

PRODUCTION

In North Dakota, with our large acreages, a conventional type setup is satisfactory for the small or medium sized swine operation and requires less investment.

Thus suggestions and recommendations in the first part of this chapter deal directly with the conventional swine operator, concerning problems connected with management of either the feeder pig or finishing enterprise. Problems of the operator who wants to "go big" will be discussed later, since he has many things to consider in addition to the problems most common to a routine hog management program.

Before starting, anyone considering a hog production enterprise should ask himself some questions. How many hog will he farrow or market each year? Will he build a hog production factory, or keep a small herd of anywhere from a few to 50 sows? Will he raise pigs to be sold as feeders, or finish feeders for market, or both?

The size of his operation will determine the direction to go. For maximum returns on the investment, confinement facilities require a substantial investment and rather a large operation when raising either feeder pigs or a growing and finishing unit.

Any operator starting a swine enterprise, no matter how large his plans for the future, could do well to begin and operate for at least a year with a herd of medium size. This is true when starting any type of hog enterprise. The smaller operation will give him the "feel" of swine production. He can determine if his picture of a swine enterprise seems the one most desirable for the conditions under which he operates. If he plans a feeder pig unit, it will enable him to evaluate the selection of his breeding for a farrowing operation, and will allow him to become acquainted with some of the problems. Management of swine is different from any other type of livestock, with disease, perhaps, the greatest hazard. Establishment of an economically sound swine enterprise includes preventing any disease or infection from entering the herd, and eradicating at once any disease that may get started. Once a herd of hogs

needs to be treated for disease or infection, the profit is gone for that lot. Disease, infections and parasites result in slow gains, a drop in feed efficiency, and stunted pigs, along with others that may appear all right but simply do not thrive.

In a small farrowing operation, gilts are grown out on pasture, with both sows and gilts kept on pasture until shortly before farrowing. For growing out gilts or grazing sows, adequate pasture should be provided during the summer months. One acre of good pasture will provide for about 10 sows. One highly regarded pasture crop is alfalfa, but since the pasture should be rotated, or at least be tilled each year, a crop like winter wheat planted in the spring will provide good grazing on a clean field. A pasture must have an adequate water supply. One hog waterer that can be electrically heated during the winter can be placed on the line fence to serve two pastures.

Pastures of one acre each should have a gate at each end of the division fence between each two lots, so both can be moldboard plowed in one operation.

One year the furrow slice can be thrown to the outside of each lot, and to the inside next to the center line fence the following year. This method of tilling makes plowing easy and eliminates dead furrows, which can cause water erosion and rough lots. It is desirable to have cement ramps on the inside of each pasture lot next to the fence forming the central holding area so that self-feeders have a firm foundation. If the concrete slabs are constructed large enough the pigs may be hand fed on the slab. If pasture finishing is planned, the same type of pasture setup can be used for finishing following weaning. The holding area should have the barn at one end, and the lots on each side, with the other end fenced and with a gate.

About 20 pigs of approximately the same weight is about the right number in one finishing pasture or dry lot. Try to start with the right number of pigs in each lot, since adjusting the number between pens as they increase in size may result in fighting and sometimes the loss of a pig. The fighting involved in establishing the social order also results in poorer gains and feed conversion.

A barn for farrowing may be constructed or converted from another building. A hog barn that is also used for cattle is not ideal, unless it has a concrete floor and is thoroughly cleaned before the hogs are moved in for each series of farrowings. A cattle yard which cannot be thoroughly cleaned in wet weather becomes muddy and filthy and makes

disease control almost impossible.

The barn should be insulated, and with a minimum of, or without windows. Doors should be constructed so they can be closed tight enough to eliminate all draft. An adequate ventilating system should be installed, which may be an air duct constructed in the attic, with at least one exhaust fan at each end and a third in the center to draw in fresh air. The fans on the ends should be thermostatically controlled, and the one in the center controlled by a time clock so the center fan can change the air at regular intervals even though the temperature in the barn has not changed.

Solid floor farrowing houses may be used in small swine operations, but require more labor and bedding. A 24 foot wide house with a 4 or 5 foot alley is adequate. Slope the floors one fourth inch per foot towards the alleyway. With our cold weather, it should be possible to heat the floor with electric tapes embedded in the concrete or three fourths inch copper pipes in the floor through which hot water is forced. The heating tapes or pipes should be at the high end of the pen and should consist of about four pipes embedded in the concrete about one foot apart, or an equivalent with electrical heat. Additional heat can be provided in the building with 5000 watt heaters placed near the ceiling at both ends of the barn and thermostatically controlled. If steam is used in heating the floor, additional heat can be provided using a boiler. A one inch layer of styrofoam beneath the concrete containing the heating pipes or tapes will greatly reduce the heat loss. The styrofoam should be above a firm layer, preferably concrete, to hold it in place.

