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# PIG MANAGEMENT

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## INTRODUCTION

Maximum efficiency in any livestock enterprise depends on good management, along with proper breeding and feeding practices. Good management in pig production means skillful, common-sense application of technical knowledge, and ingenuity, in the routine care of pigs. The more detailed aspects of breeding and feeding are dealt with in other publications.

Pig raising is and probably will continue to be a profitable farm enterprise. This is particularly true for the producer who stays in the business and takes advantage of the natural flexibility possible in a pig program, carefully tailoring his operations to the market situation and to available feed supplies.

The operator who plans to make pig production a major part of his farm enterprise should invest in the necessary buildings and equipment and plan on farrowing two litters per sow annually. The higher initial investment is offset by maximum use of all facilities and by lower production costs per pig. The annual cost of maintaining a sow varies

little whether she farrows one or two litters per year.

Farrowing should be planned to avoid heavy marketings in October, November and December. This avoids having to market most of the annual production when prices are usually lowest, and helps to stabilize the industry as a whole. Pigs farrowed in the fall and midwinter bring the highest prices.



The pig producer should strive always for improved carcass quality through better breeding, feeding and management practices. A continuing healthy industry depends on a product of superior quality. Unfortunately the carcass quality of Canadian hogs during the past few years has left a good deal to be desired.

## CENTRAL PIGGERIES

There are two basic types of piggeries in common use. The Danish style has manure alleys next to the outside walls, and a central feed alley. In the Canadian-style piggery both manure and feed are handled in a central alley. Either type is suitable both for farrowing operations and for feeding market pigs.

Both types have their advantages. The Canadian style makes somewhat more efficient use of floor space, and may be better adapted to use of a mechanical manure conveyor. When well constructed, the Danish-style barn is very practical for removing manure by

hand, or small tractor and for maintaining a clean, dry sleeping area.

The control of diseases and parasites should be carefully considered when the facilities are being planned. It helps to have a separate building for farrowing sows and suckling pigs. The latter are more susceptible to infections and attack by parasites than at any other time in their lives, and disease problems are aggravated when the little pigs are kept next to older animals. If a separate building is impractical, some other means of isolation should be provided such as partitions, disinfectant foot baths and separate equipment.

Various methods may be used in framing and roof construction. The method selected should be carefully considered in relation to the insulation, ventilation and heating system.

The floors in a permanent hog house should be of concrete. It is practically impossible to clean plank floors thoroughly and disinfect them. Concrete, because it lasts longer, is more economical in the long run.

The window area is important, particularly because of heating costs. About five times as much heat is lost through double windows as through an insulated

wall, so that any heat gained during a few hours of winter sunlight is lost several times over at night. Windows should be planned only in sufficient numbers to provide reasonable light. A glass area equal to about five percent of the floor area is satisfactory.

For a new piggery, maximum use of power equipment should be planned. For example, manure may be economically removed by a tractor-mounted scoop or bucket if large-scale operations are intended and labor is likely to be scarce. Many such innovations are possible.

## VENTILATION AND INSULATION

There are two main systems of ventilation: by flue and by fan. Fan ventilation is recommended where electricity is available. If the building is large enough for two fans, the usual practice is to have one controlled by a thermostat and the other by manual control.

Proper insulation is essential in a building heated artificially, and helps greatly in preventing condensation and hoar frost in unheated buildings. Two or three inches of mineral wool, or four inches of shavings, are satisfactory for walls. In ceilings, where heat losses are greater than in walls, four or five inches of mineral wool or about six inches of shavings should be used. Sprinkling the

shavings with hydrated lime helps to keep rodents out.

It is a good idea to insulate the outside foundation walls, preferably with mineral wool batts. The insulation should be carried about two feet below ground level. This practice reduces heat losses from the floor.

Further details on ventilation systems, and on value of various types of insulation, are given in Canada Department of Agriculture Publication 1129, *Ventilation of Dairy, Poultry and Pig Buildings* (now in press). This publication will be available soon from the Information Division, Canada Department of Agriculture, Ottawa.

