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Control and Eradication of Bang’s Abortion Disease

D. E. MADSEN and W. H. HENDRICKS

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UTAH STATE AGRICULTURAL COLLEGE
LOGAN, UTAH
NOTE

For those desiring to enter into a Bang's Disease Control Plan, a COOPERATIVE AGREEMENT will be found on page 8 of this circular. Two card forms of this same Agreement are included which are to be properly filled out and returned to the Laboratory of Animal Pathology, Utah Agricultural Experiment Station, Logan, Utah.
Control and Eradication of Bang's Abortion Disease

D. E. Madsen and W. H. Hendricks

The seriousness of Bang's abortion disease in Utah has made it necessary to promote more definite plans toward its control and eradication. The economic losses encountered are brought about not only through the loss of the calves but by the lessened milk production and lessened sale value of the animals themselves. Breeding efficiency is lower and such cows are more subject to udder infections. Many states now require that cattle shipped into them be negative to the abortion test; indications are that more states will adopt similar regulations. The passage of such regulation by some states would seriously interfere with the shipment of surplus dairy cattle from Utah.

Because no method of drug treatment has been found to be in any way effective and because the use of bacterins and vaccines has not yet solved the problem, it becomes necessary to attack the disease by a program which includes the employment of strict sanitation combined with the agglutination blood test. Such a plan has been proved definitely to be practicable and usable for handling this disease under most conditions. The agglutination test is highly efficient when performed by competent and trained workers. The test does not necessarily designate those animals which will abort, but it picks out animals which have the germ within their bodies or recently have had it. Such animals may be dangerous spreaders of the disease. Suspicious reacting animals frequently become completely negative, but positive reactors rarely become negative and remain so. Once a complete reactor, an animal should always be considered so. The success obtained will depend largely upon the ability of the herdsmen to follow out the details of the suggested plans for control.

Three different plans of procedure are suggested. Every effort should be made to use Plan 1 for eradication. On the whole, this plan will be found to be the most economical for most infected herds. Sometimes a modification of the plan or a combination of plans may be used to advantage. The plan which is most suitable under existing circumstances will be given in detail by the veterinarian in charge.

The Laboratory of Animal Pathology, Utah Agricultural Experiment Station, Logan, Utah, is prepared to test blood samples and report the results of these tests within the state. The laboratory will cooperate with the State sanitary officials and with local veterinarians in supervising the control plans. In order to take advantage of this cooperative supervision, the herd owner will be asked to conform to a certain form of procedure. On page 8 of this publication will be found a

Acknowledgements: The authors wish to express their appreciation to Professor D. W. Pittman for the use of the photograph used on the cover page and to the Michigan Agricultural Extension Service for the full-page cut used on page 4.

1Contribution from Department of Animal Disease Research, Utah Agricultural Experiment Station, and from the State Department of Agriculture.
2Animal Pathologist, Utah Agricultural Experiment Station, and Veterinarian, Utah State Board of Agriculture, respectively.

Publication authorized by Director, May 8, 1931.
Circular No. 94

WHICH?

THIS?

OR THIS?

Cooperative Agreement. Included in the publication will be found two copies in card form of this Cooperative Agreement which are to be filled out and returned as directed. **Note: Both copies in card form are to be returned to the Laboratory of Animal Pathology.**

Sample sent in to the Laboratory for test will be reported upon as in the past even though the owner does not care to sign the Cooperative Agreement.

**PLAN I**

**Disposition of Reactors.**—Under Plan I all reactors are disposed of for slaughter if they are ordinarily good cows. In case their value reaches $200 or over they may be sold to dairymen operating under the handicap of infection, provided the buyer is aware of the reasons for disposal and further provided the veterinarian in charge authorizes such a sale. Suspicious animals frequently become negative when kept away from further infection. If desired, such animals may be held in isolation for a period and tested periodically to determine if they may be added to the herd.

**Sanitation.**—Immediately following segregation all manure should be cleaned from the paddocks; the barn floor, wells, mangers, and watering places should be disinfected with a reliable disinfectant such as a hot lye-water solution or a creosol solution.

