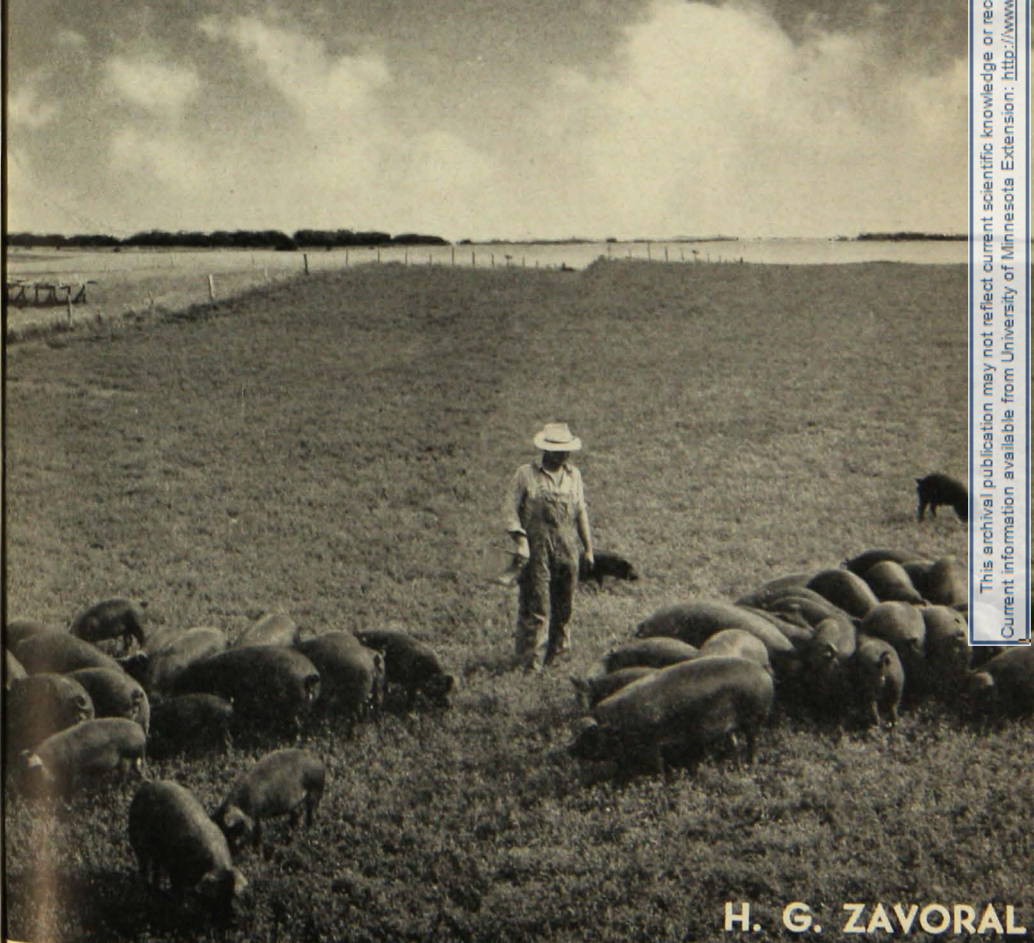


BULLETIN ROOM

HOG HEALTH MAKES WEALTH



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MAKING the most profit from hogs requires raising the most pigs per sow and getting them to market in the shortest time. Pigs having diseases or parasites require more feed to make gains. The margin between feed and hog prices is usually small, so that only healthy hogs make a profit. Unhealthy hogs do not return market prices for grain.

Farmers who follow swine sanitation:

1. Save more pigs per sow.
2. Raise more pork from fewer sows.
3. Avoid runty pigs.
4. Save feed.
5. Speed up gains and catch the early market.

Hog Health Makes Wealth

MINNESOTA farmers are losing millions of dollars annually by raising pigs under unsanitary conditions. A careful study shows that a third of the pigs farrowed die before they are weaned and another third are stunted and unprofitable, leaving only a third that are profitably grown to maturity. The greater part of the losses is the result of diseases and parasites, particularly necro and worms.

Unthriftiness of pigs is the first indication of these filth-borne troubles. Proper treatments have some value, but by the time the symptoms appear

the damage has already been done. Pigs that survive are stunted and runted and require too long a feeding period and too much feed to produce a pound of pork. The only way to solve the problem is to concentrate on prevention rather than cure.

It has been proved that if pigs are raised from healthy sows, in clean pens and on clean ground, the damage from worms and necro can be prevented. Farmers who practice this system of raising pigs find it simple, practical, and effective. They report raising 20 to 30 per cent more pigs from the same number of sows than in previous years.

