

ATTENTION SMALL FARM FAMILIES

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Managing Small Hog Herds

John C. Rea, Department of Animal Husbandry

Size of the Swine Enterprise

In Missouri, most farm families raise hogs for one of the following reasons:

1. To utilize resources that would otherwise go unused: (Example: Extra family labor might be available.)
2. As a part of a diversified farm operation.
3. As a highly specialized single enterprise.
4. As a highly specialized enterprise along with crop production.

Most of the small hog herds fall in category 1 or 2.

One can be successful with a small hog herd. There are, however, some efficiencies realized if the herd size is at least 8 to 10 sows and in most cases this should be a minimum size. Management of a group this size requires about the same amount of time as smaller numbers and the utilization of a boar works fairly well with this number.

Requirements vary for different types of hog production systems. The production of feeder pigs is particularly attractive for beginners and farmers having relatively small herds. It is one of the few agricultural enterprises remaining where a person has an opportunity to start on a small scale with a minimum investment and grow into the business.

Many factors affect the upper limit of the size of a hog enterprise. These include personal ambition, technical ability, operational skills, existing facilities, and others. Herds up to 50 sows have been managed very successfully with other farm enterprises or off-farm work. Farmers tend to specialize when they go above this number. Additional facilities and management techniques are needed for herds of 100 to 200 sows.

Opportunities for Profit

Profits from hog production have been good consistently in Missouri compared to other farm enterprises. They are not automatic, and may vary a great deal from year to year. Examples of profit potential are in Table 1. For the most part these records represent experienced producers and larger herds.

Selection of Breeding Stock

In Missouri there are many excellent sources of good breeding stock. These include:

1. *Purebred Hog Breeders.* Many leading purebred breeders in Missouri sell breeding animals privately or at production sales. Several have gone to more than one breed and offer crossbred gilts at their sales.
2. *Commercial Producers.* Several top commercial producers in Missouri routinely offer crossbred gilts for sale at prices slightly above the market hog price. Many of these producers have used performance tested boars and offer a good selection for replacement gilts. Once you are in the hog business it is a good practice to maintain a sow herd and save back your own replacement gilts. It reduces disease risk.

Selecting good foundation gilts is important. Base selection on (1) individual type or appearance, (2) individual performance, (3) freedom from defects and disease. Excellent gilts can be bought at reasonable prices.

The boar you select will determine half the genetic material in the pigs. He should be selected carefully, based on: (1) type and quality, (2) performance testing information, (3) performance and carcass data on close relatives, (4) freedom from defects and disease.

Guidelines for Breeding Systems

Commercial producers should plan on a cross-breeding system. Research has consistently shown a large advantage for a systematic cross-breeding program. Even a relatively small producer can successfully handle a two or three breed crossing system by selecting replacement boars from the proper breeds.

Reproductive Management Tips

Age to Breed. Gilts usually reach puberty between six and nine months of age. Recent research indicates that well grown and developed gilts can be bred at the

Table 1. Return to Labor & Management Per Hog

	Farrow-Finish	Feeder Pig Producer	Finishing Feeder Pigs
1973	33.44	12.82	4.56
1974	2.21	3.30	4.37
1975	39.65	17.48	12.69
1976	8.63	5.94	.96
1977	19.18	5.58	2.50

Source: Missouri Mail-in Record Service averages.

first or second heat period with little reduction in litter size. Boars should be eight months old, weigh 240 or more pounds and be in breeding condition.

Time to Breed. The heat period for gilts is 40 to 45 hours long and may be close to 65 hours for sows. Mating sows twice during the heat period will increase settling rate and numbers of pigs born per litter. The sow can be bred on the first and second day of heat with matings at least 12 hours apart. More eggs are shed during the last part of the heat period so if only one mating is made, it should be on the second day of heat.

Sows normally come in heat three to five days after their pigs are weaned if the pigs are weaned at three weeks of age or older. Breeding at this heat period is recommended.

Breeding Rates

Boars needed per sow will vary considerably due to individual boar performance and methods of breeding.

Hand mating is where the boar is confined and the sows are brought to him for breeding. This will increase the use of the boars. Boars can be mated twice daily and 8 to 12 services per week using this system. Pasture mating is where the boar runs with the sows, which requires less time and labor. One boar for each 10 sows should be adequate. Don't wean pigs from all 10 sows on the same day, however. Where more than one boar is used, alternating boars every other day for breeding works well.