**Frequency of Blood Tests.**—This will depend upon whether the herd in question is in the midst of a storm of abortions or if the disease is more or less in the quiescent stage with relatively few or no abortions. Under the former condition it would be wise to test every 30 days until no further reactors are found. The testing interval is then increased to 60 days, then to 90 days, and finally to 6 months if the herd continues to remain clean. When the disease is quiescent in nature the intervals will be the same except that the second test will be made 60 days following disposal of reactors instead of 30 days. When reactors are found on any of these subsequent tests they should be isolated immediately, the object being to permanently dispose of them within a few days. All animals, including the bulls, 6 months of age and older, should be included in the test.

**Isolation Stalls.**—THE VALUE OF ISOLATION STALLS CANNOT BE OVER-ESTIMATED WHEN A PLAN OF CONTROL IS ADOPTED. It is important to have each cow calf in an isolated maternity stall at least until it has been definitely established that the herd is free from this disease. All animals showing symptoms of abortion should also immediately be isolated. For eight months following the disposal of reactors, each cow should not only calve in the isolated stall but remain there for three weeks following calving and as much longer as uterine discharges continue. If, after this 3-week period reaction to the blood test is still negative, the cow may be added to the herd. This precaution is advisable because occasionally an infected animal does not react positively to the test until three weeks following parturition or abortion. All aborted feti and placental membranes must be burned or deeply buried.

**Additions to the Herd.**—As cows are needed, the safest way to replenish the herd is to raise the heifer calves. If outside cattle must be used, it is preferable
to buy from a herd which has been frequently tested and is known to be free from the disease.

If animals are purchased from herds whose abortion status is unknown or from herds which are known to have some infection, it is preferable to buy young, non-pregnant heifers which react negatively to the test. If pregnant cows are purchased from unknown or infected herds and are negative to the test, they should be isolated for three weeks following causting, at which time they may be added to the herd if reaction to the test at the time is negative. All animals purchased from unknown or infected herds should be isolated for 30 days and then pass a satisfactory test before being added to the herd. In spite of these precautions, there is always danger in purchasing animals from such herds.

Handling of Bull.—Community bulls should not be used unless all herds served by such animals are known to be free from Bang’s disease, as indicated by thoroughly clean tests made at 6-month intervals, unless in those herds served the reactors have been disposed of and definite steps taken to clean up the disease. The breeding should take place on neutral grounds, that is, on grounds not frequented by other cows.

Fences and Lanes.—A woven-wire fence should separate the pasture from neighboring pastures on which are infected animals or even animals whose disease status is unknown. The clean herd should not be allowed to trespass trails frequented by infected cattle or cattle whose abortion status is unknown. Unless first passing through the preliminary blood tests, isolation, and further tests, no animals should be placed in the pasture, paddocks, or barn occupied by disease-free cattle. Efforts should be made to avoid water drainage from neighboring pastures or paddock flowing over pastures or paddocks occupied by clean cattle.

Fairs and Shows.—Cattle removed from the farm for exhibition or any other purpose and placed with or adjacent to animals whose disease status is questionable should be isolated for a period of 45 days, followed by a satisfactory test before being placed again with the herd.

Milk, Feed, and Straw May Be a Danger.—Milk should not be brought onto the farm unless it has been produced from disease-free cows or unless it has been properly pasteurized. Feed or straw which might have become contaminated before being brought to the premises should never be used.

PLAN II

Disposition of Reactors.—Under this plan the herd is divided into infected and non-infected units, as shown by the blood test. The infected unit is kept only temporarily, the object being to dispose of this group of animals as the non-infected unit gradually reaches the size of the original herd because of the addition of heifers raised from both units. Before separating the herd, all those reactors which have proved unprofitable, or which are only questionably so, should be disposed of for slaughter. Each unit should have separate paddocks and pastures, with woven-wire fences dividing pastures and with pasture surface drainage away from the non-infected group.

Degree of Separation.—The degree of separation will depend upon the size of the herd and upon the facilities for handling them as two separate units. Preferably, the distance between barn units should be not less than a quarter of a mile.

\*Especially applicable for larger herds where infection has established itself in more than 20 per cent of the cattle.
All equipment (such as forks, shovels, brooms, brushes, milking utensils, wheelbarrows, etc.) should be duplicated. If possible, separate attendants should be provided. If this is not possible, then separate sets of unionalls and rubber shoes for each unit should be provided. The caretaker should first attend to the negative unit. If it is not possible to have barns a quarter of a mile apart, the next best plan is probably to have temporary partitions in the one barn which is used. However, the closer the contact between units, the more difficult it will be to prevent cross-infection.