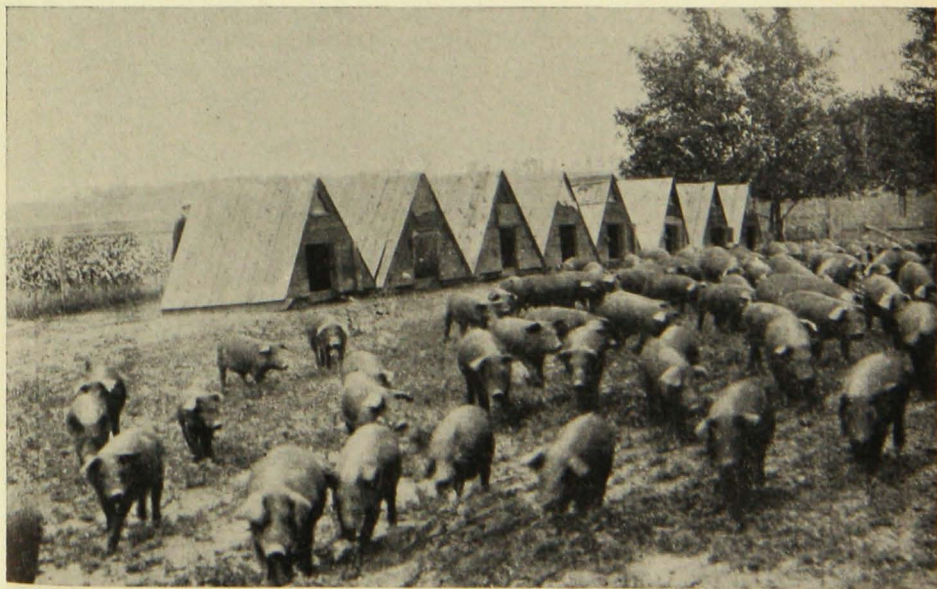


FIG. 1. TWO HUNDRED TWELVE THRIFTY PIGS FROM 26 SOWS

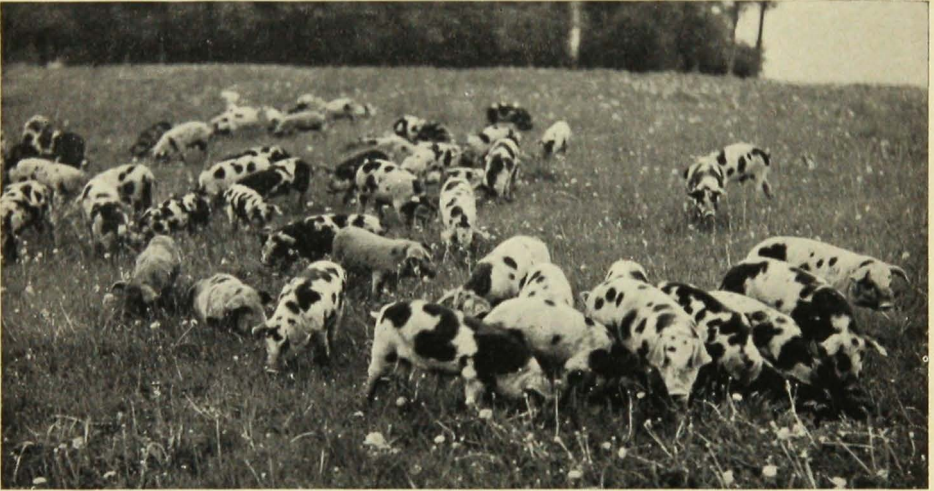


FIG. 2. OUT ON GRASS AND HEADED FOR HEALTH

They also raise thriftier and more uniform pigs that produce larger gains on less feed in a shorter time. This system is adaptable to every farm. It is fully explained in this bulletin.

FILTH BREEDS PARASITES AND DISEASE

The old permanent hog lot is the greatest source of trouble. Raising large numbers of hogs year after year on the same lot makes it a breeding ground for diseases and parasites. Necro disease, also known as bull nose and sore mouth, and the common roundworm are responsible for the greatest

losses. Pigs are most susceptible during the first few weeks of their lives.

These troubles are not inherited and they are not contagious. They are transmitted only when the worm eggs or disease germs from infected animals are picked up by the young pigs in rooting or feeding. This traces the cause directly to unclean surroundings such as the old permanent hog lots, filthy hog houses, and unsanitary feeding places. Little pigs should therefore be kept completely away from such places.

Worms Cause Heavy Losses

The common intestinal roundworm or ascarid is the injurious parasite

A Nobles County farmer says: "This is the first year I have tried your system of sanitation. I raised 212 thrifty pigs from 26 sows, an average of more than eight pigs. I am so pleased with the results that no one could induce me to go back to the old method."

that infests pigs on Minnesota farms. If it were possible to estimate the extra feed required to get wormy pigs to marketable weights, it would amount to millions of dollars. Worms weaken and slow up the growth of young pigs, making them more susceptible to other troubles.

