

UNIVERSITY OF IDAHO  
AGRICULTURAL EXPERIMENT STATION  
Department of Animal Husbandry

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Swine Management in Idaho

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Grand Champion Pen Barrows at International Livestock Exposition, 1918.  
(By courtesy Weaver, Missouri Experiment Station)

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By  
O. E. McCONNELL

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# SWINE MANAGEMENT IN IDAHO

O. E. McCONNELL\*

## PLACE ON THE FARM

The hog is generally considered a by-product, or a means of marketing the by-products of the farm. He is found in the dairy districts as a means of obtaining a good price for buttermilk, skimmilk, and whey. He consumes the cull potatoes, apples, kitchen refuse, and the various unmarketable products that are found on every farm. We find him in cattle feed lots, where he makes marketable pork out of the undigested material that would otherwise be wasted.

The gleaning of pea, wheat, barley, and oat fields in this state is an important factor in farming, and the man who does not turn the grains that are left in the fields after harvest into pork is losing one of the easiest incomes on the farm. A lack of hogs to glean these stubbies very often turns grain farming into a loss, when it should have been a profit.

The farmer who grows his own feeds is in a much better position to finish hogs than the man who has to buy all his feed. He may not get any more than the market price for his grain consumed by the hogs, and still have a fair profit thru selling his produce at market prices in the form of pork; while the man who buys all his feed has for profit only what he receives in excess of the market value of the feeds consumed by the hogs. The man who buys his feed gets only the "feeder's profit"; while the man who raises his own feed gets both the grower's profit and the feeder's profit. Another point that is worthy of consideration here is that under favorable conditions and skillful management young pigs can be raised cheaper than feeder hogs can be bought.

The production of feeder hogs is another factor that is becoming rather important economically. These hogs weigh from 100 to 150 pounds, and are being raised on the farms at a very reasonable cost. Many of the farmers are cleaning their wheat and peas before putting them on the market. The screenings from the grain, along with the other unsalable products of the farm, are fed to the hogs grown for feeders. These are sold to the corn belt farmers. In normal crop years there is always a demand for feeder hogs. Nebraska and other corn states take all available hogs of this kind. As soon as the Idaho farmer learns to produce enough of the type of feeder hogs these states want, there will be no question of a favorable market for Idaho's surplus swine.

This type of farming has a three-fold character. The cleaning of the grain practiced by the best farmer enables him to put a better grade of grain on the market, and thereby to receive a better price for his grain.

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\* The writer desires to acknowledge his indebtedness to Professor C. W. Hickman, E. F. Rinehart and Wm. Kerr for helpful criticisms and suggestions.

The unmarketable products of the farm can be sold in the form of pork. The hog utilizes the products that would otherwise be next to worthless, and makes a good profit for the farmer.

When the yields of the different grains of this state fifteen years ago and the yields of the same grains today are considered, the practical man realizes that sooner or later diversified farming must be developed. Rye, oats, wheat, alfalfa, and grass pastures can be utilized at a profit by the hog. Some of the plant food taken from the soil each year by the crop must be replaced in the form of manure and pastures.

Many farmers have abandoned butchering and home curing of meat. Instead, the hogs are shipped to packing centers, and the fresh and cured meats, as well as the high-priced lard, is shipped back to supply the farms. Such a custom only works to the advantage of the railroads and packing houses rather than to the farmer.

During the winter months work on the farm is not urgent. Farmers have plenty of time to do their own butchering, to put up a year's supply of lard and home cured meats, at a much less cost than they can obtain it after it has passed through the hands of several other concerns. "Country Cured" meats, when well cured, are much superior to packing house products because they have a flavor characteristic of home cured meat only.

Successful hog production on the Idaho farm is a business and not a speculation. There is a tendency, when hogs are very high, for some men to get the fever and pay a high price for their foundation herds. There are bound to be fluctuations in the price of all live stock. When the price of porkers declines, these same men become disgusted, and sell out at a much lower figure than they paid in the beginning. The speculator finds himself *in* the hog business when he ought to be *out*, and *out* when he ought to be *in*. The men who make money out of hogs are those who know how many hogs their farms will carry under ordinary circumstances, and stay with the hog as a business and not a speculation. When hogs are lower in price, these men are never overstocked nor are their supplies ever entirely depleted. As a result, they have hogs to sell when prices are high, and make good profits. When prices are low, they have few enough hogs that it is not a burden to carry them. They may expand or contract their operations to suit prices and conditions.

The hog is the most economical meat producer of all farm animals. He makes a marketable product from the by-products of the dairy, from grain screenings, from gleaning stubble fields, and from otherwise unsalable products. The pig also helps to keep the soil in fertile condition by returning to the soil in the form of manure part of what he eats. This is no mean factor on the average farm. Lastly, home cured meat is cheap and convenient for the farm home. For these reasons, there is a place for a limited number of hogs on practically every farm in this state.

#### HOG GROWING SECTIONS OF IDAHO

Hogs may be profitably grown in many parts of Idaho, namely: in the irrigated districts of the southern part of the state, where alfalfa

and other forages are grown; east of Gooding, where peas are successfully used as forage; in the Boise Valley and other lower altitudes, where corn is harvested by the hog; and in the rolling hill land of the northern section of the state, where the small grains and peas are grown. The hog is generally found where there are dairies, consuming the by-products. The best place is where grass and forage grow in abundance during the longest period of the year.

#### LOCATION OF A HOG FARM

An ideal hog farm should have a rich fertile soil, that will grow grasses and other forage, as well as the grains needed for best development of the hog. The irrigated lands of southern Idaho are well adapted for the growing of grasses, forage, and grain, and farmers there have had good success with hogs. The rich rolling lands of northern Idaho are generally well drained, have excellent water, and grow an abundance of grains and forage crops adapted for swine production. The soil requirement is most important in locating a hog farm. After this is settled, the arrangement of the pastures, lots, and houses, which, of course, depends upon the individual owner's taste, may be considered.

It is wise for a new breeder to locate in a community where a considerable number of hogs are grown. Here he may have the advantage of association with other breeders, who have, thru experience, gained a knowledge of swine production, and have learned how to solve the local problems. Only one breed of hogs should be raised in one community. This will secure closer cooperation among the breeders themselves, and also help them build up an outside market for their surplus animals. This is an important problem for the new and small breeder. It is only natural that hog buyers will go where the type or breed of hog they want can be found in large numbers. The above statement is especially true when applied to raising pure bred hogs, but also applies to the community producing hogs for the market. Roads and markets are not to be overlooked in selecting a farm.

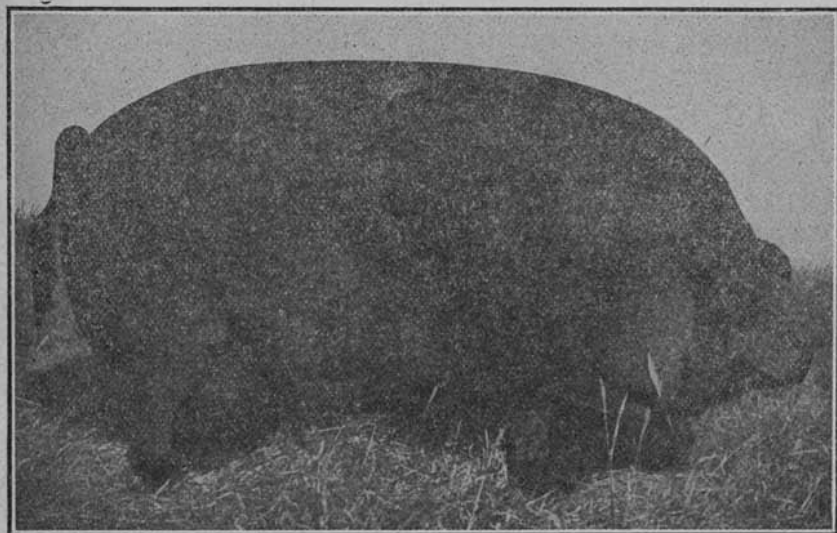
#### TYPES OF SWINE

Due to local conditions and market requirements, there are two well defined types of hogs; the lard type and the bacon type.

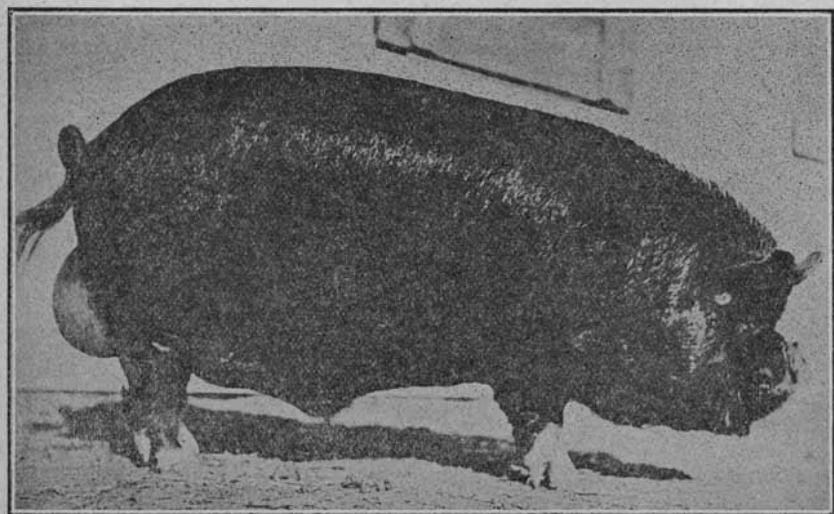
The *Lard Type* is characterized by a deep, smooth, thick, compact body, remarkable for its depth and thickness, with considerable length. The snout should be fairly fine; the face, wide between the eyes; the poll, wide and full. The jowl should be full, broad, and firm, which denotes a good feeder. The neck should be short and thick, and blend well into the shoulders. The shoulders should be broad, deep, smooth, and compact, and blend smoothly into the body. The shoulder of the lard hog has considerable market value, and should be well developed but not coarse. The chest should be deep, wide, and full, with a good spring of rib; the breast, wide and full; the front legs should stand fairly wide apart; and the heart girth should be large, denoting constitution. The back should be broad and long, slightly arched, thickly fleshed, even, smooth, and uniform in width from shoulder to ham. The loin should be broad, thick, and smooth. The back and loin should be well developed,



for some of the most valuable cuts are found in this region. The ham is another valuable cut, and should be broad, deep, smoothly and heavily



