

CYDECTIN[®] LONG ACTING

INJECTION FOR CATTLE

There's nothing like it.



THE LONGEST LASTING PROTECTION:

120 days protection
against Barber's Pole Worm

112 days protection
against *Ostertagia* (Small brown stomach worm)

51 days prevention
of development of viable cattle ticks



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Shaping the future of animal health



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The longest protection available

Cydectin LA provides the longest protection available against a range of internal and external parasites. No other endectocide can match Cydectin LA for lasting control of roundworms, cattle ticks, lice and mites.¹

Kills worms for longer¹

Barber's pole worm (<i>Haemonchus</i> spp.)	120 days
Nodule worm (<i>Oesophagostomum radiatum</i>)	120 days
Lungworm (<i>Dictyocaulus viviparus</i>)	120 days
Small brown stomach worm (<i>Ostertagia</i> spp.)	112 days
Stomach hair worm (<i>Trichostrongylus axei</i>)	72 days
Small intestinal worm (<i>Cooperia</i> spp.)	21 days

The trusted power of moxidectin

Cydectin LA is a unique, low volume formulation of moxidectin, a potent and persistent 'mectin'. This unique low volume formulation (1 mL / 100 kg) ensures rapid uptake and sustained release of minimum inhibitory levels of the active ingredient.

The best protection for young livestock

Cydectin LA is the first choice for maximising the productivity and health of young cattle, which are most susceptible to parasites. It provides lasting protection against internal and external parasites without influencing the development of immunity against worms.¹⁷



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Ideal for strategic tick control

Cydectin LA prevents the development of viable cattle tick for at least 51 days and prevents egg production for at least 65 days after treatment. Treatment in spring helps to prevent the spring 'rise', while treatment the following autumn will remove any surviving ticks and reduce pasture contamination.



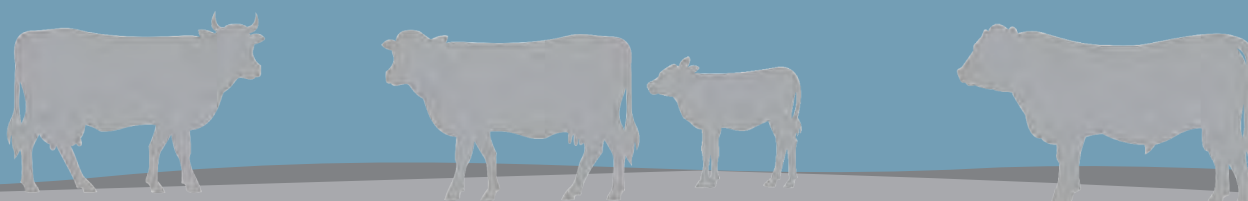
Label Claims	
Cattle Tick (<i>Rhipicephalus (Boophilus microplus)</i>)	Prevents the development of viable cattle tick for at least 51 days .
Prevents Cattle Tick egg lay	Prevents egg production for at least 65 days after treatment.
Label Claims	
Sucking Lice (<i>linognathus vituli</i>)	Prevents reinfection for 133 days .

Tried and trusted

Cydectin Australia's most trusted range of endectocides. Cydectin delivers the trusted power of moxidectin in three different formulations to suit all livestock classes and production systems. With Cydectin, you can have peace of mind that your cattle have the best protection possible.

There's nothing like CYDECTIN LA

- Unique low volume injection that delivers the trusted power of moxidectin
- Broad spectrum control of key internal and external parasites
- Persistent activity against key worm species, ticks and lice
- No known impact on dung beetles
- Ideal for use in young cattle (100 to 500 kg liveweight)



There's nothing like it.

Like no other mectin

Second-generation technology

Cydetin LA contains moxidectin, a second-generation member of the macrocyclic lactone family of endectocides. Moxidectin is a fermentation product of the bacterium, *Streptomyces cyaneogriseus*, which was isolated from a sample of red sand from Victoria, Australia. Like other 'mectins', moxidectin binds to gamma-aminobutyric (GABA) and glutamate-gated chloride channels in susceptible species, causing paralysis and death in susceptible species. However, moxidectin has a different chemical structure compared to other 'mectins', such as abamectin, ivermectin, doramectin and eprinomectin.

