

# Criteria for Evaluation of a Swine Brucellosis Program

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THE VETERINARIAN holds a unique responsibility because of his position as the guardian of the livestock industry. The profession has an enviable record of successful disease control programs, bovine tuberculosis and Texas fever being those best known. In order to better assume leadership in the evaluation of specific programs it is important to realize that these disease control programs have developed in a logical pattern.

The initial phase of differentiation of the disease from other known diseases is followed by a research phase, wherein the disease is studied on the farm and under controlled experimental conditions to establish specific information regarding the pathogenesis of the disease and the characteristics of the causative agent. Eventually procedures for control of the disease suggest themselves and are investigated under controlled experimental conditions and in institutional or other special herds.

When sufficient knowledge becomes available the developing disease control program is tested on a small number of farm herds under normal farm conditions. In spite of the fact that this is a most essential and productive phase of disease control research, it is often neglected. The important factor of practicable farm economics is introduced at this time. It is

here in these "pilot" herds that scientific facts must be made compatible with practical farm economics. It is also on the farm that the bulk of experience is gained. Experience in this case is not only the development of a skill by personal practice; it is also the proving grounds to test the validity of scientific concepts established by research and of itself contributes heavily to the pool of knowledge concerning the disease.

When thorough field research on a "pilot" herd basis produces feasible disease control procedures the way is open for the application of those principles found valuable on a wider scale. The shape of a more widespread application may be anything between a limited voluntary program to a far-reaching regulation depending on the seriousness of the disease and the economic position of the farmer, the industry or the community. The degree of disease control achieved will be tempered by the real desire to control the disease.

It seems remarkable that the developments in swine brucellosis research have gone through the steps of this logical pattern in such a short period of time. Swine brucellosis has now reached the final phase, the one of application of widespread control. There is not only an abundance of well established scientific knowledge concerning the disease, but also a rich background of practical experience in the actual control of the disease on the farm. No serious disagreement concerning basic concepts on swine

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brucellosis control is to be found in the scientific literature. At the present time several basically different types of statewide programs are being considered in this and other states. All of the procedures proposed have been thoroughly tested directly or indirectly and their merits and shortcomings are well understood by those having experience in swine brucellosis control.

Since more widespread action in the control of swine brucellosis will definitely affect many people directly, it is imperative that all those affected critically evaluate the relative merits of each proposed swine brucellosis control program. This can be properly done only by giving realistic consideration to the scientifically established facts and control experiences on an equal basis with practical farm economics and normal farming practices. A disease control program must of necessity be capable of controlling the disease. If basic knowledge concerning the disease is violated, swine brucellosis will not be controlled.

It becomes essential therefore, that the facts concerning swine brucellosis be known and understood. The following is a condensed outline of well established facts which have particular bearing on the question of swine brucellosis control.

Swine brucellosis is serious because it is the direct cause of most cases of human brucellosis in the midwest. Iowa averages more than 500 human cases a year and this number seems to be increasing. In the swine herd itself losses are due to inefficient reproduction because of abortion and sterility.

Swine brucellosis is most commonly introduced into a herd by the addition of an infected boar. Experience has shown that these boars are often negative to the agglutination test when purchased. The disease is spread from an infected boar to noninfected sows and gilts at breeding. These sows and gilts commonly abort, too early to be noticed, and infect other swine contacting the aborted fetuses or contaminated discharges. After abortion, sows often fail to conceive on subsequent breedings. Since abortion occurs so early that the

fetuses are rarely found, the most commonly observed symptom of brucellosis is that of gilts coming back into estrum four to eight weeks after breeding. In our experience full term dead and weak pigs have not been a common symptom of brucellosis.

Noninfected boars breeding or contacting infected sows or gilts may also become infected and are often rendered sterile because of localized infection of the genital organs, especially the testes and seminal vesicles. This makes the practice of using community boars or "leased" boars extremely dangerous.