A sow wash room is desirable. It can be an extra stall with a semi-smooth floor pitched in to the center at one fourth inch per foot and draining into the lagoon or a septic tank. If pens are used, the sow can go from the wash to the pen. Plans should be made to heat water for washing the sow. The same water system can be used for washing the barn when it is being cleaned at the start of the farrowing period. Wash the barn with hot water to which detergent has been added. It should be forced out at not less than 200 pounds pressure. Following washing, spray the barn under pressure with a disinfectant solution, covering all wall and pen surfaces. Use a good disinfectant with a minimum of odor.

Pens 8 by 7 feet with an iron trough built in the gate for hand feeding makes a satisfactory arrangement. If the sows are not hand fed they can be self-fed. The feed can be elevated into a hopper in the attic and augered into a box over each pen and dumped into a self-feeder on the floor. A definite amount of feed can be dumped on the floor, at times regulated by a time clock. The amount can be regulated for each pen. In this case, feed at the high end of the

pen. This system requires a barn more than 24 feet wide, since feeding this way requires an alleyway from 3 to 4 feet wide in front of the pens. In some cases liquid feed is used especially in confinement farrowing barns, and with a balanced ration this works out satisfactorily.

The pen should have guard rails and a brooder with a reflector light or a heat lamp protected by a gate (figure 10). An iron trough in the front gate is desirable unless automatic waterers or nipples are used, and the gate protecting the brooder (figure 11) is necessary. This setup does not require any other equipment, unless the pen is equipped with two iron gates, hinged 22 to 24 inches apart, at the head of the pen next to the wall. These swinging gates (figure 12), can be used to reduce the farrowing area in case the sow is restless, serving the same purpose of a farrowing crate. One gate can also serve as a creep, behind which a small self feeder can be placed when the brooder is removed after the pigs are a week to 10 days old. In case of the sow or pigs need medication it provides excellent protection, and makes handling the sow and/or her litter a very easy matter. When the gate is open to the maximum (figure 13), it gives the sow adequate room for exercise without moving her out of the pen. The gate can be chained in any position desired.

Sows and their litters can be held in the farrowing barn until the pigs are ready for weaning, or moved out into lots or into pasture when from 3 to 10 days of age to make room for other sows to farrow. It is not desirable to put more than two or at the most three sows and their pigs in one lot.

Following weaning, the pigs can be left in the lots or pastures and the sows removed, or they can be moved to a dry lot with a concrete floor with or without slats, for finishing. Slats can be metal or concrete, 4 or 5 inches wide, and spaced 1-1 1/4 inches apart. The slatted area should be about 4 feet wide and 2 inches deeper than the regular concrete floor. If the floor is slatted toward the rear, there should be a manure pit about 5 feet deep and as wide and long as all the slatted floors on one side of the house. When slats are used the waterer should be placed over the slats to help make the pigs dung on the slats rather than on the solid floor. If no slats are used, the waterer should be placed at the end of the floor from which the manure is removed. The feeder should be placed toward the front of the pen, away from the manure removal area. One waterer space or nipple is adequate for 20 pigs, with one waterer serving two pens and one nipple for each pen. One four-hole feeder should be adequate for 20 pigs. The pigs could be fed on the at the high end of the pen with an automatic feeder like the one provided for the sows if self feeders are not desired. Floor feeding promotes the best dunging habit in pigs.

Many breeders believe farrowing crates are ideal and the right way to go. Each crate usually requires an area of about 30 square feet. Many types of commercial crates are on the market, or they can be built at the time the barn is constructed. About the same size barn is desirable when crates are place of stalls, except that there should be an additional alley space in front of each line of crates for feeding, etc. This adds about 5 to 6 feet to the width of the barn.

Pigs can be finished in the farrowing pens, following weaning, unless the pens are needed for more farrowings. Another alternative is to add a pig nursery to the facilities. The nursery can be used for pigs anywhere from newly weaned to a weight of 40 to 80 pounds. It should be so designed that it can be kept warmer and more comfortable in cold weather than the finishing facilities.

Pigs also may be finished on pasture, which takes a little longer when finished in a concrete lot or in confinement. No pen should accommodate more than about 20 pigs of the same weight. The floor of a concrete finishing lot should be pitched and slatted like the floor in the farrowing house, to eliminate labor. Feeding can be handled with a self feeder or on the floor, with all feeding done from the alley.