## HEATING

Several types of heating systems may be used in a central piggery. In small buildings an ordinary stove, properly located, may be satisfactory. In larger buildings, some type of forced air unit is preferable.

Radiant heating, though somewhat more expensive, is worth considering in

a building that is to be used much for farrowing in cold weather. For the first few days after birth, pigs require a temperature of 75° to 80° F. if they are to avoid serious risks of being chilled. A warm floor or bed is essential for very young pigs and highly desirable for older ones as well if they are to be kept clean and dry.

## COSTS

The cost of a central piggery varies considerably, depending on the cost and the amount of skilled labor employed. A rough estimate of cost for a 10-pen Danish-style piggery, on the basis of current (1962) retail prices for new materials, is \$3.00 per square foot

of floor space. This would include a good foundation and concrete floor, frame construction, insulation, fan ventilation, lighting, heating, pen partitions and automatic water bowls. Also included in the estimate are three weeks, wages for a carpenter and labor charges for plumbing and wiring.

## COLONY HOUSES

These are versatile units, and should be used wherever practical to keep down overhead costs. The best type has hinged sides that can be raised to provide increased shade area in the summer. Use of plywood will increase durability considerably and will facilitate cleaning and disinfection.



## MANAGEMENT OF PREGNANT SOWS

**HOUSING**—Facilities need not be elaborate. Portable colony houses, well banked with straw, and with sacking or top-hinged plywood doors hung over the entrance, provide adequate shelter in winter. They should be kept dry and well bedded. Straw sheds can also be used, if the ground is well drained and if they are dry and draft-free. Straw sheds can present a serious problem during disease or parasite outbreaks because they cannot be cleaned readily. It may therefore be best to erect them some distance from permanent buildings so that they can be disposed of after they have served their purpose as temporary shelter.

Colony houses are also suitable in summer, and can be moved as pastures are rotated. Each sow should be provided, according to her size, with 12 to 18 square feet of housing space.

**PASTURE**—Pasture crops can be used to excellent advantage in carrying pregnant sows. Alfalfa is undoubtedly the best pasture from the nutritional point of view, but alfalfa-grass mixtures are often more durable and withstand heavier grazing. Mixtures of annual cereal crops and rape (Dwarf Essex variety) also make excellent pig pastures, and simplify the problem of maintaining a suitable pasture rotation. A spring-sown mixture of two bushels of oats and one bushel of winter rye per acre makes a good annual pasture.

A pasture area is presumed to be clean if it has raised a cultivated crop since pigs were last on it. In other words, to be sure that pasture is not contaminated with disease organisms or parasites, the area should be used one year only, cultivated, cropped and then reseeded before pigs are again allowed

on it. It is advisable to limit the size of the pastures to one acre.

Good-quality pasture helps in pro-

Free access to water should be provided if possible. If sows are hand-watered, they need 1½ feet of trough

