

93/N17-96/V04



Producer Research Support

Causes of white scours in beef calves still a mystery

Tallangatta Valley Landcare Group



The project

The causes of white scours in beef cattle in the Tallangatta Valley cannot be identified conclusively, two Producer Research Support projects have concluded, but further monitoring of calf scours and additional selenium trials may be valuable.

White scours has been a problem in dairy calves for over 100 years, but the condition did not emerge in Australia until the mid 1960s. At about the same time White Muscle Disease, which is caused by selenium deficiency, also appeared in sheep and cattle on improved pastures in Australia.

Some bacteria such as *E. coli* and viruses were isolated from the faeces scours, but were not shown to cause the disease.

Objectives

1. Diagnose the organisms causing scours in young calves (under four weeks of age) to weaning in the Albury/ Wodonga region;
2. Identify the benefits of vaccines against scours;
3. Identify the benefits of selenium drench in preventing scours; and
4. Assess the impact that calf scours is having on reducing efficiency from herds in north-east Victoria and southern NSW.

What was done?

Three farmers with a total of about 500 cows treated about 25% of their cows with vaccine only, selenium only, vaccine and selenium, or no treatment prior to calving.

Another group of cows received vaccine or no treatment only.

Vaccine treatment was with Ausvac vaccine at six and two weeks pre-calving.

Selenium treatment was with 25mg selenium orally as sodium selenite at about two weeks pre-calving.

Four cows from each herd were tested for selenium levels prior to treatment.

Scour samples were taken only once during the calving period, due to the mild nature of scour season.

Record keeping included calf and cow identification, vaccination and selenium treatment status, birth date and weather records. Details were kept on all scouring calves including those not treated.

The Tallangatta Valley Landcare Group set out to examine the effectiveness of the calf scour vaccine, Bovac, in reducing the incidence of calf scours in the Albury/ Wodonga region.

Members of the Tallangatta Valley Landcare Group commenced their Producer Research Support project to trial vaccines and selenium in late 1996. The project followed a vaccine-only trial project in NSW in 1994-95. The inconclusive results from the initial project resulted in further trials with the inclusion of selenium in some herds.

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Key points

- The vaccine was not effective against white scours for this season.
- The selenium trial was inconclusive.
- The presence of cryptosporidia in the faecal samples was inconclusive.
- It was concluded that non-fatal white scours did not have a detrimental effect on final (300 day) weights of calves for the year.

Producer Research Support

MLA Producer Research Support offers support funding of up to \$15,000 over three years for groups of producers keen to be active in on-farm research and demonstration trials.

These activities include:

- Producer Initiated Research and Development
- More Beef from Pastures demonstration trials
- Prime Time Wean More Lambs demonstration trials
- Sustainable and productive grazing grants.

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What happened?

The Dr John McDonald, a Veterinary and Nutrition Consultant from Benalla, Victoria, who worked on the project, said overall results showed that 27% of the 431 calves born on the three farms during the monitoring period had some degree of scours.

The overall percentages affected for each of the four treatment groups were selenium 28%, vaccine 33%, selenium and vaccine 25% and control 20%.

There was no statistical difference in the prevalence of scours between the selenium (28%) and no selenium (26%) groups.

However, there was a 15% probability (not statistically significant) for increased scours in the vaccine group (30%) compared with the no vaccine group (24%).

The diagnostic tests from faecal samples showed negative results for Rotavirus, Coronavirus, Salmonella, Yersinia and pathogenic *E. coli* strains. The tests did show positive results for cryptosporidia. Some of the samples tested showed fats present.

Dr McDonald said the diagnostic tests for selenium showed that two of the farms generally had normal selenium levels, while one showed levels below normal but above deficiency levels.

"The results show that the vaccine did not reduce the prevalence of white scours and may have increased it," he said.

"This may be because the bacteria or viruses causing the scour were not covered by the vaccine and so the colostral antibodies were being used up and were not protective," he said.

The tests showed that pathogenic *E. coli* were not present in the samples.

He said selenium treatment was not effective in preventing white scours, but the low dose (half) and the mild nature of the scours in 1997 made this an inconclusive result.

Selenium was effective in one herd which showed the lowest selenium readings prior to the trial.

"The presence of cryptosporidia in some of the samples tested could mean that this may have had some effect upon the incidence of scours," Dr McDonald said.

The calf weights from two farms showed that non fatal scours did not detrimentally affect calf weights.

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MLA also recommends BeefPlan

BeefPlan is a non-traditional approach to learning. Groups of like-minded beef producers, work together as a management team to focus on property management. Importantly the learning agenda is set and controlled by the group.

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Discussion

The 1997 year was a mild season for the white scours in beef calves, no doubt due to the marginal pasture growth.

The small numbers of samples tested, due to the limited incidence of white scours, means that this project has not provided conclusive results. Further investigation with larger numbers of calves is needed for conclusive results to be found.

The vaccine was not effective against white scours for this season. The selenium trial was inconclusive, but suggests further trials may be warranted. The presence of cryptosporidia in the faecal samples is inconclusive. It is concluded that non-fatal white scours did not have a detrimental effect upon final (300 day) weights of calves for the year.