Department of Primary Industries
primefact

Quarantine drenching – don't import resistant sheep worms

August 2016 PrimeFact 477 Second edition
Stephen Love Veterinarian / Research Officer (Parasitology) Sheep Industries Unit Armidale

Introduction

Drench resistance in sheep worms is a major challenge for sheep producers in Australia and overseas. There are two ways of getting drench-resistant worms on your farm: breed your own, or import them from somewhere else.

This Primefact focuses mainly on the latter.

Drench resistance is very common

Drench resistance in sheep worms in Australia is very common. Most if not all drenches are affected to some degree. Also, every farm is unique. The resistance profile of one farm may differ from other, even neighbouring farms.

The figure below provides an overview of the current situation in Australia. In short, if you are buying sheep (or goats), there is a good chance you are importing resistant worms.

These worms may be different from the strains your stock already have. To avoid importing resistant strains which could make your resistance situation worse, a good 'quarantine drench' strategy is essential.

Find out what you have already

Sheep farms in Australia without drench-resistant worms are rare indeed.

To find out what resistance you have, do a drench resistance test (worm egg count reduction test (WECRT, or 'DrenchTest') every 2-3 years and, between DrenchTests, do regular 'DrenchChecks'.

A 'DrenchCheck' involves a worm egg count (WEC) and 'worm type' (larval culture/differentiation) on or just before a routine drench, and again 10 days later, if testing effectiveness of a drench against roundworms in sheep, goats or alpaca. It is easy, worth the effort, and is money well spent.

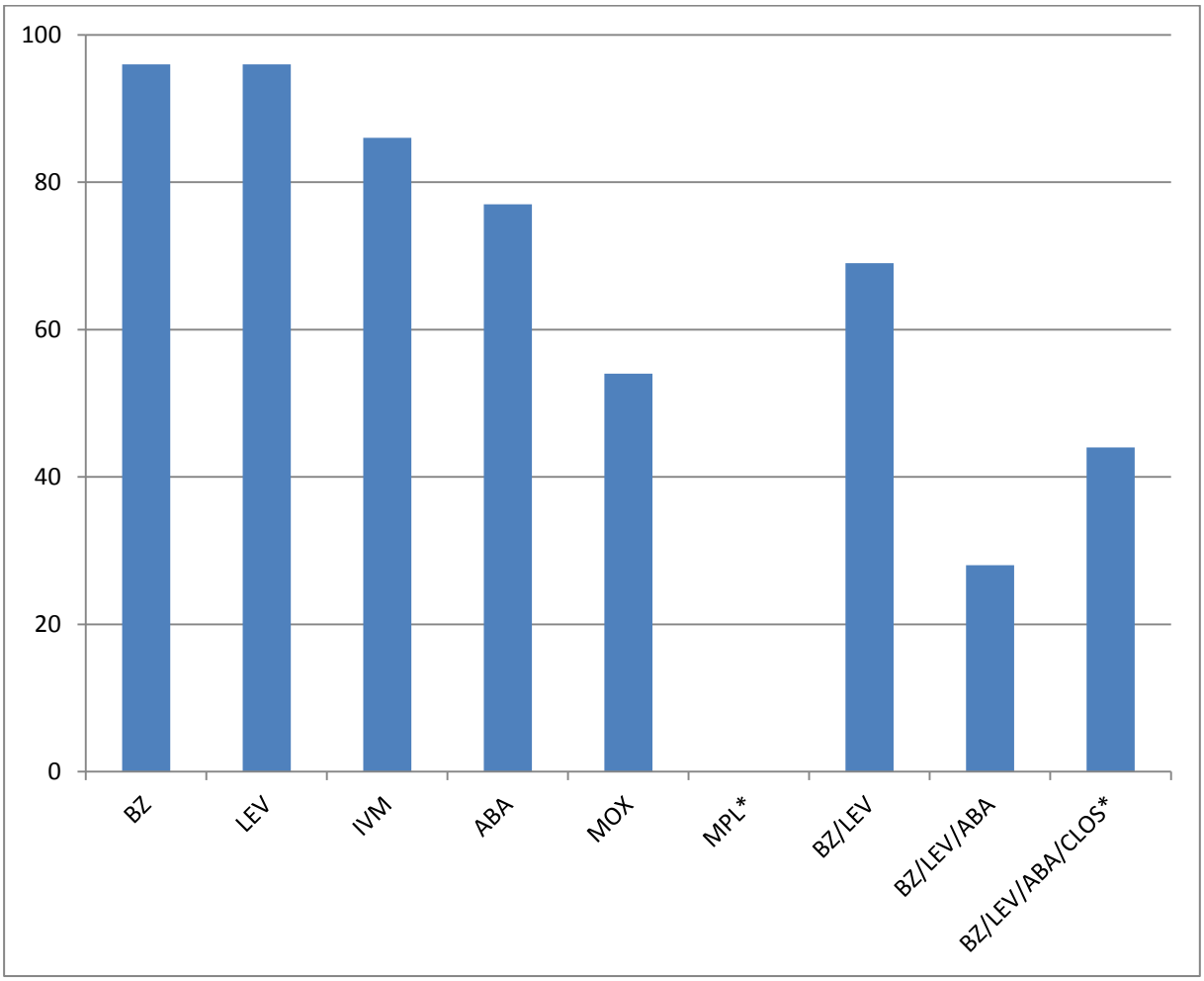
In the case of round worms in cattle, the post-treatment WEC is done at 14 days.

