



Department of
Primary Industries and
Regional Development

Journal of the Department of Agriculture, Western Australia, Series 3

Volume 6
Number 5 September-October, 1957

Article 22

9-1957

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Recommended Citation

Harwood, P. M. A. (1957) "Vibriosis - a serious obstacle to the breeding efficiency of cattle," *Journal of the Department of Agriculture, Western Australia, Series 3*: Vol. 6: No. 5, Article 22.

Available at: https://library.dpird.wa.gov.au/journal_agriculture3/vol6/iss5/22

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VIBRIOSIS

A SERIOUS OBSTACLE TO THE BREEDING EFFICIENCY OF CATTLE

By P. M. A. HARWOOD, M.R.C.V.S., Senior Veterinary Officer

THE infection of cattle by the organism *Vibrio foetus* has been recognised for about 50 years as a cause of abortions. It is only in the past decade, however, that the importance of the disease as a cause of infertility and sterility has been appreciated. This disease, vibriosis, is extremely widespread in the South-West of Western Australia, and is undoubtedly the greatest single obstacle to an ordered breeding programme by which cattle raisers are confronted.

Vibriosis is due to infection with the organism *Vibrio foetus*. This germ lives only in the genital tract of cattle, affecting both males and females. It is difficult to recover from infected animals and hard to grow in the laboratory.

TRANSMISSION

Vibriosis is spread by contact when a cow is served by an infected bull, or when the semen of an infected bull is used for A.I. In the A.I. scheme in W.A. all bulls are proved free of vibriosis before use and the semen is treated with antibiotic. As some authorities have reported cases in unmated heifers, it would appear that the disease can be spread by other means, but for practical purposes, it can be considered that the only ways cows are likely to become infected is a result of being served by infected bulls.

VIBRIOSIS IN BULLS

Bulls show no outward evidence of infection. Sexual desire is not decreased. However in time the quality of the semen degenerates and diseased bulls may eventually become sterile. Bulls do not recover, once they have become infected.

VIBRIOSIS IN COWS

A number of symptoms are exhibited by diseased cows. All these symptoms have been observed in W.A.

(a) Infertility.

The most frequent symptom of vibriosis in a dairy herd is that a large number of cows fail to settle to service. If breeding records are kept the following conditions will be found to exist.

- (i) *Irregularity in the Heat Periods.*—The normal interval between heat periods is upset. Intervals of 25-30 days are common.
- (ii) *Failure of Cows to Come in Heat after Calving.*
- (iii) *Return to Heat after Cows have Apparently been Settled.*—A large percentage of the cattle in an infected herd appear to settle, only to show heat after 2-4 months. In many cases this is due to an early undetected abortion taking place.
- (iv) *Permanent Sterility.*—Although the majority of cows will eventually build up a tolerance to vibriosis and after having shown some of the symptoms outlined in (i), (ii) and (iii) will regain breeding efficiency, a percentage will become totally sterile.

(b) Abortions.

Apart from the early abortions which frequently occur at the onset of an attack of vibriosis in a herd, a percentage of cows in some herds (4 to 30 per cent.) will abort in the seventh or eighth month.

(c) Birth of Dead or Weak Calves.

(d) Retention of Afterbirth.

(e) Vaginitis.

A frequent symptom of vibriosis is associated with vaginitis occurring shortly after service by an infected bull. A yellowish or soapy mucous discharge is seen three to four days after mating.

DIAGNOSIS

Vibriosis may be suspected when any of the above symptoms appear in a herd. It

may be confirmed from the direct examination of a fresh aborted calf, or by the Mucus agglutination test. One positive diagnosis of vibriosis in a cow is evidence that the herd is infected.

COURSE OF THE DISEASE

When vibriosis enters a herd, a large percentage of the cows will return to service. Some cows, provided they have acquired a previous resistance, will conceive and calve normally; others will conceive normally only to abort late in pregnancy or give birth to dead or weak calves. These normal conceptions may be very infrequent at the onset of the disease.

On a herd basis, the typical picture of early vibriosis is that the major part of the herd fail to conceive and show the irregular returns to service referred to earlier. As many cows appear to settle, only to return after three or four months, then take three or four services before eventually conceiving, the period of infertility in these cows may last six to eight months. Cows which are not affected by early abortion or foetal resorption and which show only symptoms of infertility will often conceive after three to five services and therefore return to breeding efficiency more rapidly.

In a normal outbreak it would be reasonable to expect about 50 per cent. of the herd to conceive after five months with about 75 per cent. settling after nine months.

At the end of a year, the majority of cows have built up a tolerance to vibriosis, by symptoms continue to appear as heifers and susceptible bought-in cows are exposed to infection on being introduced into the herd.

So long as natural service is used, the bulls will perpetuate the disease which will continue to appear for years among susceptible cows. In whole-milk producing herds where the turnover of cattle is high, particularly where cows are being culled for fertility and replaced, vibriosis can be of serious economic consequence year after year. After the initial outbreak in self-contained herds, the disease exists more as an infertility problem in heifers.

CONTROL

(1) Treatment.

Infected cows may be treated by irrigat-

ing the womb with 1 gram of streptomycin plus 300,000 units of penicillin in 20 ccs. of distilled water. This treatment is carried out during heat. If mating or insemination at the same heat is required, the treatment should be carried out 45 minutes after service. No practical method of treating bulls is recommended.

(2) Artificial Insemination.

A.I is a valuable weapon with which to combat vibriosis. In severely affected herds, it is unreasonable to expect a return to complete breeding efficiency in all cows inside 12 months as a result of A.I. alone.

PREVENTION

Vibriosis enters a herd with an infected bull or cow. The following measures are recommended:—

- (1) If your cows are clean, restrict the use of all bulls on the property to your own herd.
- (2) Secure fencing will keep out stray bulls which may introduce the disease.
- (3) When buying bulls, buy only young unused bulls or those which are known to be free of disease.
- (4) Use extreme caution when introducing cows.
- (5) Artificial insemination reduces the risk of disease spreading through your herd, particularly where cows of unknown origins are bought.

SUMMARY

- (1) Vibriosis is a serious menace to milk producers in particular and cattle raisers in general. Once the disease gains entry into a herd, breeding efficiency is often impaired for several years and programmes are consequently upset.
- (2) The disease is usually spread by the service of a diseased bull and results in infertility, abortions sterility and retained afterbirth.
- (3) Take precautions to keep the disease out by buying only young unused bulls.
- (4) Artificial insemination reduces the risk of the disease spreading.