or double treatment method and the vaccine method. Usually, the double treatment method is used for healthy pigs. This method makes them immune to the disease for the rest of their lives. If it is used, the pigs should be vaccinated before they are weaned, preferably around 6 weeks of age.

If the vaccine method is used, the pigs should be treated 2 or 3 weeks after weaning. This method does *not* produce life-long immunity to the disease. It is usually used if there has been trouble in past years with the double treatment. If you're not sure which method to use, ask a veterinarian for advice. The important thing, no matter which system is used, is to get the pigs vaccinated while they are young.

Brucellosis or Bang's disease is easily spread from hog to hog. There is at present no vaccine against this disease, so good sanitation and management are all-important. If you buy any animals, it should be with the understanding that they must pass a test for Bang's disease. Also, it is a good idea to keep purchased animals away from other hogs on the farm for at least 30 days. They should then be tested again for Bang's disease before they are allowed to run with the other hogs.

Besides testing all hogs that are brought onto the farm for projects, it is advisable to test all breeding stock on the farm at least once a year. All animals that react should be sold on the market right away. If you can get your father to do this, it may help to keep your hogs from becoming infected and may save you from having a failure in your project.

Brucellosis also affects people, so you should take care to keep from getting the disease. Thoroughly scrub and disinfect your hands after working with sows at farrowing time or handling newborn pigs. It is best to wear rubber gloves while handling newborn pigs, but this may be inconvenient at times.

Many other diseases besides these two sometimes affect hogs. But you can prevent them fairly well by following a strict sanitation program. If hogs do become sick, it is a good idea to call a veterinarian so that he may decide what is wrong and what treatment to use.

Parasite Control

Two kinds of parasites attack hogs — internal and external parasites. The worst internal parasite of hogs is the roundworm. If you follow the McLean County System of swine sanitation, you can pretty well control roundworms as well as most other internal parasites. It is important to carry out completely *all four steps* of the program.

The two most common external parasites of hogs are lice and mange. These parasites can both be controlled by treatment with a drug called benzenehexachloride, usually applied as a spray. The recommended spray mixture is 1 pound of the 10-percent benzenehexachloride dust *or* 2 pounds of the 5-percent dust in 5 gallons of water. In making up the spray, follow the directions on the package.

Thoroughly cover the hogs with the spray — even on the inside of their ears. If you do a good job, one application will usually control both lice and mange. But if your hogs continue to scratch and rub, they should be sprayed again.

Lice alone can be controlled by spraying with used crankcase oil. It is not a good idea to oil hogs during the middle of a hot summer day since they are apt to get too hot.

During the winter months, choose a bright, sunny, mild day for spraying with either benzenehexachloride or oil. After spraying, heavily bed the hogs' sleeping quarters with fresh bedding.

Management During the Breeding Period

Several things should be considered in managing hogs at breeding time. Some of the more important steps to follow are these:

1. Be sure that both the sow and boar are healthy. Both animals should be tested for Bang's disease before the breeding season starts. Also, it is unwise to breed a sow when she has any other disease, such as flu, or to use a boar that has anything wrong with his health.

2. Do not let the boar run with the sow herd, but keep him separate and bring the sow to him. This way you can keep breeding records so that you will know when the sow is due to farrow. You will then be able to get her to the farrowing pen in plenty of time.

Another reason for keeping the boar and the sow herd separate is that if a young boar is allowed to run with a large herd of sows, litters will probably be small and some sows may not even get bred.

3. Provide clean, dry quarters for both sows and boar at all times. This is especially important during the fall and winter, when hogs are apt to get flu and pneumonia if they are kept in damp and dirty houses.

Feeding the sow at breeding time has already been discussed (page 16). Both sow and boar should be getting enough of a well-balanced ration to keep them gaining in weight. If possible, the sows and boar should be running in good green pasture during the breeding season.

Management During Gestation

The period from the time the sow is bred until the birth of her litter is called the gestation period. This is usually 112 to 114 days for hogs but may be 2 or 3 days shorter or longer. Usually a sow that is bred on or after November 9 will farrow on or after March 1 the next spring. You can come within 2 or 3 days of the sow's farrowing date by figuring it will be 3 months, 3 weeks, and 3 days from the breeding date.

Providing the proper housing is an important part of management during the gestation period. During the winter the sleeping quarters should be clean, dry, and reasonably free from drafts, but they should be well ventilated. A house shouldn't be so air-tight that it becomes steamy. There should be plenty of room in the house for the number of sows that use it. Bedding should be changed whenever it becomes damp or dusty.

