

FACT SHEET

DRENCH RESISTANCE IN BEEF



WHAT IS DRENCH RESISTANCE?

Drench resistance is defined as a reduction of less than 95% in either worm numbers or worm egg output after application.

Many drenches kill greater than 99% or more when released, and by the time the drench is working at less than 95% resistance genes can exist in up to 20% of the worm population.

IMPACT ON PRODUCTION

Ostertagia is the main cause of production loss due to worms in southern Australia through clinical disease but also by appetite suppression. In one trial in Victoria weight differences of between 14 and 26 kgs were seen when comparing one vs two drenches in the 6 months after weaning.

WORMS IN SOUTHERN AUSTRALIA

Worms have a considerable impact on animal health and production in the high rainfall zone of southern Australia. The overall cost to the industry in southern Australia was estimated to be \$82 million, with approximately half due to production losses.

In cattle there are three main worms of interest:

- ▶ small brown stomach worm, *Ostertagia ostertagi*,
- ▶ small intestinal worm *Cooperia oncophora* and
- ▶ stomach hair worm *Trichostrongylus axei*.

These are the main nematodes that exist in cattle. Other worms that exist in cattle are tapeworms (cestodes) which are of little economic importance and trematodes (flukes) which can cause serious losses in certain areas.

HOW COMMON IS DRENCH RESISTANCE?

Surveys have found resistance to all three drench classes is very common. It should be remembered that these drench trials were conducted using faecal egg count so give no indication of the activity of the drench on inhibited 4th stage larvae. It should also be noted that levamisole has no activity against inhibited 4th stage larvae.

Drench	Ivermectin	White drench	Levamisole
<i>Ostertagia</i>	20%	26%	56%
<i>Cooperia</i> spp	44%	8%	11%

Table 1. Prevalence of resistance (<95% reduction) on Victorian Cattle properties (Rendell, Homer, Rolls, Webb ware. 2014)

OSTERTAGIA

Ostertagia is the most important cattle worm in southern Australia. It can cause serious production losses and clinical disease in young cattle and occasionally in older cattle.

Ostertagia causes significant damage to the gastric glands in the fourth stomach, causing diarrhoea and reduced feed intake in young cattle. This is referred to as Type 1 disease.

From late spring some Ostertagia larvae go into an arrested development phase in the gastric glands, waiting for external environmental conditions to improve. These arrested larvae will continue their development en masse in Autumn, causing significant damage to the abomasum, diarrhoea and loss of condition, in first and second calvers.

This is referred to as Type 2 disease and occasionally causes disease in older cattle, especially when feed is less than 1000kg/DM/Ha (3 cm) and cattle are condition score two, or less.

COOPERIA

Cooperia is a pathogenic worm. They are the most common worm in young cattle and are prolific egg layers. They are usually not considered a serious problem and young cattle develop significant resistance to these worms from 6-12 months. They do occasionally cause problems in early weaned spring calves on heavy stocking rates.

Cooperia are the dose limiting worm for mectin drenches and many farms now have mectin resistant Cooperia.

TRICHOSTRONGYLUS

Trichostrongylus is a worm that lives in the abomasum and can occasionally cause disease in young calves. It is unusual in the fact that it readily colonises in other species like sheep, horses, kangaroos and rabbits. Resistance to Trichostrongylus develops by 12 months.

DEVELOPMENT OF RESISTANCE

Resistance to an anthelmintic is an inevitable consequence of using a drench. Every time you apply a drench there is a selection pressure that favours resistant worms.

The proportion of resistant worms increases at a rate that is determined by the degree of suppression in the population and what proportion of that population is exposed. In other words, the more populations that are suppressed, the more rapidly resistance develops.

The population of worms that is not exposed is said to be in refugia. These are worms that are in untreated cattle, on the pasture or contained in faecal pats as larvae or eggs. At any stage the proportion of the cattle worm population in refugia is quite high with larvae surviving for up to a year, even during extended dry periods.

TAKE HOME MESSAGES:

- ▶ Drench resistance has been detected in over 50% of properties in Victoria
- ▶ Worms cost the southern Australian beef industry \$80 million annually
- ▶ Quarantine drenching and using integrated parasite management can help reduce the development of resistance
- ▶ Use drenches with multiple actives where possible

HOW TO TEST FOR DRENCH RESISTANCE?

There are two ways of checking for drench resistance; a Faecal Egg Count Reduction Trial (FECRT), or drench test.

A drench test involves checking to see if there are any eggs remaining 10-14 days after drenching, to ensure the drench has worked.

A FECRT is a small controlled trial where the egg reduction of three treated groups is compared with an untreated control. This is usually performed with an experienced vet or advisor.

HOW TO REDUCE RESISTANCE

- ▶ Give a quarantine drench to all new young cattle as they arrive on the property, using a three way combination drench.
- ▶ Avoid using single actives. Use combinations of two, preferably three actives when you drench cattle.
- ▶ Avoid using long acting products as a part of your routine worm control strategy.
- ▶ Use integrated parasite management (IPM) principles like a 6 monthly sheep and cattle swap to reduce the reliance on drenching for worm control.

For further information, please contact Stock Sense on 1300 020 163 or email stocksense@vff.org.au.

FURTHER LINKS

[Cattle parasite atlas, Meat & livestock Australia](https://www.mla.com.au/research-and-development/Animal-health-welfare-and-biosecurity/Parasites/Cattle-parasite-atlas)
<https://www.mla.com.au/research-and-development/Animal-health-welfare-and-biosecurity/Parasites/Cattle-parasite-atlas>

[Cattle drench resistance is becoming an issue, NSW DPI](https://www.dpi.nsw.gov.au/content/archive/agriculture-today-stories/ag-today-archive/august-2012/cattle-drench-resistance-is-becoming-an-issue)
<https://www.dpi.nsw.gov.au/content/archive/agriculture-today-stories/ag-today-archive/august-2012/cattle-drench-resistance-is-becoming-an-issue>

Author: VFF, original version published December 2018. Disclaimer: The Victorian Farmers Federation (VFF), its partners, agents and contractors do not guarantee that this publication is without flaw and do not accept any liability whatsoever for any errors, defects or omissions in the information provided. This publication is intended for general information purposes only and does not constitute financial, legal, investment, production or marketing advice. The VFF excludes all liability for any loss or damage of any kind arising in relation to this publication including any reliance on the information contained herein.