

SOW AND LITTER CLUB

Boys' and Girls' Club Circular 11

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A 1923 Missouri Pig Club Member with his Sow and Litter.



COOPERATIVE EXTENSION WORK IN
AGRICULTURE AND HOME ECONOMICS
UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED
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Sow and Litter Club

Any boy or girl who carries out pig club work as it should be done will be greatly benefited by the experience. The association with other enthusiastic members, the growing, feeding and care of pigs which are their own personal property, and the keeping of accurate, businesslike records of feed costs, gains and profits all assist in laying the foundation for successful lives.

It is hoped that the material in this circular will be of benefit to pig club members by giving them some of the basic facts in pork production which should enable them to produce pork more efficiently and economically. This circular is written principally for the Sow and Litter Club, but with certain omissions it may be adapted to other pig club projects such as the market pig or purebred gilt club.

ORGANIZATION

In developing the Sow and Litter Club work in Missouri the following suggestions may be of value.

A community advisory committee of about three prominent men should be chosen. These men should be interested in boys and girls and should be experienced and successful hog men.

A local leader should be chosen with great care. He must be a man who has the respect of the boys and girls and be willing to give some time to the work. He should be vitally interested in hog feeding and purebred hogs.

Securing Members.—The members should be secured by the advisory committee, Local Leader, and County Agent, at a meeting held for that purpose, or by an individual visit to the boy and his father on their farm.

The enrollment blank should be forwarded to the county extension agent in county-agent counties, or to the Club Department of the Agricultural Extension Service in non-county-agent counties, with only the names of the boys and girls enrolled who have actually secured their sows. This will help materially to raise the percentage of club members finishing the work.

It appears advisable at present to build the sow and litter club upon a market basis. In counties where there is an acute shortage of purebred hogs the purebred sale plan at the close of the year may still be used.

Note.—Prepared by J. M. Burch, Extension Specialist in Animal Husbandry, in collaboration with Theodore T. Martin, State Club Agent.

If an outstanding boar or gilt should be found in the club litter being fattened for market, it should be taken away from the litter when it weighs around 100 to 125 pounds and grown rather than fattened.

There must be at least five members in the club to be a standard club. The club members should all live in the same community, so that they can attend all meetings and can visit each other and compare progress.

Club Requirements.—(1) The members must be 10 to 20 years of age, inclusive. (2) They must attend meetings and take part in all club

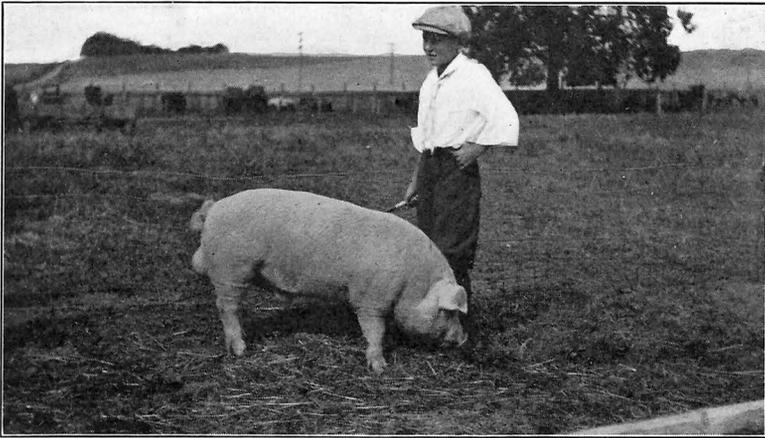


Fig. 2.—This is a good type of boar pig selected from a club litter.

activities, such as the club tour, roundup, and achievement exercises. (3) They must keep records, make reports, and write story of club experiences, and turn same in to the Local Leader at achievement exercises.

Buying Gilt.—With the assistance of the Local Leader or County Agent the club member and his father should purchase a purebred gilt, bred to a purebred (registered) boar to farrow an early spring litter. The best results will probably be secured if the boy pays cash for his sow, borrowing money from the bank or from his father. The sow should be bought at a reasonable price, not far out of line with fat hog prices. The sow should be bought before February 1 if possible so that the club member will have the experience of caring for her properly before farrowing time.

PROGRAMS FOR MEETINGS

The following outline is suggested for the club meetings during the year.

First Meeting.—Organization; selection of gilt.

A. Organization of club, Local Leader or County Leader presiding. (1) Election of club president, vice-president, and secretary-treasurer from the membership of the club. (2) Explanation of club requirements. See "Standard Club" requirements, page 3 of Record Book. (3) Select time and place for regular monthly meetings. (4) Appointment of committee to select an appropriate club song and yell. (5) Assignment of the 4-H club pledge to be learned by the next meeting.

B. Instructions on Project Work. (1) Distribution of pig club literature and Record Books with an explanation of their use. (2) A discussion of special club events for the year, viz: the club tour, the county fair or county roundup, the State Fair, the Junior Farmers' Week, the International, etc. (3) Discussion of selection of gilt. (4) Assignment of work for the next club meeting.

Second Meeting.—Feeds and feeding; care of sow from breeding to farrowing.

A. Business meeting, club president in charge. (1) President calls the meeting to order and leads the club in repeating the 4-H state club pledge, as follows: "*I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living, for my club, my community and my country.*" (2) Roll call by club secretary, members responding by giving a progress report of their project work. (3) Reading of the minutes of the last meeting by the secretary which should be adopted when approved by the club. (4) Old business.—(a) Unfinished business. (b) Report by committee on club song and yells. (5) New business.—(a) Selection of a song and yell leader who leads the club in the new song and yell. (b) Appointment of committees needed. (6) Adjournment.

B. Instructions and demonstrations, the Local Leader in charge. (1) Discussion of principles of feeds and feeding, and care of the sow from time of breeding to time of farrowing. (2) Demonstration.—Kinds and amounts of feed for bred sow. (3) Assignment of work for next meeting.

Third Meeting.—Care of sow and litter from farrowing time to time of weaning.

A. Business meeting. (1) Meeting called to order, members repeating the 4-H club pledge. (2) Roll call; progress reports. (3) Reading of minutes of last meeting. (4) Old business.—(a) Unfinished business. (b) Reports of committees. (5) New business.—(a) Appointment of committees, etc. (6) Songs and yells. (7) Adjournment.

B. Instructions and demonstrations. (1) Discussion on care of the sow and litter from time of farrowing to time of weaning. (2) Demonstra-

tion.—Care of sow at farrowing time; amount and kind of feed, guard rail, bedding, sanitary measures, building a creep, and ear marking.

(3) Assignment of work for next meeting.

Fourth Meeting.—Care of pigs from weaning to marketing; parasites and diseases.

A. Business meeting.

B. Instructions and demonstrations. (1) Discussion on care of pigs from weaning to marketing; parasites and diseases. (2) Demonstration.—Treatment for worms. Treatment for lice. (3) Assignment of work for next meeting.

Fifth Meeting.—The club tour; judging, demonstrations, record books.

The Club Tour; discussion as to how to complete the record book. Judging and demonstration work.

Sixth Meeting.—Club roundup, showing, judging.

Seventh Meeting.—The local achievement program.

The public program.—(1) Model club meeting. (2) Songs and yells. (3) History of club. (4) Demonstrations, stock judging contests, etc. (5) Collecting record books for the year. (6) Awarding of 4-H achievement pins to all who hand in a complete record book. (7) Announcement of county awards, etc.