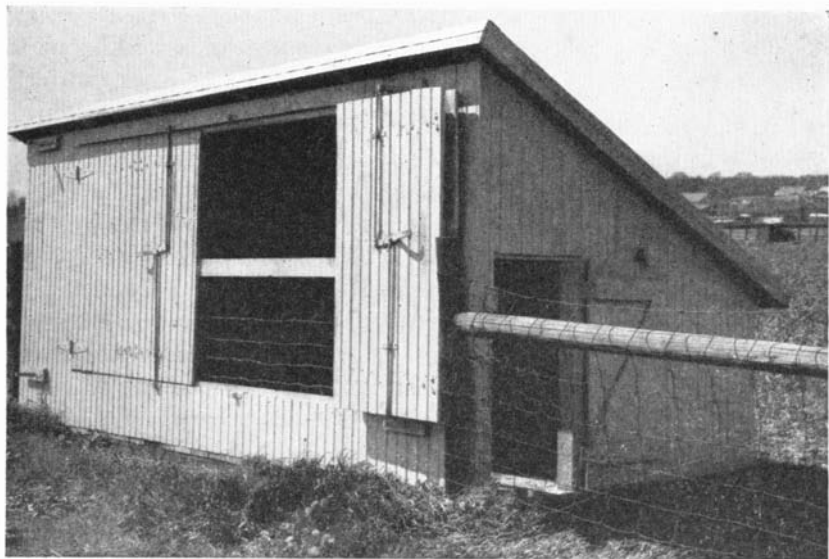
During the summer, one of the best ways to handle a sow bred for a fall litter is to have her on good legume pasture with some shade to protect her from the sun. No other housing will be needed for a bred sow during the summer.

During the winter you will have to make sure that the sow gets plenty of exercise. One good way to do this is to let her run in a corn or bean field to hunt for grain that may have been missed at harvesting. Another good way is to feed the sow some distance from the house so she will get exercise when she goes to eat.

It is not a good idea to let a bred sow run with other classes of livestock like cattle or horses. If cattle have Bang's disease, the sow may pick it up from them. Also, the heavier animals may injure a bred sow so that all or part of her litter is lost.

Care at Farrowing Time

If you have kept careful breeding records, you will know about the day the sow will farrow and can start to make preparations ahead of time. It's important that these preparations be made in advance. If they aren't, the pigs may have to be farrowed in a dirty pen or in a lot where other sows are running—and there's no better way to get a litter off to a bad start.



The front of this Illinois Sunshine type of hog house can be opened on sunny days. The front doors have special fasteners so that you can fasten the doors securely whether they are open or closed. You can get plans for this type of house from the University of Illinois. (Fig. 15)

The farrowing pen. There is no one best kind of farrowing house. The house pictured (Fig. 15) is one of many kinds of movable individual houses found on Illinois farms. But whatever style of house you have, it should be warm, dry, free from drafts, and easily cleaned. If possible, it should be built in such a way that you can easily work with the sow when she is in the house.

A pen 6 feet by 6 feet is large enough for most gilts and many older sows, but some large sows may require a larger pen. It's a good



Simple guard rails keep the sow from lying on her pigs. Rails may be built by fastening 2-by-4's so that they are 8 or 9 inches above the floor and extend 6 to 10 inches out from the walls.

(Fig. 16)

idea to have guard rails (Figs. 16 and 17) around the walls to keep the sow from crushing the pigs against the walls. A pig brooder (Fig. 17) in one corner of the pen will help to save pigs in early spring litters. It should be strongly built so that the sow cannot break it down. If electricity is used, the wiring should be carefully done with good materials, to lessen the danger of fire. The cord running to the bulb in the brooder should be protected so that the sow can't chew on it.

As already pointed out, the farrowing pen should be thoroughly cleaned and scrubbed a day or two before the sow is put in it. The pen should not be too heavily bedded. A medium amount of rather fine bedding is better than a large amount of some coarse bedding like rye or wheat straw.



A pig brooder in one corner of the house will keep pigs from being chilled. Note the fastenings of the guard rails. (Fig. 17)

Watch the sow closely. The sow should be in the pen at least 3 or 4 days before she is due to farrow, so that she will get used to her surroundings. After she is in the pen, look at her several times a day if possible. When she starts to "make a bed" or pile up her bedding, and becomes restless and nervous, she will usually farrow within 10 or 12 hours. About this time milk will begin to form in her teats.

