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LEPTOSPIROSIS (Redwater) IN CALVES
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A DISEASE of calves with symptoms of fever accompanied by anaemia and jaundice and the passage of reddish-brown urine has been known to occur in Western Australia for many years. This disease is commonly known as redwater and it has been responsible for heavy mortalities in the dairying districts of the South-West. It may also affect adult cattle but the cases are usually sporadic and outbreaks are infrequent and such losses as do occur are associated with reduced production rather than mortality.

The disease is caused by bacteria known as leptospirae from which it derives the name leptospirosis. There are many species of leptospirae but in all of the outbreaks investigated in cattle in Western Australia L. pomona has been incriminated.

When the disease makes its appearance for the first time on a property it can usually be traced to the introduction of "carriers"—either cattle or pigs. Infection takes place both through the mucous membrane of the mouth and through scratches and abrasions on the skin and it is spread by the urine of infected animals. Calves or cows which have recovered from the disease or have suffered a mild or symptomless infection may pass out the bacteria in their urine for as long as three months and are thus able to infect other cattle.

Pigs are often carriers of the disease and while showing no sign of sickness may void the infection in their urine for up to a year or longer. Many outbreaks of redwater in calves have been shown to have been associated with infected pigs.

Leptospirae are rapidly destroyed by drying but may survive in mud and water for long periods. Wet, poorly drained calf paddocks contaminated by the urine of pigs or cattle or by drainage from cowsheds or pig sties consequently favour the occurrence and spread of infection.

The habit of sucking one another after feeding, so commonly observed amongst calves, further assists the spread of infection.

SYMPTOMS

Calves.—Calves from three to ten weeks old are often affected and outbreaks are confined to the wetter months of the year. The incidence varies from herd to herd and while on some properties only a few cases may be observed, the majority of the calves may become affected on others. The incubation period is four to ten days.

The symptoms consist of loss of appetite, depression and fever, accompanied by the passage of reddish or reddish-brown urine. The gait is weak and unsteady and there is evidence of anaemia and jaundice, i.e., the membranes of the mouth and eyes are pale and bloodless and show a yellowish discolouration. In acute cases death may occur in three to four days and sometimes within 24 hours of the onset of symptoms.

The mortality rate though usually high is variable—it may be as low as 5 per cent. or it may approach and sometimes exceed 80 per cent. Recovery without treatment is not uncommon but a period of six weeks may elapse before the condition of the animal is fully restored. Some calves remain unthrifty and may have to be destroyed. Mild cases in which the symptoms consist only of dullness and temporary loss of appetite may also occur and are likely to escape notice.

Adult Cattle.—While sporadic cases are not unusual, few outbreaks of leptospirosis have been reported among adult cattle in Western Australia but, where they have occurred, symptoms of fever, haemoglobinuria (redwater) anaemia and jaundice
as in the case of calves have been observed. In addition there is a sharp and sudden fall in milk production and the secretion may be altered in appearance and tinged with blood. In some cases the udder becomes hard and swollen, in others it is slack and pendulous and the animal may go dry but a return to production—though at a reduced level—in about a fortnight is more usual. The mortality rate in adult cattle is low and milder cases with reduced production or symptomless infections appear to be more common. Abortions may occur in some infected herds.

Pigs.—Surveys have shown that pigs are very commonly infected with leptospirae and that they pass out the organisms in great numbers in their urine for prolonged periods and thus provide a reservoir of infection for cattle. With the exception that pregnant sows may give birth to stillborn or weak and sickly piglets which die within a few days of birth, the infection in pigs is usually symptomless.

POST-MORTEM APPEARANCES

In acute fatal cases, evidence of anaemia and icterus or jaundice will be observed. The blood is pale and watery and the fat and other tissues show a yellow discolouration. The liver and spleen are enlarged and the kidneys are darker than usual and may contain small haemorrhages. The bladder contains red urine but is otherwise normal.

PREVENTION

Calves must be protected against infection from areas contaminated by the urine of infected pigs or cattle. The following precautions should be taken—

(1) Do not allow pigs to roam at large on dairy farms. They must at all times be confined within pig-proof yards or sties so as to exclude them from calf paddocks and areas grazed by adult cattle.

(2) Use calf pens and paddocks for calves only. Calves must not be allowed access to areas used by pigs or cattle.

(3) Do not allow drainage from pig sties, cow sheds or cow yards to discharge into or pass through calf paddocks.

(4) See that calf paddocks are dry and well drained. Stagnant pools and muddy areas in which the infection is able to survive must be avoided.

(5) When the disease appears in a herd, isolate all calves subsequently born from the affected group and rear them on clean ground.

(6) Avoid the purchase of pigs or cattle from properties upon which an outbreak of redwater has been known to occur.

It should be recognised that the infection is transmissible to man, and antiseptic precautions including thorough washing of the hands should always be taken when handling affected herds. In man leptospirosis is known as Weil's disease and cases have frequently been reported in dairyfarmers as a sequel to the careless handling of infected pigs and cattle.

TREATMENT

For the treatment of affected calves best results have been reported from the injection of streptomycin in a dosage of 0.5 gram per 100 lb. liveweight for two or three days which not only effects a clinical cure but also clears the urine of leptospirae and thus eliminates "carriers."

Vaccines for the prevention of leptospirosis have been used with success in other countries but none of these products is yet available in Australia.