Duroc Jersey Brood Sow of a type popular with breeders.  
(By courtesy of American Duroc-Jersey Association)

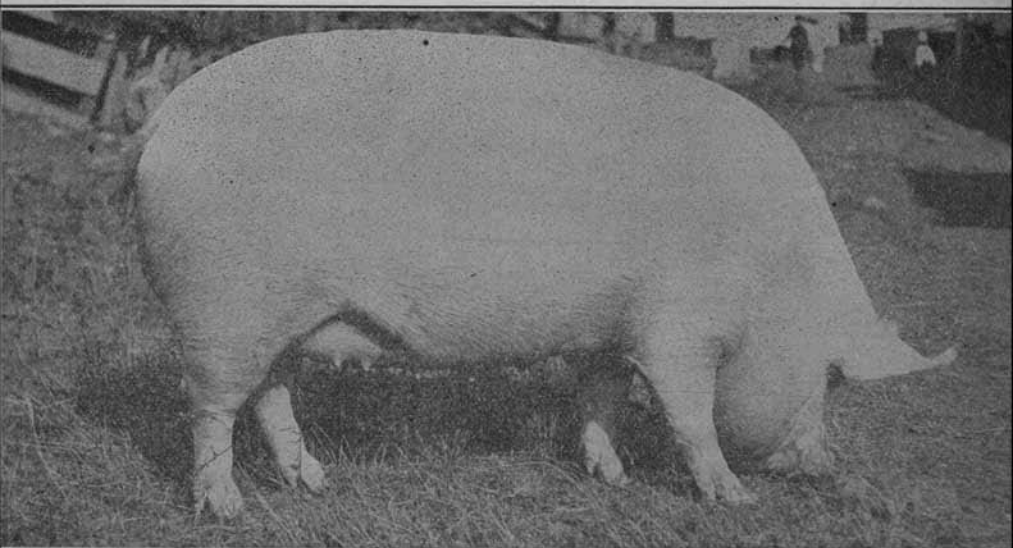


The 1918 National Livestock Show and International Livestock Exposition Grand  
Champion Berkshire boar.  
(By courtesy American Berkshire Breeders Association)

fleshed. The rump should be long and smooth, the same width as the back, and slightly rounded from loin to tail. Quality is indicated by fine hair, smooth, clear skin, rather fine, clean bone, and evenness of fleshing. The legs should be comparatively short, straight, and strong, set well apart, and square under the body with short, upright pasterns, medium-size clean-cut bone, and strongly formed feet.

The most important breeds representing lard type hogs are the Duroc Jersey, Poland China, Chester White, Berkshire, and Hampshire.

The *Bacon Type* has characteristics quite different from those of the lard hog. The bacon hog is longer in the leg and body, not so thick and deep in body, not so thickly fleshed, and lighter in the jowl, shoulder, neck, and ham. It has a longer, narrower head. Along with the length,



Yorkshire Sow.

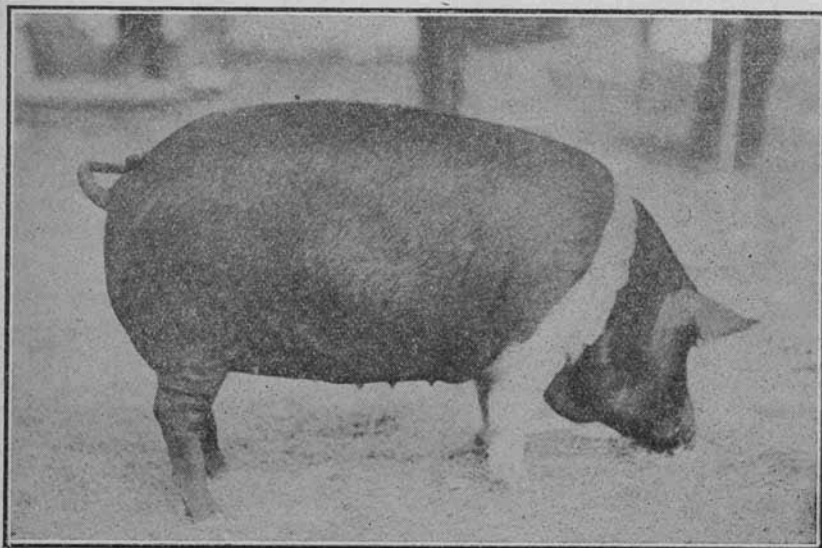
this hog must have plenty of depth and thickness to denote constitution. In the bacon hog a heavy jowl indicates a tendency to put on too much fat. The jowl should be trim and neat, with fairly good width. The neck should be of medium width, with no tendency to arch on top. The shoulder should be the same width as the back, very compact on top, blending smoothly into the back, and somewhat upright. This makes the animal fairly short from back of the shoulder to the snout; but long from back of the shoulder to the rump. The back should not be too wide, because a wide back carries too much fat for a bacon hog. It should be only medium in width, and carry its width evenly thruout. The top line should be slightly arched. The loin is a very valuable cut in the bacon hog, and should be full, wide, strong, and well fleshed. The ribs should spring out boldly from the backbone, then turn sharply almost straight down, giving a flat, straight side. It is necessary to have a side

of good length, much more than is found in the lard type hog, because the side is a large part of the bacon carcass. The rump is a valuable cut, but should not be flat and broad, as in a lard hog. It should be very smooth, slightly rounded from side to side over the top, and the same width as the back. The ham in the bacon hog should be smooth and firm, tapering toward the hock. The large broad ham of the lard hog is not wanted. Quality is indicated by the fineness of the coat of hair, smoothness of skin, and firmness of fleshing. The bacon hog must have a very fine-grained and firm-handling flesh, with not too much fat. Wrinkles in the skin and softness of fleshing are very much discriminated against. The legs, though heavy, should be clean cut, and have medium sized bone of good quality. Coarse, extremely large bone is not desirable, because it denotes coarseness of flesh and poor feeding qualities. The bacon hog is usually marketed at from 160 to 200 pounds, live weight.

The most important breeds of the bacon type hog are the Tamworth and Large Yorkshire.

#### CHOOSING THE TYPE OF SWINE

The bacon hog has a tendency to approach the lard type when fed on fattening feed, namely, corn. The lard hog type likewise is modified by the kind of feed. When the lard hog is fed on the smaller grains, higher in protein with less fat, he approaches nearer the bacon type than when fed on corn as the main grain ration.



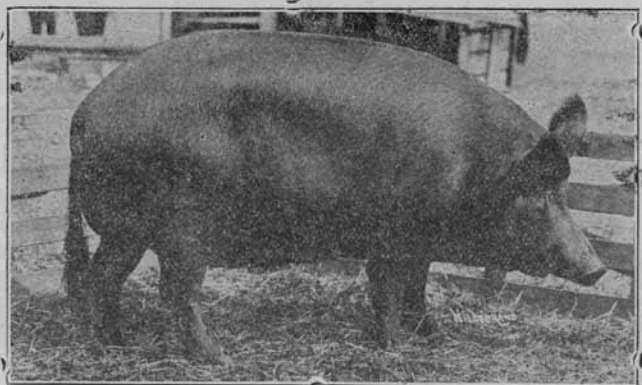
Hampshire Sow.

(By courtesy of American Hampshire Swine Record Association)

The English people are the greatest consumers of the bacon hog. The choice "Wiltshire side" brings a premium in England. The Wilt-



shire side represents half the carcass of the hog, minus the head and legs. The customers for this class of bacon are extremely fastidious, and if the bacon does not come up to the standard in every particular it is heavily discounted on the market.



Typical Tamworth Sow.

Canada, due to the fact that she is not able to raise the fat producing feeds that we raise, and that she has a ready market with the home country for all her bacon, has developed an immense bacon trade. A large per cent of Canada's hogs are of the bacon type. The foremost countries in bacon production are England, Denmark, and Canada. England consumes the surplus production of Denmark and Canada. It is a superior product to that which the American public is furnished.

In the United States there is no market that receives bacon hogs in numbers of any consequence. St. Paul is an exception, but the number of bacon hogs received there is comparatively small. The bacon we get is made from the smooth, thin hogs that are not fat enough to go in fat classes. A bacon carcass must have a large per cent of lean to fat. It must be grown and not fattened.

Our market here, either for pure bred or market hogs, is for lard hogs. Fat hogs can be produced more economically and quicker from lard type hogs, more economically because of the better market. Since our markets demand fat hogs, and fat hogs can be produced more economically from lard-type hogs, we feel justified in saying that the lard-type hog is the best adapted to our conditions. The number of bacon hogs as compared with the number of lard hogs in the United States bears out this statement.

Choosing a breed is not difficult. They are all good. One breed uses feed about as economically as another. The choice depends upon the breeder himself. Utility is the one great point to be considered in choosing a type of swine, and must be viewed from two standpoints. The butcher requires an animal that will give him the largest proportion of valuable meat. The farmer requires an animal that will reproduce its kind in profitable numbers, mature early, and make rapid and economical gains. It would be of little use for the farmer to produce

a hog that does not meet the requirements of the butcher or packer. The market, then, is the most important factor to consider in choosing a type of swine; and the most important points to be considered are the breeding, feeding, and the killing qualities of the breed.

### THE FOUNDATION HERD

Many men who have not had experience in hog raising make the mistake of going into the business too heavily. For the man who has never been in the business there is much to learn. It is generally better to start in on a small scale, and as practical experience is acquired the herd can be enlarged. If hog raising is approached in this way, and a mistake is made, there is not so much money involved.

#### Selection of a Sow

Selection of the sow for the foundation herd goes a long way toward success. The sow selected for breeding purposes should be medium to large in size for the breed or type which she represents. When selecting two or more sows, they should be uniform in type, size, and breeding. They will produce litters of more uniformity than a mixed lot of sows. A uniform lot of market pigs looks better and brings a higher price.