Fig. 3.—A good purebred sow with a thrifty litter.

I. Selection of the Sow or Gilt

BREED

There is no *best* breed of hogs. As a rule, the boy will make the most progress, who selects a sow of the breed he likes best. It is usually preferable to select a sow of the breed most extensively raised in the home community. By doing this it is easier to buy good breeding stock close at home. There will also be a market for breeding stock produced later on. It is desirable, when possible, for the entire club to use sows of the same breed, as this makes it easier to secure the services of a good boar at a reasonable cost.

INDIVIDUALITY

The club member in selecting a gilt or sow for the Sow and Litter Club, should select one that is growthy with plenty of size and smoothness. The best brood sow is usually one with plenty of length, a strong well arched back, good depth of body, smooth shoulders and neck of medium length. The sow should be broad between the eyes, the ears of medium size, and the face and snout broad rather than pointed. The hams should be deep and broad, and the width should be the same from shoulder to hams.

It is very important that the sow have a good set of feet and legs. The legs should be squarely placed under each corner of the body and show plenty of bone development. The sow should stand well up on her toes with fairly short straight pasterns.

The club member should avoid the short "chuffy" gilt, as well as one that is too leggy and shallow bodied. He should avoid the gilts with weak backs, fine bone and weak pasterns, as these defects practically always get worse as the sow grows older.

TIME OF BREEDING

A gilt that has been properly grown may be bred when eight to ten months old. Most hog men consider a gilt weighing from 180 to 200 pounds, and not fat, as large enough to breed.

If the club member wants his sow to farrow during the first week in March, she must be bred the second week in November, as the average period between breeding and farrowing time is 112 to 114 days. This period is called the gestation period. It is very necessary to keep a record of the breeding date so that the club member can figure when the sow is to farrow and take care of her accordingly.

The greatest care should be observed in selecting a boar with which to mate the gilt. The very best purebred boar that can be found in the community should be used. The boar used should be well developed and at least eight to ten months old.

II. Feeds for Swine

In the production of pork it has been found that about 85% of the total cost is for feed, so this affords the best place for economy in this business. Experiments show that by a proper understanding and usage of the various feeds that better than average results may be expected.

COMPOSITION

The value of a feed depends upon what it is made up of, how much of it is digested, and its palatability, or, how well it is liked by an animal. All feeds contain carbohydrates, protein, fats, fiber, and mineral matter or ash, but the amounts of each in a feed largely determine its value. All of these nutrients are essential and ordinarily no one feed contains them in just the right amounts to produce the most economical gains. Therefore, a combination of several feeds is necessary to balance these nutrients, so that an under supply of any one is not given.

Carbohydrates.—Carbohydrates furnish the material for heat, and energy for work. Sugar and starch are called carbohydrates. When an extra amount of carbohydrate is eaten by an animal it is stored as fat.

Protein.—This is the part of the feeding stuffs which help to build blood, tissues, muscles, vital organs, skin, hair, milk, etc.

Fats.—These furnish heat and energy and are stored as fat.

Fiber.—Fiber is the woody and less digestible part of a feed. Its value is to give bulk to a feed.

Mineral Matter or Ash.—Mineral matter forms the larger part of the bony skeleton, and is valuable in the development of other parts of the body.

FEEDS

Corn is the most palatable, the richest in fuel value and generally is the cheapest of any of the farm grains in the Corn Belt. The make-up of the hog is such that concentrates as grain are the chief feed used in their production, so corn is the basal ration around which hog feeding methods are built.

Corn, in some form, should make up the main part of the ration, but being low in protein and mineral, some feeds high in these two nutrients should be fed along with it. Rapid and economical gains cannot be made on corn alone.

Oats have a special value in giving bulk to a ration. When fed in large quantities to young pigs they have a feeding value of one-half that of corn, bushel for bushel. They are best used in limited amounts to take the place of shorts, along with corn and tankage or milk fed on pasture. They should be fed ground and are very desirable for growing

gilts and boars to prevent too rapid fattening at an early age. They are higher in protein and ash than corn.

Wheat should be fed ground and is very well liked by hogs. In some seasons wheat is cheap in comparison with corn and when fed with tankage has a slightly higher feeding value. Coarse grinding increases its value from 16 to 22 per cent while soaking improves it but little.

Wheat Middlings or Shorts are fairly high in protein and are best used to make up about one-third of a ration of corn, shorts, and tankage or milk, for when fed with corn alone, to pigs not on pasture, they do not generally give as good gains as the same amount of money invested in tankage. However, corn and shorts on good alfalfa or clover pasture will give fairly good results.

Wheat bran is high in protein, but due to its bulk is better suited to breeding stock, than to growing or fattening pigs. Its bulk and laxative properties make it especially valuable when used as a part of the winter ration, for the brood sow, and for boars. For young pigs it is too bulky to be economical or productive of rapid gains when fed in too large amounts.

Tankage or Meat Meal is a packing house by-product and the best grades contain 60 per cent of protein. Due to its high protein content it is an excellent feed to use with corn for hogs, and a small amount will make up for the lack of protein and mineral in the corn. One-third to one-half pound daily per pig is usually sufficient. The younger the pig the more tankage should be used in proportion to corn. The standard corn belt fattening ration is corn ten parts and tankage one part.

Milk has no superior in furnishing protein and mineral when fed with corn. Skimmilk and undiluted buttermilk have the same feeding value and the amount required decreases in proportion as the pigs mature, and require less protein. Just after weaning, 4 to 6 pounds of milk to each pound of corn will give the best results. For pigs 50 to 100 pounds, 2½ to 3 pounds of milk to 1 pound of corn, from 100 to 150 pounds, 2 to 2½ pounds, and for pigs weighing 150 to 200 pounds 1½ to 2 pounds for each pound of corn is recommended.

Linseed Oil Meal is widely used for the same purpose as tankage or milk. It contains about one-half as much protein as tankage, so almost twice as much is required to balance a given ration. It is best suited to hogs weighing over 100 pounds, but in general is not so satisfactory for feeding with corn as tankage or milk as it is relatively low in mineral content.

Soybeans contain nearly as much crude protein as linseed meal and are becoming widely used as a hog feed with corn. Soybeans are low in

mineral and their high fat content or oil has sometimes made them unpalatable to hogs, so they are not entirely satisfactory when used whole in a self-feeder. Soybeans may be ground with corn to get the hogs to eat enough of them. A mineral mixture should be fed with them for best results. (See paragraph concerning minerals.)

FEEDING

In the above, we have considered the feeds most commonly used in this section of the country and those which will probably be available on your farm. Remember that by giving variety you will get best results, so several feeds in the proper combination should be used. In addition to the ordinary feeds it is a good plan to furnish a mineral for hogs, as the grains which are their chief food are low in this nutrient. Of the many mineral mixtures now in use, the following simple one is satisfactory, "Equal parts of wood ashes or ground limestone, salt, and either bonemeal, ground rock phosphate, or acid phosphate". One-half to one pound of the mineral to each 100 pounds of grain is sufficient and may be fed in a box for this purpose.