As soon as a sow begins to show signs of farrowing, check her every hour or two until she starts to farrow. Then, if possible, either you or your father should stay with her most of the time, to give any assistance that may be needed and to keep the sow from accidentally crushing some of the pigs. Sitting up with a sow at night may mean the

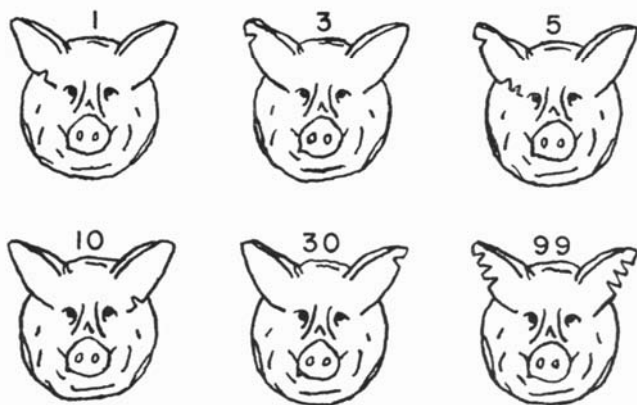
loss of some sleep, but you can make that up the next day, and in cold weather staying with the sow often means saving a litter of pigs which otherwise would have been lost.

Caring for the newborn pigs. As the pigs are born, dry them off (a piece of dry burlap is good) and put them in a warm place away from the sow. This is especially important if the sow is restless. In cold weather placing the pigs under the brooder or in a covered basket with a jug of warm water will help to keep them from getting chilled. As soon as the sow has finished farrowing, put the pigs back with her to nurse. It is usually best to leave them with the sow from then on. If there is a brooder, the little pigs soon learn to go to it, since they find it is the warmest place in the pen.

When the pigs are a day old, you will need to do three things:

1. Apply iodine to the navel cord of each pig. A small bottle of iodine with a double thickness of cloth fastened across its neck works fine. Be sure the navel cord is thoroughly painted.

2. Ear-mark each pig in the litter with a mark used only in that litter (Fig. 18). All purebred pigs must be ear-marked before they



A good system of ear-notching pigs to show the litter number is illustrated here. One notch at the base of the right ear is 1, and two notches at the base represent 2. One notch at the tip of the right ear represents 3. You can combine 3 and 1 for 4; 3 and 2 for 5; two 3's for 6; two 3's and 1 for 7; two 3's and 2 for 8; and three 3's for 9. For 10, 20, 30, and so on through 90, you use the left ear, the notches occupying the same positions as 1, 2, 3, etc., on the right ear. Any number up to 99 can be made by using combinations of these notches. All pigs in the same litter bear the same mark. An advantage of this system is that notches are made on the back of the ears and so do not spoil the appearance of show pigs. (Fig. 18)

can be registered; and if good records are to be kept, every pig, grade or purebred, should be ear-notched.

3. File the needle or wolf teeth with a fine file or clip them with a pair of side-cutter pliers. Pigs may cut each other and the sow's udder if these teeth are not removed.

Care During the Nursing Period

Preventing anemia. Sow's milk lacks the minerals iron and copper. If baby pigs are shut away from the soil and are getting only sow's milk for food they are apt to develop a disease called anemia. Symptoms of this disease are listlessness and "thumps." Usually the biggest, fattest pigs develop anemia first. Anemia may be prevented in two ways:

1. Put some fresh sod or dirt in the pen every day. Be sure to get dirt from a place where hogs have not been running. A good place is a roadside ditch bank.

2. Even better and easier is to paint the sow's udder with a solution of ferrous sulfate. Get a pound of ferrous sulfate from a druggist. Dissolve this in 3 pints of hot water. Some will settle to the bottom of the container, but don't worry about that. Make a swab by wrapping some cloth around the end of a small stick and paint the sow's udder once a day with the solution. Stir the solution each time before you use it. Start doing this when the pigs are about 3 days old.

Housing. Good housing is especially important during the nursing period. Young growing pigs should have clean, dry quarters. If the bedding becomes dusty or damp, it should be promptly changed. When the pigs are 2 or 3 weeks old, they should have a creep (Fig. 11).

Castration and vaccination. Healthy boar pigs which are not to be saved for breeding stock should be castrated at about 4 to 6 weeks of age. They will receive less shock and setback at this age than if they are older and larger. Pigs which are not thrifty or have a temperature should not be castrated.

When castrating, cleanliness is important. Castrate on a bright sunny day if possible. After the operation apply some mild disinfectant to the wound caused by the operation and be sure the sleeping quarters are clean and free from dust.

Methods of vaccination have already been discussed. *Pigs should never be castrated and vaccinated at the same time.* At least 2 weeks should be allowed between operations. If pigs have been castrated

when 4 weeks old, a good time to vaccinate with the double treatment method is at 6 weeks of age.