Each pen should have about 8 square feet per 200 to 220 pound pig. Younger pigs do not require that much space. Some producers handle this by having the center alley off to one side. The pigs are all started in the smaller pens on one side in uniform groups, and are moved to the larger pens across the aisle as these, in turn, become empty. Floors should be semi-smooth and pitched at the rate of one fourth inch per foot.

Unslatted floors should be pitched to the alley, and the manure shoved out into a mechanical gutter cleaner, which saves considerable labor in facilities of this type. If the alley is 8 feet wide, the manure can be loaded on a manure spreader from a gutter.

The slatted area in slatted pens should be the same as for the farrowing house and 2 inches below the cement floor, which is pitched back from the alley.

For North Dakota, a semi-confinement setup will serve the purpose for multiple farrowings and hold costs for a minimum if a confinement program is desired.

Sow and gilts are kept on pasture or in lots until several days before farrowing. The sow is moved into a holding pen for a day or two before being moved into a farrowing crate or a stall.

Grain storage should be close at hand, with metal tanks probably the most satisfactory. Where home grown is fed the processing equipment requires a grinder mixer of adequate size. A portable unit is most desirable. Use home grown feeds when possible. They cost the least, and when supplemented, are satisfactory for any type of hog operation. If processed feed is purchased, a large storage facility may not be necessary, as the feed will be delivered as needed.

Good water with a pressure system should be available at the hog plant. Unless the line can be connected to an underground water system it may be best to have a well right at the hog plant. An automatic watering system should be provided for in the barns, pastures and outside lots, with waterers that can be electrically heated. If properly installed, one waterer will take care of two lots. Adequate water is a must for economical swine production. It is the cheapest and most important feed element.

Confinement

Devoting the major part of one's time to hog production requires a large operation. Because of the labor involved, it should be set up on a confinement or semi-confinement basis. Don't start this type of operation without knowing something about hogs. This is the reason for a small operation and a thorough study of swine production before the expansion.

With the advancement in hog rations and feeding, large numbers of swine can be produced in confinement from farrowing to market, on concrete or in dry lot.

Confinement requires more complete rations, which may cost slightly more than rations fed under other systems. Total confinement has the advantage of controlled temperature both winter and summer. Internal parasites can be controlled satisfactorily, and more hogs can be produced with less labor if the quarters are well arranged. Hogs in confinement make disease control more difficult. Proper manure disposal, tail biting, odors and flies are problems that should be recognized and appropriate control action taken.

The facilities should be free of all hogs for a period long enough to make careful cleaning and disinfecting possible between hog crops. Utmost sanitation practices must be followed at all times to keep disease problems to a minimum.

One of the greatest confinement problems is selecting breeding stock with feet and legs strong enough to withstand continuous exposure to concrete or other hard flooring. Slatted floors in some cases seem to cause additional trouble to feet and legs. The manure handling problem is reduced when a properly constructed pit is located under the barn and a lagoon is provided.

In a semi-confinement system the pregnant sows can be pastured, with adequate grazing, during the summer months, and can be self-fed in dry lots during the winter until shortly before farrowing. Winter housing can be provided in sheds or small houses (figures 14 and 15).

A total confinement system requires a large investment in buildings and equipment. To use this equipment properly, the hog program must be so organized that the facilities are in use year the round.

Developing a large feeder pig production unit, or a growing and finishing unit, requires expensive confinement facilities for either one or both operations. It is feasible to start with one operation, perhaps feeder pig production, and later branch into the other if a total production unit is decided upon.

With this decision, start planning the type of confinement or semi-confinement facilities you want.

Never start construction of facilities on the basis of recommendations by individuals or publications. Locate several successful producers with the type of plant you have in mind. Visit them. Find out what their problems are, and what changes they would make, if any, in their present operations. Try to visit no less than six or more successful swine enterprises of the type you are interested in. The time will be well spent, for it will be the cheapest of education's and will eliminate many pitfalls. Talk with the man in charge at each operation. Ask about the good and bad points of each enterprise. Then decide what your own facilities should be.

Some of the most successful hog raisers have remodeled existing buildings with real success. In remodeling or in

new construction, arrange the space and put in the facilities you believe best suited to your own planned operation, based on your inspection tour. Hog production facilities over the main swine producing areas are of many types. Some work; others don't. This only emphasizes the need for starting with what "grass roots" operators have found best.