FORAGE CROPS

Pasture in pork production is valuable for all swine, but for young pigs its benefits are outstanding. Pastures are rich in the body building

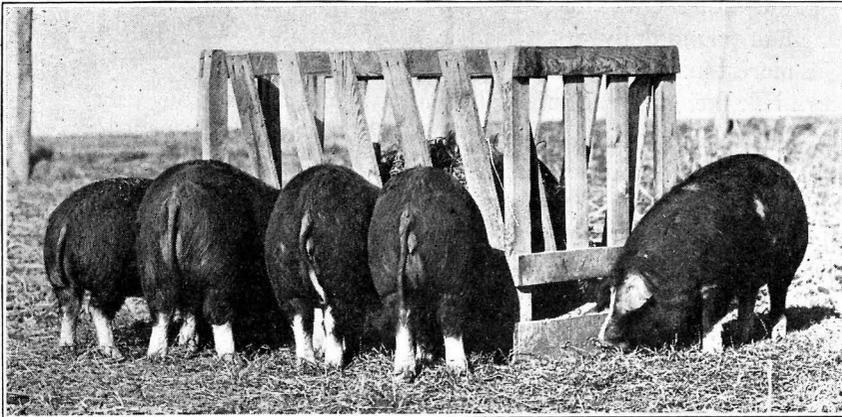


Fig. 4.—A Good forage cuts down feed costs for the club litter.

materials so important to young growing animals. The succulent feed and exercise keeps them thrifty and in good condition.

During the growing period, it is very necessary that pigs be kept on ground that is not infested with eggs of the roundworm and other parasites. By proper use of forage crops, this serious trouble may largely

be prevented. This is a more satisfactory method than to treat the pigs after they are infested.

Due to the excellent character of the feed of forage crops, greater gains are made on a given amount of grain when fed on pasture, than where pasture is not provided. The amount of expensive protein rich feeds such as milk, tankage, or linseed meal required, is only about half as much on good pasture as in dry lot, therefore, the gains made are usually more economical.

Of the forages that are grown on Missouri farms, it is recommended as the result of experimental work that alfalfa, clover, rape, or bluegrass be used. These, with the exception of bluegrass, furnish good succulent feed during the hot summer months and up until frost. Bluegrass makes excellent spring and fall forage. Shelter from the hot sun should be provided, as well as an abundance of fresh, pure water.

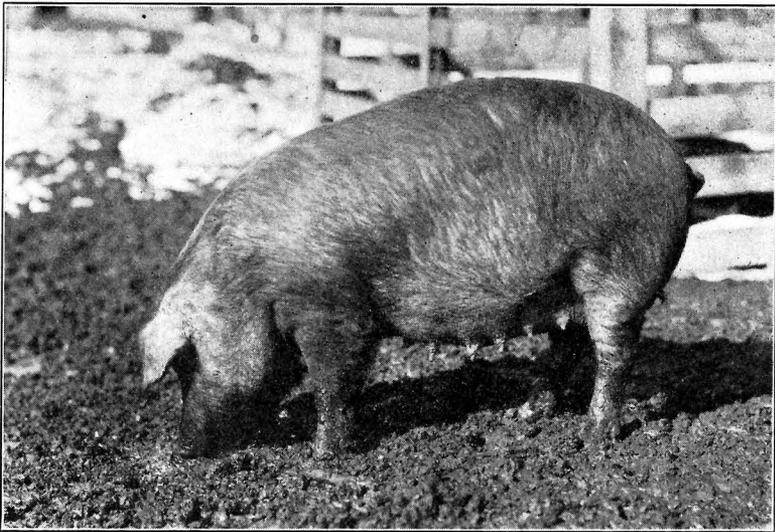


Fig. 5.—Proper amount of fat for sow to carry before farrowing.

FEED AND CARE OF SOW FROM BREEDING TO FARROWING

After the sow is bred there are three essentials to bear in mind in caring for her. She must have proper feed, plenty of exercise, and good shelter. The most common fault with feeds given brood sows is that they are made up too largely of corn with not enough protein feed, such as milk and tankage, and not enough bulky feed, such as wheat, bran, alfalfa, or clover.

The bred sow needs plenty of protein and mineral matter because these elements are needed in the development of the unborn pigs in addition to that required by the sow herself. Young sows need more protein and mineral than older brood sows, if they are to complete their growth, in addition to nourishing the embryo pigs.

Brood sows fed corn alone cannot be expected to produce large thrifty litters. At the Iowa Experiment Station it was found that pigs from gilts fed ear corn alone weighed 1.74 pounds at birth only 68 per cent strong, while the pigs from gilts fed tankage and clover hay with corn averaged 2.18 pounds at birth and 92 per cent were strong.

SUGGESTED RATIONS FOR BRED SOW

Ration 1

Corn, 10 parts by weight;
Tankage, 1 part;
Fine legume hay, fed in rack.

Ration 2

Corn, 8 parts by weight;
Shorts, 4 parts;
Bran, 1 part;
Tankage, 1 part.

Ration 3

Corn, 6 parts by weight;
Linseed oil meal, 1 part;
Legume hay, fed in rack.

Ration 4

Corn, 1 part by weight;
Skim milk, 3 parts.

Ration 5

Corn, 2 parts by weight;
Shorts, 1 part;
Skim milk, 2 parts.

Ration 6

Corn, 8 parts by weight;
Oats, 3 parts;
Tankage, 1 part.

Ration 7

Corn, 6 parts by weight;
Ground soybeans, 1 part;
Legume hay, fed in rack.

Ration 8

Corn, 3 parts by weight;
Ground wheat, 3 parts;
Oats, 3 parts;
Tankage, 1 part.

Amount to Feed.—The bred sow should be fed enough to keep her in good condition, but not too fat. A sow that is too fat will be sluggish and apt to kill her pigs by lying down on them. On the other hand, if she is too thin, she will not give enough milk to properly feed the young pigs.

About $1\frac{1}{2}$ pounds of grain per 100 pounds live weight will give good results for the bred sow if she has access to good legume hay or pasture.

Exercise.—A sow to produce strong healthy pigs must take plenty of exercise. She should by all means have access to good bluegrass or rye pasture in winter. She can be induced to take exercise by feeding her some distance from the sleeping quarters.

The club member will want to keep his sow separate from the rest of the breeding herd at feeding time so that he can keep record of feed, but should turn her out during the day and allow her to get plenty of exercise.

About one week before farrowing the grain ration should be cut down nearly one-half. A little more laxative, as well as a more bulky, ration should be provided at this time. When corn forms the major portion of the ration, wheat bran can be substituted for the corn and thus provide a cooling and laxative ration, that is very much to be desired.

III. Care of Sow and Litter from Farrowing to Weaning

THE FARROWING HOUSE

Sanitation.—About one week before farrowing time, the sow should be placed in the house in which she is to farrow. The floor and walls of this house should be thoroughly scrubbed with boiling water and lye to kill all worm eggs, one pound lye to forty gallons boiling water should be used. Before the sow is placed in the house, it is well to wash her sides and udder with warm water and soap in order to wash off filth and worm eggs that might otherwise be taken into the body of the young pigs when they first suck the sow.