Boars vary considerably in their breeding ability. A common mistake is to overuse a young boar. A young boar can breed 8 to 10 sows satisfactorily in a four-week breeding period. Actually, if gilts are synchronized, he may be able to handle more than this. Table 2 gives some guidelines regarding the boar power needed.

Table 2. Recommended Maximum Number of Services Per Boar, by Age

Boar	Daily	Weekly
Young (8½-12 months)	1	7
Mature (over 12 months)	2	10

Some producers have been interested in sharing a boar or using the service of a neighbor's boar on a part time basis. From a disease standpoint, this should be discouraged. Another alternative is artificial insemination. With the development of frozen semen this might be feasible in the future. At present, hog producers still have to own a boar and collect the semen and do the artificial inseminating themselves in most cases.

Gestation

The interval between breeding and farrowing in swine is about 114 days. Embryonic death loss is a major problem. (About 30% of the fertilized eggs do not survive to produce live pigs.) Loss during gestation can be reduced with good management. Heat stress appears to be responsible for considerable loss, particularly in the periods shortly after breeding and immediately prior to farrowing. Provide shade and sprinkling systems where needed.

Sows and gilts should be limit fed to avoid over-fat animals. (See Table 7 for sample rations.) As a rough

guide, sows should gain 60-80 pounds during gestation and gilts 75-100 pounds. Four pounds daily of a 15 percent protein ration should be adequate for the first two-thirds of gestation and six to seven pounds during the last one-third of gestation. (Good pasture will reduce feed requirements some.)

Use Table 3 to determine farrowing dates according to when the sow was bred.

Table 3. Gestation Dates for Sows¹

Date Bred	Approximate Farrowing Date	Date Bred	Approximate Farrowing Date
Jan. 1	April 23	July 1	Oct. 21
Feb. 1	May 24	Aug. 1	Nov. 21
Mar. 1	June 21	Sept. 1	Dec. 21
Apr. 1	July 22	Oct. 1	Jan. 21
May 1	Aug. 21	Nov. 1	Feb. 21
June 1	Sept. 21	Dec. 1	Mar. 23

¹For farrowing dates for sows bred after the first day of the month, add the number of days after the first day of the month to the date in the right hand column.

Grouping and scheduling breeding to fit farrowing facilities is important. Two sow groups can be scheduled so each group farrows twice each year at a different time than the other group. This means sows will be in the farrowing unit four times each year.

Farrowing Time

Farrowing is a critical period for pigs. About one-fourth of all pigs die before they are marketed and by far the largest percent die the first two weeks after birth.

Sows usually don't need assistance at farrowing, but being on hand to provide aid for the sow and pigs is a good practice, especially in periods of weather extremes. Attending to the needs of new born pigs will greatly reduce death loss.

Tips for Saving Pigs

- Sows must have a clean, dry area in which to farrow.
- Include bran meal in the ration about one week before farrowing if constipation is a problem.
- Wash the sow's udder with soap or some disinfectant before putting her in the farrowing house.
- Be present when sows farrow. Remove mucus from the noses of newborn pigs. Make sure the baby pigs get mother's milk as soon as possible after birth.
- Examine sows for caked udder. If there is a problem, the udder will usually feel warmer and milk may not be present. Antibiotics and hormones have been used successfully in some cases. Consult your veterinarian for advice if this is a herd problem.
- Dip navel of newborn pigs in iodine.
- Clip needle teeth soon after birth.
- Baby pigs should be placed under a heat lamp if the outside temperature is below 65 degrees.
- Pigs born in confinement need a source of iron. The iron can be supplied by injecting the pigs with an iron compound at one to three days of age or by supplying worm-free dirt for the pigs.

- When sows farrow within 48 hours of each other, baby pigs can be moved between the sows to even up litters. Masking the body odor of the pigs will be helpful. Transfer the big pigs instead of the little ones.
- Castrate boar pigs at 3 to 14 days of age.
- Wean pigs at five to eight weeks. (Earlier weaning will work if you have excellent nursery facilities.)
- Watch for baby pig scours and other diseases. Consult a veterinarian if you do not know what to do.
- The baby pig should receive a worming chemical at six to nine weeks of age, but not at the same time the pigs are weaned.
- When possible, wean by moving the sow rather than the young pigs.