Worms sometimes become so numerous that they consume most of the feed a pig eats. It is not uncommon to find worms obstructing the bowel. They also crawl into the bile ducts of the liver and undermine the vitality of

the pigs. Pigs infested with worms often become anemic, suffer from colic, and may have convulsions. The worms remain in the lungs for a few days while they are developing, and this is where the greatest damage is done. No medicine can kill the worms in the lungs without also killing the pig.

Life History of Roundworms

The life history of roundworms is shown in figure 3. Little pigs may pick up worm eggs from the sow's udder

LIFE HISTORY OF THE ROUNDWORM

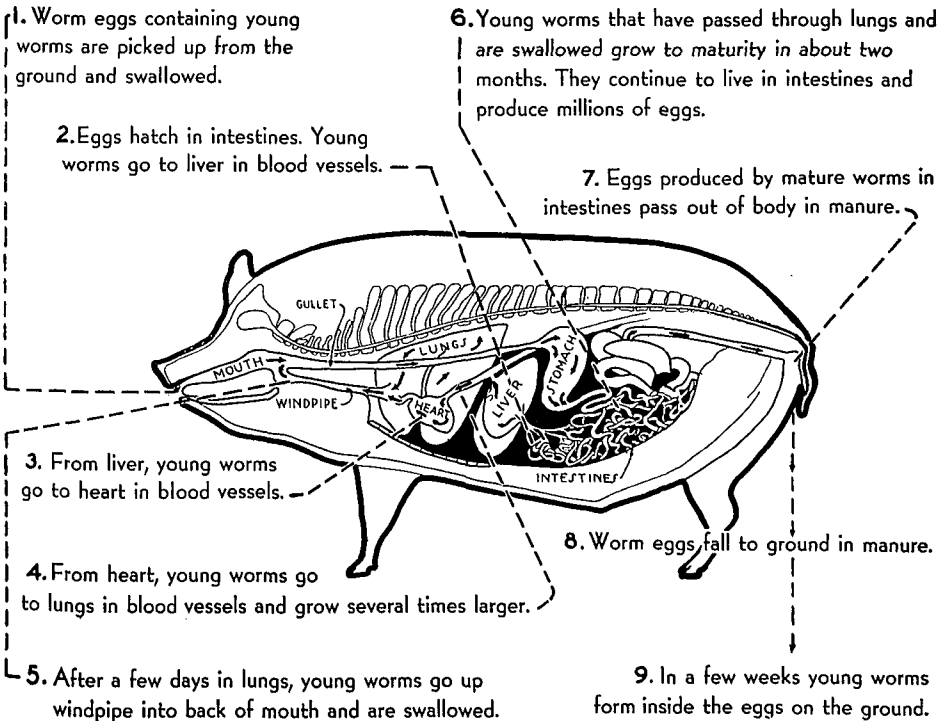


FIG. 3. IT IS WHILE THE ROUNDWORMS ARE IN THE LUNGS THAT THE GREATEST DAMAGE IS DONE; BY THE TIME THEY HAVE REACHED THE LUNGS, TREATMENT IS OF LITTLE HELP

or from the dust in the pens or contaminated ground. If brood sows have worms, fresh worm eggs are passed with the droppings on the floor. Newly passed eggs are harmless. They must go through a period of incubation while they are on the ground, and with favorable temperature and moisture conditions, they become infective three to four weeks after they are passed from the worms. It is best, therefore, to clean the pens daily and haul the manure away so the eggs will not be allowed to develop.

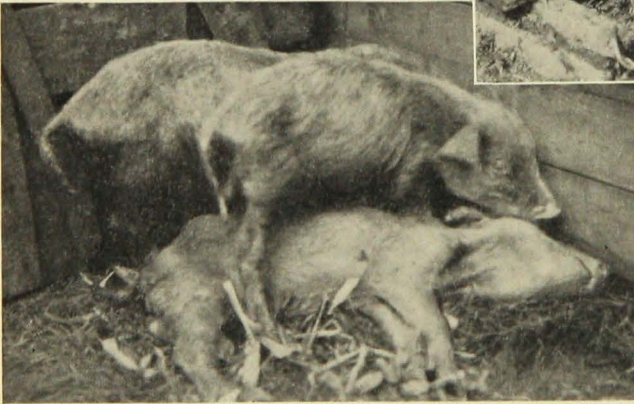
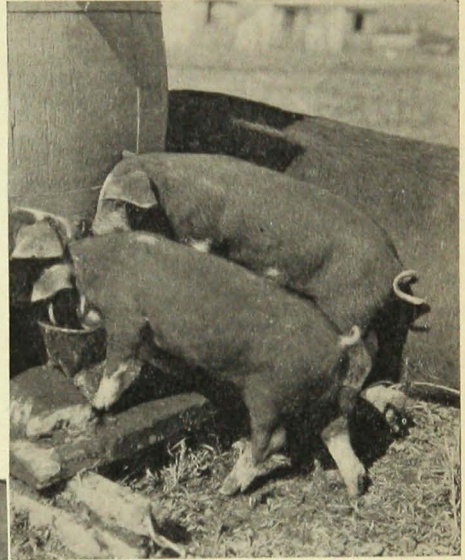


FIG. 4. ABOVE: THESE HEALTHY PIGS ARE THE RESULT OF SWINE SANITATION. LEFT: THESE PIGS ARE BEING KEPT IN THE OLD PERMANENT HOG LOT.

