

Ticks

Control is a good investment

If ticks are present on a farm, controlling them is normally a good investment. While ticks can never be eradicated, strategic pasture management and the use of insecticide-impregnated ear-tags are effective ways to improve animal welfare and to prevent any loss of productivity.

Where this involves pasture improvement, drainage and weed control, there will be secondary benefits arising from improved deer nutrition and greater productivity.

The losses caused by ticks to the deer industry have not

Key points

- Ticks are blood-sucking insects that can cause significant production losses in deer. Small deer (especially new-born deer fawns when they are 'parked') are particularly vulnerable.
- Ticks prefer a warm humid environment, so the biggest numbers are found in the warmer parts of the North Island and in the north of the South Island.
- While ticks are impossible to eradicate once they are established, they can be effectively controlled with insecticide-impregnated ear-tags and strategic pasture management.
- Where control measures include pasture improvement, there will be additional benefits from improved deer nutrition and productivity.

been calculated. Adult ticks can suck up to 1 ml of blood and small deer (especially new-born deer fawns when they are 'parked') can die from blood loss. The death rate of fawns can reach one in 20 on some farms.

Ticks also cause scarring on hides that is not evident until after the tanning process, causing considerable wastage. Tick bites on antler velvet can result in severe scarring and may predispose to parapox virus infection.

Ticks do not pose a threat to international trade. And while they are carriers of the tiny parasite that causes theileriosis in cattle, no cases have been confirmed in deer.

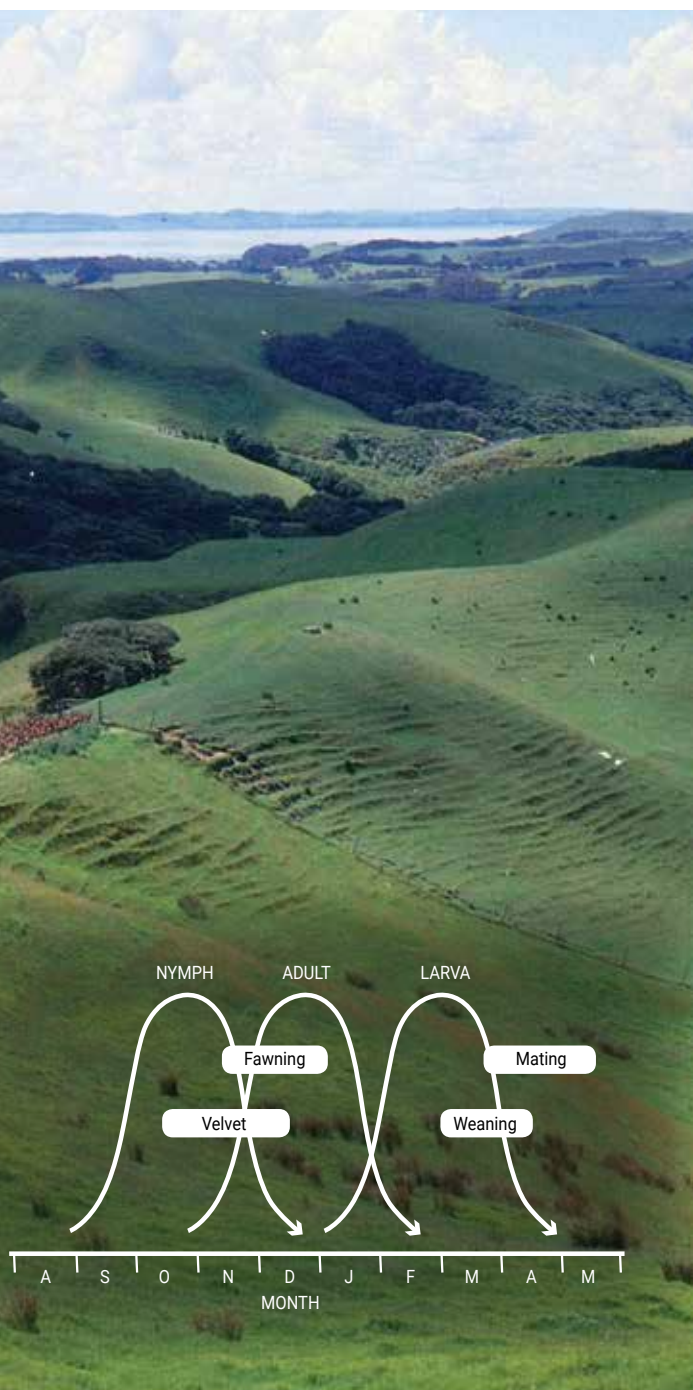
Tick management

If small numbers of ticks are present you may prefer not to take any action against them. But if you don't act, there's the risk they will become a major problem when warm humid weather favours them.