Five important differences

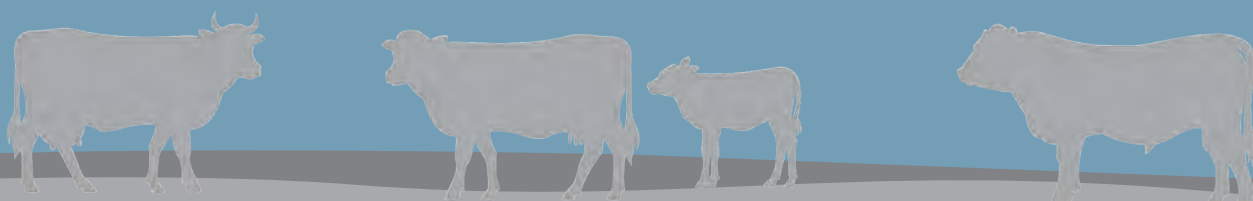
1. Moxidectin has no sugar chains, making it difficult for parasites to change the molecule to reduce its potency.
2. Moxidectin is a smaller molecule compared with other mectins, improving absorption.
3. Moxidectin is strongly lipophilic (100x more than ivermectin), meaning it binds strongly with fat and is gradually released into plasma.
4. Moxidectin interacts differently with ABC transporters, making it difficult to 'pump' out of cells.
5. Moxidectin is metabolised more slowly by the liver.

The trusted power of moxidectin

These differences in chemical structure and pharmacokinetics contributes to moxidectin's potency and persistency, maximising the health and productivity of your cattle. Most production losses associated with worm infestations result from the animal mounting an immune response. By preventing infection for an extended period, Cydetin LA reduces the amount of energy and protein wasted mounting an immune response and reduces the amount of tissue damage and blood loss caused by some species. This persistency can eliminate the need to administer up to four short-acting oral drenches or pour-ons, significantly reducing treatment costs and reducing pasture contamination.

Fast, precise treatment

As an injectable treatment, Cydetin LA delivers a precise dosage, ensuring optimal protection and reducing selection pressure for resistance. It is easy to apply using modern handling equipment. The use of injectable animal health treatments, including vaccines, vitamins, minerals and parasiticides, is commonplace in the Australian beef and dairy industries.



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Cydectin Testimonials

Hear what other cattle producers are saying about Cydectin LA.

“

We've witnessed first-hand the benefits of Cydectin LA's longer protection against external parasites like ticks. It means less handling and mustering of stock, and the benefits in terms of increased productivity have been massive.

Don McConnel - Mt Brisbane, Esk

”



“

Low growth rates resulted in poor conception rates, and our calving was straggling from late March until August. Better parasite control with Cydectin LA contributed to improved growth rates, and I was so happy with the results.

Marg Lee - Keayang, Terang

”



“

After switching to Cydectin LA, we noticed how much healthier our young cattle looked. Plus less stock handling created valuable time-savings. Even after four months of regular monitoring, worm egg counts are still very low.

Tim Farquharson - Bushy Park Angus, Birregurra

”



“

It's always better to treat weaners once properly, rather than twice half-baked. With Cydectin LA, we can go 12 months without re-treating, which makes a huge difference in reducing labour costs, while keeping worms and ticks firmly out of our paddocks.

Will Wilson - Calliope Station, Calliope

”



“

Cydectin LA fits into our program in two crucial parts of the year; weaning time in December and coming into Winter. Some of the results we've seen are fantastic growth rates in younger animals and our heifers.

