

that the highest price will be obtained when buyers can secure large quantities of a uniform grade wool at a central point. The larger the quantity the less the expense of handling and the higher the price. Those in charge of the work are doing everything in their power to handle the wool as efficiently as possible and they should receive the support of all wool growers. By marketing co-operatively the grower saves any middleman's profit and gets all that the manufacturers pay for the wool, less the actual expense of handling and grading it, which is but a mere trifle. It is your association, patronize it, but remember that failure on your part to follow instructions sent out by the secretary re preparing the fleece for shipment and the shipping of the same increases the work of handling the wool at the grading centre.

Methods of Weaning Little Pigs.

Weaning time is the most critical period of the hog's life. The approved practice is to wean at about six weeks. Teach the litter to eat three weeks before weaning, using a crib or creep which excludes the sow, or a separate pen. Feed, in a trough, preferably, middlings with skim-milk. With middlings at present unobtain-

able, finely ground sifted oats is best. Feed only small quantities at first and avoid having decomposed or stale food left over. After weaning, add shorts gradually up to equal parts, and from the second to the third month add barley or corn as one-third the total meal ration. First and last, avoid overfeeding with its consequent train of evils.

Within the last year at the Central Experimental Farm, experiment and subsequent practice has indicated a system whereby weaning is simplified and the bad results of careless feeding practically eliminated. Instead of "hand-weaning" or feeding the weaning pigs milk and meal in a trough, a small self-feeder is substituted in the creep, skim-milk being fed in a separate trough. Finely ground oats and shorts, and later ground elevator screenings with a small proportion of ground corn, if available, are placed in the feeder. Thus, the little pig feeds himself when and as much as he sees fit, is able to eliminate from the meal eaten much fibrous material which he must consume willy-nilly where fed a slop, and incidentally accustoms himself gradually to skim-milk. Except in cases of early litters, the little pigs are given access to outdoor runs at all times from two to three weeks of age. Excellent growth is shown, the pigs developing clean, long, and thrifty, with no

evidence of thickness, pudginess or lack of energy. Absolutely no evidence of indigestion or scouring has been seen, and in one instance where a dozen litters were so fed at a central feeder the percentage of "culls" was remarkably low. When finally removed from the sow, pigs so weaned, particularly where they are to be self-fed subsequently, give minimum evidence of the check in growth, usually incidental to weaning in a greater or lesser degree. In short, while the experienced hogman can hand-wean his pigs with maximum results, the farmer lacking experience or depending upon ever-changing attendants, is likely to run into difficulties. The method described, besides reducing labor, apparently removes the danger of irregular and over-feeding. Both method and results might be described as automatic.

In the foregoing method, skim-milk plays an important part. Where this or other milk product is unobtainable, experimental evidence would show that good pigs may be raised by following this method and supplying tankage, blood-meal, fish meal or some similar animal product in a separate compartment of the feeder, not mixed with the regular meal. Pigs, so fed, have shown only slightly inferior quality to skim-milk fed lots, but the cost to produce would seem to be considerably increased.—Experimental Farms Note.

Contagious Abortion—Cause, Prevention and Treatment.

Stockmen count on the natural increase in their herds and flocks to bring them a large proportion of the revenue from the farm, and it is certainly discouraging to have disease make its inroads and destroy the lives of the young, yet this is what happens when the germs of contagious abortion are present. Not only does it affect one year's operations but the cow very often fails to breed again, or, if she does, may abort a second time. The disease is no respecter of herds. It is found in the herd of pure-bred cattle as frequently as in the grade herd. It finds its way into the rich man's as well as the poor man's stable. The trouble is becoming quite prevalent and unless a united effort is made to check it, it will seriously affect the live-stock business. No breeder can afford to treat this disease lightly. He may not have infection in his herd, but he does not know what day the germs may find access to his stock. New stock being purchased and placed in the herd renders infection of the entire herd liable, consequently too great precaution cannot be taken. One diseased cow may spread the germs of abortion by contaminating bedding in the stable or the ground in the pasture; by coming in contact with other cattle in field or stable or the germs may be carried by attendants. As the bull is a carrier of the disease, care should be taken to ascertain whether or not cows from neighboring herds were infected or not before using the bull. If contagious abortion once gets into the herd it will take time and labor to remove it, and before infection is finally stamped out there is likely to be a considerable loss caused by dead calves and sterile cows. Medicinal treatment has not proved effective, but thoroughly disinfecting the stable and utensils, isolating diseased animals and irrigating the genital passages of cows and bull with a warm antiseptic solution, will have the effect of lessening the loss through abortion. The cause, diagnosis, prevention, control and treatment of this disease is dealt with by H. G. Frederick in Circular No. 28 of Utah Agricultural College as follows:

"Contagious abortion occurs most frequently where animals are closely housed, but is also found among the range cattle. Cows of all ages are more or less susceptible to the disease, although in their first or second pregnancy they are more apt to abort, if exposed, than at any other time. The specific cause of this infectious disease is a microscopic germ known as the *Bacillus abortus* of Bang. The best-known and main symptoms of this disease is the death of and the expulsion of the immature foetus. This is accomplished by the entrance of the germ into the pregnant uterus where infection of the foetus occurs. Through the continuous attacks of the germs which rapidly increase in numbers when once started, a separation from the mother of the attachment of the membranes in which the foetus is found, is accomplished. This shuts off the nourishment from the foetus, thus causing its death. The foetus acting as a foreign body is then expelled or aborted from the uterus of the mother. Therefore, abortion is only one of the symptoms and not the disease itself.

"The germ causing the disease is found in the uterus of cows which have aborted or those having a retained afterbirth or other symptoms. It is often found in the udders and milk of cows; also in the internal organs of aborted foetuses, in the lungs of living calves expelled before their time and in the joint cavities of calves born at full term. It sometimes happens that the disease-producing power of the germ is not great enough to kill the foetus, or the mother is strong enough to overcome it. In such cases the calf is born alive at full term. Sterility is often an after-effect of abortion due to the neglect of the infection or injury that has taken place in the mother. This may be only a temporary trouble owing to changes taking place in the organs. The germ causing this disease usually enters the body through the external genital organs, the udder, or through the mouth and digestive tract by contact with infected animals or contaminated materials. It has been shown that the ingestion of food and water that have been contaminated with the discharges of aborting cows is a common method of causing the infection.

"It is maintained by many investigators that the bull is one of the main carriers of abortion. Since cows aborting are often in heat the same day or just a few days later, the bull serving such cows can infect others

he may serve shortly after. Again, it is found that some bulls carry this infection in their genital organs.

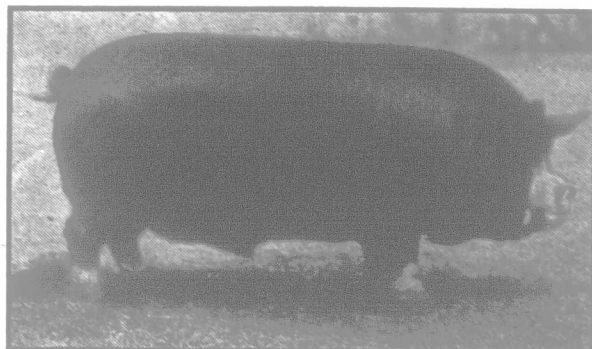
"Abortion is closely associated with granular venereal disease, sterility and mamitis in cows, and white scours and navel infection in calves. Where cows abort some of the above troubles often follow.

"It often happens that a cow becomes sterile either temporarily or permanently following an abortion. Calves are often born with very little vitality and may soon die, or they may develop swellings on different parts of the body—commonly the joints, or they may be affected with white scours, as these conditions often accompany abortion or may be a sequel to it.

Symptoms in Cows.

"In cows the symptoms of contagious abortion seem to be more pronounced than in the mare. It most frequently occurs or is noticed during the fifth or sixth month of pregnancy, yet it may take place earlier or later in much the same way as in the mare.

"Abortion is usually preceded by a slight swelling of the udder and vulva (the external orifice) with symptoms of genital catarrh and a discharge from the vagina of a reddish grey or yellow color. If the cow is giving milk usually the secretion is somewhat diminished in quantity and greatly resembles the first milk of a fresh cow. Two or three days later slight pains are manifested and abortion takes place.



The Type of Berkshire Becoming Popular in U.S.A.

"After the abortion takes place there is often a discharge which may or may not have an odor. This discharge is of a reddish brown or grey color and contains the germs. This discharge may accumulate in the uterus and be expelled periodically by violent straining.