Duroc Jersey Gilts showing uniformity of type and growth.  
(By courtesy of Weaver, Missouri Experiment Station)

A sow that is well grown out and thrifty, and has been well cared for is worth more than a stunted individual. Her maternal characters will more nearly function to their full extent. She will produce a larger, stronger, more uniform litter, and will suckle better than the smaller, under-sized sow. The unthrifty sow will not only produce inferior litters, but will be more susceptible to disease. Vitality and constitution are very important in the breeding animal. The sow should be active in her movements and alert to all strange noises. Good hearing is essential. She should be hardy and always ready to eat.

Quality is shown in the sleek hair, skin, and medium-sized bone of

good texture. She should be sound and in her prime. A young sow, say, two years old, will have a longer period of usefulness than an older sow. The teats should all be intact and free from hard cones. The sow should show femininity in her general appearance. It is best to select from a matured mother that has lived long enough to demonstrate her usefulness. She should be out of a prolific mother and by a boar that comes from a prolific family. Fecundity is hereditary to a high degree. The number of teats seems to be more or less correlated with prolificacy and a good mother. A sow that has at least twelve well-developed teats, set well apart and forward on the body, is more likely to be a good mother than the sow having a fewer number of teats poorly placed and under-developed. When a real good sow is obtained, she should be kept in the herd as long as she produces satisfactory litters.

A grade sow of good type and parentage, when bred to a pure-bred boar, will produce very satisfactory pigs for market purposes. Of course, none of the males from this cross should be kept for breeding purposes. If pure-bred sows are selected, choose an animal conforming to characteristics of the breed she represents.

#### The Boar

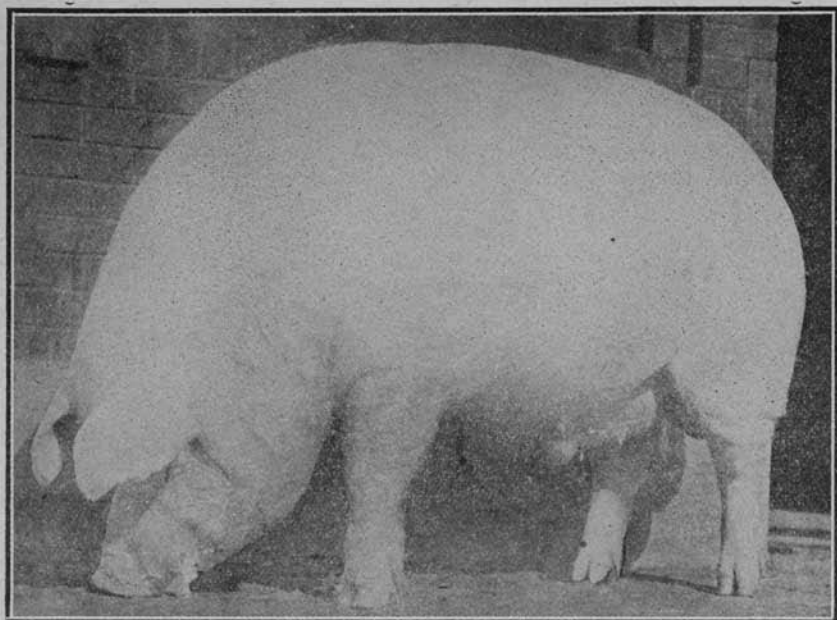
The farmer who has only a few sows, and lives in a neighborhood where it is possible to obtain the services of a good boar, will not find it profitable to keep a male simply for use in his own herd. In this case, it is a good policy for two or more farmers living close together to buy a boar together. If a man keeps six or more sows, and it is impossible to secure the services of a good pure-bred boar, it would pay him to purchase one of his own. The boar is the most important individual in the herd, and his selection should be given much consideration. Every pig in the herd is sired by the male, while any one sow can influence only a relatively small number of the herd.

The succeeding generation must be kept in mind, and the ideal of every breeder should be to produce a gilt for breeding purposes that is better than her dam. This can only be obtained by having a boar more perfect in type than the sows, which holds true whether the herd is a grade or pure bred.

A pure bred male will transmit his own qualities to his offspring with more certainty than a grade or cross bred male, and his progeny will be of more uniform quality and excellence. "Scrub pure-breds" should be discarded along with the grades and scrubs. At this time, when pure-bred boars are plentiful, there is practically no reason for using anything other than a pure-bred though the sows used for producing market hogs are grades.

*Selection of the Boar.*—In choosing a boar he should, first of all, show masculinity. A strong development of the head, neck, shoulders, bones, and organs of reproduction is very important, as it suggests three most essential qualities: vigor, prepotency, and constitution. The shoulder should not be too heavy. Too much development in the shoulder denotes coarseness. Masculinity should be indicated by strength, vitality, and stamina, but it need not denote coarseness.

The boar should be well grown out, medium to large in size, and



A Chester White, combining substance and quality.  
(By courtesy of Chester White Record Association)

conform very closely to the best type of the breed he represents. The latter is especially true when selecting a boar to use on a pure-bred herd.

*Care. When Not in Service.*—The boar is the head of the hog family, and the center of the pork-producing plant on the farm. No matter how good the blood or how superior the individual, the feed and care before, and the physical condition during the breeding season, regulate largely the vigor and value of his offspring. It requires judgment to keep a boar in the best possible condition. Extremes are to be avoided. To get the best results the boar should be in medium flesh.

A very great variety of grains may be fed, so long as the feeder uses judgment. Barley, wheat, corn, oats, shorts, bran and middlings can be used, but the ration should not be too fattening. The boar needs something more than grains to be in his best condition. Skimmilk and buttermilk, slop, and roots in the winter, are very good. They have a laxative effect, prevent constipation, and keep the animal thrifty and vigorous. Alfalfa and clover hay may be used to give bulk to the ration, or fed along with roots, but there should be enough grain fed with the roots and alfalfa to make the ration sufficiently nourishing. Alfalfa may be fed as hay in racks or chopped and mixed with grain. It is never wise to make sudden changes in the ration. Changes should be made gradually. During the breeding season the boar will require liberal feeding; but at no time should he be fed more than he will clean up before leaving the trough.

Summer management is more simple than winter. A pasture lot

of clover, alfalfa, or grass should be provided. A legume pasture is preferable. The pasture will furnish the bulk of the feed, and gathering the feed will give the boar plenty of exercise. Exercise is very essential to all breeding animals, to keep them in good physical condition. The larger the lot the better—an acre lot of grass, if possible. The lot should have good drainage, shade, and a warm, dry house, placed conveniently so he may be seen often.

The boar's premises should be kept in good sanitary condition, as disease may be spread quickly from such a center. He should be treated for lice and mange frequently, especially during the breeding season, and should have a liberal supply of ashes, coal, and charcoal in his pen. The lot should be strongly fenced, to insure his safety at all times. This will prevent breeding out of season, and many other inconveniences.

When the boar reaches maturity he is armed with long dangerous tusks, with which he is capable of inflicting serious injury upon man or beast. Very often the boar is considered harmless even with his tusks intact, but one can never tell at what time he may become angered and dangerous. It is wise to remove these tusks before damage is done. This may be done without much trouble. The boar is first made fast to a post by means of a rope noosed about his upper jaw back of the upper tusks. The tusks can be clipped very easily with a pair of bolt cutters, or it may be done with a crow bar, chisel, and hammer. The sharp edge of the crow bar should be held firmly against the lower side of the tusk as a brace, the chisel placed squarely over the crow bar, and a sharp blow with the hammer does the job.

*Care During the Breeding Season.*—A boar that has good care, and is grown out properly, may be used on a few sows when not more than seven months old without apparent injury, but it is safer not to use the boar before eight months of age, and to use him as sparingly as possible until he is a year old. Judgment must be used in the matter. Excessive use while young will often shorten the period of usefulness. In no case should more than one service to a sow be permitted, and the boar should not be allowed to run at large with sows to which he is to be bred. The boar should be saved as much as possible. Excessive use is likely to result in small, weak litters.

A breeding crate is often advisable when it is necessary to breed a heavy boar to small sows. It may be easily made, or one may buy one of the numerous types of breeding crates to be found on the market.

### HOUSING

Every breeder has to work out his own system of housing swine to meet his own conditions. All that will be attempted here is a short discussion of the methods, and the most desirable features of a shelter for swine. The different systems that have been practiced more or less successfully are:

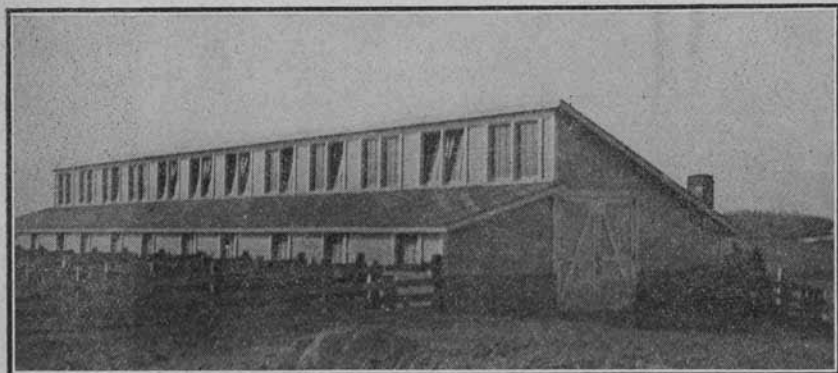
1. Community (Central or large)
2. Colony (Movable or Individual)
3. Combination (Colony and Central)

#### The Community House

The community system is permanently located and made especially to accommodate the greater portion of the herd during the severe



weather. This system requires a greater working capital in building than does the colony system, but it has many advantages, particularly in cold climates. The modern type usually carries a double row of pens, separated by a central alley varying in width from four to eight feet. At the farrowing season the individual pens, which are generally from eight to ten feet square, accommodate a sow and her litter of pigs.



University of Idaho Community Hog House, 28x96, Constructed in 1917.