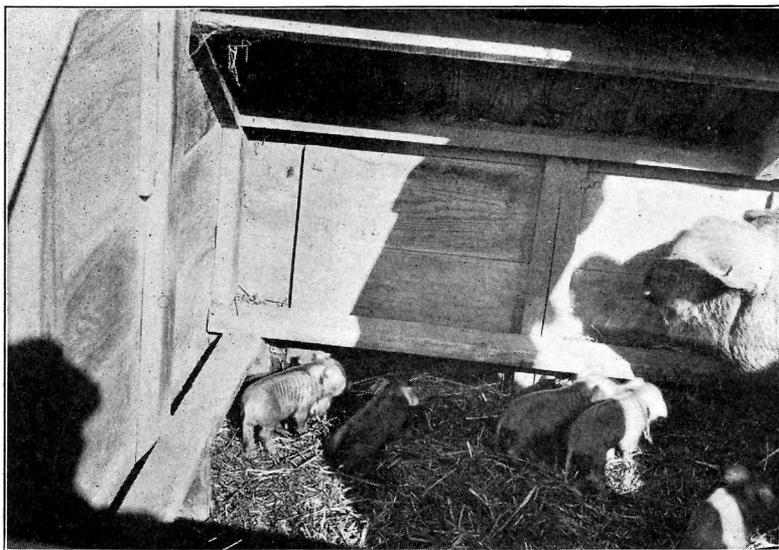


Fig. 6.—Interior of farrowing house, showing guard rail and small amount of bedding—both of which prevent losses at farrowing time.

Guard Rail.—Before the sow farrows, a guard rail should be constructed inside the hog house. A 2 x 4 raised 8 inches from the floor and held 8 inches from the wall will prevent the sow from smashing the pigs when she lies down next to the wall. The picture on page 13 illustrates this.

Bedding.—The amount and kind of bedding to use is rather important. Fine straw that will lay close to the floor should be used. Only enough to make a thin covering over the floor is needed. About a bushel of wheat chaff or cut straw will be enough. If too much coarse straw is used the young pigs may get tangled up and lost and never find their way to the sow's udder to nurse. After the pigs are about two weeks old the amount of bedding may be increased. The bedding must at all times be kept perfectly dry. This will require that it be changed every few days in good weather and probably every day in rainy or snowy weather.

CARE AFTER FARROWING

Feed After Farrowing.—Great care should be taken in feeding the sow immediately after farrowing. On the first day give her plenty of water with the chill taken off, but no feed. On the second day give her a thin slop made of a double handful of bran and ship. Increase this feed very gradually until by the time the pigs are two weeks old the sow will be getting all the feed she wants.

Pig Eating.—Sometimes a sow that has not had sufficient protein feed before farrowing will eat her pigs. Feeding salt pork may stop this. A little dip or coal oil applied lightly to the pigs may prevent. Do not allow the sow to eat her afterbirth as this may cause the pig-eating habit. Once the habit is acquired, the fattening pen is the best solution of the problem unless the sow is very valuable.

CARE OF THE LITTER

While the pigs are young, proper care, feed, and attention will mean success with the growing pigs and help a great deal in making quick growing hogs.

Wolf Teeth.—Soon after the sow is through farrowing, examine the mouths of the pigs and you will find some long, sharp, tusklike teeth well back in the pig's mouth. These should be broken off even with the gums with a pair of nippers. These needle or wolf teeth are apt to cut the sow's teats and the noses of the other pigs, causing sores.

Marking the Pigs.—All breeders of purebred hogs must have some plan of marking the pigs before they are weaned so that they can be accurately identified later on, when they are old enough to be recorded.

It is not practical to use metal ear tags on young pigs, so a simple method of marking the ear is used:

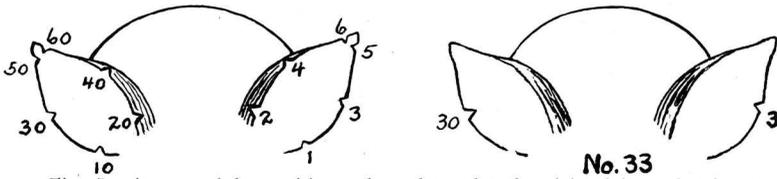


Fig. 7.—At your left: position value of notches in pig's right and left ears. At your right: notches for No. 33.

	Left Ear	Right Ear
Lower side, next head.....	1	10
Lower side, midway between head and tip....	3	30
Lower side, tip.....	5	50
Upper side, next to head.....	2	20
Upper side, midway.....	4	40
Upper side, tip.....	6	60

Two notches would mean addition of the two numbers represented. Thus a notch midway between head and tip of lower side of right ear and another notch midway between head and tip on lower side of left ear would indicate $30+3=33$, the number of the pig.



Fig. 8.—Removing the young pig's wolf teeth.

Scours.—While the pigs are small watch them closely for scours. This trouble is caused by indigestion due to changing the sow's feed or giving her too rich feed. It may also be caused by damp, dirty, living quarters and by using, sour and unsanitary feeding troughs or buckets.

You can prevent scours by sanitation and careful feeding. If scours develop, cut down the feed of sow and pigs; give sow 2 teaspoonfuls of copperas in her feed for a few days and if necessary give the little pigs a small tablespoonful of castor oil each.

Thumps.—The pigs must have sunshine and plenty of exercise or they will get too fat and lazy and thumps will develop. The individual house, placed in a bluegrass lot, furnishes the best place for the young pigs, as this allows for the sunshine and exercise so indispensable and also reduces the chances of their being infested with eggs of the roundworm.

FEEDING SOW AND LITTER

Creep.—When the pigs are about three weeks old they begin to try to eat with the sow. At this time, it is a good plan to build a creep for them to eat in, separate from the sow. The creep is merely a small

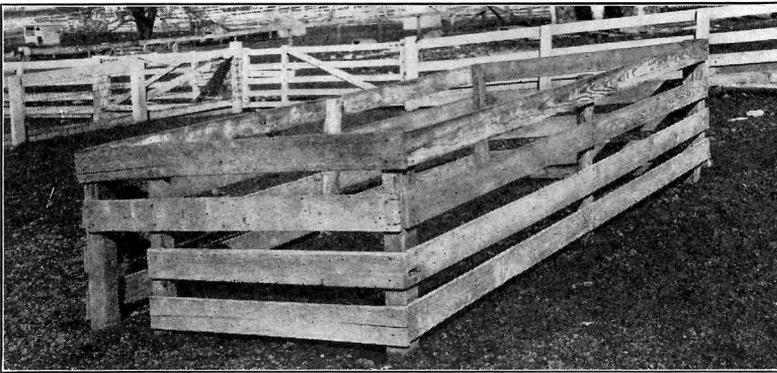


Fig. 9.—Creep where suckling pigs may be given additional feed.

feeding pen built so that the pigs can enter and the sow cannot. A square pen 8 feet by 8 feet will be large enough.

Shelled corn and sweet skim milk can be used to feed the pigs at first. They should be fed three to four times daily and only what they will clean up promptly. As the pigs grow older, corn, shorts, and tankage can be mixed together and placed in a feeder for them. There is nothing so good as milk for them, but they should have only what they clean up and it should not vary in the degree of sourness or they are apt to have indigestion. Sweet milk direct from the separator is preferable.

Feed for Sow.—After the pigs are two weeks old, the sow should have all the feed she will clean up. If she loses weight too rapidly it is best to feed her three times a day. A good milker will lose around twenty to thirty pounds while nursing her pigs.

Rations for sows suckling pigs must be relatively high in protein and mineral as protein makes milk and that is what we want for the young pigs.

Ration 1

Corn, 7 parts by weight;
Shorts, 3 parts;
Tankage, 1 part, or skim milk 15 or
linseed oil meal 2 in place of tankage.

Ration 2

Corn, 6 parts by weight;
Ground wheat, 4 parts;
Tankage, 1 part.

Ration 3

Corn, 3 parts by weight;
Ground oats, 3 parts;
Ground wheat, 3 parts;
Tankage, 1 part.