Schedule for taking care of pigs. The following schedule is a good one to follow when caring for nursing pigs:

1. Paint the sow's udder with ferrous sulfate — every day from the time the pigs are 3 days old until they are running on clean ground.
2. Provide a creep — 2 weeks of age.
3. Castrate — 4 weeks of age.
4. Vaccinate (double treatment) — 6 weeks of age.
5. Wean — 8 to 10 weeks of age.

Managing the Growing Pig

A well-fed, healthy pig on a good legume pasture is probably one of the easiest animals to care for. But a few things do need to be watched.

During the summer plenty of shade is a *must*. Natural shade such as a tree is best. If there isn't any natural shade some artificial shade must be built. A very simple shade may be made in this way: Set a few posts in the ground. Connect the posts with poles fastened to the tops of the posts. Throw some old woven wire over the poles, and some straw, hay, or even weeds on the wire. A movable shade (Fig. 19) is probably even better since it can be moved when the ground beneath it gets dusty. Hogs should never have to depend upon small individual houses for their shade during the hot summer months.

Plenty of clean water at all times is very important. Hogs will not do well if they have to go without water at times. Many types of automatic waterers are available and most of them are satisfactory. It is



A portable sunshade will help keep pigs comfortable during the hot part of the summer and will help guard against heat losses.

(Fig. 19)

a good idea to put these waterers on a platform of some kind to keep the ground beneath them from getting muddy. If hogs are watered from a trough, the trough will need to be filled several times a day, especially during the hot summer months. Waterers should be near the shade and the feeding places.

Gilts and boars should be separated when they are 4 to 5 months old. This is necessary to keep the gilts from having litters when they are too young, ruining them for brood sow prospects the following year.

THE 4-H SHOW

Getting Ready for the Show

Until you have shown your pig or pigs at the local 4-H show, you have not completed your project. Besides being fun, the show gives you a chance to learn a lot about good animals and what makes them good. Many 4-H members have decided to do a better job when they have seen better animals than theirs at the county show. In fact they have gone home and turned what had been rather poor projects into outstanding ones.

Several weeks before the show start training the pig or pigs you are going to show. Try to train them so that you can drive them anywhere with only a light cane or whip. A few minutes a day spent in practice will be time well spent. Don't try to make pets of your pigs. Pet pigs that want their backs scratched in the show ring are worse than pigs that have never been handled, since it is almost impossible to get them to stay in a natural position.

About a week before the show and again the day before the show, wash the pigs thoroughly. Use plenty of soap, scrub them well with a brush, and be sure all the soap is rinsed out of their hair. Don't use a lot of cold water applied with a hose — this is one good way to make pigs catch flu. In cool weather, be sure the pigs have a warm place with plenty of bedding in which to dry off.

A day or two before the show, start getting together the equipment you will need. This will include feed, bedding, water bucket, troughs, brush, light oil, cane or whip, and some rags. If you are going to show a litter or pen of barrows, a hinged hurdle is desirable, though not absolutely necessary.

Try to arrive at the fairgrounds during the cool part of the day. If possible, get there early enough to find pens in the north or east part of the tent or barn since these pens are cooler than those on the south

or west. Do not feed your pigs just before loading them to go to the show. If they are hot when they arrive, wait till they cool off before feeding them.

At the Show

Feeding and watering. Every experienced hog showman slops his hogs while at the fair. A slop containing considerable ground or rolled oats and not too much ground corn is best. Mixing some skim milk in the slop will help keep the pigs eating well. Don't feed too much — just what the pigs will clean up in about 15 minutes. If at all possible, feed your pigs outside their pens, even if it is more work. The pigs will eat better, the exercise is good for them, and their pens will stay cleaner.

One mistake many beginners make is to try to feed too late in the morning and too early in the evening. Feed early in the morning before it gets hot, and wait till the air has cooled off somewhat in the evening before feeding.

Water your pigs several times a day, but don't leave water in troughs in the pen. The pigs will just spill the water, and damp bedding may cause flu.

Caring for your pens. Keep your pens clean and neat at all times. Keep feed and equipment out of the aisles. You and your animals are on exhibition all the time you are at the show, and nothing detracts more from an exhibit than dirty, cluttered pens and alleys.

Wood shavings or sand make excellent bedding in hot weather. Sawdust is good for colored breeds, but if it becomes damp, it is apt to stain white pigs. Straw is not the best bedding in hot weather, but it is much better than nothing. If you do use straw, use only a little and clean it out promptly if it becomes damp.