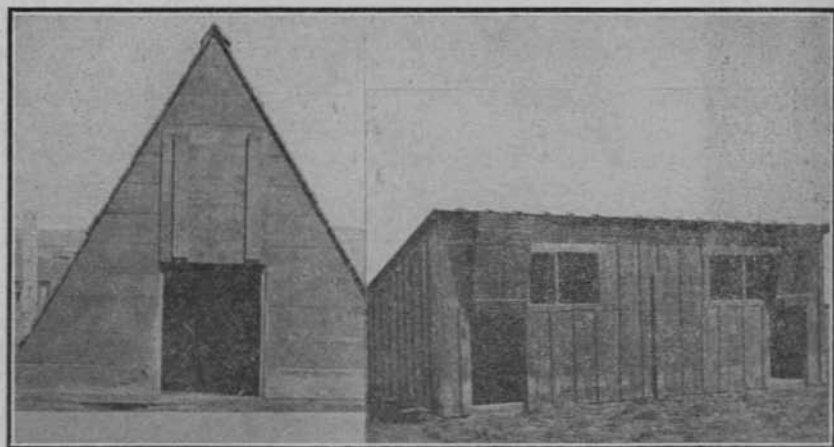
All pens are provided with two doors, one entering the central alley and one opening to the adjacent pens or lots outside. A closet drainage system with a trap for every two pens carries all the liquid to the outside. This house is usually constructed of wood, except the floor, which should be cement, with hinge gates between pens so two or more pens may be turned into one by removing the gate. The house should have a feed room, grain bins, and a warm room. The warm room is very useful during early spring and fall farrowing, and provides warm water for hogs in the winter. The roof may be high enough to furnish overhead storage, and have ample provisions for light. Overhead windows are essential for sunlight and ventilation. This house should be built very warm for winter, and at the same time be so arranged that it will be cool in summer. The details as to width of alley, size of pens, height of wall, and other conveniences will depend on local conditions and personal preference.

#### Colony House System

This system of housing is not so well adapted to severe climates. Colony houses are built of lumber, are put together very solidly, and are warm. They are 8 to 10 feet square, with one hinge door in front, and are frequently built on skids, and easily moved by hitching a team to the skids. The house may be placed in a lot for farrowing purposes, or in any convenient pasture or forage crop lot. During the winter these cots may be drawn close together in a convenient place for feeding, and the sows be brought close together, saving time in caring for them. They are large enough to accommodate three sows or one sow with a litter of pigs.

### Combination, Colony and Central

A great many breeders prefer the community house for winter, but like the colony house for late spring and early fall farrowing. It is



Single and Double Colony Houses.

for this reason that a few colony houses are used in addition to the central house. It enables breeders to transfer the sows and litters from the central house when the pigs are old enough to go on winter rye or early spring pasture. The central house has the advantage of being warmer and of getting the greater part of the herd together in the winter where the feed can be stored. Less time is required in caring for the herd, but the community system is costly. The colony house has the advantage of mobility, less danger from contagious and infectious diseases, and less cost. The combination is the use of both the community and colony systems of housing, and is very satisfactory.

The details of housing can not be discussed here. Any one constructing a central hog house should inspect a number of hog houses, and draw his conclusions only, after he had had opportunity to make investigation as to what best meets his needs.

The most important qualities to be considered in a hog house are dryness, freedom from draughts, reasonable warmth and conveniences. Good results cannot be obtained from a damp pen. Dryness is more or less influenced by the material out of which the building is constructed. The floors and foundation may be constructed of cement for two or three feet above the surface. This will preserve the wood of which the walls are constructed, and makes a very durable and satisfactory hog house.

Ventilation is a help in preserving dryness, and is hard to secure without making the house too cold. A high ceiling gives more air space, and makes ventilation an easier problem.

Draughts and ventilation are often confused. Ventilation is

necessary, but draughts are extremely injurious; and prevention of draughts should be kept in mind when building. Warmth should not be secured at the expense of ventilation. A fairly cold pen, well ventilated, free from draughts, is to be preferred to a damp, foul, warm pen. The pigs will suffer less discomfort in the former case. Young pigs require more warmth than older ones, and when a sow farrows in winter special pains should be taken to secure warmth.

Light, especially sunlight, is a great influence in promoting health and the warmth of the building in the winter. The windows should be on the south side of the building, because the south side gets the most sun.

### FEEDING AND MANAGEMENT

Carefully selected hogs are of little value unless they are fed and cared for so they will thrive and make good growth. The hog must be supplied with sufficient nutritive material to build and repair the body, and to furnish sufficient energy to grow and fatten. The most satisfactory ration is made up of feeds which are wholesome, are relished by the hog, and at the same time are reasonable in cost.

#### Sows

Dry sows may be kept thru the summer season very cheaply. If they are on good pasture scarcely any grain is needed. Sows turned on pasture alone should be watched very carefully to be sure they are receiving enough nourishment from the pasture. Those that are in a run-down condition from suckling pigs should be separated from the rest of the herd and fed a grain ration until they regain breeding condition. It is always best to have the sows strong and gaining at the time of breeding. Regardless of condition, age, or sex, hogs require attention, but the brood sow demands the greater share of time and care.

#### Age of Breeding

The age at which to breed a young sow depends somewhat upon her development, but it is not advisable to breed her before she is eight months old. There are three methods that are generally practiced:

1st. Many breeders, especially those handling pure bred hogs, do not breed the young sow before she is one year old, breeding her regularly thereafter.

2d. Others breed the young sow between eight and ten months of age, then let her run over one litter without breeding. She is bred regularly thereafter.

3d. Still others breed at from eight to ten months of age, and regularly thereafter.

The first method gives a longer period for development and the mother is stronger and more able to do justice to a litter of pigs. She does not require so much food for the building of her own body, so the litter is usually stronger. Being older and stronger, she is more able to farrow and suckle her litter without sapping her body strength and stunting her own growth. The disadvantages are that when gilts are this old before breeding they are sometimes hard to settle, and it takes a longer time before producing.

The second system is a compromise between the two extremes. It permits the sow to be bred very young, but it allows a rest for growth and further development before breeding again. If the sow is properly taken care of, not allowed to become too thin while suckling, and fed enough so there will not be a heavy drain on her body, this seems a good method.

The third system is a little extreme and the sow is likely never to develop as she would have if given a chance.

One of the objections to breeding sows very early is that the very young sow is seldom able to raise a fair sized litter of pigs. If she raises only a few pigs in her first litter, her mammary glands do not develop properly, and she does not make as good a mother with the following litters as a sow which raises a good sized first litter. Further, a young sow does not have the strength to stand the strain of nursing a litter of pigs. As a result, her vitality is sapped to such a degree that she never develops as she should. If she does not get her full development, and does not develop a good mammary system, she will not retain her usefulness for so long a period, and she is not so likely to produce such strong, vigorous litters as she would had she been more mature before bred.

#### Two Litters a Year

Sows will often accept service from three to five days after farrowing, but it is a bad practice to breed a sow at this time. No sow can do justice to herself and two litters of pigs at the same time. There is nothing to be gained and all to be lost by such a practice.

In the lower altitudes of the state, the most common practice among farmers is to require their sows to produce two litters a year. Altho the sows may have had the best of care, they will be in a run-down condition, because a great part of their feed has been utilized for the production of milk. The sow needs a rest before she is bred again, and the time for rest is between the weaning and breeding periods. If the sow is bred in a thin, run-down condition, with the extra burden of developing a litter thrown upon her, she will naturally be weak and more susceptible to disease. Intelligent feeding will bring the sow from a thin, run-down condition into a strong, vigorous condition in a short time.

It is generally believed that sows in a vigorous breeding condition will conceive more readily. If the sows conceive from the first service, the farrowing period of the herd will be shortened. This gives less time and trouble for farrowing and weaning, and a more uniform lot of pigs.

When the pigs are weaned at about eight weeks of age, there is no good reason why a sow should not produce two litters a year if properly handled. Where the winters are long and severe, it may be impractical to produce two litters a year. When this is the case, the sow can be bred to farrow late in the spring, and the pigs need not be weaned before ten to twelve weeks of age. Of course, there are circumstances which do not permit the raising of two litters a year. If the sow or litter is going to be fit for show purposes, it is necessary

to allow the pigs to suckle for a longer period and more time is required to get the sow in proper condition.

#### Time of Breeding

If it is profitable to produce two litters a year, there are certain seasons that are more suitable for breeding. Naturally, the milder months of the year are best suited for farrowing, but there are other factors that should be considered here, viz.: the fluctuations of the market. We want to have hogs ready for the market when the price is high. This naturally occurs during the spring, and again during early fall. The March and April and the September and October markets are usually the highest. The study of market reports of the Chicago and Portland union stock yards covering a series of years bears out this statement. The farmer can take advantage of these facts if he regulates his operations to fit these conditions. In the first place, the hog wanted by the market usually runs between 175 and 250 pounds. Fortunately this is the most economical weight to dispose of the hog. Up to this point his gains are made very cheaply. Beyond this point—300 pounds and better—it is doubtful under general conditions if hogs can be fed with a profit. The hog, if fed properly, can be put on the market at 200 pounds in six to seven months.

The pigs for the fall market should be dropped during March. The gestation period for a sow is calculated at from 112 to 114 days.

Gestation Table

Time of Service	Sows 112 Days	Time of Service	Sows 112 Days	Time of Service	Sows 112 Days	Time of Service	Sows 112 Days
Jan. 1	Apr. 22	Apr. 2	July 22	July 2	Oct. 21	Oct. 1	Jan. 20
Jan. 8	Apr. 29	Apr. 9	July 29	July 9	Oct. 28	Oct. 8	Jan. 27
Jan. 15	May 6	Apr. 16	Aug. 5	July 16	Nov. 4	Oct. 15	Feb. 3
Jan. 22	May 13	Apr. 23	Aug. 12	July 23	Nov. 11	Oct. 22	Feb. 10
Jan. 29	May 20	Apr. 30	Aug. 19	July 30	Nov. 18	Oct. 29	Feb. 17
Feb. 5	May 27	May 7	Aug. 26	Aug. 6	Nov. 25	Nov. 5	Feb. 24
Feb. 12	June 3	May 14	Sept. 2	Aug. 13	Dec. 2	Nov. 12	Mar. 3
Feb. 19	June 10	May 21	Sept. 9	Aug. 20	Dec. 9	Nov. 19	Mar. 10
Feb. 26	June 17	May 28	Sept. 16	Aug. 27	Dec. 16	Nov. 26	Mar. 17
Mar. 5	June 24	June 4	Sept. 23	Sept. 3	Dec. 23	Dec. 3	Mar. 24
Mar. 12	July 1	June 11	Sept. 30	Sept. 10	Dec. 30	Dec. 10	Mar. 31
Mar. 19	July 8	June 18	Oct. 7	Sept. 17	Jan. 6	Dec. 17	Apr. 7
Mar. 26	July 15	June 25	Oct. 14	Sept. 24	Jan. 13	Dec. 24	Apr. 14
						Dec. 31	Apr. 21

This would necessitate the sows being bred the first of November, continuing, if necessary, till the first week in December. The pigs for the spring market should be dropped in early September. In this way the fall pigs have the advantage of two months pasture, and are enabled to attain a sufficient size to winter properly. These pigs can be weaned before the November breeding season. To have the pigs dropped in September it will be necessary to breed the sow during May or early June. The March pigs can be weaned and a short resting period had for the sow before the May and June breeding season.