Buildings and Facilities

There is a large variation in buildings used by successful hog producers in Missouri. Cost does not always assure quality. In general, the more costly automated systems require less labor and allow the producer to handle more hogs. Many producers started in the business with a relatively small investment in buildings. Remodeled barns and individual portable type buildings can reduce costs but may increase labor.

New swine buildings are expensive. Recent cost figures have been reported in the following general ranges.

Individual Farrowing Units	\$225-\$500 per sow
Central Farrowing Units	\$800-\$1500 per sow
Central Nursery	\$40-\$60 per pig
Finishing Buildings	\$60-\$100 per pig

Water and feed equipment varies widely in cost and efficiency. Check with established producers in your area on quality and durability of these items.

Preparing a central location for farrowing pigs is advisable.

The central farrowing house can be a fancy system or it can be nothing more than an old building. Some of the advantages of farrowing in a central building are that a central watering system can be used, electricity is more easily provided. Feed supplies can be handled with less labor, care of pigs at farrowing is easier, and labor in general is reduced.

Disadvantages may include manure disposal, lack of ventilation, disease, and possibly greater capital investments. Farrowing crates should be used when pigs are farrowed in a building. Plans for farrowing crates are available from the local Extension Center.

A common system of farrowing is the use of portable farrowing houses. This is more flexible than central farrowing and generally costs less. (Plans for a portable farrowing house are available at the local Extension Center.) The houses should be located in a well-drained area to reduce mud.

Feed and Nutrition Pointers

Feed will make up the largest percent of all costs in raising hogs. It is important to purchase feed ingredients as cheaply as possible and yet provide adequate nutrition for maximum performance. Major recom-

mended levels of protein, calcium, and phosphorus for various classes of hogs are given in Table 4.

Table 4. Protein, Calcium, Phosphorus Requirements

Wt. or class (lbs)	11-22	22-44	44-77	77-130	130-220	Sows
Crude protein %	22	18	16	14	13	15
Calcium (%)	.8	.65	.65	.50	.50	.7
Phosphorus	.6	.50	.50	.40	.40	.5

Total Feed needs should be estimated. Actual records indicate that a farrow-to-finish operation requires from 400 to 450 pounds of feed for each 100 pounds of pork produced. Pigs give the most efficient gains while they are growing (most gain per pound of feed). Average gains and feed intake from weaning to market are shown in Table 5.

Table 5. Estimated Daily Feed Requirements and Gains of Growing Pigs

Body Wt. (lbs)	Average Daily Gain (lbs)	Daily Feed Intake (lbs)
25	.8	1.75
50	1.2	3.00
75	1.4	4.00
100	1.6	5.00
150	1.8	6.75
200	2.0	7.75
220	2.1	8.00

Three main alternatives in buying feeds to meet the pigs' requirements are:

- Buy a complete mixed commercial ration—more convenient, usually higher cost.
- Buy commercial supplements and mix with home grown grains—works well where you have some home grown grain to feed.
- Formulate and mix complete rations—can cheapen rations but must feed fairly large number of pigs to pay for equipment. Requires expertise in formulating mixtures of rations.

Many ration formulations can be made, depending on cost and availability of feed ingredients. Some typical rations are shown in Table 6.

Table 6. Rations for Swine (100 lb. Mix)

Ration	40-75 lb.	75-125 lb.	125-230 lb.	Sow
Corn	77.1	83.1	86.1	77.3
SBOM	20.6	15.0	12.0	17.5
Alf Meal	—	—	—	2.5
Salt	.5	.5	.5	.5
Bone Meal	.9	.4	.4	1.0
Limestone	.9	1.0	1.0	1.2
Vitamins ²	+	+	+	+
Antibiotics	+	+		
Calculated Protein	16.0	14.0	13.0	15.0

The baby pig needs a creep feed in addition to the mother's milk. The creep feed should be available to the baby pigs by the time they are a week old. Creep feeding can consist of about any arrangement that will allow the baby pigs to eat but keep out the sow. Feed a pre-starter until the pigs weigh 15 to 17 pounds, then gradually

