

Timing it right

Yersiniosis can devastate a new batch of weaners. Fortunately, there is now a vaccine to protect them, but it's not always easy to integrate vaccination into the farming calendar. **Dr Colin Mackintosh** of Invermay AgResearch explores the options.



THE TIMING of Yersiniosis vaccination may be critical in determining its effectiveness.

New Zealand experience has shown the disease is much more prevalent in late autumn and winter, and that its onset may be triggered when deer are exposed to stress.

Typical stress events are low nutrition, sudden change in feed, mixing of deer groups, snow storms, cold wet windy weather, yarding, transport, heavy parasite burdens.

Some or all of these stresses may occur at, or soon after weaning, in addition to the stress of weaning itself.

Particularly severe stress occurs in deer that are weaned, sold and transported to new properties all at once. The weaners have no time to adjust to their new environment, and become extremely susceptible to disease.

This especially applies to weaning

after the rut, in May and June, when environmental conditions favour yersiniosis.

Ideally, young deer should be vaccinated as early as possible. Early vaccination will ensure they are well protected before the onset of unavoidable weather stresses, and before they are mobbed together, when crowding encourages the spread of the bacteria and increases the chance of an outbreak.

However, vaccination also needs to be fitted into the farming calendar — especially around other management practices, such as weaning, ear-tagging and drenching — and may conflict with other factors, such as a desire not to disturb hind-calf groups.

By vaccinating too early you can cause interference between maternally derived antibodies — which provide passive protection that tapers off gradually — and the weaner's own antibody response to the

vaccine, thereby compromising the vaccine's effectiveness. This effect is unlikely to persist beyond 10 or 12 weeks of age, and vaccination of weaners in March onwards is therefore recommended for most deer.

Two doses of Yersiniavax are required, the second dose given three to six weeks after the first. A single dose does not give adequate protection.

The first dose should be given at least four to seven weeks before a yersiniosis field challenge is likely.

The second dose should be given three to six weeks after the first, allowing seven to 10 days for full protection to be attained.

From a farm management perspective, selecting the best time for vaccination involves balancing the inconveniences of vaccinating early against the risk that later vaccination will leave deer unprotected.

The management practice with the largest bearing on this is whether

a farmer weans before or after the rut. The stresses of the weaning process itself may reduce the weaner's antibody response to vaccination.

However, in most of the trials conducted at Invermay and in the field, the animals achieved good protection after the second (booster) dose, even though they received their first dose at weaning.

Vaccination Before Or After the Rut?

Two broad options are available. These are outlined in the table, and within each option there are sub-options.

Dates suggested in the table may vary a little across the country according to weather patterns and farming practice.

Deciding when to vaccinate against yersiniosis is a matter for farmers and their veterinarians to determine according to individual preferences, weaning practices, feeding, whether weaners are sold or

retained, and local weather conditions.

Whether weaning before or after the rut, farmers will obtain best protection for their weaners if vaccination is early rather than late, allowing seven to 10 days for full protection to develop after the second booster injection.

However, some farmers may be reluctant to vaccinate before weaning, because of the disturbance to fawns, and the extra mustering and yarding that is involved.

Beginning vaccination after weaning is the most risky choice, as weaners do not gain protection until late autumn. The degree of risk depends on how much stress the weaners come under, and the past incidence and severity of the disease on the farm.

These management options highlight the need for Yersiniavax vaccine to be used to augment, rather than to substitute for, good management.

When planning your manage-

ment, give particular care to factors that predispose towards a yersiniosis outbreak. Of these, the most important are management and weather related stresses.

Farmers selling weaners could also integrate their vaccination programme with their marketing. Weaners that have had a double dose of Yersiniavax before transport to their new farm should command a premium.

• *The first recognised outbreak of yersiniosis in New Zealand was on a Timaru deer farm in the winter of 1978. It occurred in 2-year old hinds and there were 60 deaths. Investigation revealed the bacterium Yersinia pseudotuberculosis, and further research resulted in a killed liquid vaccine.*

Yersiniavax will provide significant protection against yersiniosis. Many farmers choose to routinely vaccinate their weaners, but only treat adult deer if they are at high risk. □

Weaning before the rut (in March)

Yersiniavax Injection Dates

1. First injection in early March, or late February for early born fawns. Second injection 3 to 6 weeks later.
2. First injection at or soon after weaning. Second injection 3 to 6 weeks later.

Comment

Gives some protection over weaning, but incomplete until 7-10 days after second injection. Especially beneficial if weaners sold and transported soon after weaning.

Does not protect weaners sold and transported at weaning. But, like (1), gives max protection for high risk period, late autumn-winter.

Weaning after the rut (from May onwards)

Yersiniavax Injection Dates

1. Two injections before weaning, the second 3 to 6 weeks after the first.
2. First injection before weaning, either immediately before the rut in late March, or at stag change-over in mid rut. Second injection at weaning.
3. First injection at weaning in mid to late May. Second injection 3 to 6 weeks later.

Comment

Gives max protection over weaning, and through high risk period, late autumn-early winter. Policy is often difficult due to the handling problems of weaners in mating groups. Achievable if both vaccinations done in March before putting stag to hinds. Can also give the second injection if a mating group is yarded to change the stag, midway during the rut.

Gives some protection against yersiniosis triggered by weaning stresses, but incomplete until 7-10 days after second injection. Takes the weaners closer to period of bad weather and disease risk.

Least favourable option. Protection is poor until 7-10 days after the second injection, gives inadequate protection until late June. Weaners unprotected when stress and weather-related yersiniosis likely. Gives no protection against yersiniosis triggered by weaning stress.