CASTRATION

The best time to castrate boar pigs is before they are weaned when they are between six and eight weeks old. At this age there is less shock to the pig and, while sucking its dam, the chances are that it will be more thrifty and in better condition and will recover more quickly than when the operation is performed after weaning.

Select a clear, dry day for the work. Carry the pig out to the clean sod and be as clean as possible with knife and hands. Use freely of some disinfectant, as a 3 per cent solution of compound cresol or lysol. Keep the castrated pigs away from mud wallows and dusty beds until the wounds have healed.

Unless you have an exceptionally good individual in the litter, do not save any of the pigs for boars. They are a good deal of trouble to grow out and as a rule are hard to sell. It is best to leave the production of boars to breeders with necessary pastures and equipment and long years of experience.

IV. Care of Pigs from Weaning until Marketing

WEANING

Pigs should be weaned when 8 to 10 weeks of age. If they have been creep-fed they will not miss the sow's milk very much. If they can have plenty of skimmilk at weaning time it is of great help. A few days before the pigs are weaned the sow's ration should be cut in half. The sow should be removed from the pigs, leaving the pigs where they are accustomed to be. The sow should be placed in dry lot and scantily fed until the udder is practically dried up.

At the time the club member weans his pigs they should weigh around forty pounds apiece. From this time until they weigh about



Fig. 10.—A clean grassy lot, with individual houses, providing exercise and sunshine, aids in keeping pigs thrifty.

100 pounds they should continue to have a ration containing a large amount of protein feed to build the frame-work for the fat that the finished hog should carry.

FEED ON PASTURE

In order to make the most economical gains the pigs should be fed on some good forage crop as alfalfa, clover, or rape. Good for-

age will probably cut down the grain needed for 100 pounds gain by one-fourth. The early litter should, however, be given about all the feed they will use on this forage, in order to make them gain fast enough to be ready for the early fall market, which, as a rule, is better than later on when the heavy runs of spring pigs begin.

Some good rations for shoats on pasture are as follows:

Ration 1

Shelled corn, 1 part by weight;
Skimmed milk, 3 parts.

Ration 3

Shelled corn, 9 parts by weight;
Tankage, 1 part.

Ration 2

Shelled corn, 6 parts by weight;
Wheat shorts, 3 parts;
Tankage, 1 part.



Fig. 11.—Self-feeder suitable for feeding 125-pound shoats.

Amount of Feed.—After the feed has been mixed the amount to give the pig each day should be measured, giving half in the morning and half in the evening. A heaping quart cup of Ration 2 and 3 will weigh about 1.7 pounds. The pigs should have $3\frac{1}{2}$ to 4 pounds of feed per day, for each 100 pounds of live weight, when on pasture.

Self-feeder.—When the club litter has reached the weight of 100 pounds or thereabouts per hog they are ready to be pushed as rapidly as possible. From this time on a wider ration or one containing a larger proportion of fattening feed, as corn, and less tankage or milk may be fed.

The self-feeder is often a valuable asset at this time, especially if you do not have good forage. If you have good forage it will be best to hand-feed and thus get the pigs to graze more. Pigs on self-feeders are inclined to lie around the feeder and not make use of the forage. The self-feeder will give the maximum finish in the minimum time. When pigs are put on a self-feeder too young they are apt to become finished too soon. At the weight of 100 pounds they are about the right size. As the pig matures the amount of protein necessary decreases. By offering free choice in a self-feeder the pig will consume about the amount of protein he needs. Pigs on self-feeder should be watched and if they begin to get too fat the feed will have to be mixed so as to force them to eat more protein feed. The self-feeder saves labor if properly built. The pigs must be on full feed before they are put on the self-feeder. Missouri Experiment Station 144 will give you plans for building the feeder.

In case you do not care to build a self-feeder, it will probably pay you to feed three times daily, feeding slightly less at noon in hot weather than at morning and night. By feeding three times daily, the gain will be a little faster and paunchiness may be avoided in the pig. When hand-feeding do not give more at one feed than the pigs will clean up. By all means feed at the same time each day if you expect good results.

Average Gains for Different Weight Pigs.—The following table is based on a large number of feeding trials with fattening hogs. By studying it carefully you can have an idea what to expect from your pigs. By using purebred pigs and feeding properly the club member ought to beat these averages. You will note in the last column that as the hog gets larger it takes more feed for 100 pounds gain, so it will probably pay you to sell when your pigs reach 200 pounds or thereabouts.

AVERAGE DAILY GAIN BY PIGS AT DIFFERENT WEIGHTS

All amounts are in pounds

Wt. of pigs	Average feed eaten per day	Feed eaten daily per 100 lbs. live wt.	Average daily gain	Feed for 100 lbs. gain
15-50	2.2	6.0	.8	293
50-100	3.4	4.3	.8	400
100-150	4.8	3.8	1.1	437
150-200	5.9	3.5	1.2	482
200-250	6.6	2.9	1.3	498
250-300	7.4	2.7	1.5	511
300-350	7.5	2.4	1.4	535

Rations for Fattening Period.—The following rations may be used:

Corn, 9 parts;	Corn, 10 to 12 parts;	Corn, 2 parts;
Shorts, 2 parts;	Tankage, 1 part.	Shorts, 1 part;
Tankage, 1 part.		Skimmilk, 4 parts.

Shade.—When pigs are fed on pasture during the summer they should by all means have shade and water close to the forage plot if good results are to be expected. An individual hog house with sides that open out can be used. Anything that will keep off the sun and allow full sweep of the breeze under the shade may be used.

When your litter reaches the 100-pound mark, if you have an unusually good gilt in the judgment of your Local Leader and County Agent, you had better take her away from the rest of the litter before she gets too fat, and grow her out rather than fattening her. She can be forced to graze more and thereby cut down the cost of her feed. Use the same ration for her that was given the pigs after weaning, as you want her to go on developing framework.

DISEASES AND PARASITES

Worms are probably the worst enemy of the growing pig. By proper sanitation, that is, providing clean quarters for farrowing, and clean pastures, the young pigs may escape infestation with worms. Moreover, they will not be so liable to become infested with bacterial diseases, which cause sore mouth and diarrhea.

Within a few weeks after farrowing move your sow and her litter to a clean lot or pasture; and, after weaning, still keep your pigs away from old hog lots. The worm embryos which cause worms in pigs are picked up by the young pigs while rooting around in infested lots. All old hog lots contain many of these embryonic worms.

Young pigs suffer much more from worms than older ones. Besides the actual damage that the worms do, the pigs are left in such a weakened condition that they are more likely to suffer from other troubles and diseases. By keeping your pigs in clean places as suggested, you can largely avoid this trouble, but if your pigs are not doing well, consult your County Leader to see if your pigs are suffering from worms. If so, they may be treated at a reasonable cost.

Dr. L. S. Backus of the Veterinary Department, University of Missouri, College of Agriculture in a recent letter to the writer recommended as a treatment for worms one teaspoon of oil of chenopodium (Am. Worm Seed Oil) to 1 oz. of castor oil for a 100-pound pig. One-half of this dose would be enough for a 50-pound pig. The oils should be mixed well together and given in a 1-ounce dose syringe with a 9-inch nozzle or with a tablespoon.

Missouri Agriculture Extension Service Circular 13 has the following to say concerning worms and lice on hogs.

“What are symptoms of wormy hogs? Good appetite without proper gain; small pigs may suffer from convulsions; cough and thumps may indicate worms; passage of worms with excrement; post-mortem examination of a pig showing worms within the intestine is an indication for treatment of the herd.

