

VIBRIOSIS OF CATTLE



Photo: Union Pacific

A large number of open heifers and cows have been observed in Idaho beef cattle herds this season. Vibriosis may be responsible for some of the loss. Here, Drs. Frank and Waldhalm outline symptoms of the disease and methods of control which have been used with varying degrees of success.

Bovine vibriosis is an infectious disease, transmitted venereally from cow to cow by the bull, resulting in infertility associated with irregular (long) heat cycles and occasional abortion. It is believed that in affected females conception occurs but is followed by fetal death and reabsorption or expulsion of the fetus.

Signs and Symptoms

Outwardly the affected female shows little evidence of the infection other than a possible slight increase in vaginal mucus secretion. The affected bull shows no observable abnormalities to suggest the presence of the disease.

In an affected range herd where bulls are in the herd for a limited period of time, the disease will be manifested by an excessive number of open animals after the breeding season. This may be

revealed by pregnancy checking where it is practiced or in a high percentage of cows which fail to calve in those herds which do not practice pregnancy checking. In those herds which leave the bulls in the herd year-round the main sign will be the presence of late calving cows. Contrary to popular belief, infertility, not abortion, is the main clinical manifestation of bovine vibriosis.

When the disease is first introduced into a susceptible herd, females of all ages may be affected. Later, conception rates in mature cows will be quite satisfactory but poor conception will be an annual problem in heifers or susceptible replacement cows.

Carriers

The bull is the main carrier of the disease. Once infection is established in the preputial mucosa of a bull it remains for long periods and may be permanent if not treated. In the cow the disease is self-limiting with most cows becoming free of infection in less than one year. However, a significant number of carrier cows, which remain infected from one breeding season to the next, have been detected.

*Floyd W. Frank is University of Idaho Veterinarian and Donald W. Waldhalm is University of Idaho Assistant Veterinary Microbiologist. Both men are located at the Caldwell Branch Experiment Station, Caldwell, Idaho.

AGRICULTURAL EXTENSION SERVICE
 AGRICULTURAL EXPERIMENT STATION
 COLLEGE OF AGRICULTURE ★ UNIVERSITY OF IDAHO

S
 53
 E322
 no. 21

Immunity

After the initial infection, which may or may not result in reproductive failure or delayed reproduction, immunity develops and most cows, even though bred to an infected bull, will conceive and carry to term. However, transient reinfection appears to result from each year's exposure to an infected bull.

Bulls, freed of infection by appropriate treatment, are susceptible to reinfection. Immunity is not a feature of the disease in the bull.

Diagnosis

The difficulties encountered in diagnosis of the infection are the major obstacles to adequate control of this disease. In the female, diagnosis either by vaginal mucus agglutination test or cultural isolation of the causative germ, requires the securing of a sample of cervical mucus for laboratory study. The collection of the specimen is time consuming and requires special equipment. Where cultural isolation of the germ is desired specimens must be either quickly transported to the laboratory or frozen on dry ice for shipment. The laboratory procedures involved are quite specialized. A major problem in diagnosis in the female stems from the fact that a high percentage of females are free of infection within six months after initial exposure. Since the clinical signs, open cows or cows which do not calf, are often not observed until more than six months after exposure, when most cows have recovered from the infection, a large number of specimens must be secured and examined in order to establish a herd diagnosis by cultural means.

Diagnosis in the bull hinges on cultural isolation of the bacteria from preputial swabs or washings, or upon recovering the bacteria from virgin heifers served by the bull.

Control

Various methods of control have been tried with variable success. The most important of these are summarized as follows:

1. **Artificial insemination with antibiotic treated semen** or semen from proven clean bulls. This approach has been very successful in dairy herds. It can be successful in beef herds provided all males, including vasectomized teasers, are removed from the herd.

2. **Maintaining a clean and an infected herd.** In this approach, those cows which have been exposed only to known clean bulls are maintain-

ed as a separate clean herd and bred to clean bulls. Those cows which are believed to have been served by an infected bull are maintained during breeding in an infected herd and bred to infected bulls. The first year the clean herd is usually composed of only virgin heifers and virgin bulls which, presumably, are free of infection. In each succeeding year the heifers are added to the clean herd. After each breeding season the bulls are removed and the two herds may then be combined since the infection is said to be transmitted only through breeding. Over a period of years the clean herd is enlarged and the infected herd is eliminated.

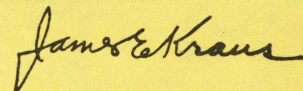
3. **Antibiotic treatment.** The causative organism, *Vibro fetus*, is sensitive to antibiotics. Both males and females can be freed of infection by appropriate treatment. Again, this method cannot be effectively applied until simple, accurate tests for detection of infected animals are available.

In herds presumed free of infection, antibiotic treatment of all replacement bulls may prevent introduction of infection since at least one antibiotic (Streptomycin) is nearly 100% effective in freeing bulls of the infection. In such a herd, only virgin females should be introduced.

4. **Vaccination.** Recently vaccines effective against this disease have become available. The vaccines, used as directed, reduce the clinical manifestations (infertility and occasional abortion) but do not free the herd of the infection. Ordinarily the veterinarian would need to vaccinate only virgin heifers and other replacements. This is based on the assumption that mature cows have been previously exposed and are immune. These vaccines are available only through veterinarians and certain conditions are imposed upon their use by consumer protection agencies because they tend to produce persistent granulomas (swellings) at the site of injection.

At this time vaccination appears to be the most practical method of reducing losses in infected range herds which practice natural breeding.

5. **Year-round breeding.** Since most infected females free themselves of infection within six months and then conceive and carry normally, the impact of the disease can be reduced by year round breeding or even by extending the breeding season.



JAMES E. KRAUS, Director