Ryan Willing - Carnigup, Esperance

”



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Lasting control against worms

Southern Australia

Internal parasites cost the southern beef industry \$82 million in lost productivity and treatment every year.³ This equates to \$2245 and \$1744 per herd in high and medium rainfall regions, respectively.³

Cydectin LA protects against *Ostertagia* spp. for 112 days, significantly improving the health and performance of young cattle. An MLA-funded project found weaners treated with Cydectin LA were 50 kg heavier than untreated animals and 22 kg heavier than cattle treated with a short-acting 'mectin' pour-on six months after treatment.⁴

The most economically-significant worm species in the southern beef industry is the Small brown stomach worm (*Ostertagia osteragi*). Worm burdens can have a significant impact on growth rates and fertility by reducing appetite, growth rates and milk production, even in animals that appear healthy. Heavy infestations can cause damage to the fourth stomach, diarrhoea and even death.¹⁶

Another Australian study found the concurrent administration of Cydectin Long Acting Injection in Cattle and Multimin Injection (a mineral supplement) increased weight gain in Angus heifers by 23 kg 120 days after treatment compared to those treated with a 'mectin' pour-on treatment only.⁵

These benefits have important implications on fertility and lactation in replacement heifers. A Tasmanian study found dairy heifers weighing an extra 50 kg at calving produced an extra 1041 litres of milk and 81 kg milk solids over the first three lactations than their lighter herd mates.⁶



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Northern Australia

Internal parasites, such as Barber's pole worm, Small intestinal worm (*Cooperia* spp.) and Nodule worms, cost the northern beef industry nearly \$12 million in lost productivity and treatment every year.³

Barber's pole worm thrives in warm, moist environments. Severe outbreaks are more likely to occur after rainfall, although larvae can persist on pasture throughout the year. These worms feed on blood by attaching themselves to the wall of the fourth stomach. Heavy infestations can cause death. Young cattle may not develop immunity to this parasite until they are 21 months old.

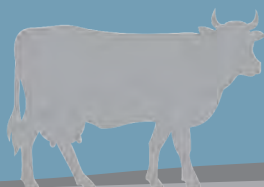
Cooperia typically affects growth in weaners, as they lack the immunity older cattle have against the parasites. Immunity occurs between seven and 12 months of age. Nodule worms are often found co-habiting with Barber's pole worms and *Cooperia*. Cydectin LA provides lasting protection against Barber's pole worm (120 days), Nodule worms (120 days) and *Cooperia* (21 days).

Increased productivity

The average of 24 trials conducted throughout Australia found cattle treated with Cydectin LA had significantly higher liveweight gains over 120 days than cattle treated with shorter-acting 'mectin' injectables and pour-ons:

- 13.6 kg compared to ivermectin pour on⁷
- 11.1 kg compared to ivermectin injection⁷
- 9.1 kg compared to eprinomectin pour-on⁷
- 7.6 kg compared to doramectin injection⁷

These trials involved more than 3,300 cattle across 24 different properties in Queensland, Victoria, New South Wales, South Australia and Tasmania. These trials were conducted across a range of production systems and seasonal conditions. In every trial, liveweight gain in cattle treated with Cydectin LA was greater than shorter-acting 'mectin' injectables and pour-ons.⁷



There's nothing like it.



Lasting control against external parasites

Cattle tick

Cattle tick (*Rhipicephalus (Boophilus) microplus*) is the most economically significant parasite in cattle, causing an estimated \$156 million in lost production and treatment costs every year.³ Cydectin LA provides effective treatment and control of Cattle tick, including strains resistant to organophosphates, synthetic pyrethroids and amidines. Its persistent activity prevents the development of viable cattle tick for at least 51 days and prevents egg production for at least 65 days after treatment. Cydectin LA is ideal for use in strategic tick control programs. Treatment in early spring helps to prevent the spring 'rise', while treatment the following autumn will remove any surviving ticks and reduce pasture contamination. Note that some engorged females containing viable eggs may continue to drop for up to four days after treatment, which should be taken into account when planning a strategic treatment program.



Cattle lice and mites

Cydectin LA provides lasting control of Sucking lice (*Linognathus vituli*) and prevents reinfection for 133 days. It is also effective against Short-nosed sucking louse (*Haematopinus eurysternus*), Small blue sucking louse (*Solenopotes capillatus*), mites (*Chorioptes bovis*) and aids in the control of Biting lice (*Bovicola bovis*).