If worms that are about ready to hatch are picked up by the pigs, they leave the shell in the intestines. At this stage they are so small they can not be seen with the naked eye. They do not stay in the intestines but burrow through the intestinal wall and enter the blood stream which carries them to the liver and lungs. Here they grow for a few days and crawl into the air spaces. From here they find their way into the branches of the windpipe. They are then coughed up into the mouth, swallowed, and again reach the intestines, where they soon become full

grown and start laying eggs for a new generation.

Each female worm may produce 40 to 80 millions of eggs. These pass out of the body with the droppings and are again picked up by the pigs. It is a continuous cycle. All worms must go through the lungs before reaching maturity. It is while they are in the lungs that the damage is done. If present in large numbers, they may cause pneumonia or thumps and may retard growth. Worms cause pigs to cough and sneeze and usually weaken them so they are more susceptible to infection.

It is at this stage that most farmers begin to treat the pigs for worms, but by this time the damage has been done. Most treatments at this time are of little help. Worm medicines may be used to kill and expel the adult worms. This will temporarily stop the production of the new eggs. The treatment must be repeated at frequent intervals, as new worms are continually coming into the intestines from the lungs and reinfection takes place.

The continued use of drugs to kill the worms is often injurious to the pigs. All efforts should therefore be concentrated on prevention. Strict cleanliness will control these parasites.

Necro, Sore Mouth, or Bull Nose

Necro, which may appear as sore mouth, bull nose, or some form of intestinal trouble, is not uncommon in pigs heavily infested with worms. These diseases are caused by germs. The

germs thrive in filth, and owing to the feeding habits of pigs, they are picked up by rooting or eating off the ground. They may be picked up separately or with the worm eggs. Necro spreads through a herd of pigs, making them unthrifty and often causing deaths.

Swollen or enlarged snouts are usually the result of necro. Necrotic enteritis (inflammation of the stomach and intestines) is the most severe form of necro, and outbreaks may occur in herds in which there has been no bull nose. Diarrhea and constipation often cause heavy losses.

Separating diseased pigs from the rest of the herd will prevent the disease from spreading. Pigs should always be kept on clean ground. If disease germs are present, many little pigs become infected through mouth cuts caused by clipping their teeth. Clipping the teeth is a questionable practice, but if it is done, only the tips should be clipped. A special nipper