Confinement houses may be used for farrowing, for feeder pigs, and for growing and finishing hogs for market. Slats in such a floor should be cement or metal. Solid concrete floors should be constructed so they can be heated on the high end. Heat elements should be installed so they can be controlled separately for each pen.

The manure may fall through the slats into a pit below the barn and drained into a lagoon back of the barn, or pumped out and spread on the fields. Long narrow finishing pens encourage superior dunging habits by pigs as compared with square or nearly square pens. Slats should run the long dimension of the pen. Pigs prefer to walk on slats running the same direction they are moving, so this arrangement results both in more dunging on the slatted area and less foot injury to the pigs. Since reinforced concrete slats appear the most durable, they should be given preference for growing-finishing buildings. However protected steel slats are easier to handle, install, and replace than concrete and may be more satisfactorily used in farrowing buildings. Have complete plans drafted for the entire enterprise before you start construction.

Try to hold down expense, keeping new and untried features to a minimum. You will be less likely to want to change the building after the operation is under way.

A confinement finishing unit should handle at least 500 head or more at one time. To operate economically it must be filled to capacity at all times. Finished hogs should be marketed, and replacement feeder pigs added as near the same time as possible. Outline a plan for a source of feeder pigs, either purchased or raised on the same unit, to be available, disease free, when needed. A smaller unit than this may not pay for both liquidating the initial cost of facilities and provide a net income. If the owner of a finishing unit is furnishing his own feeder pigs, he must have a farrowing setup that will farrow out and raise 35- to 50-pound replacement feeder pigs to be ready at the proper time. This may require sows farrowing each month, with perhaps up to 10 percent more bred than is believed needed to allow for shy breeders, etc., and ensure enough feeders of the right weight at the proper time.

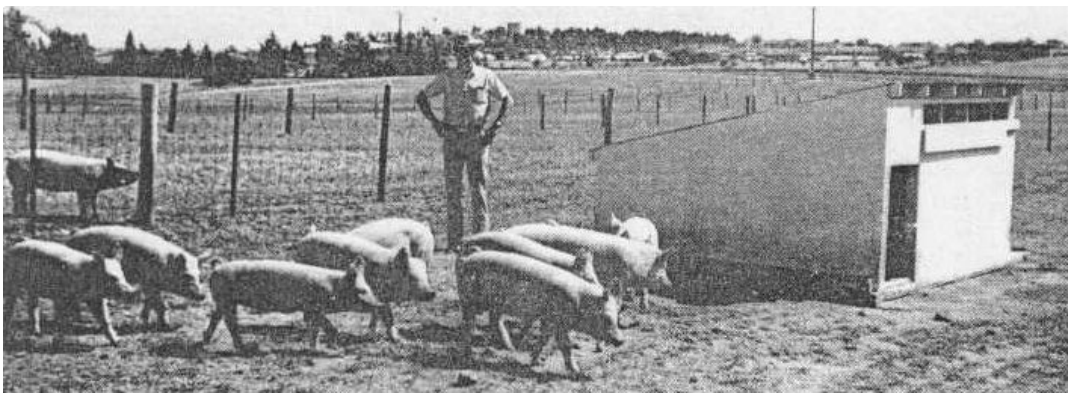
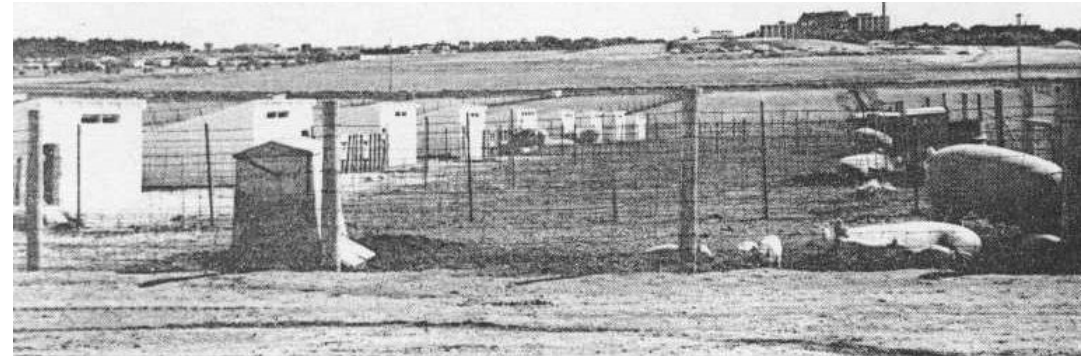


Fig. 14. Hog houses used at the Dickinson Experiment Station

Fig. 15. Hog houses set up in a unit to accommodate several sows and their litters.



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