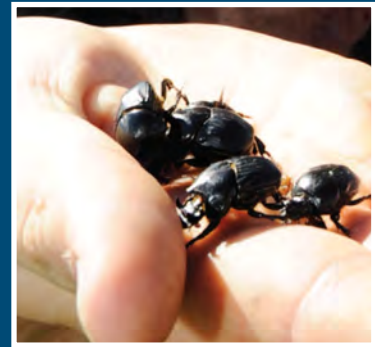
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No known impact on dung beetles

Dung beetles play an important role in recycling nutrients, improving pasture production and reducing parasite burdens. An MLA-funded project found dung beetles can improve pasture growth rates by up to 30% for up to three years.⁸ In one trial, dung burial was found to increase earthworm populations, soil permeability and levels of nitrate, phosphate, sulphur, carbon and organic matter in the subsoil.⁸ Dung beetles also reduce parasite burdens by removing breeding ground for worms and flies. An active dung beetle colony can remove dung pats within 48 hours.

Unfortunately, some 'mectin' endectocides can adversely impact dung beetle populations via residues in faeces. An independent trial conducted by the CSIRO has confirmed moxidectin has no known effect on dung beetles.² When administered in accordance with the label directions, the use of Cydectin LA is not likely to have any significant effect on the Brown dung beetle (*Onthophagus gazella*), Taurus scarab (*O. taurus*), Northern sandy dung beetle (*Euoniticellus intermedius*) and Fulvus dung beetle (*E. fulvus*).¹



Effect of different 'mectins' on dung beetles²

	Mature Adults	Young Adults	Breeding Females	Eggs/Larvae
Abamectin Ivermectin Doramectin Eprinomectin	No known effect	Increased Mortality	Reduced Breeding	Increased Mortality
Moxidectin	No Known Effect			



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Sustainable worm management

Resistance poses a serious long-term threat to the productivity and sustainability of Australia's livestock industries. All parasiticides are prone to resistance if used repeatedly, particularly if they are not fully effective or if there is no 'refugia' of susceptible parasites.

A number of parasites, including worms, have developed resistance to macrocyclic lactone compounds. While there is a certain degree of shared resistance between all 'mectins', scientific studies show that moxidectin has the greatest potency of all the mectins against adult parasites and larvae, even if mectin resistance is present.⁹⁻¹⁵

Used strategically, the use of potent and persistent anthelmintics, such as Cydectin LA, will not increase selection pressure for resistance and may, in fact, delay the development of resistance.

The following management practices to achieve effective and sustainable worm management are recommended:

- Only use anthelmintics that are known to be fully effective against the target species:
 - Administer long-acting anthelmintics in the presence of ongoing parasite challenge (e.g. young stock, adult stock under stress or cattle grazing contaminated pastures).
 - Consider concurrent use with a 'primer' (i.e. a short-acting anthelmintic from a different chemical group e.g. Oxfen LV or Flukazole C).
- Quarantine drenching of all arrivals should be an essential component of your biosecurity plan by using at least 2 confirmed effective actives concurrently.
- Monitor the efficacy of all treatments.
- Rotate between anthelmintics with different modes of action and/or use combination products (i.e. two or more active ingredients with different modes of action).
- Maintain a 'refugia' of susceptible parasites to prevent the establishment of a resistant worm population on pastures by avoiding unnecessary treatments and not moving cattle immediately after treatment to a clean paddock.
- Implement grazing management practices to reduce parasite burden and/or to control any resistant parasites:
 - Place treated young cattle on contaminated pasture to 'dilute' the proportion of resistant strains in the total worm population.
 - Use adult cattle to 'mop up' any infective larvae on pastures previously grazed by weaners to decrease parasite burdens.



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Getting the best results

Administration site

Cydectin LA is administered as a subcutaneous (i.e. under the skin) injection into the back of the ear towards its base. DO NOT administer anywhere else on the animal. Avoid intravascular (i.e. into a blood vessel) injection. Injection site reactions or generalised reactions are possible. Good head restraint is required for effective injection.

Administration technique

Weigh cattle to determine the correct dose (see below). Administer using the Cydectin 5 mL injector. Do not use any other injector. Check dose rates and injector before treatment. Do not underdose.