Disposition of Calves.—Calves from the non-infected unit may be raised in quarters located close to that unit. Calves from the infected unit may be raised on milk from the same unit, provided they are kept away from the negative cows and their calves. Calves fed milk from the diseased unit should be taken away from that unit at about 5 or 6 months of age, or younger, and placed in pens by themselves for a period of four weeks, after which they may be placed with calves from the negative unit. Another method of raising calves from the infected unit is to take them away from their mothers and the source of infected milk as soon as born, to place them in neutral pens for about a week, and then to place them with calves of the clean unit. This latter method is to be preferred to the former. Manure from calves fed infected milk contains the abortion germs.

Calves raised by this method will grow up to be non-diseased and can be used to fill the ranks of the negative unit.

The Herd Bull.—If the following precautions are observed one bull may be used for both units: (1) If his reaction to the agglutination test is negative; (2) if the infected cows are bred on ground never frequented by the disease-free cows; and (3) if the bull is not taken to infected premises. No infected cow should be bred prior to two months following calving. Aborting and discharging cows should never be served until discharges cease. Before service of infected cows the tail and external genitalia should be cleaned and washed with a recognized disinfectant solution.

Frequency of Blood Test.—To check on cross-infection, as long as the 2-unit herd is maintained, the blood test should be applied to animals over 6 months old in the negative unit at either 2- or 3-month intervals. As disclosed by these tests, reactors should be immediately placed with the positive unit.

Attention to Detail.—To insure successful results, the herdsman must strictly adhere to all details. He must understand ways in which the germ may be carried or spread and at what periods it is found in the greatest numbers. Each detail of herd management should be frankly discussed with the local veterinarian in charge.

**PLAN III**

When Plans I and II are not feasible, then Plan III may reduce in a measure some of the cases of abortion. Under this plan, all reacting cows are isolated for two weeks before calving and for four weeks following calving, and as much longer as any vaginal discharges are observed. Before replacing in the herd, these cows should have the posterior third of their bodies scrubbed with warm soapy water containing a 3 per cent creosol solution or some other reliable germicide not poisonous to animals. Animals showing any symptoms of aborting should be isolated for a similar period and treated in the same manner before being turned

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5Not a plan for elimination of disease, but a plan to reduce the spreading tendency.
back with the herd. Placental membranes or aborted calves from such cows should be burned or deeply buried and the stall thoroughly disinfected.

Cows reacting negatively should have separate calving stalls which are not adjacent to those occupied by infected cows. Such cows may be released to the herd as soon as discharges cease. To determine the rate of spread, blood tests of all animals should be made at 3-month intervals. **If possible pregnant heifers should be kept away from the herd until after calving.** Only positive-reacting individuals which are breeding and calving regularly should be bought if outside additions are made to an infected herd under Plan III. This plan should be adopted only when the first two plans seem impracticable. Plan III should be undertaken with the view of changing to Plan I as quickly as individual conditions will permit. The degree of success of Plan III will depend upon the manner in which these sanitary precautions are executed.

(College Series No. 317)

**COOPERATIVE AGREEMENT**

**UTAH AGRICULTURAL EXPERIMENT STATION**

Laboratory of Animal Pathology,
Utah Agricultural Experiment Station,
Logan, Utah.

Gentlemen:

I hereby make application to place my herd under the supervision of the State Livestock Sanitarian and the Utah Agricultural Experiment Station, cooperating, for the purpose of entering into a Bang's Disease control plan which will best fit my needs. I agree to follow a sanitary plan outlined to me by a veterinarian approved by the State Department of Agriculture. After all animals in my herd above 6 months of age have passed one clean test, I shall have the privilege of making application and signing an agreement which will eventually entitle me to a Bang's Disease Free-Accredited Herd Certificate, provided my herd remains non-infected and I comply with the required regulations.

The veterinarian whom I wish to employ for this purpose is:

Dr. .......................................................... Address...........................................

I have .................................. and .................................. cattle in my herd.

(No. purebreds ) (No. Grades )
(6 Months and over) (6 Months and over)

.........................................................

(Signature)

P. O. Address........................................

Date........................................... County...........................................