“How should hogs be treated for worms? Hogs if properly handled, are comparatively easy to treat for worms. The following formulas are recommended:

Formula 1

Santonin,	1 dram
Calomel,	2 drams
Powdered areca nut,	5 ounces

Mix

Note.—Areca nut is an efficient worm remedy but it loses its strength and care should be exercised to procure the fresh drug.

Dose.—One heaping teaspoonful for every 100 pounds weight, or the formula is sufficient for 20 pigs averaging from 50 to 100 pounds.

Directions.—The pigs should be hungry when the remedy is given. Withhold all feed for 24 hours. Give the medicine in a light feed of wet mash and after 6 hours give one ounce of epsom salts, per 100 pounds weight, mixed in slop. This treatment will be found very effective. If the pigs are of different sizes, they should be divided into lots so that pigs of equal weight will be together. This will enable each pig to get its share of the remedy.

Formula 2

Turpentine

Dose.—One-half ounce (or one tablespoonful) per pig. One pint of turpentine will be sufficient for one dose for about 30 pigs weighing from 50 to 100 pounds.

Directions.—Prepare pigs for treatment as recommended under Formula 1. Give one tablespoonful turpentine, per 100 pounds weight, mixed with a light feed of thick mash or skimmilk. Repeat for three successive feeds. Follow last dose with one ounce epsom salts, per 100 pounds weight, mixed with slop.

There is no danger of over-dosing with turpentine, since if too much is given the pigs will refuse to eat the mixture.

Formula 2 is cheap and easily obtained. Turpentine when used as directed has been found a safe and effective worm remedy for the hog.

Some reports hold that turpentine and copper sulphate have in some cases produced abortion of pregnant sows. We have no conclusive evidence, however, that such is the case.

Lice on Hogs.—How may hogs be rid of lice? During warm weather the animals may be dipped or sprayed with a 2% solution of some commercial preparation such as Liquor-Cresolis Compound, Creolin, Kreso. Three ounces to one gallon makes about a two per cent solution.

An emulsion dip may be prepared as follows:

Kerosene oil,	2 gallons
Soap,	8 ounces
Water,	1 gallon

Directions.—Make the water hot to dissolve the soap and while it is hot add to the kerosene, stirring the mixture rapidly for ten minutes. One gallon of this mixture is then mixed with nine gallons of water. The preparation may be used in a dipping tank or may be sprinkled over the hogs with a spray pump.

The dip should be used toward evening or on cloudy days as the hot sun may blister the animal's skin if the oil has not evaporated.

The emulsion dip is probably more efficient in destroying the nits than the commercial dip. In either case the treatment should be repeated in a week or ten days to destroy any lice which may have hatched since the previous treatment.

During cool weather, sprinkling the hogs with crude oil is very effective. If this is used in summer, the hogs may blister if turned out in the sun.

After treating hogs for either worms or lice the yards should be cleaned of litter and sprinkled liberally with freshly slaked lime to prevent reinfestation of the herd. Lime kills many worm eggs and embryo worms in the infested grounds.

Hog Cholera.—Missouri Agricultural Extension Service Circular 17 recommends that: "If any pigs in the herd show symptoms of sickness, such as loss of appetite, vomiting, or diarrhea, no matter if cholera is not near, confine them in a building where no infection carriers can reach them. These sick hogs should be handled as cholera sick until the cause of the disease can be definitely established. There are good reasons for not allowing these animals to run with healthy pigs. In the first place, if the disease should be cholera, these animals giving off the germs of the disease in their excretions and secretions, would supply abundant infection for the healthy pigs. In the second place, even if the disease does not prove to be cholera, the sick hogs should be given a quiet and comfor-

table place in which they will have a better chance to recover. Some pigs have a very low natural resistance, while others have a strong resistance to hog cholera. The pig that has a low resistance is usually the first to take hog cholera, and if it is promptly isolated, there is a possibility that the rest of the herd may remain healthy. If the sick pig continues to grow worse or if others become sick, it is advisable to employ the best trained veterinarian within reach to make an investigation of the disease.

Hog Tonic.—The health of the pig is more dependent upon proper feed, care and management than upon any hog tonics or stock food. If the pigs are healthy and are getting protein supplements as tankage, skim milk, or alfalfa, about the only extra mineral feed necessary is salt.

If the feed given the pigs is made up entirely of grains, then calcium and phosphate may be needed and can be supplied as described in the paragraph on minerals. Wood ashes or ground limestone furnish calcium and bone meal or acid phosphate will furnish phosphate.

A home made mixture which may be of some value in keeping the pigs healthy contains 4 parts charcoal, 3 parts glauber's salt, 3 parts copperas, 3 parts salt and 1 part sulphur.

If any serious question arises concerning the health of the club member's hogs, information may be obtained by writing direct to the Department of Veterinary Science, Missouri College of Agriculture, Columbia, Missouri.

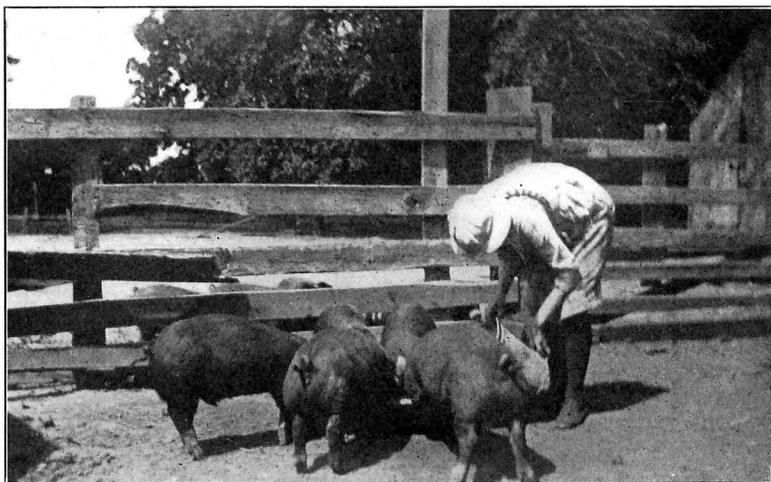


Fig. 12.—A healthy litter belonging to a Missouri Sow and Litter Club member.

V. Showing and Judging

PREPARING FOR SHOW

The club member must begin making preparation at least a month before the show if he hopes to win. The pig must be in the very best of health if it is to stand any chance. The fat barrow should carry all the covering that can be put on smoothly. This fat must be smooth and firm if he is to win. This calls for careful feeding and for plenty of exercise. Exercise is also necessary to keep the barrow up on his feet and pasterns.

The gilt or boar to be shown in the breeding classes should not carry so much fat as the barrow; only enough to make them look smooth. To win with the gilt or boar, the boy must feed for stretch and growthiness.

Trimming the Toes.—Work on the pig's feet should be started a month before the show. If the pig is to stand up well on its pasterns, the



Fig. 13.—First prize Poland China litter in Club Section, Missouri State Fair, 1923.

toes must be kept trimmed back. Stand the pig on a level floor and, with a rasp and sharp knife, trim back the toes and sides of feet until the weight is even on the base of the foot when the leg is placed properly.

It may be necessary to give attention to the feet at least twice before showing, for if too much is taken off at once, the pig will be made lame. For this reason, the last trimming of the feet should be about ten days before the show. Unless the pig is very gentle, he will probably have to be put in a crate while his feet are being trimmed. By removing the lower board on either side, one can work conveniently through an ordinary shipping crate.