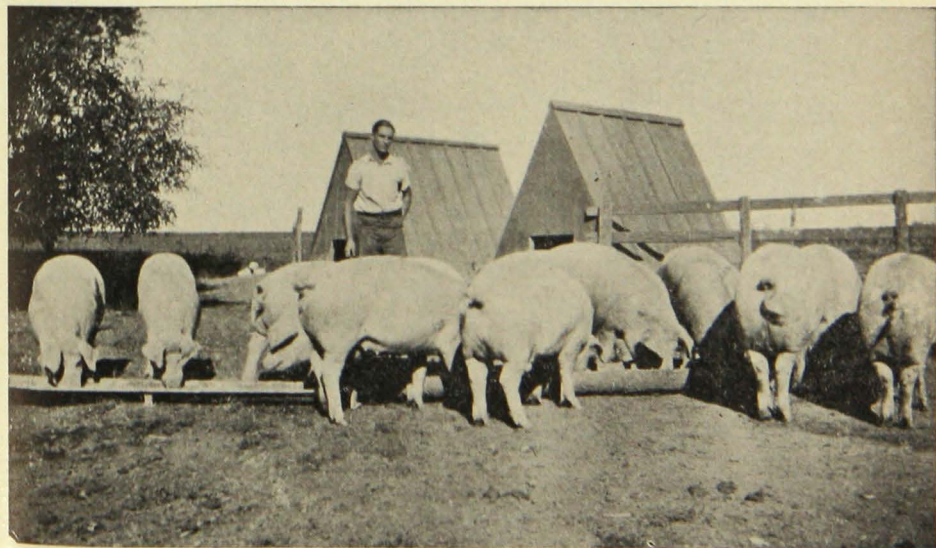


FIG. 5. FOUR-H CLUB BOYS USE THE SANITARY PLAN TO PRODUCE PRIZE-WINNING TON LITTERS

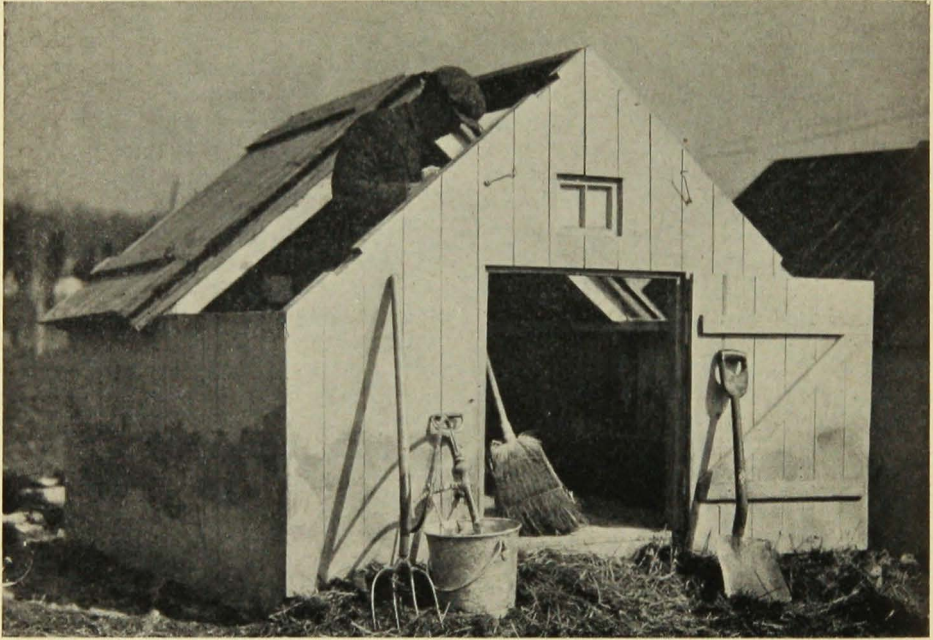


FIG. 6. CLEANING AND SCALDING AN INDIVIDUAL BROODER HOUSE BEFORE MOVING IT

should be used. Pliers crush or break the teeth, and breaks in the gum tissue may result in infection.

A good sanitation system of raising pigs is the best way to avoid necro.

Some treatments will greatly aid in controlling this disease, but most treatments in the past have not been too satisfactory. Pigs that survive necro require too much feed and too much time to reach marketable weights. Some of the newer drugs and antibiotics show promise in helping this condition; for

advice on these matters, consult your veterinarian.

SANITATION PREVENTS WORMS AND NECRO

Pigs are born free from disease and parasites, and sanitary methods are necessary to keep them that way. Pigs suffer most seriously from infection and worms during the first few weeks of their lives. As they grow older, they become more resistant to disease.

A Watonwan County farmer says: "Last year I had 99 pigs at vaccination time, and this year I have 140 from the same number of sows. I have no runts and no signs of worms or necro in my pigs, and they average 40 pounds more at the same age on the same feed. Sanitation alone is responsible for the results."

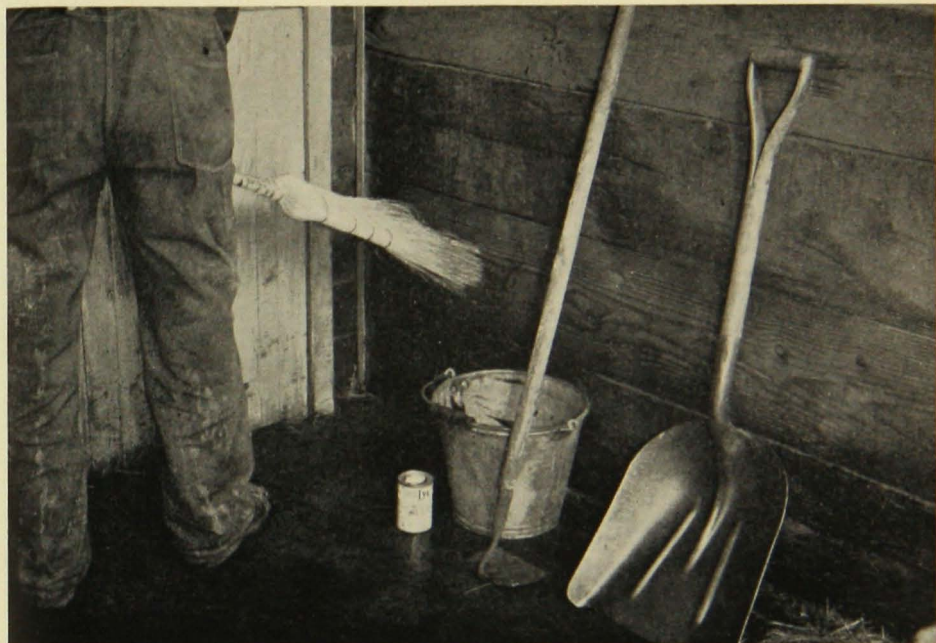


FIG. 7. WASHING FLOORS AND LOWER WALLS WITH HOT LYE WATER SOLUTION

The sanitation system of raising pigs will reduce infection so that little or no damage will result from parasites or filth-borne diseases. This system has been tested on many farms and is now well established as a successful practice. It consists simply of keeping your pigs entirely away from old hog lots and other places that may become contaminated. The system not only prevents losses from worms, but will largely prevent losses from soil-borne diseases such as bull nose, sore mouth,

intestinal necro, and some forms of diarrhea.