In small ruminants, cattle, or alpacas, if you wish to test the effectiveness of a flukicide that is meant to kill all stages of liver fluke, a test is done on or just before the day of treatment. Then the post-treatment test is usually done 28 days later. Note that there are different tests for liver fluke (a liver fluke egg count, an antibody ELISA, and a faecal antigen (copro-antigen) ELISA), and that the liver fluke egg count is different from the common WEC, which is for roundworms.

It is well-nigh impossible to have good, cost-effective worm control without testing to see what drenches are effective on your property. Regularly monitoring worm burdens by doing WECs is also a must.

For more information on the various tests, see the section, 'More Information, below.

Figure. Proportion of drench resistance tests showing resistance: Australia, 2009 - 2012 (Playford and others, 2014)



Notes

The results above are for 'all roundworm species' (i.e., 'undifferentiated strongyle egg counts'), which includes common sheep worms such as barber's pole, brown stomach and black scour worms. BZ = benzimidazole. LEV = levamisole. IVM = ivermectin. ABA = abamectin. MPL = monepantel. MOX = moxidectin. BZ/LEV = a BZ/LEV combination. BZ/LEV/ABA = an ML-based 'triple' combination containing ABA, BZ, LEV. BZ/LEV/ABA/CLOS = a 4-way combination which also contains closantel. An asterisk (*) against a drench indicates there were less than 50 tests for that drench, so results should be interpreted with caution. For example, the results do *not* say that 44% of sheep farms across Australia have resistance to the BZ/LEV/ABA/CLOS combination.

Further, many of the tests for this 4-way combination came from the New England region. The results are based on samples submitted to laboratories across Australia, so this is not a survey of randomly selected sheep farms. Thus the figures are not to be taken as accurate estimates of the prevalence of resistance: the results are merely indicative. Since this analysis was done, a small number of cases of resistance to MPL on sheep and goat farms have come to light. Additionally there have been rare cases of reduced efficacy of Startect® (= derquantel + abamectin), to around 90%, instead of being >95%, as usual. This reduction in efficacy is believed to occur in situations where there is severe resistance to the abamectin component of the drench. As yet (2016), resistance to derquantel is unknown.

Quarantine treatment

Assume that sheep brought onto your farm are carrying worms with some degree of drench resistance to one or more drench groups.

'Quarantine' drench all sheep (including rams) new to the property

Use a combination of **no less than 4 unrelated drench actives** with at least one being one of the newest drench actives: monepantel (Zolvix®) or derquantel (which is found with abamectin in Startect®). This can be done using multi-active ('combination') and/or single-active products concurrently: up the race with one product, then up the race again with the next.

However, do not mix different drenches in the same drum or pack unless the label or manufacturer states you can, as different products may be incompatible when mixed this way.

If you use Startect®, be aware that if you concurrently use another product containing abamectin, which is commonly the case with combination drenches, then the sheep will be getting a double dose of abamectin.