Washing.—At least one week before the show the pigs should be thoroughly washed with soap and water and brushed with a stiff brush. This will loosen up the scurf which another washing may remove. After washing the last time, dry the pig with a towel and bed him down with clean straw.

Oiling.—Practically all breeders who make a practice of showing hogs use oil on the hog's hair. A good oil to use is one composed of two-thirds raw linseed oil and one-third gasoline. This should be put on sparingly with a soft brush or cloth. The oil softens the skin and adds luster to the coat. Only enough oil should be used to brighten up the hair. Before showing, if the pig is rubbed over with a woolen cloth it will add to the shine the oil has given his coat.

Training the Pig.—Considerable time should be spent training the pig before the show. The boy should have a short cane and a light hurdle about 2 feet wide at bottom, 2 feet high, and 1 foot wide at the top. The boards should only be one-half inch thick so that the hurdle may be light. The pig must be absolutely gentle, but not a pet, to show well. The club member should work with the pig until he can easily take it any place around the barn lot and yard, and make it stop and stand where and when he wants it to stand. It takes a great deal of practice and patience for the boy to learn how to show as well as for him to teach the pig how to be shown.

Trimming Hair.—It is a good plan to clip off the long rough hair around the ears and any long, coarse hair on the face or jowls. The tail should also be clipped excepting the hair that makes the brush at the tip.

SHOWING THE PIG

When the times comes to show your pig, be ready to show. Be prompt about getting in the ring but always keep the pig under perfect control. Do not try to get the pig on top of the judge, but keep in front of him 8 or 10 feet away. Keep your pig out of the corners, away from

the other pigs a little, if possible. Keep the head of the pig down and the back held well up. Keep in a good humor, as any judge admires a good sport and dislikes a poor one. Never stop showing the pig until the ribbons are given out, as you do not know what the judge has in his mind.

RECORD BOOKS

Your record book, showing the feed you have given the sow before and after farrowing and the feed given the pigs since weaning, must be up-to-date in every respect before you are eligible to win a prize in a club show.

JUDGING HOGS

Any boy who hopes to be a successful breeder or feeder of hogs must first know what a good hog looks like. If you learn to be a good judge of hogs while young it will help all through life.

The following is a description of what a good market hog of the lard type should look like.

The **General Appearance** of the lard-type hog fattened for the market embodies a long, deep, and reasonably wide conformation, together with great smoothness. The legs should be of medium length, so as to give a rather upstanding, but not leggy, appearance. He should be tall as measured from his back to the ground, rather upstanding as measured from his belly to the ground, yet deep from back to underline. The top line should be arched, showing an even curvature from shoulders to tail, insuring against weakness of back and loin. The hips should have about the same height as the tops of the shoulders, and the rump should round off rather gradually. The underline should be straight, trim, and level, insuring against paunchiness and against flabbiness in fleshing along the belly. The flanks should be well let down. The hog should be uniform in his width and uniform in his depth, showing no tendency to taper in width and to be heavy in shoulders and light in hams. He should be very smooth in both form and fleshing, and should show refinement of head, ear, coat, and skin. He should have bone of medium size, free from any roughness and coarseness and also free from over-refinement and weakness. His legs should be straight and he should be active and should show good style. The lard hog is more quiet in disposition than the bacon hog, but a sluggish, inactive hog is objectionable. Lard hogs should be fairly active. This makes them better grazers, insures exercise, and helps to develop heart and lung capacity and strength of feet and leg. Too frequently the fat, finished pig is short-winded and is weak in underpinning, so that it becomes a difficult matter and perhaps impossible to get him safely to market.

The **Head** is of medium size, medium length, broad between the eyes, and short of snout. A narrow head and finely pointed snout are indications of a poor feeder. The shape and length of head vary according to the breed, but in none of the lard breeds is much length or narrowness desirable. The eyes should be as large, prominent, and clear as possible, a small sunken eye obscured by rolls of fat around the socket being objectionable. The carriage of the ear varies according to the breed

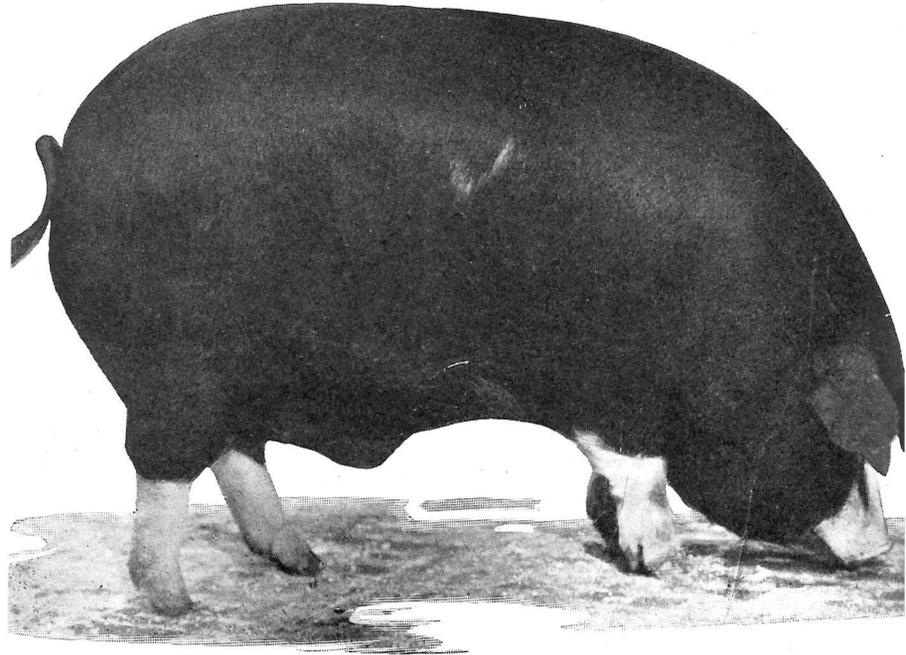


Fig. 14.—Grand champion barrow at International Livestock Show at Chicago; bred, fed and exhibited by the Missouri College of Agriculture.

being erect in some and drooping or broken in others. In all breeds, however, a fine and medium-sized ear, neatly attached to the head, is desired. The jowl should be neat and trim.

The **Neck** should be of medium length, slightly arched, and medium broad on top. A neck that is narrow or peaked on top is not often associated with a body of the desired conformation, and it also denotes lack of condition.

The **Shoulders** are very frequently too open and prominent, so that as one looks down at the top of the hog the shoulders are found to be much the widest part of the animal. They should be well laid in, very smooth, and have no greater width than the rest of the body.

