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VIBRIOSIS IN DAIRY CATTLE

By C. R. TOOP, B.V.Sc., Chief Veterinary Surgeon

IT is about five years now since vibriosis was first diagnosed in Western Australia, but there can be little doubt that the disease had already become firmly established in the dairying districts long before its recognition. At that time diagnosis presented a problem, for none of the diagnostic tests in common use in other countries were yet available, and tedious bacteriological examinations, either of aborted calves or the secretions of affected animals were necessary in order to establish the presence of infection.

The matter has now been simplified by the application of the mucus agglutination test which was recently developed at the Animal Health Laboratory, and it has enabled a diagnosis to be provided within the space of a few days. The mucus agglutination test is not highly reliable—it is a herd test rather than a test for the individual animal—but provided a sufficient number of suitable samples is submitted, it is possible to determine with a reasonable degree of accuracy whether a herd is affected.

During recent months, 66 herds which had been found to be affected by an infertility problem, mainly as the result of poor conceptions to artificial insemination have been tested, and about 75 per cent. of them have given positive reactions. It had been suspected from herd histories that the infection was widespread, and these findings have confirmed that vibriosis is prevalent throughout the dairying areas, and they indicate that it is the principal cause of temporary infertility.

Bovine infertility, it is true, is a complex in which other factors including dietary and physiological causes as well as other infections may be involved, but in the problem as it exists in Western Australia at the present time, these factors would seem to be of secondary importance.

Vibriosis or vibrionic abortion as it is sometimes called, is a venereal infection, and while it may be spread by channels other than service, this occurrence is so rare that it need not, for practical pur-

poses, be considered. When the disease makes its appearance in a herd, it is invariably associated with the introduction of an infected bull or of infected cows, both of which can spread the infection.

SYMPTOMS

The principal manifestation is delayed conception, often associated with irregular oestrus or heat. In the early or acute stages of the disease, conception rates are low, and as few as 15 per cent. of the cows or at best about 40 per cent. become pregnant to the first mating. The remainder return to service repeatedly, often at irregular and abnormally long intervals. The evidence suggests that in many cases conception actually occurs, and that it is followed by foetal death and the subsequent re-absorption or expulsion of the foetus.

DEVELOPED IMMUNITY

As the result of exposure, cows gradually develop a tolerance or immunity to the infection, and with the exception of a small proportion that may still remain infertile will commence to breed normally after an interval of three to six months. Thus in the later or chronic stages of the disease, fertility becomes fairly satisfactory.

Heifers and young cows however, will continue to present a problem, and difficulties will usually be experienced with each succeeding group each year. These animals will become infected after their introduction into the herd, and since they

will not have developed an immunity from previous exposure, their breeding efficiency will be temporarily impaired. Some abortions may occur—usually between the fifth and six months and most often in cows which conceived to the first mating—but this is not a prominent feature of the disease, and the abortion rate is usually low.

The majority of cows which calve at full term become free of infection, but others may remain as carriers and can become an important factor in maintaining the disease within a herd and spreading it to others.

Infection in the bull is permanent and once established, it persists for life. It will thus be seen that the control of vibriosis in herds where natural service is practiced, presents a most difficult problem.

CONTROL

As a first step towards control, maiden heifers should be mated with young unused bulls. This will ensure freedom from infection and satisfactory conceptions may be expected. After entering the herd as young cows, and for the rest of their lives, these animals must continue to be bred to a clean bull, and it is here that difficulties are likely to arise. The infected cows may continue to be mated to the infected herd bull, and since they have become tolerant to the infection, they may be expected with a few exceptions, to breed normally, and with the passage of time they will gradually be eliminated. By this means a non-infected herd could eventually be established.

This procedure however, is unlikely to be found practicable on the average dairy farm—the regulation of services to clean and infected bulls would obviously present its problems—and should an accidental and undetected mating occur in either group, the whole system would break down and the disease would spread through the clean section of the herd.

A herd that is free of vibriosis will of course, remain free provided introductions are confined to young, unused bulls, and replacements are bred on the property, and owners of herds in which an infertility problem has not been experienced would be wise to observe this precaution.

In the treatment of vibriosis, irrigation of the genitales with the antibiotics streptomycin and penicillin, is recommended, and while this may shorten the course of the disease and result in earlier conceptions, it does not eliminate the infection, and makes no contribution towards ultimate eradication. Furthermore, vibriosis is to a large extent, a self-limiting disease, and there is often a tendency to place too much emphasis on the value of treatment.

Bulls may also be cured by treatment, but while female carriers remain in the herd this can serve little purpose. This brings us to a consideration of artificial insemination and since it eliminates sexual contact which is virtually the only method of infection, it quite obviously provides the only effective method of control.

ARTIFICIAL INSEMINATION

All of the bulls in use at the Artificial Breeding Centre at Wokalup are certified free of vibriosis by the application of the most exacting tests which ensures that no infection is carried in the semen distributed. It is only to be expected in the first year of artificial insemination that infertility problems will be encountered in herds where vibriosis is active, but as the mature cows will become tolerant and heifers and young cows will not be exposed to infection, it is reasonable to anticipate that this problem will recede and eventually disappear in the subsequent years.

No headway, however, will be made while herd bulls are retained and used in conjunction with artificial insemination. Some farmers fearing that artificial insemination might not prove successful have kept their bulls, and at the first suggestion of unsatisfactory conception rates, have resorted to natural service.

This practice can only result in the spread of infection to previously unexposed females and the creation of additional infertility problems, and it should be remembered that natural service can achieve nothing that cannot be accomplished by artificial insemination.

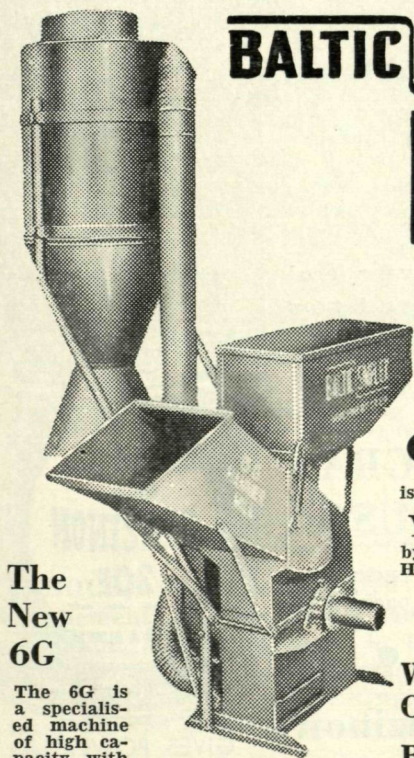
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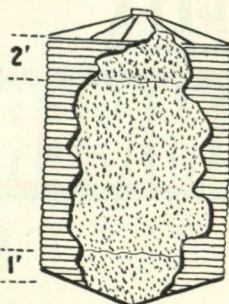
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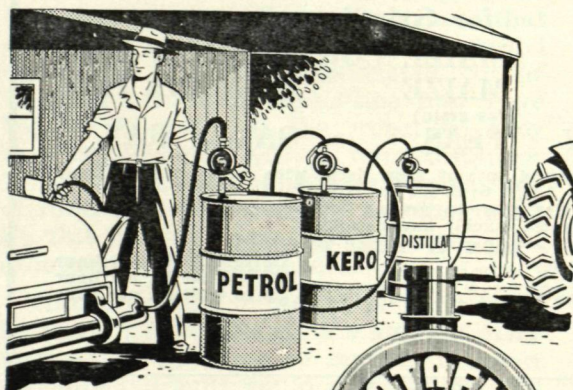
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