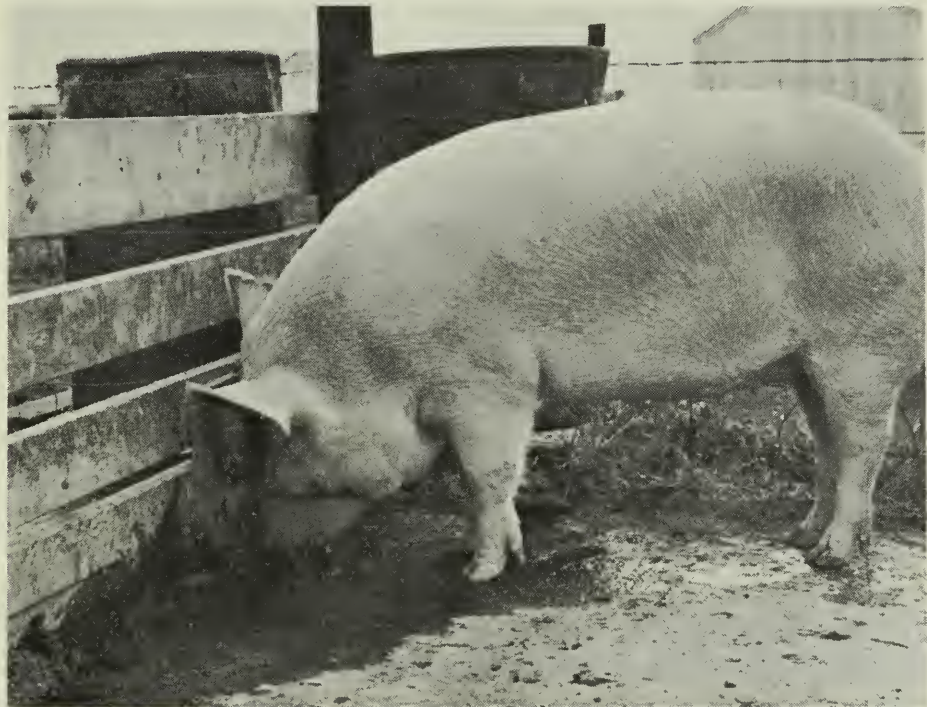


FIGURE 1.—An automatic water bowl attached to a barrel and mounted over a concrete platform provides a plentiful supply of clean water.

viding several essential nutrients. It may be stocked at a rate of six to eight sows per acre.

**FEEDING AND WATERING**—Overfatness at farrowing time causes serious losses in newborn pigs, and should be carefully avoided. If sows are to be self-fed, a light, relatively low energy ration must be used. The beginner is well advised to hand-feed pregnant sows according to their condition (See *Pig Nutrition*, Canada Department of Agriculture Publication 1126). They should be kept in thrifty, vigorous condition.

space each and three waterings daily. Warming the water during the winter is well worthwhile for all classes of pigs, since they must use relatively costly feed to warm cold water within their bodies. Also, they may not drink enough water when it is cold, and so use their feed less efficiently.

**EXERCISE**—Sufficient exercise is also important in the production of strong, healthy litters. Sows may be forced to exercise by feeding them some distance from their sleeping quarters.

## MANAGEMENT AT FARROWING TIME

Farrowing time is a critical period in pig production. Losses resulting from lack of attention, and failure to observe the necessary precautions, can easily

mean the difference between profit and loss in the whole program.

Sows may be farrowed in pens equipped with guard rails and heated



FIGURE 2.—A farrowing stall in use at the University of Saskatchewan. Such equipment greatly reduces early losses due to crushing and chilling. Dimensions are similar to those for a standard farrowing crate.

creeps, in farrowing crates or in farrowing stalls. Crates are useful where sows must be farrowed in quarters not designed for pigs, but in properly equipped and heated piggeries, farrowing stalls are recommended. Use of crates or stalls reduces crushing and chilling losses markedly.

Warm, dry floors are essential. Radiant heating is well worth considering whenever new facilities are being constructed. Where the newborn pigs sleep, temperatures should be kept at 75 to 80° during the first 3 or 4 days and at 65 to 70° until they are about six weeks old. Heat lamps, hung at least 18 inches from the floor and suitably protected, should be used as necessary to provide supplemental heat. The sow herself is most comfortable at a temperature of 50 to 60° F.

**CARE OF SOW AND LITTER**—The sow should be thoroughly washed and placed in clean, disinfected quarters two or three days before she is due to farrow. She should be bedded with clean cut straw or shavings, given

plenty of clean water and watched carefully as farrowing time approaches. Each pig should be checked to ensure that its breathing passages are clean, and care should be taken to ensure that every pig has an opportunity to nurse. If bleeding from the navel occurs, the cord may be tied near the body.

The temporary tusks, or “black teeth”, should be removed close to the gums with a pair of sharp, side-cutting pliers or specially designed tooth nippers. If this is not done the pigs will cut the sow’s udder and scratch each others’ faces, providing possible sites of infection.

The sow should be given warm water only after farrowing. A laxative ration, such as bran, may be offered in limited amounts about 12 hours after farrowing. The sow should be brought up to full feed in about a week.

The sow and litter are best left in the crate or stall for three to four days after farrowing. A pen with a guard rail may then be used. The pen should be bedded with cut straw or shavings.



