Why is *Ostertagia* the most important worm species in cattle?

*Ostertagia ostertagi* (small brown stomach worm) is the most important and pathogenic nematode of cattle in all temperate zones of southern Australia. In contrast to some other common worm species, cattle are unable to develop immunity until 24 months of age.

Recent MLA estimates suggest that effective control of *Ostertagia* can increase the sale weight of weaners by up to 60 kg\(^1\). *Ostertagia* restricts feed intake and can be reduced by up to 77% depending on the level of larval challenge\(^2\). This accounts for approximately 70% of the production loss caused by *Ostertagia*. In contrast, larval challenge from *Cooperia oncophora* (Small intestinal worm) does not cause a reduction in feed intake\(^3\).

In addition to a reduction in feed intake, *Ostertagia* infections:
1. Reduce the rate of passage of feed through the gastrointestinal system
2. Reduce gastric acid secretion (essential for digestion and absorption of nutrients) due to severe damage of intestinal wall and
3. Lower efficiency of energy utilisation and changes mineral metabolism.

Together, these effects combine to reduce live weight gain, delay time to market and reduce carcass yield\(^4\). Fortunately, managing *Ostertagia* well can not only reduce these losses, but may also prevent other worms from causing production loss.

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**Development of immunity to *Ostertagia***

Development of immunity to *Ostertagia* in cattle is very slow. Up to the age of 9 months, cattle are unable to mount an effective immune response when infected\(^5\). It takes up-to 24 months for cattle to consistently demonstrate immunity to *Ostertagia* (measured by worm burden, worm size, fecundity) and withstand the effects of infection better than younger cattle\(^6\). However, it should be noted that in older cattle with developed immunity, production responses remain measurable to anthelmintic treatment\(^7\). In contrast, development of immunity can develop rapidly to *C. oncophora* in cattle from 6 months of age following an infection period of 9 weeks\(^7\).
Choosing the most effective treatment

As immunity to Ostertagia is slow to develop, the most important feature of a drench is persistency against Ostertagia. The importance of persistency was demonstrated in a study comparing Cydectin® Pour-On (at least 42 days protection) and Cydectin Long Acting Injection (at least 112 days protection). After 106 days, the Cydectin LA group had gained an additional 12% liveweight (10.4 kg) compared to the Pour-On group. In another study, after 120 days the Cydectin LA group had gained an additional 31% (14.8 kg) liveweight compared to an Ivomec® Pour-On group (up to 21 days protection).

The second important feature of a drench for controlling Ostertagia is its ability to kill larvae that have stopped developing (inhibited L4 larvae). Mectin drenches are highly effective against inhibited L4 larvae. Levamisole based drenches have no efficacy against inhibited L4 larvae while ‘white’ (BZ’s) drenches have some efficacy against inhibited L4 larvae. Using a mectin treatment prior to favourable climatic conditions for larval survival should be prioritised.

When is the most effective time to treat?

It is recommended cattle be treated according to strategic control programs. In general, young cattle should be treated with a persistent drench in autumn with further treatments administered throughout the year according to rainfall region and seasonal conditions (see graph opposite).

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