Consider whether you need to treat for **liver fluke** as well. Remember that liver fluke can survive long periods (years) in sheep. If you decide to treat for fluke, use the most effective type of flukicide. In sheep this means a triclabendazole-based drench. Note that cases of resistance to triclabendazole have been found as well. Cattle producers also have the added option of two fluke drenches that contain the flukicides clorsulon and nitroxynil.

As always, read and follow product labels. For more information, see the NSW DPI Primefact on drenches (Love S, 2016) and WormBoss.com.au.

Quarantine the sheep after treatment

Hold the sheep in quarantine in yards (small mobs) or a secure paddock (larger mobs) for at least 3 days to allow worm eggs present at the time of drenching to pass out of the gut.

Provide adequate feed and water.

Subsequently keep this paddock free of sheep, goats or alpacas for at least 3 months in summer or 6 months in cooler months in order to further reduce the risk of introduced resistant worms establishing.

Where to after quarantine?

After quarantine, release the sheep onto a paddock that is likely to be contaminated with worm larvae due to grazing by other sheep. This will 'dilute' (lower the proportion of) resistant worms surviving treatment – hopefully none! - with worm larvae already on your property.

Testing after the quarantine drench

WormTest the imported sheep 10–14 days after drenching for added confidence that treatment was successful, but note that, like any test, WormTest is not perfect, and a zero egg count does not absolutely guarantee an animal is entirely worm-free.

The resistance picture is changing

Get expert advice on up-to-date recommendations for quarantine treatments. These will evolve as the drench resistance picture changes.

Other biosecurity concerns

Internal parasites are very important and often overlooked. But there are other health issues you need to consider when planning a quarantine protocol, and your overall biosecurity strategy.

For information on other health matters, see Primefact 464, 'Buying sheep can be a health hazard'. This Primefact covers such matters as lice, blowfly strike, footrot, Johnes disease, drench-resistant worms, liver fluke, clostridial diseases, ovine brucellosis, chemical residues, scabby mouth, poisonous plants, hydatids and sheep identification

These are general recommendations only. For further information, consult your veterinarian or other professional adviser.

References and more information

References

Love S, 2016. Anthelmintics (drenches) for sheep, goats and alpacas. Primefact 152, Second edition, July 2016. Accessed August 2016 at http://www.dpi.nsw.gov.au/content/agriculture/livestock/sheep/health/registered-drenches-sheep-worms.

Playford MC, Smith AN, Love S, Besier RB, Kluver P and Bailey JN, 2014. Prevalence and severity of anthelmintic resistance in ovine gastrointestinal nematodes in Australia (2009–2012). Australian Veterinary Journal Volume 92, No 12, December 2014.

More information

Also see NSW DPI's other PrimeFacts on animal health at http://www.dpi.nsw.gov.au/content/agriculture/livestock/health.

Add this to your reading list: Primefact 464, 'Buying sheep can be a health hazard' (Accessed August 2016 at http://www.dpi.nsw.gov.au/content/agriculture/livestock/sheep/health/buying-sheep).

WormBoss (wormboss.com.au) is also another website that should be consulted. It is an invaluable and highly recommended resource for parasite management, along with sister sites, Flyboss and Liceboss, which are also under the ParaBoss umbrella. WormBoss also has information on various tests that can be done, including DrenchTests and DrenchCheckDay10.

Information on NSW DPI veterinary laboratory services can be found here: http://www.dpi.nsw.gov.au/content/aboutus/services/das/veterinary

The faecal antigen ELISA test for liver fluke is currently offered by the Charles Sturt University veterinary laboratory at Wagga Wagga, NSW. See https://www.csu.edu.au/vetservices/vdl.

Additionally, seek advice from a veterinarian or another adviser with expertise in livestock parasitology, including Local Land Service District Veterinarians. See http://www.lls.nsw.gov.au/.

For up-to-date and detailed information on drenches and other veterinary and farm chemicals, see the searchable database of chemicals ("PUBCRIS") at the Australian Pesticide and Veterinary Medicine Authority (APVMA) website: https://portal.apvma.gov.au/pubcris, or try the APVMA iPhone app: https://itunes.apple.com/us/app/apvma/id564121943

Acknowledgements

My thanks to Dr Sue Hatcher (Principal Research Scientist), who reviewed this document (August 2016).

This PrimeFact is a revision of the first edition (2007), and a previous Agnote, both authored by Stephen Love.

ISSN 1832 6668

INT16/102066