These suggestions with reference to breeding dates and age of marketing will need to be modified to meet climatic and other modifying conditions found in various parts of the State.



### Management During Pregnancy

The pregnant sow is not only keeping up her own bodily functions, but must in addition meet the increasing drain of developing a litter. At this time the feed should be liberal, but not so liberal as after the pigs are farrowed. It is not best to have the sow too fat and clumsy. A fat sow sometimes has trouble farrowing, and often the sow that is too fat farrows pigs that are lacking in vitality. A thin sow will not do justice to her pigs, or she will become a physical wreck herself during the time she is nursing her litter. The sow should be kept gaining slowly from time of breeding to farrowing time. Extremes in condition are to be avoided. A sow may be kept in fairly high condition, and still produce satisfactory litters, provided she has plenty of exercise.

The kind of feed is important. The main demands upon the sow are those for building new tissues. The protein feeds, such as tankage, bran, oil meal, and peas, are necessary at this time. Clovers, alfalfa, and peas are considered very valuable feeds for the brood sow. The cereals, such as corn, wheat, or barley, should not be fed in large amounts to breeding sows, because they do not furnish enough bone and muscle forming material to properly develop the unborn pigs. When these cereals are used, they should be supplemented with bran, shorts, alfalfa, tankage, the clovers, or milk, to furnish muscle and bone building materials.

During the winter more care will be needed to keep the sow in good condition on account of the absence of green pasture. The hogs crave green feed, and more or less bulk is demanded. Alfalfa or clover hay furnishes bulk, and at the same time contains the bone and muscle building material. As a substitute for green feeds nothing surpasses roots. These may be sliced and mixed with the grain, or they may be fed whole as a noon feed. Some roots in the ration are an aid in avoiding constipation. Cull potatoes may be utilized in this way and are very satisfactory. They may be used raw or preferably cooked. The condition of the bowels during pregnancy is very important, especially just before farrowing. During the entire period, the system should be well toned. Charcoal, ashes, lime, and salt should be accessible at all times. The sow should become accustomed to being handled, be gentle, and look upon her attendant as a friend. A gentle and quiet sow at farrowing time often means the price of a litter of pigs.

The brood sows may run together up to within two weeks or ten days of farrowing time, and should be provided with good shelter from the storms and cold weather. The house should be kept dry, airy, clean, and at the same time free from draughts. A dry, clean bed, changed often, is essential to the comfort and health of the sow.

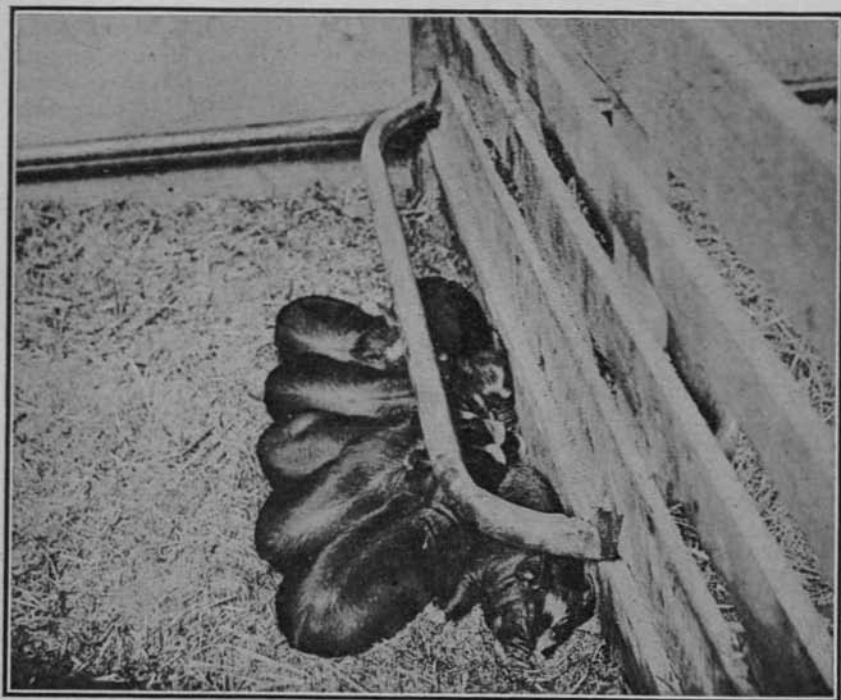
A lot or field with plenty of room for exercise should be provided. In the winter months difficulty will be encountered in giving the sow sufficient exercise. A few sows may be kept in the barnyard, where they will get more or less exercise from rooting in manure and scattered straw. A litter of straw may be made in the shed, and grain scattered in the litter, causing the sows to root for the grain, exercise being induced in this way. Another very convenient means is to place the hog house from fifty to sixty yards from the feeding place, making it

necessary for the sow to travel from the house to the troughs for her feed. The attendant may drive the sow enough to give her considerable exercise.

#### Farrowing

A record should be kept of the date of service of each sow, so that the date of farrowing may be known in advance, and due precaution taken. A sow in a strange place at farrowing time is always restless and nervous and does not do well. A week or ten days before farrowing the sow should be taken away from the other sows to the farrowing pen. Ten days is long enough for the sow to become accustomed to her new surroundings and feel at home.

The farrowing pen should be of ample size, about eight feet square. The bedding should not be great in quantity, only enough to insure a



Pigs in University of Idaho farrowing pen showing use of guard rail.

clean and dry nest. A larger amount of bedding is required in cold weather than in warmer weather. The bed should be changed at least once a week, and oftener if it becomes damp or soiled. The farrowing pen should be dry, well ventilated, and free from drafts. A guard rail made of a scantling or iron pipe around the outside of the nest against the wall, about eight inches from the wall and about eight to ten inches high, is used by most breeders. This prevents the sow from lying against

the partition, and lessens the danger of injuring the little pigs, which often find the space under the guard a very convenient refuge.

As the time for farrowing approaches, the sow should be watched very carefully, so that assistance may be given if necessary. Feed at this time should be a thin slop and limited in quantity. As parturition approaches the sow becomes nervous and restless. She makes a nest for her young. A swollen vagina and milk down in the teats are other visible signs. A sow is nearly certain to farrow from twelve to twenty-four hours after milk is found in the teats. Nothing but lukewarm water should be given the sow during the twenty-four hours previous to farrowing. Water should have the chill taken off in cold weather. If she has already farrowed a litter and has been properly fed and cared for during pregnancy, little difficulty will be expected; but with young sows, especially those bred at an immature age, there is considerable risk at this time, not only to the pigs but to the sow herself.

The attendant should always be present at farrowing time, but should not interfere with the sow unless necessity calls for his assistance. He should always cultivate the confidence of his animals by quiet and humane handling.

The pigs upon arrival should be rubbed dry with an old cloth or gunny sack and allowed to try at a teat for a few minutes. If the pig shows no inclination to nurse, it should be aided by stripping milk into its mouth until it takes advantage of its opportunity, and then be quietly removed to a place of safety. For this purpose it is well to provide a covered basket or hamper containing gunny sacks. In cold, damp weather it may be well to warm a brick, wrap it in a gunny sack, and place it in the basket to warm up the new arrivals. If the sow is long in farrowing, it may be well, after two or three hours, to place the little pigs carefully and quietly where they can get some nourishment, and then replace them in the basket until the mother is through. If the sow is unable to produce the pig, she may be aided by the attendant using his hands or pig forceps, either of which should be clean and well disinfected. If a pig at birth appears lifeless, carefully remove all mucus from the nose, and give it a gentle slap on the side. This will start breathing, if there is any life in the body. When the pigs are born during warm weather the pigs will generally find their way to the teats unaided, but in cold weather they are liable to chill if not dried and aided in finding the teat.

When the pig is a day or two old it is well to cut out the eight small tusk-like teeth. There are eight of these, two on each side of the upper and lower jaw just back of the front teeth. These teeth can be removed with bone forceps, wire nippers, or with a knife. Never pull out the teeth. Always clip or break them off. These teeth are very sharp and, if not clipped off, are likely to cause tearing of the sow's udder, and the little pigs will cut one another's mouths when fighting for a teat.

#### **Sows Eating Their Pigs**

It is not natural for a sow to destroy her young, but some acquire the habit of eating their pigs at birth. This may be attributed to many causes. There is good reason to believe that eating the afterbirth

is often the beginning of the habit of eating pigs. When the afterbirth is passed it should be removed immediately and either burned or buried. If the afterbirth is left in the pen the sow is likely to devour it. The scent of the newly born pigs is similar to that of the afterbirth, and if the sow has a craving appetite some of the pigs may be eaten. When the sow is constipated she becomes feverish, develops an abnormal appetite, and may kill and eat her pigs. To prevent this condition, she should be properly fed during pregnancy. Oilmeal in the ration will aid in keeping the bowels regulated. In extreme cases of constipation, salts should be used. A pig-eating sow should be watched very closely to see that her bowels are working properly.

When she farrows, kerosene may be rubbed lightly on each pig. Care should be taken not to use too much kerosene, because it will blister the skin. The odor of the kerosene keeps the sow from eating the pigs. While these things may help remedy conditions, they do not always prove successful. Many breeders, as soon as they find a sow eating pigs, put her in the feed lot to fatten for the market. In case of a valuable sow, it will be worth while to try to prevent the pig eating rather than pork her.