A sleeping platform is desirable, especially on concrete floors. All pigs should be treated for the prevention of anemia, preferably with an injectable iron-dextran preparation. A good starter ration should be provided, in a creep, as soon as the little pigs begin showing an interest in solid feed. Have clean water available to both sow and baby pigs at all times.

During the summer, sows and their litters may be allowed on pasture. However, if pastures are to be used with any degree of success, they must be free of the parasites and disease organisms to which young pigs are particularly susceptible. Any economic gain from the use of pasture is soon lost if the pigs become diseased or infected with parasites.

**IDENTIFICATION**—All purebred pigs to be registered must be identified before weaning by ear tattoos approved by Canadian Livestock Records, Ottawa. Identification is worthwhile, however whether registered stock is being raised or not. The operator is able to keep track of how the progeny of various sows are performing, and will thus be aided in selecting future breeding stock and in culling the sow herd.

Ear notching provides very satisfactory identification in commercial herds and should be done soon after birth. The system outlined below is suitable for identifying litters, all pigs in each litter receiving the same number.

The litter number is shown by addition of the numbers represented by the notches. For example, a pig from litter No. 74 would have two notches (60) in the upper margin of the left ear, one notch (10) in the upper margin of the right ear, one notch (3) in the lower margin of the left ear, and one notch (1) in the lower margin of the right ear.

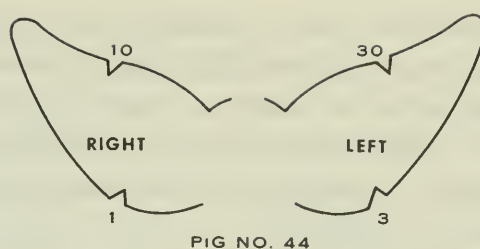


FIGURE 3.—A common system of notching ears.

Systems for numbering both the litter and the individual pigs are available from various livestock supply firms.

**CASTRATION**—All male pigs not intended for breeding stock should be castrated at about six weeks of age. A sharp knife and plenty of disinfectant are needed, and the incisions should be low enough to permit good drainage. The pigs should be returned to a clean, well-bedded pen. A castrating rack (a V-shaped trough with tie straps) should be used in the operation, as it facilitates holding the pig still and in proper position.

Somewhat more care is required in castrating pigs with scrotal ruptures. In such cases the pig should be held suspended by the hind legs, and care taken that only the skin of the scrotum is cut through. The testicle and cord are drawn out within their membrane and the intestine pushed back into the body. A needle threaded with several plies of strong thread should be passed through the cord. Then the thread is wrapped tightly around the cord several times, and tied securely. The ends of the thread should be long enough to hang from the incision. The incision will thus be kept open until healing is complete within, after which the thread will come away of its own accord.

Other causes of stress such as weaning, inoculations, changes of feed and sharp changes of temperature should be avoided for a few days after castration.

**WEANING**—The customary time for weaning is eight weeks of age. However, weaning at six weeks has become practical with improvements in starter rations. Pigs should be weaned at six weeks of age if the sow is failing to provide adequately for them, or if she is becoming badly run down in flesh. The importance of properly balanced, palatable rations at weaning time cannot be overemphasized.

Pigs are being weaned experimentally and by some specialized operators at an even earlier age than six weeks, with a good degree of success. However, early weaning is a rather specialized

operation to be undertaken only where suitable facilities are available.

#### **POST-WEANING CARE OF THE SOW**—

After weaning, the sow should be fed liberally to return her as quickly as possible to breeding condition. It is advisable to treat her for worms (see page 13) immediately after weaning, and before returning her to clean pasture. Treatment may be repeated if necessary about 60 days before she is due to farrow again. A sow harboring worms constantly infests the baby pigs during the period when they are most susceptible.

## **MANAGEMENT OF FEEDER PIGS**

**HOUSING**—Artificially heated quarters are recommended for winter pigs, particularly during the first two months after weaning. Concrete-floored pens, cleaned regularly, well bedded, and equipped with wooden sleeping platforms are most suitable. Pigs can be housed outdoors during the cold weather, in banked or insulated colony houses or straw sheds, but reduced gains and poor feed utilization may be expected if this practice is followed.