Dose rate

Weight range (kg)	Dose volume (mL)	Doses per pack	
		200 mL	500 mL
100 ^a	1	200	500
101–150	1.5	133	333
151–200	2	100	250
201–250	2.5	80	200
251–300	3	66	166
301–350	3.5	57	142
351–400	4	50	125
401–450	4.5	44	111
451–500 ^b	5	40	100

^aDO NOT USE in cattle under 100 kg. ^bDO NOT USE in cattle over 500 kg.

Withholding periods

Meat **56 days** | Milk **80 days** | ESI **108 days**

DO NOT USE in cattle destined for live export.

Retreatment interval

DO NOT retreat with Cydectin LA for at least 56 days after administration.



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- ✓ The longest protection available against a range of internal and external parasites, thereby optimising the health and productivity of your cattle.
- ✓ The trusted power of moxidectin, in a unique low volume formulation (1 mL / 100 kg).
- ✓ Ideal for protecting young livestock (100–500 kg liveweight).
- ✓ Ideal for use in strategic tick control programs to prevent the build-up of tick populations and pasture contamination.
- ✓ No known impact on dung beetles, which can help to improve pasture production and reduce parasite burdens.
- ✓ Peace of mind that your cattle have the best protection against parasites.



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1. Refer to registered label. 2. Wardhaugh, K.G. (2001). Contracted Report No. 56. Parasiticides registered for use in cattle in Australia: An annotated bibliography and literature guide prepared for the National Dung Beetle Forum, CSIRO Entomology, Canberra. 3. MLA report B.AHE.0010 (2015). Priority list of endemic diseases for red meat industries. 4. Eppleston, J. et al. (2016). Post weaning growth of beef heifers drenched with long or short acting anthelmintics. *Aust Vet J*, 94(9):341-346. 5. Virbac trial protocol No 572/10. 6. Freeman, M. (1993). Why have Bigger Heifers? In "Your Heifers in the balance: the importance of liveweight". Dept Primary Industries & Fisheries, Tasmania. 7. Virbac (2016). Weaner productivity trials. 8. MLA report B.ERM.0211 (2008). The pasture growth and environmental benefits of dung beetles to the Southern Australian cattle industry. 9. Edmonds, M. et al. (2010). Anthelmintic resistance of *Ostertagia ostertagi* and *Cooperia oncophora* to macrocyclic lactones in cattle from the western United States. *Vet Parasitol* 170:224-229. 10. Yazwinski, T. et al. (2009). Fecal egg count reduction and control trial determinations of anthelmintic efficacies for several parasiticides utilizing a single set of naturally infected calves. *Vet Parasitol* 164:232-241. 11. de Soutello, R. et al. (2010). Evaluation of reduction in egg shedding of gastrointestinal nematodes in cattle following administration of anthelmintics. *Rev Bras Parasitol Vet* 19:183-185. 12. Gasbarre, L. et al. (2009). The identification of cattle nematode parasites resistant to multiple classes of anthelmintics in a commercial cattle population in the US. *Vet Parasitol* 166:281-285. 13. Lifschitz, A. et al. (2010). Cattle nematodes resistant to macrocyclic lactones: comparative effects of P-glycoprotein modulation on the efficacy and disposition kinetics of ivermectin and moxidectin. *Exp Parasitol* 125:172-178. 14. Fiel, C. et al. (2001). Resistance of *Cooperia* to ivermectin treatments in grazing cattle of the Humid Pampa, Argentina. *Vet Parasitol* 97:211-217. 15. Riviere, J.E. and Papich (2018). *Veterinary Pharmacology and Therapeutics*, 10th edition. 16. MLA - The cattle parasite atlas - a regional guide to cattle parasite control in Australia, February 2005. 17. Claerabout E, Dorny P, Verccruyse J, Agneessens J and Demeulenaere D. (1998). Effects of preventive anthelmintic treatment on acquired resistance to gastrointestinal nematodes in naturally infected cattle. *Veterinary Parasitology*.

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