Reducing tick numbers is challenging, because they have a wide host range, tolerate a wide range of temperatures and humidity, and are hard to treat while they are on deer because of the problems of managing fawning hinds, fawns and rutting stags.

The best preventive measures involve the use of tick ear-tags and strategic pasture management. If used consistently this strategy can be effective in controlling tick numbers.

- Apply ear-tags impregnated with cypermethrin. These control ticks for up to 6 weeks and can help protect the fawns of treated hinds for a few weeks after birth.
- Don't introduce untagged stock to areas where deer have been tagged.
- Any stage of the life cycle can be targeted, but treatment early in the season to target nymphs will result in fewer adult ticks later in the season.
- Drain, cultivate and establish new pasture in areas where there are reeds, long grass and scrub as these provide the best environment both for ticks and for 'parked' deer fawns. Improved pasture is less favoured by ticks and will improve deer nutrition and productivity.
- Leave problem paddocks unstocked for 12 months to prevent ticks from completing their life cycles. This may not be totally effective if there are wild mammals around to sustain the ticks. Again, pastures with the best environment for ticks (long grass, reeds and scrub) should be targeted first.



Typical Northland tick territory

The start of the peak risk period for ticks tends to coincide with fawning, making it impractical to check for infestations. Cypermethrin impregnated ear-tags on hinds offer the best protection

To reduce tick numbers in pasture

- Introduce 'taxi' stock like sheep, cattle or mature robust deer at a relatively high stocking rate in warm humid weather. This encourages ticks to attach to these animals, and the ticks can then be removed by tags or spray.
- Spray reeds and weedy patches with herbicide (glyphosate) to get rid of the longer scrubby vegetation favoured by ticks.
- Spraying pasture with insecticide may kill ticks in the pasture at the time of spraying, but has little lasting effect on tick numbers. Insecticides can be harmful to the environment, especially bees.

Distribution

There is only one type of tick in New Zealand that affects deer, the cattle tick *Haemaphysalis longicornis*. It can affect any mammal (including humans, cattle, sheep and wildlife such as hares) and birds.

Ticks prefer a warm humid environment, so the biggest numbers are found in Northland, on the east coast of the North Island, in Waikato, Manawatu and Wairarapa. In the South Island, there are confirmed cases in Tasman, Marlborough, Kaikoura and Canterbury.

Ticks have also been found on deer and cattle in Otago and Southland, but they don't appear to have become established in those regions.

Life cycle

There are four stages in the tick life cycle, which usually takes a year to complete. Eggs hatch to become larvae, which moult to become nymphs, then adults. They move on and off hosts three times during their life cycle and each time they engorge on blood.

Eggs: Adult ticks lay up to 2000 eggs on the ground in summer. After two to three months, from January to April (late summer-early autumn), the eggs hatch to larvae.

Larvae: The larvae tend to be most active in summer early autumn (January to March). They move up pasture and attach to any passing mammal or bird, where they suck lymph and blood. At this stage they are tiny, about 1-2 mm diameter. Three to 9 days later they drop from the host and moult to become nymphs.

Nymphs: The nymphs over-winter at the base of the pasture and they can survive for months in cold temperatures. In spring (end of July to end of September), the nymphs (now 2-3 mm diameter) start to search for a passing mammal or bird. If successful they jump on and engorge, reaching about 5 mm diameter in 3 to 8 days. They drop to the ground and after about 3 weeks they moult, emerging as adults in late spring through summer.

Adults: In late spring and through summer (October to January) the adults attach to a host and engorge to about 10 mm diameter over 7 to 14 days. This is the stage at which they are easiest to spot. When they are fully engorged



Top: An adult tick waiting to latch onto a passing mammal; Above and right: ticks on velvet and ticks in a fawn's ear

they drop off, and over the next 2 to 3 weeks they lay up to 2000 eggs. Then they die.

If climatic conditions aren't suitable for them, many of the nymphs and larvae will die too. It might be too dry, too hot or too cold, or they might not find a host. So climate and farm management practices have a significant influence on adult tick numbers in summer.

Ticks survive best in long rough herbage like reeds and patches of rough pasture that provide a consistently humid microclimate.

Wildlife, particularly hares, can sustain ticks even where there are no livestock.

Diagnosis

Tick larvae and nymphs are small and difficult to spot. Engorged adults are about the size of a small grape so they are much more easily seen. However they are present in summer and even into autumn, when hinds are fawning and stags are rutting, so yarding deer for close examination is not practical.

Ticks prefer hair-free parts of the animal such as the axillae (armpits), groin, around the anus, inside the ears and around the eyes and muzzle.

Deaths of newborn or very young fawns are often the first sign of a severe infestation. Up to 160 ticks have been found on the ears of a new-born fawn.

To assess how many ticks are in pasture, a towel can be dragged across the paddock at a time when ticks are likely to be active and the attached ticks counted.