

**WITH YERSINIOSIS, IT'S ONLY
A QUESTION OF WHEN.**



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Weaning through to Winter

Weight gain slows (and in some cases stops) during winter, so it is important for fawns to have strong growth over late summer and autumn.

Autumn through winter is also the period of highest fawn mortality. Weaning animal health programmes should be in place to ensure maximum autumn/winter weight gain and survival. This should include:

- ▶ **Drenching against lungworm and abomasal worms:** The two major internal parasite types in weaner deer.
- ▶ **Vaccination against Leptospirosis:** New studies indicate that Leptospirosis can significantly reduce weight gain in deer between weaning and slaughter.
- ▶ **Vaccination against Yersiniosis:** Yersiniosis is the leading cause of death in fawns during autumn and winter.

Yersiniosis in Weaner Deer

Yersiniosis is a particularly vile and highly infectious disease. First signs in deer fawns are green, watery, smelly diarrhoea which soon becomes bloody.

Where does the infection come from?

- ▶ The bacteria that cause Yersiniosis are widespread in the environment and are carried in the gut of most animals.
- ▶ Carrier animals shed the bacteria in their faeces. These bacteria can survive well in soil, water and pasture, especially during winter.
- ▶ Animals become infected by eating or drinking faecally contaminated material.
- ▶ Most fawns will be exposed to Yersinia.

What turns infection into disease?

- ▶ Disease is primarily related to age, stress and exposure to bacteria. Weaner deer are most at risk.
- ▶ Important stressors include: **weaning, poor nutrition, sudden change in feed, mixing of deer groups, cold wet windy weather, yarding, transport and heavy parasite burdens.**

Clinical signs.

- ▶ Affected animals, normally 4 to 8 months old, tend to separate off from the group.
- ▶ There is invariably green watery diarrhoea, often with a characteristic smell, usually turning dark or bloody.
- ▶ Affected deer rapidly become dehydrated and weak.
- ▶ The time between first infection and death is often very short.

The Value of Vaccination

The easiest way to estimate the value of Yersiniosis vaccination is to use the following equation:

$$\frac{\text{Number of weaners vaccinated x 2 doses} \\ \text{x cost of vaccine per dose}}{\text{Value of each weaner}} = \text{Number of weaners} \\ \text{required to be saved} \\ \text{to recoup vaccine cost}$$

e.g.

$$\frac{100 \text{ weaner deer x 2 doses} \\ \text{x } \$2.50 \text{ per dose}^*}{\$500} = 1 \text{ weaner}$$

As shown in the table below, an average of 5 weaners per 100 perish over the autumn and winter months. As Yersiniosis is by far the most common cause, it is obvious that Yersiniosis vaccination is highly likely to be cost effective.

Average mortality rates (per 100 deer > 3 months) on commercial deer farms in New Zealand (from Audigé et al 2001).

CLASS OF DEER	SEASON				
	AUTUMN	WINTER	SPRING	SUMMER	ANNUAL
3-15 MONTHS	2.4	2.6	0.4	0.1	5.9

* Price may differ

Managing Stress Factors

Yersiniosis is stress related.

- ▶ The disease is much more prevalent in late autumn and winter, and its onset is triggered when deer are exposed to stress or poor weather.
- ▶ When stressed or cold fawns stop eating they quickly lose body heat. This causes their intestinal movements to slow down allowing Yersinia to multiply enormously inside the gut. These animals will also shed huge numbers of the bacteria into the environment, leading to significant exposure to other fawns.
- ▶ The bacteria produce toxins which damage the intestines, leading to rapid fluid loss, bleeding, and dehydration. This frequently leads to death if untreated.
- ▶ If fawns are not subjected to excessive stress, the infection will probably be mild and go unnoticed.
- ▶ Typical stressors are poor nutrition, sudden change in feed, mixing of deer groups, snow storms, cold wet windy weather, yarding, transport and heavy parasite burdens.
- ▶ Some or all of these stressors may occur at, or soon after weaning, in addition to the stress of weaning itself.

Farmers should:

- ▶ Aim to reduce the effects of common stressors.
- ▶ Wean before the rut when it is warmer and more feed is available.
- ▶ Vaccinate with Yersiniavax® to prevent clinical disease.

Remember: it is too late to vaccinate once an outbreak of Yersiniosis has started.

Yersiniavax

The aim of vaccination is to prevent a serious epidemic by reducing the spread of disease through a mob.

Yersiniavax enhances rather than substitutes for good management.

When to vaccinate.

Two doses of Yersiniavax 3 to 6 weeks apart are required to stimulate immunity. The timing of the first dose is critical in determining the effectiveness of the programme.

Weaners should be vaccinated as early as possible after they reach 12 weeks of age.

- ▶ Antibodies from their dam, while likely to protect the weaner, may prevent a proper immune response if vaccination occurs too early.
- ▶ Vaccination just after 12 weeks ensures they have time to develop an immune response before the onset of unavoidable weather stressors and before they are mobbed together, when crowding encourages the spread of the bacteria and increases the chance of an outbreak.

Vaccination options.

Deciding on the best option involves balancing the logistics of vaccinating early against the risk that later vaccination will mean deer are unprotected. This decision requires discussion between the farmer and veterinarian with regard to previous history, likely weather, weaning and mating management, feeding, and whether weaners are sold or retained.

- 1. Both injections completed at least a week before weaning:**
 - ▶ Gives maximum protection over the high risk period of weaning and the changeable weather often seen in late autumn. Especially beneficial if weaners are sold and transported soon after weaning.
 - ▶ Regardless if weaning is done before or after the rut, the first injection can generally be given between late February and mid March. The second injection is then given 3 to 6 weeks later.
 - ▶ If weaning after the rut an option is to time the second injection to occur during mating, for instance when mating groups are yarded to change the stags.
- 2. First injection 3 to 6 weeks before weaning, the second injection at weaning.**
 - ▶ Gives some protection against Yersiniosis triggered by weaning stressors, but the peak immune response is incomplete until a minimum of 7 to 10 days after second injection. Does not fully protect weaners sold and transported at weaning. Reduces risk of disease associated with bad weather after weaning.
- 3. First injection at weaning, second injection 3 to 6 weeks later.**
 - ▶ Gives no protection against Yersiniosis triggered by weaning stress or poor weather until 7 to 10 days after the second injection, therefore the least favourable option.