The disease is commonly diagnosed by means of the agglutination test. The agglutination test properly applied as a *herd test* is very reliable in the detection of brucellosis.

There is a tendency for infected swine to cease to react positively to the agglutination test. Many of these animals, however, are actually still infected. In spite of their negative agglutination tests they still harbor *Brucella* and by shedding these organisms are capable of spreading the infection to animals contacting them. For this reason the agglutination test applied to individual animals is without value in demonstrating the absence of brucellosis. It has been found that two negative tests on the entire herd at least 30 days apart are the only means of assuring that an animal is free of brucellosis.

Experience has shown that if one or more animals react positively, 1/100 or higher, the entire herd must be considered infected and that even those animals reacting negatively to the test should be handled as infected.

Culling by means of the agglutination test (test and slaughter) is usually not successful in an infected herd since repeated tests will merely remove more and more animals from the herd. Those that remain would be most dangerous animals as far as the spread of brucellosis is concerned. Experience has shown an exception to this rule. Some small herds having only one or two reacting animals may have no further spread of the infection after those reactors are re-

moved. If reactors are found on the next test this plan should be discarded in favor of a procedure more likely to have merit.

Baby pigs, even those born to infected sows, usually will not become infected if weaned and isolated by complete segregation from the infected herd by 56 days of age. The agglutination test is usually of no value in young pigs since the tests are usually negative regardless of the status of brucellosis in the herd. The agglutination test becomes increasingly significant and the infection seems to have more tendency to spread as the pigs reach sexual maturity.

The only safe place to buy breeding replacements is from a herd known to be free of brucellosis (two negative tests on the entire herd 30-90 days apart). A brucellosis-free status is easy to establish on most farms since most swine herds are not infected.

If it is not possible to obtain breeding stock from a brucellosis-free herd, the best procedure is to bring in breeding replacements as weanling pigs to be tested before breeding. If this is impracticable, mature boars and unbred gilts and sows may be added after passing two negative tests at least 30 days apart before being added to the herd. Bred sows and gilts should be held in strict quarantine to pass a second negative test after farrowing.

These are the principal scientific facts on swine brucellosis as established by the research conducted in Indiana, California, Minnesota and Iowa. They have all been tested under farm conditions. It is obvious that a number of disease control programs can be constructed within the framework of this information if coupled with realistic consideration of the practical aspect of the farm and farming practice. The degree of control practicable depends on the desire of the farmer and all the other interests affected. Some programs will accomplish better disease control than others with less cost to the farmer. The success of a disease control program may well depend on its cost. A swine brucellosis program will obviously fail if the procedures

used are not capable of controlling swine brucellosis. The program must not discredit the veterinary profession or betray the farmer by offering false assurances. It should be borne in mind that if a program results in a regulation which binds the farmer to certain action, it also morally binds the veterinarian to assist his client in the fulfillment of those obligations. If a mandatory regulation requiring extensive agglutination testing results, it will be the responsibility of the veterinarian to draw the blood samples involved in such a testing program.

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When a dog has an offensive odor it can be attributed to two reasons: (1) Neglect by the owner in the dog's grooming or kennel care; or (2) An indication that the dog has an ailment that should receive veterinary attention. The following are some aids to the practitioner in determining the source of an abnormal odor:

1. If the odor seems to come from the coat, more frequent bathing, combing and brushing will soon clear it up. A leather collar worn by the dog is constantly absorbing the secretions of the skin glands and therefore may be the seat of the trouble.

2. If the odor appears to be concentrated in a particular spot of the coat, you may find that matted hair has concealed a foreign substance that has developed a bad odor.

3. Kennel bedding that is not renewed frequently, or yards not kept clean, often cause the dog to carry the odor on its coat.

4. Mouth odors usually indicate heavy tartar formation, dirty, broken or infected teeth. Feeding of a well-balanced meal-type dog food is effective in reducing tartar and odors emanating from unclean teeth.

5. Ear afflictions may cause an offensive odor.

6. Anal gland secretion is another source of an obnoxious odor.