Movable Houses Popular

Because they are helpful in solving the sanitation problem, movable colony and individual hog houses are popular on many farms. Several types of movable, heated farrowing houses have proved satisfactory. Some farmers who have permanent houses are not using them for farrowing, because they

A Faribault County farmer says: "Before using the sanitation system of raising hogs, my losses had reached 50 per cent. During the last four or five years, since using that system, I have raised more than 1,200 hogs and losses have been less than 5 per cent."

cannot provide clean surroundings. They have their sows farrow in individual houses on clean ground some distance from the permanent hog house. If farrowed in late August or early September, the pigs will be past the age of greatest susceptibility to worms before they are put in winter quarters.

Concrete Floors

Many farmers have concrete feeding floors on one, two, or all sides of their permanent hog house. These floors are fenced, scrubbed before farrowing, and used for sun porches for the pigs until they are weaned and hauled out to clean ground.

They may be kept on the floor for 8 to 10 weeks. Some farmers take the sows away at weaning and keep their market pigs on concrete floors until marketing time. This method of raising pigs is spreading and is followed by more successful hog producers.

Four Steps Necessary in Sanitation

1. Clean the hog house and scrub it thoroughly with boiling lye solution.
2. Wash the sows, especially their sides and udders, with soapy water before putting them into the clean farrowing pen.

3. If the pigs have been farrowed in permanent houses, haul them to clean pasture.

4. Keep the pigs on clean pasture.

These requirements are simple, but they are necessary if the pigs are to be kept in good health. All are preventive measures and must be observed until pigs are about four months old. If any one of these steps is neglected, the pigs may become infected. After four months, pigs are reasonably resistant to worms and necro.

CLEANING THE HOUSE.—Regardless of the type of house used, it should be cleaned thoroughly just before the sows are due to farrow. In cleaning



FIG. 8. WASH SOWS THOROUGHLY, ESPECIALLY THE UDDER

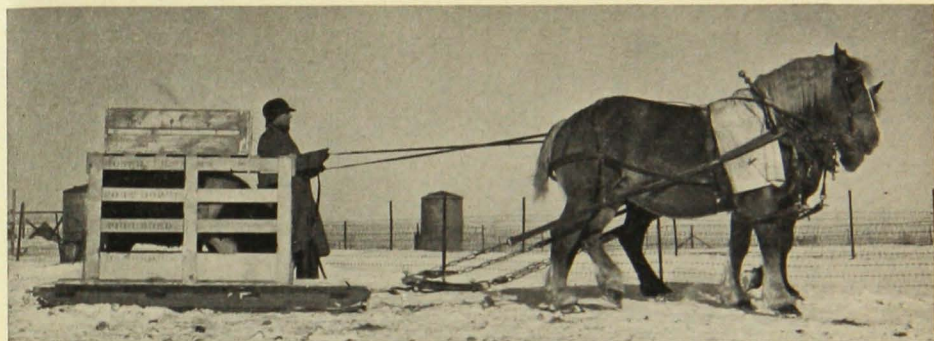


FIG. 9. THE CAREFUL HOG MAN HAULS HIS SOW AND PIGS TO CLEAN PASTURE
The baby pigs are in the box on top.

the permanent house, take out all movable partitions and remove all litter and dirt from floors and lower walls with shovel, hoe, or scraper. The floors may be soaked a day or two to loosen the dirt. Wash all floors, partitions, and lower walls with a boiling lye solution. (One pound of lye to 30 gallons of water is recommended.) The boiling water kills worm eggs and destroys germs, and the lye loosens the dirt. The water may be heated in a large kettle such as is often used at butchering time. Many farmers have stoves in hog houses and others set up oil stoves temporarily. An old broom makes a good scrubbing brush. Keep all hogs out of the clean pens until the washed sows are put in them.

Floors of movable houses should be scalded before the houses are moved to clean ground. Houses having dirt floors are more difficult to clean. It is advisable to haul out three or four inches of the old dirt and fill in with clean soil. Woven wire laid under about three inches of soil will keep the sows from rooting deeper.

A horse or cow barn is often used to good advantage for farrowing early pigs. If these places have been used for hogs before, they should be carefully cleaned before being used again.