#### The Sow's Feed

As a rule, the sow should have no feed during the first twenty-four hours after farrowing, but should have access to all the fresh, clear water she desires. The first feed after farrowing should be a thin slop of bran or shorts.

The feed for the first three or four days should be light. It should take a week or ten days to get the sow on full feed, depending on the size and thrift of the litter. The best indication of the amount of feed necessary for a sow and her pigs is her condition and the condition of the pigs. If she is not properly fed, the pigs will show it. If the pigs follow the sow around very much and pull at her teats, it is a good sign that she is not giving enough milk, and more feed should be given to produce a greater milk flow. If the sow is over-fed, causing a heavy flow of milk, the pigs usually scour. In this case, regulate the sow's feed immediately.

The ration for the sow at this time should contain enough concentrates to stimulate a good, strong milk flow, and at the same time keep her in a good thrifty condition. A few recommended rations for a sow suckling pigs are as follows:

(First)		(Fourth)	
Barley, wheat, or corn.....	60 parts	Barley, wheat, or corn.....	34 parts
Shorts .....	25 parts	Oats .....	33 parts
Bran .....	10 parts	Shorts .....	33 parts
Tankage .....	5 parts	(Fifth)	
(Second)		Barley, wheat, or corn...	50 to 75 parts
Barley, wheat, or corn.....	32 parts	Alfalfa .....	50 to 25 parts
Oats .....	32 parts	(Sixth)	
Shorts .....	32 parts	Barley, wheat, or corn.....	25 parts
Tankage .....	4 parts	Skim milk .....	75 parts
(Third)		(Seventh)	
Barley, wheat, or corn.....	70 parts	Barley, wheat, or corn.....	70 parts
Shorts .....	20 parts	Shorts .....	20 parts
Tankage .....	10 parts	Skim milk .....	10 parts

The sow should have a good pasture of clover, alfalfa, or succulent grass. All these rations are improved by allowing free access to all the choice leafy alfalfa hay the sows will consume. These rations should be fed in a slop. As soon as the pigs are large enough, the sow should have access to good pasture or a forage lot, if available. Pasture should by all means be provided the suckling sow. Best results cannot be expected from dry lot feeding with litters following.

#### Exercise is Necessary

When pigs are farrowed in the winter time, it may be necessary to let them reach the age of two weeks before turning them out. Exercise is very important for young pigs, and every possible means of securing it must be adopted. If they are kept in a small pen with the mother, some of the best of them will likely become too fat. This causes excessive thickness around the heart and lungs, makes it difficult for them to breath, and causes thumps and usually death. Outdoor exercise is especially beneficial, but the pigs should be protected from cold winds



Young pigs getting exercise.  
(By courtesy of Weaver, Missouri Experiment Station)

and very hot sun. Pigs should be exercised at an early age. On favorable days drive the mother and pigs out of the house and around the lot.

#### The Pigs

If the pig is grown for market, it is necessary that he gain in weight as quickly as possible. The hog is a highly specialized and efficient machine for the conversion of grain and roughage into edible meat; but to obtain the greatest efficiency, to make the most pork from a given amount of feed, and to make the best pork, the machine must be kept



running at full capacity from birth to the time of marketing. Questions of breeding, kinds of feeds, proportion of protein and fattening materials in the ration, all are important, and are all means to the same end; but if the greatest profit is to be returned to the feeder, his pigs must have feed and care and must make maximum gains at all times.

#### **Supplement to Sow's Milk**

Pigs, when two weeks old, will naturally begin to nibble at the feeds given their mother. They should be encouraged at this time by placing a small trough with small quantities of feed where it will be convenient to them and out of reach of other hogs. This should not be overlooked because it affords the first opportunity to force pigs. Up to this time they have been depending solely on their mother's milk. The mother's milk is rich in protein fat and ash material. There is no substitute that will take the place and give the results of the mother's milk; but after growing three weeks the pigs begin to have an appetite for some feed to supplement the sow's milk. The pigs will eat from the sow's trough, especially if she is being fed on thin slop. But it is advisable, where possible, to prepare a low, shallow trough in a pen adjoining that of the mother and separated from it by a partition, with plenty of room at the bottom to allow the pigs to run under. Best results are obtained if the pigs can be fed separately.

The best feeds for pigs at this age are skimmilk or buttermilk. These, mixed with mill feeds, such as shorts and middlings, give good results. After they become a little older and are able to crush the grains, whole corn or wheat scattered upon the ground in the pen gives them a little more exercise. These grains may be soaked and fed to the young pigs. They will soon learn what the feed is for, but great care should be taken not to over feed. Gradually increase the feed each day according to their needs, remembering that their main source of food is their mother's milk. They should clean up what is given them, and be a trifle hungry after each feed. Some farmers use a self feeder at this time, placed in a creep, where the pigs may have grain at all times. This is best adapted to pigs that are older, say, beginning at about six weeks of age, and is used mostly when skimmilk is not available.

#### **Castration**

Pigs that are intended for the market should be castrated while they are young. The best time for castration is between six and eight weeks of age, before they are weaned. Because the reproductive organs are less developed at this age, there is less shock to the pig, and possibly less check in growth. At this age a pig is small enough to be handled easily, and the testicles are large enough to make the operation quite simple. If it is still suckling its dam, as a rule it will become more thrifty than when the operation is performed immediately after weaning. Castrating and weaning at the same time is too much of a shock. There is not much danger from castrating at a later date, provided care is exercised in connection with the operation. Clean hands, a clean, sharp knife, and the use of a disinfectant will eliminate practically all danger. A warm, clear, bright day should be chosen, and the pigs should have clean pens or lots so as not to invite infection.

### Weaning

There is great difference of opinion among breeders as to the age at which pigs should be weaned. The majority are weaned at from six to ten weeks; some at twelve weeks; others let the sow do the weaning herself; a few wean earlier than six weeks. Where there is only one litter of pigs produced a year, twelve weeks is practiced. The average farmer will find it more profitable to wean his pigs early enough to produce two litters a year, allowing a short period between weaning and breeding for the sow to regain breeding condition.

If the young pigs have been taught to eat, as discussed under "Supplements to Milk," they may be weaned successfully at six to eight weeks old, especially if skim milk is available. Many pigs are weaned before they are six weeks old. This matter should not be hurried, especially if the pigs are thriving with the sow.

The pigs should be accustomed to their new feed, and should be eating heartily before they are weaned. Many breeders never wean before eight to ten weeks. It seems to be a combination of problems—the growth of the pigs, the condition of the sow, and one litter or two litters a year should be considered. These problems will have to be solved by the breeder; but it is generally considered to be more profitable, where climatic conditions will permit, to wean earlier and produce two litters a year.

### The Weaning Ration

Where skim milk is available, a very good ration is:

Barley, wheat, or corn.....	1 part
Skim milk .....	3 parts

Where skim milk is not available:

Barley, wheat, or corn.....	4 parts
Shorts .....	2 parts
Tankage .....	1 part

Skim milk and middlings in a medium thin slop make a very good weaning ration. The proportion of grain to the middlings should increase as the pigs grow older.

Alfalfa pasture adds value to any of these rations. If pasture is not available, light, clean alfalfa hay will be consumed in limited amounts. Alfalfa furnishes bone and muscle building material. A young pig does not need a bulky feed, but will consume alfalfa along with the more concentrated feeds. At no time should he be fed exclusively upon grain, especially corn and barley, as they are poor growing feeds. In the early part of the growing period the need of muscle and bone forming materials is very important. A few roots will be found useful in keeping young pigs healthy during the winter, when there is no green pasture. Almost any green feed will answer the purpose during the summer. In general the legumes are preferred.

### Drying Up the Sows

There are several methods practiced to dry up the sow when weaning pigs. The usual process is to teach the pigs to eat separately so they will gradually depend less and less on the sow's milk for nourishment. The

result is that the milk flow gradually becomes less, until at weaning time it is somewhat checked. All the pigs are taken off at once and the sow's ration cut down. Keep the sow in a pen with plenty of clear water to drink. Dry oats is a very good feed to check the milk flow. In case the sow's udder becomes very full of milk she may be hand milked. If the udder becomes hard and inflamed, it may be bathed with hot water and equal parts of lard and turpentine.

Another practice is to take all the pigs away from the sow, except one or two of the smaller ones, and cut down the feed to decrease the milk flow. After a few days these pigs are taken away from the sow. This helps to grow out the smaller pigs. Most farmers choose the former method. There is generally no trouble in drying the sows up, and the farmer is justified in taking all the pigs away at one time and not allowing them to the sow again. This saves time and trouble by doing the thing all up at once. After a few days, the sow may be turned out to pasture or in a feed lot with the other sows.

### SELECTING PIGS FOR BREEDING STOCK

Soon after weaning, it is best to pick out those pigs that are to be kept for breeding stock, and separate them from those that are to be fattened. Most breeders make a practice of selecting a few of the top gilts to increase or take the place of the older sows in the breeding herd. In choosing these gilts, only those that show exceptional type and conformation should be chosen to replace or augment the sows in the herd. It is rather difficult at this age to choose the pig that will make the best brood sow, but this can be overcome by choosing a greater number than is needed. Those that do not develop as expected can be culled later and put in the fattening pen. They should be uniform in size and breeding, and in general conform to the same type as the original stock. If possible pick those that will make better individuals than their mothers.

Pigs at this age should show a lot of size, length, and stretch, a good bone, and be thrifty, smooth, sleek, and well grown out for their age. They should be active, alert, hardy, always ready to eat, showing a strong constitution. In other words, the gilt picked for breeding purposes should show by her general makeup that she has the ability to go ahead and grow out into a good brood sow.