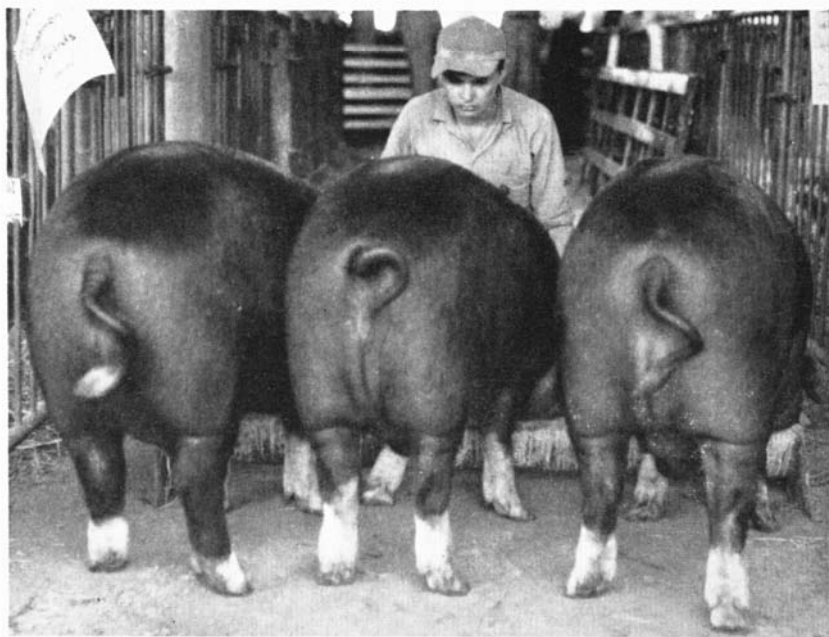
Getting your pig ready for the ring. On show day start getting ready to drive your pig into the ring well ahead of the time when your class is to be called. Be sure both you and your pig are clean. The hair of the colored breeds is usually dressed with oil. Pour some light oil on a rag and brush the pig's hair with the rag. Be careful not to get too much oil on the pig. Too much oil on a hot day will help make him too hot. White pigs and the white markings on colored breeds are usually sprinkled with talcum powder. Brush the pigs lightly after you apply the powder.

Don't carry a brush into the show ring — brushing pigs while they are in the ring will just cause them to get out of a natural position. Instead, carry a rag (with a little oil on it for colored breeds) and use

it to rub off any dirt that happens to get on the pig. Carry the rag out of sight in your pocket when you aren't using it.

Handling your pig in the ring. When your class is called, be ready to start to the ring, but don't rush to be the first one in. If your pig is hard to drive, handle him gently, and don't fight him. A calm, fresh pig has a big advantage over a hot, excited pig that has been whipped on the way to the ring.

In the ring, don't try to drive your pig right over the judge. There are usually too many pigs around the judge for him to see any of them well. On the other hand, don't let your pig get hidden in a corner where the judge can't see him at all. Drive him toward an open space several feet from the judge and try to keep him moving at a slow walk. Keep him between yourself and the judge. The judge can see the pig, and you can keep one eye on the pig and one on the judge. One mistake a beginner often makes is to put a hand on his pig's back. This will make the pig look weak in the back and not as good as he probably really is.



This champion junior pen of barrows at the Illinois State Fair was shown by Rolland Anderson, La Salle county. (Fig. 20)

Try to keep your pig out of fights in the ring. Once a pig gets started fighting, he is usually through showing for that day. Ordinarily, hand hurdles are not used in showing pigs. However, if you have a scrappy boar pig, a friend carrying a hand hurdle can be a big help in preventing fights in the ring.

In hot weather sprinkle some water on your pig if he begins to show signs of getting hot. Every year some 4-H project pigs are lost because they get too hot in the show ring.

You can learn from the judging. When the judging is over and the awards are made, be a good winner or loser no matter what placing you receive. Above all, don't complain if you lose. If you have an honest question about your entry, ask the judge as soon as the class is over. A good judge is always glad to answer a courteous question while the class is still fresh in his mind.

As soon as the judging is over, inspect all the winners and try to see if you can tell why they won. Comparing winners in this way is just as important as any prize money you may win, for it will help you learn how to pick out the best animals.

After the Show

As soon as you get home from the show, start making plans for the next year. If you have a sow or gilt you are going to use in a sow and litter project the next year, start thinking about the kind of boar you can mate her to in order to correct some of the faults she may have. Don't neglect good feeding and management, even though next year's show seems a long way off. Your success or failure for the next year can be affected by the way you take care of your sows, even before they are bred.

Whenever you get a chance, attend purebred hog sales and shows. Try to see why the show winners are better than those that do not win and why some hogs bring more money than others. You can learn something at every event you attend. Only by trying to learn something new at every opportunity will you be able to continue to "make your best better."