Concrete or wooden feeding floors outside the permanent hog house should be thoroughly scalded with the lye solution. Concrete floors are easily cleaned and make excellent places to exercise and sun sows and pigs.

Since it is impossible to disinfect hog lots, they should be plowed and seeded before being used again. A four-year rotation is the most desirable. Under favorable conditions, worm eggs may survive in the ground for three or four years.

WASHING SOWS.—Wash the sows with lukewarm soapy water before allowing them in the clean farrowing pens. This should be done even with sows that have been on pasture. Particular attention should be given to sides, udders, and feet to remove worm eggs and disease germs in the dirt adhering to these parts of the body. This washing will prevent the pigs from getting worm eggs or disease germs when they first suckle.

Sows may be washed in horse or cow barns, or one pen in the hog house may be reserved for this purpose. If they are on pasture, they may be corralled in a corner by use of hurdles or gates. They may also be placed in a crate or driven into a stock rack or wagon box for washing. Sows may be

washed and put into the pens at any time before farrowing, but preferably not longer than two weeks ahead.

While the sows are being washed, they should be carefully examined and if there are any signs of mange and lice, the sows should be treated so the little pigs will not be infested. Consult your veterinarian on the new treatments such as BHC, chlordane and lindane.

HAULING PIGS TO CLEAN PASTURE.—If the pigs are farrowed in the permanent hog house and there is no clean lane to the pasture, both pigs and sows should be hauled instead of driven. If they are driven, worm eggs and disease

Pastures Necessary

Pastures are so essential to the swine sanitation plan that they often mean the difference between profit and loss. Many kinds of pastures may be used, but alfalfa, sweet clover and other clovers, and rape give best results in Minnesota. Winter rye sown in the fall furnishes excellent early pasture.

Experiments show that pigs farrowed early and crowded for the early market are usually the most profitable. It is therefore advisable to full-feed the early-farrowed pigs. If the pigs are not full-fed, even on the best of pasture it is desirable to feed at least 2 or 3

A Cottonwood County farmer says: "We divided our herd of sows, raising twelve in the old hog lots and eleven under the sanitation system. When we vaccinated in June we had 72 pigs from the 12 sows and 87 from the 11 sows, an advantage of over 30 per cent in favor of sanitation. The pigs raised under the sanitation plan are bigger, more thrifty, and more uniform and are free from necro and worms."

germs may be picked up or carried from the old lots or runs. Hauling is easy if one has a convenient crate and a stoneboat, a sled, or a low-wheeled wagon.

KEEPING PIGS ON CLEAN PASTURE.—Keeping pigs away from old hog lots and other contaminated places is best done by raising them on clean pastures. A clean pasture is one that has not been used for hogs for at least two years. Keep pigs on clean pasture until they are at least four months old, or weigh about 100 pounds. Then they are past danger. Do not allow them to run in the old hog lots. Many farmers furnish their pigs with clean pasture but allow them to run back in old hog lots.

pounds of grain for each 100 pounds live weight. Less than this will not keep pigs in a healthy growing condition.

One of the great advantages of pastures is that the pigs can be kept healthier than on old hog lots. Pigs make cheaper gains on pasture because forage crops are succulent and are rich in protein, minerals, and vitamins, so that the pigs require less grain to make 100 pounds of gain than they do in dry lots.

Good pastures have been known to save one third of the protein feeds and as much as one fourth of the grain.

A well-drained part of the farm should be selected for hog pastures. Hog yards may be so arranged that



FIG. 10. ONE WAY TO PROVIDE WATER FOR HOGS ON PASTURE

new runs to different pastures are used each year. Where there is no pasture seeded from the previous year, a thick

seeding of small grain such as oats, rye, or barley makes an excellent early pasture. This may be followed by rape or by sweet clover sown without a nurse crop. Sudan grass may be used during the latter part of the season.

Water, Feed, and Shelter

“The sanitation system is simple enough, but who is going to carry water and feed to pigs out on pasture?” Satisfactory ways have been worked out for meeting this problem, and farmers who have given the system a trial say they have been well repaid for the extra work. If the pasture is close to the farmyard and the ground slopes, water may be piped through $\frac{3}{4}$ -inch pipes on top of the ground direct from



FIG. 11. SIX MONTHS OLD, AND READY FOR MARKET.