SCORE CARD FOR LARD HOGS

SCALE OF POINTS	Possible	Member's Score		
	Score			
Age—estimated.....yrs., actual.....yrs.				
GENERAL APPEARANCE—26 Points.				
Weight—estimated...lbs., actual.....lbs. score according to age.....	6			
Form, arched back, straight underline; deep, broad, medium length, symmetrical, compact, standing squarely on legs.....	8			
Quality, bone of firm texture, fine skin, silky hair, clearly defined features and joints; mellow touch.....	6			
Condition, thick, even, covering of firm flesh, especial ly in regions of valuable cuts; indicating finish; light in offal.....	6			
HEAD AND NECK—8 Points.				
Snout, short, not coarse.....	1			
Face, short, broad, cheeks full.....	1			
Eyes, large, full, clear, bright, wide apart, not ob- scured by wrinkles.....	1			
Forehead, broad.....	1			
Ears, well carried, fine, medium size.....	1			
Jowl, full, firm, broad, neat.....	1			
Neck, thick, medium length, somewhat arched, neat- ly joined to shoulders.....	2			
FOREQUARTERS—10 Points.				
Shoulders, broad, deep, full, compact, covered with firm flesh.....	6			
Breast, wide, deep, breast bone advanced.....	2			
Legs, straight, strong, wide apart, pasterns short and strong, feet strong.....	2			
BODY—33 Points.				
Chest, deep, broad, girth large, foreflank full.....	4			
Back, broad, slightly arched, medium length, thickly, evenly and firmly fleshed.....	8			
Sides, deep, medium length, closely ribbed, thickly, evenly and firmly fleshed.....	8			
Loin, broad, strong, medium length, thickly, evenly and firmly fleshed.....	8			
Belly, straight, proportionate width, firmly fleshed....	3			
Flanks, full, low.....	2			
HINDQUARTERS—23 Points.				
Hips, smoothly covered, proportionate width.....	3			
Rump, long, rounding slightly from loin to root of tail, width well carried back, thickly, evenly and firmly fleshed.....	8			
Hams, deep, wide, thickly, evenly and firmly fleshed	10			
Legs, straight, strong; pasterns short and strong, feet strong.....	2			
Total.....	100			

Disqualifications.....

Animal.....Date.....

Student.....Standing.....

The **Front Legs** should be of medium length, this being a somewhat variable feature depending on the breed, and they should be also straight. It is especially important that the pasterns shall be short, upright, and very strong, and that the feet shall be strong also. These points should be particularly emphasized, for it is a fact that weak, broken-down pasterns and weak, spreading toes are among the most common and most serious faults in hogs of the lard type. Weak legs may be due to a natural or inherited weakness, or to improper feeding during the growing period. If growing pigs are fed on corn exclusively, they are liable to develop weakness of the legs, because corn does not carry sufficient bone and muscle-building constituents to satisfy the demands of the animal during the growing period. The bone of the market hog should be medium in size, free from coarseness, and amply sufficient to carry the weight of the hog and to provide strength of feet, pasterns, and legs.

The **Chest** is an evidence of the constitutional vigor possessed by the animal. It should be deep and wide, and should be well filled out behind the shoulders and elbows, affording a large heart-girth. The underline should not cut up between the fore legs, but carry straight forward as so to give as much depth through the chest as through the middle of the body.

The **Back and Loin** of the lard hog are very important parts. They should be rather long and of good but not excessive width, and, as the animal is viewed from the side, they should be arched. The top of the hog should be thickly fleshed and smooth. There should be no marked rounding off from the middle line, but instead a slight arch over the top from side to side and good width of top due to well sprung ribs and thick but not excessive fleshing. A dip in the back, or sway-back conformation, greatly detracts from the appearance of the animal and may indicate weakness of muscling; hence the cuts from the back and loin may be lacking in lean meat.

The **Sides** of the hog should be long from shoulder to ham and should carry down straight and deep from back and loin to belly and flanks. Very short hogs raised and fed for market are open to objection because such a type does not grow rapidly. On the other hand, extreme length is often secured at the expense of constitution and feeding qualities. Extremes are to be avoided. When fattened for the market, the sides should be thickly and smoothly fleshed so that every point along the sides fills out to meet the same straight line from shoulder to ham. Wrinkles in the skin along the side are objectionable because they injure the smoothness of appearance which is so desirable, and if the wrinkles are very deep and are permanent, that is, do not disappear when the hog changes position, they are called "creases" and are highly undesirable.

The **Belly** should be straight, not paunchy, insuring a good dressing percentage when the hog is killed. The belly should be trim, not flabby, and should be wide rather than narrow or V-shaped.

The **Rump** should be long and as wide as the rest of the top, and it should carry out from hips to end of body with a slight curve downward to coincide with the arch of the entire top from head to tail. Very often the rump will be found very steep or drooping, the hips being carried too high and the tail set too low. Accompanying this kind of a rump, and to a certain extent causing it, is a faulty position of the hind legs, the feet being set too far under the body. This constitutes a weak conformation of the hindquarter, and gives the animal an ungainly appearance. The rump should not taper in width from hips to end of body, but be uniform in width throughout.

The **Hams** really include the rump as well as the thighs and twist. They should be large and well developed, being deep and of good width, with the thickness and fullness carried well down toward the hocks. They should be reasonably firm in flesh and should be neat in form.

The **Hind Legs** should be of medium length and should carry down straight and vertical from the hocks to the ground. The pasterns should be short, upright, and very strong, the feet well formed, and the toes strong. The bone of the market hog should be of medium size and free from coarseness.

The **Hair** should be straight rather than curly, and should be fine. A harsh, bristly coat is an evidence of coarseness. A curly coat is objectionable because curly hair is usually coarser than straight hair, and curly-coated hogs do not shed their coats properly, which injures the appearance. A swirl or rose in the hair on the back of rump detracts from the appearance, and is objectionable for that reason. The hair should be abundant, straight, and fine, and should lie close to the skin. Such a coat affords the most protection and adds to the attractiveness of appearance.

The **Quality** of the lard-hog is determined by the refinement of the head, and bone, smoothness of finish, and freedom from wrinkles and creases. The hog with quality has a clean-cut, well-bred appearance that pleases not only the producer and hog fancier, but also the butcher, because such a hog yields a neat, tidy carcass that attracts buyers, and the cuts of meat show a refined texture that is not to be found in the cuts from a coarse, rough hog.

The proper **Finish** of a lard-hog is secured by a fairly high degree of fattening. When handled along the top, below the shoulders, and at the lower border of the hams, the fleshing should be firm instead of soft as is often the case, especially in some breeds. Some hogs become

lumpy in their covering of fat, which is objectionable. When the fattening has proceeded far enough to round out the lines of the animal and give him a smooth, springy, mellow covering of flesh, he is in the right condition to meet with most favor from the butcher, and, as a rule, this degree of finish is most profitable to the producer.

The **Temperament** of the lard-hog is quite different from that of the bacon hog, being less active and more inclined to quietness, lying down, and taking on of fat. Most producers believe that better results are secured if the hog is disposed by temperament to take considerable exercise, especially during the growing period; they are selecting more active hogs for breeding, and are managing their young stock in such a way as to induce them to take a large amount of exercise. This results in growthy pigs of robust constitution and lessens the danger of disease. Exercise also develops the muscles and strengthens the pasterns and legs. Notwithstanding this present-day tendency to select a more active hog than in the past, there must always be considerable difference between the lard type and bacon type in this respect, the former being more quiet, slower in movements, and having greater natural aptitude to fatten.

The **Weight** for age is an important consideration because it is a measure of the profit-making ability of the hog. Pigs weighing over 150 pounds, fattened for the market, should have at least one pound of weight for every day of their age. On this basis, a pig six months old should weigh not less than 180 pounds. It is not unreasonable to fix the standard weight for lard hogs six months old at 200 pounds; nine months, 300 pounds; twelve months, 400 pounds. Hogs are matured at about thirty months of age. Mature boars in good condition should weigh 800 pounds or over; sows, 600 pounds or over. The average weight of hogs received at the large markets at the present time is about 225 pounds. Hog growers are agreed that weights from 200 to 150 pounds for market hogs are usually most profitable.

Bearing this description in mind the club member will be able to use the score card intelligently.

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