

BRUCELLOSIS IN SWINE

HUGH S. CAMERON*

Brucellosis of swine causes the pork producer losses probably equal to those sustained by the dairyman from the same disease. Because of the serious effect on pork production, this leaflet will emphasize the importance of brucellosis and will outline a method of control.

Losses occur through:

1. Abortions.
2. The birth of dead pigs at farrowing.
3. The birth of weak pigs, some of which die.
4. Failure of gilts to conceive.
5. Sterility in the boar when the causative organism localizes in the testicles with abscess formation.

The failure of gilts to conceive probably results from abortions that occurred in the pasture and the fetus was either too small to be observed or was eaten by other pigs soon after being expelled. Since the organism causing the disease in swine may produce it in cattle, infected swine should be segregated from clean cattle.

Cause.--The disease is caused by Brucella suis, a species of bacteria closely related to Brucella abortus in cattle and Brucella melitensis, usually found in goats. These organisms are known to produce undulant fever in man. They are not spore formers and therefore, unlike the organism causing anthrax, are rather easily destroyed outside the animal body and will not permanently contaminate premises or pastures. They are readily killed by sunlight, disinfectants, and pasteurization.

The disease is usually spread by the infected sow's aborting while in contact with other pigs. The germs are eliminated in large numbers with the vaginal discharge at abortion or farrowing, and other pigs contract the disease usually by eating infected material. The organism may also be eliminated in the milk of the infected sow, thus infecting suckling pigs. Reacting boars with abscessed testes may transmit the disease to other animals.

Symptoms.--The principal symptom is abortion. Unlike the disease in dairy cattle, abortion is likely to be unobserved, and nothing suspected until the sow comes in heat or fails to farrow.

*Associate Professor of Veterinary Science and Associate Veterinarian in the Experiment Station.

Apart from abortion in the female and, at times, swollen testicles in the boar, no other symptoms are apparent.

Diagnosis.--Since abortion and sterility may be attributable to other causes, these symptoms alone are not diagnostic of brucellosis. If abortions appear in a considerable number of animals, brucellosis should be suspected, but must be confirmed by a blood test. At least 2 cubic centimeters of blood is required for laboratory test and is usually obtained from an ear vein, although occasionally it is drawn from the tail. The pig can be restrained by a rope looped over the upper jaw and snubbed to a firm post. The ear is cleaned, dried, and massaged until a vein stands out prominently. The vein is cut with a sharp-pointed knife, and the blood drawn into a clean, dry vial.

Blood samples may become hemolyzed by high temperature, delay in transit, dirt, and moisture. When samples are taken they should be chilled until shipping time and then sent to the testing laboratory by the most rapid method available. Blood that has hemolyzed is unsatisfactory for testing; care, therefore, should be taken to avoid the breaking down of red cells. The eradication of brucellosis of swine is an Experiment Station project of the Division of Veterinary Science, College of Agriculture, Davis. As long as the project remains experimental, blood samples will be tested in the laboratory there; and producers, desirous of surveying their herds and cooperating in a control program, may send the blood samples to that laboratory for diagnostic purposes. Individuals not familiar with the method of obtaining and shipping samples should, preferably, use the services of their local veterinarian for the purpose; or they may write to the Division of Veterinary Science at Davis for detailed instructions.

Control.--At present the only method of control that can be universally recommended is blood testing and segregation, with the eventual slaughter of reactors as soon as they can be replaced by nonreactors. When the disease is first suspected to exist in a herd, the breeding stock or a substantial portion of the herd should be blood-tested. If the infection exists, one of the following programs can be adopted, or modified to suit conditions. Two plans are outlined:

plan A for herds where the main objective is pork production; plan B for herds where there is also the objective of selling breeding stock.

Plan A: www.libtool.com.cn

1. Consider all brood sows as an infected unit irrespective of the number of sows showing positive reaction.

2. Segregate gilts from sows at weaning time. Although many of these gilts may be reactors at the time, young animals tend to become negative when removed from the source of infection.

3. Blood-test the gilts when selecting animals for breeding or fattening. Make the selections on the basis of type and blood reaction. Gilts that are potentially good breeding stock may, although still showing reaction, be retained until breeding age. Gilts are not apt to be spreaders until bred.

4. Retest gilts before breeding, and make the final selection at that time. Breed only negative gilts.

5. Keep these gilts apart from the infected group until the latter have all been disposed of and the premises cleaned and disinfected.

6. Eliminate reacting sows after weaning, as soon as replacements can be provided.

Plan B:

1. Test all sows and segregate the reactors so that at no time will they be in contact with the negative sows.

2. Retest negative sows in 1 month, and segregate additional reactors. Continue this procedure until two consecutive negative tests have been obtained.

3. Raise gilts as in plan A.

4. Dispose of reactors as soon as they can be

replaced by comparable stock, since they are a constant source of infection on the ranch. An infected boar, although not nearly so dangerous a spreader as an infected sow, should nevertheless be eliminated. If the animal is valuable and shows no inflammation of the testicles he may be retained for the infected herd.

The two plans described depend on the basic principle of segregating the source of infection --namely, the reacting pregnant animal. Plan A is relatively simple and can be applied, with modifications, on most ranches. Success depends on the completeness of the segregation and on the rapidity with which the reactors are disposed of. Plan B involves considerably more danger of spread: under it, reacting pregnant stock may be retained for several gestation periods, whereas in plan A the reactors will be disposed of when their pigs are weaned.

When the disease has been eliminated from a herd, reinfection should be avoided. Infection usually is introduced through the purchase of infected stock for breeding. All stock, therefore, being introduced into a swine herd for such purposes should come from a herd proved by blood test to be free from the disease. If the status of the herd is unknown, the animal itself should be blood-tested and, if negative, segregated for 1 month and retested. Then if still negative, the animal may be placed in the herd. The exhibition of animals at fairs or their purchase through sale yards, where they may come in contact with infected stock, should be avoided.

Additional information on the control of this disease may be obtained from the Division of Veterinary Science, College of Agriculture, Davis, California.