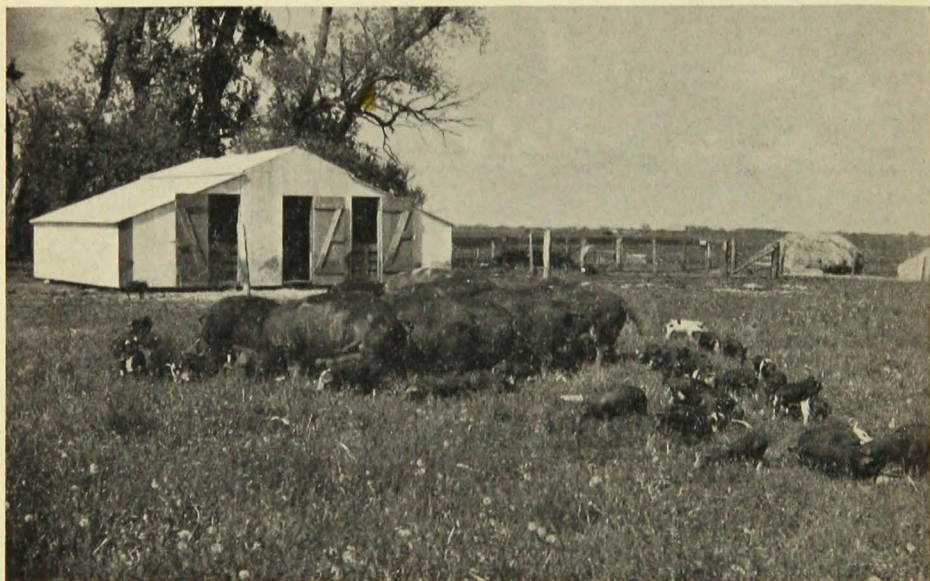


FIG. 12. A MOVABLE COLONY BROODER HOUSE

the farm well or tank. If the pasture is some distance from the farmstead, it is sometimes possible to dig a shallow well. Many wells have been dug with a post auger equipped with an extension. If used for a long time, the hole may be lined with tile. On sandy soils, wells have been made simply by driving in a sand point. Where fields are tiled, a well can usually be dug below the level of the tile and a supply of water obtained for at least part of the season. On many farms, water has to be hauled in barrels or in tanks.

Usually enough feed to last several days may be hauled at one time and left in the wagon box or put in self-

feeders. A waterproof cover for a wagon may be had at small cost. If natural shade is not available, some shelter must be provided. The sides of many individual hog houses may be propped up to furnish shade while the pigs are small, but this is not adequate when they are larger. It is advisable to erect inexpensive shelters to protect the pigs from intense heat as well as cold. A good shade may be made by setting in regular fence posts, placing support rails over them, and brush or coarse sweet clover on top. Straw or coarse hay may be spread on top of brush or sweet clover. Shades should be built high enough for air to circulate.

A Martin County farmer says: "I raised 55 pigs to maturity from six gilts. The 55 pigs averaged 211 pounds in 180 days. Sanitation and good feeding made it possible."



FIG. 13. FARROWING SOWS ON CLEAN PASTURE IS A GOOD FALL PRACTICE

Always Guard Against Disease Losses

Things "too numerous to mention" can happen in a herd of swine. To stay in business, farmers must continually guard against losses. The successful ones "clean up, clean out, and keep clean." Sanitation is the greatest insurance for hog health. If disease does break out, a veterinarian should be called. There is no "shotgun" cure for all swine ailments.

New stock should have a clean bill of health. Outbreaks of trouble can often be traced to newly purchased

hogs. One often hears the following stories: "It was the last sow I bought that brought mange or lice on my farm." "I never had necro on the place until I bought that bunch of feeders." "The show herd carried 'flu' home to my pigs."

New stock should be kept in a pen away from the rest of the herd for two or three weeks and watched for diseases or parasites. The show herd that has been at the fair should also be kept separated for two or three weeks and if possible have a separate caretaker to prevent carrying germs to the regular herd.

A Jackson County farmer says: "Eighteen sows farrowed this spring raised 133 pigs, or more than seven to the litter. Every one of the pigs is thrifty and free from worms and necro. This success is the result of following your sanitation plan."

COOPERATIVE EXTENSION WORK
IN
AGRICULTURE AND HOME ECONOMICS
STATE OF MINNESOTA

AGRICULTURAL EXTENSION DIVISION
UNIVERSITY FARM
ST. PAUL, MINNESOTA

UNIVERSITY DEPARTMENT OF AGRICULTURE
COUNTY EXTENSION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
COOPERATING

Mr. Hog Producer
Home Town
Minnesota

Dear Friend:

When you read this bulletin, check carefully every step and statement. Then see if you do not agree that the sanitation plan is a common sense way of raising pigs.

In my 20 years or more of extension work in Minnesota I have spoken to thousands of farmers, talked individually with hundreds, visited dozens of farms in every hog-raising county, and answered many letters. These contacts have convinced me that most difficulties in raising pigs result from filth-borne diseases and parasites. These troubles can be prevented by the sanitation plan. The testimony of the producers quoted is typical of the results farmers have secured through swine sanitation.

As you study how parasites and diseases attack baby pigs, you will see the reason for each step in the sanitation plan. No other system will give pigs the desired protection. The plan will work on any farm where the owner is willing to give it a trial.

Sincerely yours,

H. G. Zavoral

H. G. Zavoral
Extension Animal Husbandman