Table 7. Suggested Sow Rations With Corn as the Grain Source

Ingredient	Ration number						
	1	2	3	4	5	6	7
corn, yellow	1,570	1,205	1,245	1,235	1,595	1,635	1,435
oats	—	400	—	—	—	—	—
wheat midds	—	—	400	—	—	—	—
wheat bran	—	—	—	400	—	—	—
soybean meal, 44%	360	325	285	300	260	210	300
meat & bone scraps, 50%	—	—	—	—	100	—	—
tankage, 60%	—	—	—	—	—	100	—
dehydrated, alfalfa meal, 17%	—	—	—	—	—	—	200
calcium carbonate	25	25	30	30	15	15	15
dicalcium phos.	30	30	25	20	15	25	35
salt	10	10	10	10	10	10	10
vitamin trace mineral mix	5	5	5	5	5	5	5
Total	2,000	2,000	2,000	2,000	2,000	2,000	2,000

change to a starter with 18 percent protein. Change to a 16 percent crude protein grower ration when pigs weigh 35 pounds.

Sow Rations: For the beginner, particularly with a small number of sows, a complete commercial sow feed may be best. Usually, this will cost a little more than if you buy a protein supplement and mix it with home grown grain or mix complete rations, including minerals, vitamins, and additives. However, for small amounts, the savings will not pay the cost of measuring and mixing equipment. Table 7 gives suggestions for those who want to mix their own.

Proper feeding of breeding stock is very important. Feed accounts for 50 to 60% of all costs in raising feeder pigs. It is very important that you feed a ration that meets all the nutritional requirements and is as economical as possible.

Those who are buying a commercial supplement containing the vitamins and trace minerals as well as the protein will need to follow directions on levels of supplement to mix with their corn or other grain source.

Sows should be fed different amounts of the ration at different times. Table 8 shows some suggested feeding rates for replacement gilts and sows. These figures are guides and will need to be varied according to the condition of the sow. Also, during lactation, the amounts fed will depend on the numbers of pigs that the sow is nursing.

Table 8. Feeding Rates for Replacement Gilts & Sows

	Pounds of Feed/day
Gilts 200-250 lbs	4-5
Gilts flushing-21 days prior to breeding	6-8
Sows 1st 2/3 pregnancy	4-5
Sows last 1/3 pregnancy	6-7
Sows farrowing-weaning	10-14

Self-Feeding vs. Hand Feeding

Self-feeding pregnant sows has not worked out very well. It reduces the amount of labor but even with bulky feeds, the sow will usually get too fat. Self-feeding tends

to increase feed cost. There are some commercial feeds now being marketed that are using mineral additions to limit consumption. These products work fairly well. But compare their cost vs. hand-feeding.

Hand-feeding of sows in lots or pasture can be done easily and at a low cost by using feeding stalls. (Plans are available at the local Extension Center). Stalls are helpful in making sure the sows get enough of the right kind of feed. Alternate day feeding during gestation also will work well. This will reduce labor and research data indicate this doesn't affect number of pigs born or their performance. When feeding sows every second day, double the recommendations for the daily feed requirement.

A good legume grass pasture can lower feed cost. Ladino clover, alfalfa, and a grass such as orchard grass make excellent pasture for sows. Rape pastures make good summer forage for hogs. On excellent pasture, feed per day can be reduced as much as a pound to a pound and a half per sow. There is a large variation in types and quality of pastures. Fescue pasture, wood lots, or brush land do not have nearly as much nutrient value as good legume pasture.

A good pasture can handle 8 to 10 sows per acre or 7 sows with litters. It is important to provide shade if you do not have trees. The shade should be in a well-drained area that is free of mud. Plenty of water should be available. It is a good practice to keep replacement gilts separate from sows unless you are using feeding stalls. Otherwise sows will get more than their share at the expense of the young females.

Health Management

Disease and parasites must be kept to a minimum to raise hogs successfully. Watch for signs of stress and symptoms of disease. Coughing, listlessness, loss of appetite, diarrhea, and rough hair coat may all indicate problems.

Become familiar with common disease problems such as erysipelas, Rhinitis, TGE, leptospirosis, and swine dysentery. Establish a health program to include routine vaccination and worming schedules.

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