Spring pigs should be raised either in a permanent piggery or on good-quality clean pasture. Forage provides part of the protein, mineral and vitamin requirements, but it should never be entirely depended on in this regard.

The greatest advantage in using good, clean pasture for young growing pigs is the reduction in “disease level” and parasite infestation afforded. Dirty lots and pens are undoubtedly the greatest single cause of the heavy disease losses among weaned pigs.

Pigs fed indoors usually make slightly faster and more efficient gains than pasture-fed animals if the ration is properly balanced. However, the quality of pasture and facilities available may affect the results to favor either method.

Suitable shelter for pigs being raised on pasture is very important. They are adversely affected by heat, and sun scald can cause serious setbacks, particularly with young pigs. Colony houses



or simple sun shelters may be used. About nine square feet of shelter should be provided per pig up to 100 pounds and 12 square feet for pigs nearing market weight.

Pigs suffering from sun scald may be treated with mineral oil at regular intervals until the condition improves. Used crankcase oil is also effective. Pigs can oil themselves if provided with a rubbing post wrapped with oil-soaked sacking.

**FEEDING AND WATERING**—The question of self-feeding versus hand-feeding invariably arises. There are no real differences between the two methods as far as gains, feed efficiency and carcass quality are concerned, if the hand-fed pigs are truly full-fed. Self-feeders are sometimes wasteful, particularly if they are not properly constructed and adjusted. However, they save considerable labor, and permit maximum feed intake at all times. One foot of self-feeder space should be allowed for each three or four pigs, depending on their size.

If the hand-feeding system is used, one foot of trough space per pig should be allowed until the pigs weigh 100 pounds and 1¼ feet from 100 pounds to market weight. Slop-feeding is usually practised if skim milk is fed, and has some merit during the winter when feeding a warm slop may encourage feed and water consumption. Slop-feeding cannot be called an aid to good sanitation, however, and is not recommended except in the above instances. Summer pigs should be self-watered wherever possible. Trough space requirements for hand-watering are similar to those outlined for hand-feeding.

**FENCING**—The fencing of pasture-fed hogs is an ever-present problem. Strong, tight fences are required, and the need of providing additional fencing for the proper rotation of pastures adds to the

difficulties. Electric fences can be used with considerable success for brood sows, but feeder pigs should be fenced with heavy-gauge, woven hog wire. A strand of barbed wire at the top and another at ground level will increase effectiveness and durability. Steel posts help in moving the fences rapidly.

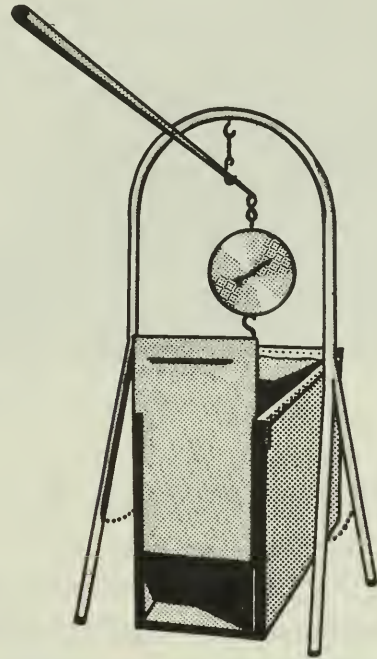


FIGURE 4.—A scale is essential on every farm where pigs are being raised.

#### **MARKETING AND CORRECT WEIGHTS**

—The profit in pigs depends greatly on marketing them at proper weights, namely, 190 to 200 pounds. Overweight pigs, regardless of their conformation, cannot bring top prices. They are, furthermore, expensive to raise because fat is the most costly kind of gain to produce. A scale should be available and conscientiously used on every farm where pigs are being raised.

**ROOTING**—Rooting, if a serious problem, can be prevented by ringing the pigs' noses with hog rings. However, pigs with rings cannot trip most types of automatic watering devices.

Rooting often indicates an improperly balanced ration or an insufficient pasture area.



FIGURE 5.—Plywood “butterfly wings” facilitate handling of pigs.

