

CATTLE TICK CONTROL USING WINTIX® POUR-ON

The cattle tick life cycle

The cattle tick (*Boophilus microplus*) is a single host tick. This means all three stages of the tick lifecycle occur on the same animal. When a larval tick located in pasture attaches to an animal, it feeds and develops into a nymph, which in turn feeds and becomes an adult tick in 18-40 days (about 3-4 weeks). Engorged female ticks drop to the ground and lay about 3000 eggs each.

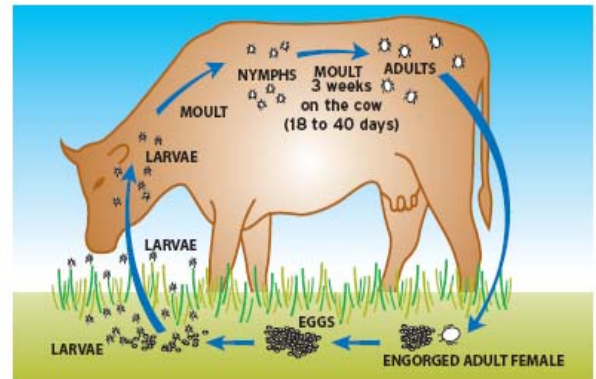


Figure 1 - The Cattle Tick Lifecycle

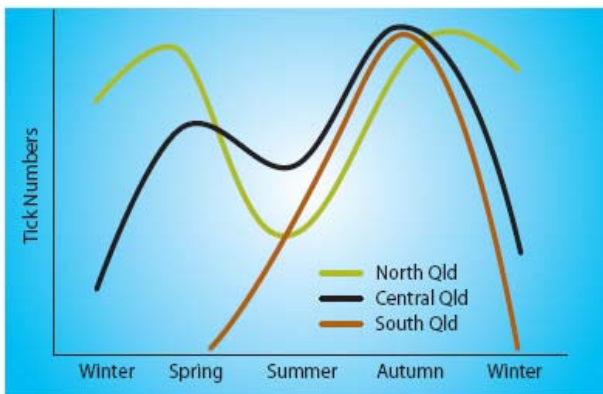


Figure 2 - Tick activity throughout Queensland

An adult female tick will consume about 0.3mL of blood. Large numbers of ticks will therefore remove significant amounts of blood, protein and nutrients from infested cattle, affecting growth and productivity. Tick infestation reduces milk production (9mL less milk is produced for each engorged female tick that is attached) and dramatically slows weight gain in growing cattle. Ticks also cause damage to hides.

Cattle ticks thrive in warm humid conditions. In northern Queensland, ticks are active and lay viable eggs all year round. In southern Queensland and Northern New South Wales, tick activity peaks in Autumn and reproduction slows during winter. Heavy rain during the wet season can interfere with tick reproduction.

Cattle tick control

Several measures are available to control cattle tick including the spelling of paddocks, breeding tick-resistant cattle, vaccination and chemical use. Successful control is based on preventing female ticks from laying eggs, thereby breaking the tick lifecycle and limiting contamination of the environment.

WINTIX Pour-On

WINTIX Pour-On contains the active ingredient fluzaron, an insect growth regulator (IGR). IGRs prevent young ticks (larvae and nymphs) from developing into mature stages by interfering with cuticle formation. Larvae from pastures continuously infest treated cattle, but die after failing to develop into nymphs. IGRs also prevent adult female ticks from laying viable eggs.

Following exposure to fluzaron after treatment with WINTIX:

- **larvae and nymphs cannot moult to the next stage**
- **eggs from adult females do not hatch to larvae**
- **tick populations in paddocks are significantly reduced**



More on how WINTIX works...

After WINTIX Pour-On is applied, fluzaron enters the animal's circulation both by direct absorption through the skin and by oral ingestion from licking. After entering the bloodstream fluzaron is distributed throughout the body, and is partitioned (stored) mostly in fat. A concentration equilibrium between blood and fat is reached, with effective concentrations of WINTIX remaining in the bloodstream for between 8 to 12 weeks.

Ticks are exposed to fluzaron after taking a blood meal from the WINTIX treated animal. Effects are seen within three days of treatment, but as WINTIX is not a 'knock-down' poison, it can take two to three weeks for cattle to be visibly free of ticks. No additional treatment is necessary during this time. Effects on reproduction (ticks laying eggs that cannot hatch) occurs sooner after treatment than a noticeable reduction in tick numbers on the animal.

Calves suckling WINTIX-treated cows do not need to be treated as they receive sufficient chemical through their dam's milk. This does, however, lead to a reduced period of protection for the cow, and the calf attracts a four month withholding period. Reduced efficacy periods may also be seen in fast growing cattle due to dilution of the effective concentration of fluzaron as the animal grows.

WINTIX is effective against tick populations resistant to organophosphate, amidine and pyrethroid pesticides.

Applying WINTIX

Correct application of WINTIX is very important to ensure the best possible control of cattle tick. Mutual licking (grooming) by treated cattle provides an important mode of entry of the fluzaron in WINTIX into the animal's body. Studies have shown that the amount of a pour-on chemical made available to cattle can be reduced by 42% when licking is prevented¹, demonstrating the importance of this route of entry of chemical into the animal. The WINTIX applicator has been specially designed to allow a uniform application of WINTIX to both sides of the backline. The correct application procedure ensures an optimal surface area is covered with product. This allows the best possible distribution of WINTIX on frequently groomed areas, and hence the best possible availability of fluzaron to the animal.

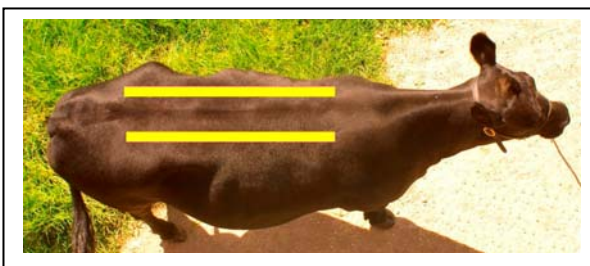


Figure 3 - Correct application of two 7cm-wide bands of WINTIX (highlighted areas)

Bodyweight (kg)	Dose (mL)	No. treated per 2.5L pack	No. treated per 5L pack	No. treated per 22.5L pack
101 to 150	9	277	555	2497
151 to 200	12	208	416	1874
201 to 250	15	166	333	1498
251 to 300	18	138	277	1249
301 to 350	21	119	238	1071
351 to 400	24	104	208	936
401 to 450	27	92	185	832
451 to 500	30	83	166	749
501 to 550	33	75	151	682
551 to 600	36	69	138	623
601 to 650	39	64	128	576

Always use the WINTIX applicator, as the excipient in WINTIX is corrosive for some plastics. Do not apply WINTIX to show cattle, as a light scurfiness may be visible for some time after application. Always follow the safety directions on the label.

Reapplication

For residue considerations, WINTIX can only be applied a maximum of three times per season at no less than 42 days between treatments.

What about dung beetles?

WINTIX has no adverse effects on dung beetle populations, unlike insecticidal sprays and dips.²



¹ Laffont *et al.* (2001) Licking behaviour and environmental contamination arising from pour-on ivermectin for cattle. *Int J Parasitol* 3; 1687-1692.

² Kryger, U., Scholtz, CH. (2004) Dung beetle compatibility of selected anti-parasitic drugs. *Proc. 46th Annual Scientific Meeting of the Australian Society for Parasitology.*