The gilt should be out of a sow that is prolific and is a good mother, and by a boar that is from a prolific family. After the gilts have been selected they should be cared for differently than the fattening stock. They should not be neglected, but it is not best to house them as carefully or feed them as heavily as the fattening stock. They should have more exercise. They should have a clean, dry, well ventilated shelter in case of storm. They should be fed some grain, enough to keep them strong and growing nicely, but they must not be fattened. The object in feeding is to make them stretch out and develop bone and muscle in place of fat. The ration should contain more muscle and bone building material than that for the fattening stock. The weaning ration No. 2 is a good growing ration for gilts, but should be fed in limited amounts, about two to three pounds to 100 pounds live weight on pasture. In the winter time they should receive roots, clovers, or alfalfa as a substitute

for grasses. No males should be saved intact unless the breeder is growing pure bred, registered hogs. The selection and care of the male should be practically the same as that of the gilts.

### DEVELOPING THE FEEDER HOG

The spring litter before weaning should be put on forage, if the forage is available, and continued on forage after weaning. Forage crops are essential for the production of hogs. Alfalfa, clovers, sweet clover, peas, oats, wheat, and rye are the most important forages in this state. Rape and kale may be used in some sections.

Alfalfa furnishes an abundance of excellent pasture for hogs. It should be from 6 to 8 inches high before the hogs have access to it. There should be two different pastures. When the water is turned on one pasture, the hogs may have access to the second pasture. If the growth of alfalfa becomes too large and stems become coarse, the pasture should be clipped, but not too closely. This insures a fresh, tender, succulent growth of young alfalfa, and is very important, especially for pigs. Pigs are not able to handle the larger alfalfa stems, which are too bulky and not so succulent as the younger growth. Clover pastures may be used in the same way.

As the pigs grow older the ration should be widened. The proportion of grain to shorts and tankage should be increased. The weaning ration:

Barley, wheat, or corn.....	4 parts
Shorts .....	2 parts
Tankage .....	1 part

can, with good results, be changed to:

Barley, wheat, or corn.....	6, 8, or even 10 parts
Shorts .....	2 parts
Tankage .....	1 part

Where legume forages are used, it may be profitable at times to eliminate the shorts and probably most of the tankage from the ration. During this period the pig must have enough bone and muscle-building material to develop a good sized frame, so that he will be large enough when fat to carry 200 to 250 pounds.

The amount of grain fed on forage will depend on the supply of forage, price of grain, condition of the pig, and the time at which he is to be marketed. If the forage supply is abundant it should be used. When there is very little forage, more grain will be required. If grain is relatively cheap, more grain will give quicker and better results. The pig should receive enough grain on forage to keep him in a good, thrifty, growing condition.

If it is desired to put the pig on an early market, the time at which he is ready for market will practically depend on the amount of grain he receives. The spring pig should be fed a light grain ration of alfalfa or clover pasture, and used to glean fields and then sold as stocker in the fall. If not sold as a stocker, he should have a light finish in the fall, and be put on the market. It is a question whether it is profitable to carry the spring pig over the winter. If sold as stocker he should go

on the market in September or early October. It is at this time that the corn belt farmer wants the stocker to hog down corn or put in the feed lot. Because of this demand pigs bring more money at this time.

The spring litter may be utilized very economically for gleaning the stubble fields. On forage and the stubble fields they will require very little if any grain. The amount of grain will depend on the number of pigs and the amount of grain left in the field. The pig will pick up practically all the grain left in the field. It is the most economical of all farm animals in producing meat from these grains, part of which would otherwise be lost.

The feeding of the fall litter is practically confined to dry lot feeding, and they should receive practically the same ration as the spring litter. Roots, alfalfa, and clover hay should be substituted for forage crops. Roots and alfalfa can not entirely replace forage crops, and care should be taken not to make the ration too bulky for the pig at this age. Grain, with a limited amount of roots, and as much alfalfa as he will take of his own accord, is a good ration for this period. During the winter pigs will require more grain, partly because more heat for the body is required, and also because the forage crops are not available.

It is very hard to give a pig as much exercise as is required in the winter. Exercise is essential to health and development, and should be provided in some way. The lots should be of ample size, and the house some distance from the feeding place. The pig should have a good, warm, dry shelter with a clean bed at all times, located so as to encourage exercise.

As the pig becomes larger his ration should be changed. He may be fed the growing ration through the winter, and finished for the market on forage in the spring and summer; or he may be carried on to glean the stubble. Finally, he may be put on full feed for the spring market.

#### FATTENING PERIOD

Before the pig goes into the feed lot he should be well grown-out, healthy, thrifty, free from worms and lice, and weigh generally from 100 to 150 pounds. To make the most economical gains, he should be in a healthy, vigorous condition, and his surroundings must be such that he will continue in this condition. He should be provided with an abundance of clean fresh water, with shade and shelter. Mineral matter should be provided regularly.

The following mixture may be kept before the animals at all times:

Charcoal .....	1 bushel	Airlacked lime.....	4 pounds
Hardwood ashes.....	1 bushel	Sulphur .....	4 pounds
Salt .....	8 pounds	Pulverized copperas.....	2 pounds

Dissolve the copperas in 1 quart of hot water and sprinkle over the other ingredients well mixed.

At this time the ration should be palatable, wholesome, concentrated, and fed regularly. One practical method in certain sections of the state for finishing the early spring litter is the hogging down corn and hogging off peas. When the grain is practically ripened the pigs are turned in the unharvested pea or corn fields. This saves the labor of harvesting the crops, and the ground is left in better condition because of the manure



and the organic material left on it. Hogs gain more rapidly and economically than in dry lot feeding. The crop is harvested more quickly, making fall plowing possible.



Prime fat barrows. This pen of barrows was first prize pen of five, get of sire at the International Livestock Exposition, 1918.  
(By courtesy of Weaver, Missouri Experiment Station)

The fall pig that has been carried over may be finished in the same way as above. Instead of hogging off the crops, many farmers harvest the crops and utilize the pigs to glean the fields. They then are finished for market. Following are a few satisfactory rations:

(1)	Barley .....	75 parts	(4)	Barley .....	50 to 65 parts
	Peas .....	25 parts		Shorts .....	50 to 35 parts
	Tankage .....	5 parts	(5)	Barley .....	.95 parts
(2)	Barley .....	50 parts		Tankage .....	5 parts
	Peas .....	50 parts		Alfalfa hay in a rack.	
(3)	Barley .....	90 parts			
	Tankage .....	10 parts			

Tankage or alfalfa hay in a rack will improve any of these rations. Where alfalfa hay is used, the amount of tankage may be lessened. When prices will permit, wheat or corn may replace the barley in these rations.

### KEEPING RECORDS

When grade pigs are kept, a record of date of service and date of farrowing for each sow is all that is necessary. The average farmer breeding grade hogs for the market does not carry breeding stock in such great numbers but that he can remember each sow and her offspring without any special markings. It is important that he know just what each sow does each year. If a sow has small litters, does not suckle well, if her pigs do not grow out right or she does not breed regularly, she should be culled out and placed in the fattening pen. No matter how well a sow looks or how well bred she is, if she does not produce

satisfactorily, her place is in the feed lot. She can be replaced by the gilts selected for breeding purposes.

The breeder of pure bred hogs should keep an accurate record of all his breeding operations from breeding to registration of the animals. He should become familiar with the rules of registration for the breed. Blank forms and information concerning registration will be furnished by the secretary of the breed association. All animals kept in the herd should be promptly registered. When an animal is sold, before the registration certificate of the animal is mailed to the purchaser, it is a good plan to copy from the certificate into a book kept for the purpose the name, registration number, herd number, date of birth, name and number of sire and dam, date of sale, and the name and address of purchaser. This is very easily and quickly done, enables one to avoid mistakes, and may prevent financial loss in case of a dispute. Records giving the particulars regarding the produce of each sow should be kept. Record books can be found on the market, or the individual can work out his own system of keeping records.

When several breeding sows are kept and the pigs are allowed to run together after weaning, there is danger of losing the identity of certain pigs. To prevent the identity being lost when the pigs are near the same size and breeding, each pig should have an identification mark or tag. Metal labels inserted in the ear are used to some extent, but metal labels are not satisfactory for small pigs. They are easily lost, and are too severe for the young animal. Where the tag is used, at the time of insertion of the tag a small notch may be cut out of the edge of the ear of the pig, giving each pig in the litter the same mark.

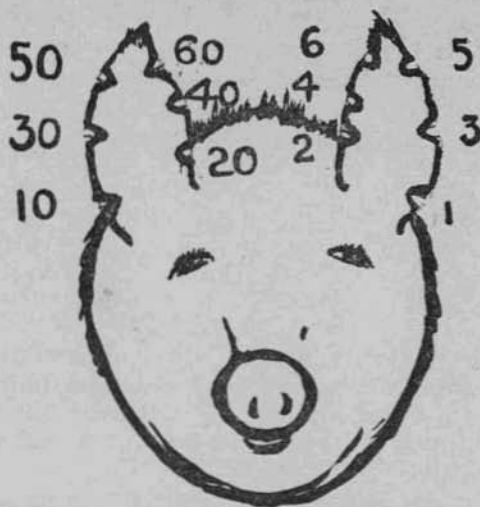
All the pigs in the first litter would have a nip taken out of the lower left ear next to the head (Number One). All the pigs in the second litter would have a notch taken out of the left ear upper side next to the head. This can be carried on with an indefinite number of litters. A record is kept of each sow and her litter mark.

The following plan of notching will be found very satisfactory:

Location of Mark.	Number Indicated.	
	Left ear.	Right ear.
Lower side next to head.....	1	10
Lower side midway ear.....	3	30
Lower side next to tip of ear.....	5	50
Upper side next to head.....	2	20
Upper side midway ear.....	4	40
Upper side next to tip of ear.....	6	60

Another method that is less complicated is to use the notch without the tag. The notch may be put in the ears when the pigs are one day old, and it does not hurt them. This is very convenient for the small herd. They can be marked up to the number 99 with only two notches in the ear.

If a sow has eight pigs they can be marked from one to eight. A record of the sow and her litter numbers can be kept. It is a good plan to earmark the breeding herd. When the sow is put in the breeding crate, the number is easily read, and there is little chance of making a mistake in identity. The sow's ear may become torn, but if the herd is watched there is little danger of confusion.