**MOVING AND HANDLING**—Properly located hurdles eliminate much waste effort in handling pigs. Portable hinged hurdles (“butterfly wings”) are particularly useful indoors for singling out one pig from a group or for moving small groups.

Other worthwhile equipment items are a portable loading chute and an electric prod. The latter is a very effective means of moving animals without injuring them in any way. Bruising is an all-too-common cause of lost revenue.

## MANAGEMENT OF YOUNG BREEDER STOCK

Selections of breeding stock are best made when the animals weigh about 200 pounds. Conformation and growth potential cannot be properly appraised any sooner.

**HOUSING**—Elaborate housing is not required. Shelters like those recommended for feeder pigs are adequate in the summer and banked, dry, well-bedded colony houses like those recommended for sows are satisfactory during the winter.

Pasture should be used whenever possible for young gilts and boars. The forage aids in balancing the ration,

and plenty of exercise, an essential for proper development is ensured. Pastures may be stocked at the rate of about 10 animals per acre.

**FEEDING AND WATERING** — Breeding stock should be fed for good growth rather than for excessive fatness. It is advisable to hand-feed these animals, although self-feeders can be used as long as a light, relatively low energy ration is fed.

It is important that breeding stock receive plenty of clean water, and self-watering devices will reduce labor.

**AGE AT BREEDING**—Gilts should not be bred until they weigh at least 250 pounds. Breeding too early often results in a small, unthrifty first litter, and may have lasting effects on the development and productivity of the sow.

## MANAGEMENT OF THE BOAR

The boar is half the breeding herd. It is a mistake to assume, as is often done, that as long as he is settling sows reasonably well he needs no further attention.

A colony house or sun shade in a pasture paddock is suitable for summer shelter. A well-banked, dry, and well-bedded colony house is satisfactory in winter. Wherever possible the boar should be kept in a paddock alongside the sows. With bred sows for company he is less apt to become cranky and more inclined to take enough exercise.

**FEEDING AND WATERING**—The boar should be fed carefully to keep him in thrifty condition. He should not be allowed to become too fat. Good lush pasture provides a large part of the required nutrients.

## SANITATION

Diseases such as scours or diarrhoea in baby pigs, necrotic enteritis (scours) in older growing pigs, atrophic rhinitis, virus pneumonia, hemorrhagic septicemia and swine erysipelas can cause heavy losses through deaths or unthriftiness. Poor management increases the risk of serious disease problems considerably.

For details of the various diseases, see *Swine Diseases in Canada* (Canada Department of Agriculture Publication 1052). When a disease outbreak is suspected, a qualified veterinarian should

Boars may be used sparingly (one sow per week) when eight months of age, but should not be subjected to heavy service until they are a year old. As a rule, breeding boars should not run freely with sows.

Clean water should be available at all times. As with other classes of pigs, self-watering is recommended.

**GENERAL CARE**—A boar's tusks should be removed when he is a year old and annually thereafter. They can be removed easily with a pair of bolt cutters, or with a hammer and cold chisel used to cut the tusks as they rest against a crowbar. The animal can be restrained by means of a rope looped around the upper jaw, and tied to a post.

The usefulness of a boar is often impaired prematurely by crippling that may result from lack of attention to his feet. They should be checked at regular intervals and trimmed so that he may stand squarely on them and walk easily.

be consulted without delay. Many of the more serious diseases are difficult if not impossible to diagnose on the farm.

Proper sanitary procedures are vitally important to success in pig production. They constitute an effective and simultaneous attack on all diseases and parasites. Good sanitation practices are not difficult to carry out, nor are they expensive.

**OUTDOOR FACILITIES**—Outdoor sanitation is primarily a matter of proper pasture rotations and of avoiding the continuous use of yards and runs. Wherever

possible, pigs, especially young ones, should be kept in grassed or paved areas. If this is impractical, pens and yards should be rotated annually, and the contaminated ground cultivated and cropped before being used again.

A system of pasture rotation such as is outlined on page 4 is strongly recommended.