"The foetal membranes or afterbirth is often retained. The cow may come in heat shortly after or a number of days after abortion and in this way infect the bull. If abortion is not complicated by retained afterbirth or sterility, it does not greatly affect the health of the animal. The cow continues to eat and acts normally. Cows do not abort indefinitely. About fifty per cent. abort once, some twice, and a small percentage may slip their calves the third time.

"Cows may become immune after aborting from one to three times and bring normal calves, but some may still be able to infect other cows or the bull; hence, the difficulty in controlling the disease. If the cows become immune in a few years the abortion will occur only in heifers or in newly-purchased animals brought into the herd, and finally the disease may disappear from the herd entirely. This disease may persist for years in a herd if proper and strict sanitary measures are not employed.

Diagnosis.

"Not all abortions are due to contagion, but if a number of cows in a herd abort during the year, showing a discharge and retained afterbirth, one may reasonably conclude for all practical purposes that they have contagious abortion—at least it should cause suspicion. There are no symptoms by which this disease can be determined with accuracy. Investigators make use of bacteriological and serological tests, blood tests where the blood serum is tested by laboratory methods known

as the agglutination test, also the complement-fixation test.

Prevention, Control and Treatment.

"Contagious abortion in cows to be prevented, controlled or treated requires a careful and detailed study of each outbreak and of every case in the outbreak. The same general measures should be practiced with both mares and cows.

"Every precaution should be taken to prevent the disease from getting on the ranch or farm, the pasture or feed lot, or in the corrals or barns. Great care should be exercised in bringing new animals on the premises. Very often such animals are infected with abortion. It is becoming very difficult to purchase good breeding animals. In purchasing animals where it is not known whether or not they are free from abortion, one should keep them in separate quarters, where possible, until one is fairly sure they are free from disease (two or three weeks or a month).

"Many stock raisers sell off the aborting animals as fast as they abort, and very often such animals are bought for breeding purposes by some one not familiar with the disease, thus spreading the infection of new uninfected areas, animals and premises. It has been pointed out that many animals only abort once and will then carry the offspring to maturity; therefore, it would be much better to keep such an aborting animal unless she is otherwise unprofitable.

"When a man sells one of his breeding animals he usually replaces it with another. Abortion existing in his herd, he may bring in a new susceptible animal or buy one that is not better than the one disposed of and he is no better off than before. If aborting animals are not otherwise unprofitable, they should be kept and treated; however, if cows are sterile or otherwise unprofitable and will not yield to treatment they should be sold for beef and not for breeding purposes.

"If a male is not kept for breeding animals, great care should be exercised to know that the animal used for service is free from this disease. Otherwise the infection may be transmitted to the clean animals.

"Most stock raisers desire to improve their animals. This being true, the young are the most valuable ones, due to the improvement by selection and proper mating. Therefore, such animals should be kept, and where they are raised with animals having this disease they often become more or less immune, and a good bunch of breeding animals can be developed.

"When an animal aborts, isolation is of great importance. In case it occurs in the stable the aborting animal should be isolated from the other animals and moved to a place where she can be carefully looked after. The foetus and membranes should be immediately carried away and destroyed by burning. If this is impractical they should be deeply buried,—after covering with a good disinfectant consisting of lime or some good coal-tar product (a germ killer). All the aborted material and all discharges should be taken proper care of since germs are extremely numerous in this offscum. The vaginal discharges should be properly disinfected and the genital passages irrigated with a mild, warm antiseptic daily. This may consist of from one-half per cent. to one or two per cent. of carbolic acid (about one ounce or two tablespoonfuls to the gallon of water), a solution of creolin, lysol, or some other good germ destroyer. This can best be accomplished with a soft rubber tube about 4 or 5 feet long. The end of the tube is inserted into the genital passages, the other end fitted to a funnel where the liquid is poured and the funnel end raised up higher than the animal so the liquid will flow in by gravity. Two quarts to one gallon of the warm solution is injected into the uterus and repeated daily as long as a discharge appears, after which the intervals may be greater until the animal is to be bred. The external parts—vulva, tail, udder and thighs of aborting animals should be carefully washed with some antiseptic, but a stronger solution—from two to four per cent. Not only the aborting animals but the ones exposed that are pregnant should be treated in this way.

"Some use about a 1-500 solution of permanganate of potash or two per cent. Lugol's solution followed by a 1-per-cent. salt solution for this irrigation. This can be obtained at any drug store.

"An animal months after abortion charge from the

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