## PREVENTION OF DISEASE

### Sanitation

The greatest menace to the hog industry that breeders and feeders have to contend with is the losses thru diseases and the infestation of animals—especially young pigs—by parasites. These drawbacks have been combated to some extent by developing hardiness and greater fecundity in swine. Were it not for the fecundity of swine, these diseases would make profitable production out of the question. Cleanliness and rational methods of management are relied on by most farmers to keep their herds healthy and vigorous. In the following remarks on sanitation, no attempt is made to go into details concerning diseases of hogs and their treatment. The object is to call attention to the simple measures which may be used by any farmer to avoid losses among his herd by disease.

Hog cholera and swine plague are very similar, and the breeder may regard them as identical, so far as the practical management of his herd is concerned. Both are highly fatal diseases, characterized by fever and heavy mortality. Sanitary preventative methods are essential and are usually beneficial with both of these diseases.

The farmer should know that hog cholera and swine plague are specific diseases caused by germs, and the contagion can not be spread from one animal to another, or from one herd to another, except thru the agency of these small organisms. They may be carried by the hogs themselves, on the clothing of persons, on vehicles, in feeds, by birds, dogs or other animals, or by streams. Breeding or feeding of the hog can not cause either disease, but improper methods may weaken the constitution and vitality of the animal so that he will be more susceptible to them than if he were kept healthy and vigorous. Diseases that are caused by germs may be best prevented or most successfully controlled by thoro disinfection and cleanliness.

Until recent years tuberculosis has been looked upon as a common occurrence, and only important from the standpoint of meat inspection, but it is now recognized as a serious menace to the hog grower. Tuberculosis can not be detected as easily as hog cholera. It attacks without warning and is slow in development. It may be present in the herd for months without the knowledge of the owner, and not be suspected until mortality begins. Tuberculosis of hogs is closely associated with the same disease in cattle, because of the close association of the two species of animals upon the farm. The majority of tubercular hogs are produced by feeding milk from tubercular cows, feeding behind tubercular cattle, feeding tubercular carcasses, and feeding slaughter house offal. Tankage is made from certain slaughter house offal, but the process thru which it passes makes it absolutely free from germs.

Intestinal worms, lung worms, and skin parasites also take their toll from the profit of hog raising. Cleanliness will be found valuable in preventing and controlling these parasites, as well as other more serious diseases.

#### **Preventative Measures**

In dealing with the diseases of hogs, preventative measures must be mostly relied upon. Contrary to common belief, the hog has habits of cleanliness which raise him far above other domestic animals. Unless compelled to do so, a hog will not sleep in its filth. If a part of the floor is raised, dry, and well-bedded, all excrement will be left on the unbedded portion of the floor. The bed itself will always be clean. The hog must be given dry, well ventilated quarters, which must be kept clean.

Feeding and drinking places should be kept clean, and the water supply should be kept pure. Hogs should not have access to any stream unless it is known to be uncontaminated. Fresh running water is to be preferred for hogs, but its origin should be known. Wallows should be drained out and refilled as often as possible. The quarters should be disinfected with a reliable disinfectant once a month, or oftener, if occasion arises.

Close attention should be paid to the feed, so that nothing may be fed that will convey germ diseases. Cows from which milk is fed should be tested for tuberculosis or the milk sterilized. Animals that die from any disease should not be fed to hogs. All dead carcasses should be burned or buried, preferably burned. If buried they should be covered with lime.

#### **Quarantine**

When animals are brought to the farm, whether they are brought for addition to the herd or brought home from the show circuit, they should be kept separate from the rest of the herd for at least three weeks. If they have been exposed to hog cholera or other diseases, it will be manifest within this time. If disease develops, the animals may be treated or killed, the quarters thoroly disinfected, and the rest of the herd kept free from infection. If precautions are not taken, and cholera or other disease results, the exposure of the whole herd is likely to cause serious loss.

### TREATMENT OF DISEASES AND PARASITES

As soon as sickness appears in the herd, unaffected hogs should be removed at once to clean, disinfected quarters. They should be fed very carefully at this time. If they have been running on pasture, and are placed in a dry lot, they should have some green feed, roots, or skim milk.

The quarters where the sickness appears should be thoroly cleaned and all bedding and rubbish burned. The pens and sleeping quarters should be thoroly disinfected, using air slacked lime on the floors and a coal tar preparation for disinfecting the walls and ceilings. The use of lysol, kreso, or whitewash are very common and practical.

The treatment of hogs suffering from cholera is not satisfactory after the disease has become well established in a herd. Preventative measures are the only effective way of combating this disease. The prevention of an outbreak by using anti-hog cholera vaccination should be relied upon, rather than the cure of sick animals. When cholera or tuberculosis is suspected, call a competent veterinarian at once.

#### Intestinal Worms

Intestinal worms are common in hogs and are particularly injurious to growing pigs. They do not seem to cause much trouble unless they are present in very large numbers. They can often be seen protruding, if their numbers are great. The preventive treatment consists in keeping buildings and surroundings clean and sanitary. Filthy yards and stagnant drinking water favor the spread of worms. A mixture of charcoal, wood ashes and salt seems to be quite effective in driving out worms. A teaspoonful of turpentine for every 80 to 100 pounds live weight is commonly recommended. The pig should not have anything to eat for at least twelve hours before treatment. The turpentine should be given in one dose each day for three days in a light feed. Formula for hog infected with worms:

Santonine .....	2.5 grains	Calomel .....	.5 grain
Areca Nut.....	1.0 dram	Sodium bicarbonate.....	5 drams

The above amount constitutes a dose for a fifty-pound pig; two times as much for a 100-pound pig; 3.5 times as much for a 200-pound hog, and five times as much for a 300-pound hog. These drugs should be put up by a druggist and fed in *damp* feed.

#### Thumps

Young pigs often contract this disease before they are weaned, if they have a good mother. Too liberal a supply of feed and too little exercise will often bring on the trouble. It is caused by disordered digestion, which irritates the nerves connected with the diaphragm, causing sudden contraction of the diaphragm at irregular intervals, and is characterized by a jerking movement of the flanks. The best looking pig is usually the first to have thumps.

The treatment is mainly preventive. Young pigs must have exercise, especially if the sow is a good milker. Careful feeding and exercise will entirely prevent the disease. If a case of thumps occurs, it is a good sign that a change of methods should be made at once.



### Scours

When a young pig begins to scour, the milk of the sow is disagreeing with it, and her ration should be modified at once. Generally the trouble is caused by over-feeding on corn or other rich food just after farrowing. Pigs from fat, pampered, constipated sows are most apt to suffer from scours. Sudden changes of feed, dirty troughs, or sour swill barrels tend to cause scours.

To correct scours in pigs, cut down on the sow's feed, and give the sow 15 to 20 grains of copperas in her slop, night and morning. In cases which do not clean up promptly from the above treatment, give a dose of castor oil shaken up in milk. Scours is most apt to occur and sure to prove serious among pigs kept in unsanitary conditions. It is important to set the diet right and provide the pigs with dry, sunny, well ventilated quarters.

### Rickets

This disease is commonly found among young pigs, and is characterized by enlargement, bending, and distortion of the bones of the joints and limbs. The bones do not contain their normal proportion of mineral matter, and as a result they are weak. Pigs affected with rickets can seldom be profitably treated. It is caused by a lack of mineral matter in the ration. Prevention is the only practical way of combating rickets. Plenty of mineral matter should be provided in the ration. Sanitary conditions should be maintained about the hogs at all times.

### Piles

Constipation is the cause of piles. Constipation is due to improper feeding and lack of exercise. This disease is usually more common after weaning. It can be prevented by regulating feed and by providing for exercise. The treatment of piles consists in giving a laxative and using soft laxative feeds. As soon as the trouble is observed it should be treated as follows: Cleanse thoroly with warm soapy water or mild disinfectant; apply a soothing ointment; and force the protruding rectum into its normal position. If the rectum does not remain in normal position it will be advisable to take a couple of stitches across anus. These stitches should not be drawn too tight and should only be taken in the skin.

### External Parasites

The presence of lice in any considerable numbers does much to lower the vitality of young pigs. The farmer should frequently examine his hogs about the ears, flanks, and inside of the legs to see if they are lousy. Lice are easily seen on back or the neck of the animal at close range, and often by taking up a small pig they may be found in large numbers on the inner surfaces of the rear legs and flanks. By biting the hog and suckling blood lice cause considerable skin irritation. The loss of the blood they extract drains on the vitality of the hog. The eggs or nits, small white oval bodies, are deposited on the hog's coat, where they hatch out in large numbers. When lousy the hog is usually restless, and rubs on posts or other convenient objects. The coat looks harsh and rough. This pest is transmitted from one animal to another thru contact or by infested bedding.

### Mange

Mange is one of the most common skin diseases. It is caused by a small insect or mite which feeds on the skin. Mange is characterized by the formation of crusty scabs on the face and neck and along the back. The hair is stiff and erect, giving the animal a very unthrifty appearance. It is much more common and severe on young animals than on older animals.

### Destruction of Vermin

To free hogs from lice, they should be dipped at intervals of about two weeks. Dipping does not kill the eggs of lice, and several dippings may be required before complete eradication is accomplished. The sleeping quarters should be thoroly cleansed and disinfected at the time of dipping. Cresol compound, Kreso Dip No. 1, or other standard coal tar preparations, may be used for dipping and disinfecting. These coal tar preparations are effective in treating hogs for lice and skin diseases when used in accordance with directions supplied by manufacturer. Crude petroleum is very effective and more satisfactory for mange. It is also very destructive to lice, killing not only the lice but the eggs. One thoro application of crude oil is all that is necessary. It is usually applied on water in the dipping tank or rubbed on by hand. Both methods are satisfactory. Dips may be applied in a dipping tank.

Some farmers favor a hog wallow. Crude petroleum sufficient to form a thin layer on the top of the water in the wallow will tend to keep the hogs free from lice and skin diseases. The wallow should be kept sanitary, and petroleum should be added about every ten days. Where the hogs are few in number, and the farmer is not able to afford a dipping tank, the dip may be applied by a spray pump or sprinkling can, or may be thoroly rubbed on with a brush.

Mange, scab, scurf or other skin diseases are caused by stagnant pools, or damp, filthy quarters, and the treatment is mostly preventative. When pigs are afforded sunshine, exercise, and dry, comfortable, sleeping quarters, skin diseases are rarely troublesome.