**DISINFECTING BUILDINGS AND EQUIPMENT**—Effective disinfection depends on adequate contact of the disinfecting agent with the organism or parasite. All organic matter must therefore be removed. A steam jenny is an excellent means of cleaning and disinfecting, but unfortunately such a machine is not usually available. Hot lye solution is also good for both cleaning and disinfecting. The solution is far more effective when used near the boiling point and on housing and equipment that are relatively free of organic matter.

A good procedure for cleaning and disinfecting is as follows:

1. Remove manure completely from the floor and walls by a thorough scraping.

2. Sweep out thoroughly feed racks, troughs, runways and passages. Scrub with hot water and lye, using one ounce of lye in one gallon of hot water.

3. Burn all scraping and sweepings.

4. Empty and scrub individual drinking bowls and drinking troughs with a reliable disinfectant solution.

5. Apply a heavy, even coating of limewash containing a reliable disinfectant to the floors, walls, partitions, mangers, feed racks and gutters.

6. In making limewash, use 1 pound of lime in a gallon of water. Add disinfectants according to directions on the container, for they vary greatly in strength.

7. Remove all manure, straw, bedding and other refuse from the neighborhood of the building.

8. As it is impossible to cleanse and disinfect an earth floor, it is best to remove the top six inches of soil and replace it with six inches of fresh soil from a clean source.

9. Yards and outside runways that have been used by diseased pigs cannot be made safe by disinfection and should be left vacant for at least a year. Remove all litter and manure so that the surface of the soil will be exposed to direct sunlight. Light surface cultivation and cropping is advised.

A number of disinfectants on the market are very effective if used on previously cleaned pens and equipment. Products containing phenol are commonly used.

Whitewashing aids in sanitation and also serves to improve appearance. A whitewash is most simply made by soaking 50 pounds of hydrated lime in 6 gallons of water for several hours and mixing this with 15 pounds of salt dissolved in 5 gallons of water. The mixture should be thinned with water, if necessary, to the desired consistency. The whitewash lasts longer if the salt solution is replaced by 3 pounds of casein glue carefully dissolved in 2 gallons of hot water.

If skimmilk is available, a good whitewash can be made by mixing 7 gallons of skimmilk and 3 pints of formaldehyde with the hydrated lime solution.

Commercial water-base preparations are also satisfactory, although more expensive than the above. Any of the formulas may have disinfectant added to improve sanitation, if desired.

## INTESTINAL ROUNDWORM

The common intestinal roundworm (ascarid) may cause serious economic losses.

Adult worms in the intestine lay eggs which pass out in the manure and contaminate pens, pastures and equipment. Eggs that are swallowed by pigs hatch in the intestine. The larvae move through the intestinal wall into the blood stream and go to the liver and lungs. Here they can cause extensive damage, particularly in pigs that have been weakened by nutritional deficiencies or disease. From the lungs the larvae move upward to the mouth, often causing pigs to cough; they are again swallowed and finally mature in the small intestine, thus completing the cycle.

Prevention of infestation is the best method of reducing ascarid damage, and this is a matter of good sanitation coupled with a systematic control program.

Several drugs are available that, if properly used, are very effective. These include piperazine, sodium fluoride and hygromycin.

If sows are treated after weaning, and placed on uncontaminated ground, roundworms are effectively controlled. However, further treatments can be carried out 60 days before farrowing and on feeder pigs, if necessary. Pens in which pigs are being treated for worms should be cleaned several times daily to prevent reinfestation.

*Piperazine*—This drug, available commercially in several forms, is non-toxic and very effective against roundworms in pigs. It is administered over a 24-hour period in either the feed or the drinking water. Manufacturers' directions with respect to dosage should be carefully followed.

*Hygromycin*—Feeds medicated with hygromycin, an antibiotic, have proved very effective in the control of roundworms. The drug is normally fed throughout the growing period (to 100 pounds), and is available only in complete feeds or protein supplements. Instructions for use are provided by the feed manufacturer.

### NOTE

Plans and specifications for the various items discussed in this publication are given in *Catalogue of Plans—Swine Housing and Equipment*, prepared by the Canadian Farm Building Plan Service and available from provincial extension departments.

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