

paraboss wormboss



final report

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Expansion of WormBoss website to include goats

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Abstract

ParaBoss manages the websites WormBoss, FlyBoss and LiceBoss and leads the discussion, development and extension of national best practice and industry information, training and tools for parasite management of sheep and engages industry participation in this process. There was no such entity for the major animal health issues for goats of which worms are the most important parasite. This project was conducted to include goat specific information into WormBoss, providing goat producers and their advisors with access to a professional resource that will help improve worm control and the management of drench resistance in goats.

Executive Summary

ParaBoss manages the websites WormBoss, FlyBoss and LiceBoss and leads the discussion, development and extension of national best practice and industry information, training and tools for parasite management of sheep and engages industry participation in this process. There is no such entity for the major animal health issues for goats of which worms are the most important parasite. This project was conducted to include goat specific information into WormBoss, providing goat producers and their advisors with access to a professional resource that will help improve worm control and the management of drench resistance in goats.

The changes to WormBoss (www.wormboss.com.au) were developed by consultants Dr Sandra Baxendell (Goatvetoz) and Maxine Murphy working with ParaBoss staff. These changes were informed from consultation with animal health advisors and state regulatory authorities and by reference to national and international literature and industry reports. Technical material was reviewed by the ParaBoss Technical Committee and also by staff from the NSW Department of Primary Industries, Trade and Investment.

Major changes to WormBoss included the development of:

- Goat specific regional worm control programs and Drench Decision Guides
- A drench database searchable for goat drenches
- Management tools and tests for goats
- Goat specific online learning
- List of Professional Service Providers for goats
- Worm Control in Goats: Advice for Australian Veterinarians
- ParaBoss News to carry feature articles and state outlooks for goat producers
- ParaBoss.Goats Facebook page

A key issue to emerge from this project was drench use in goats and uncertainties about dose rates and withholding periods. Formalising the understanding of goat appropriate drench dose rates and withhold periods, in order to provide the evidence required for veterinarians to confidently provide off-label prescriptions to goat producers is identified as a high priority for further investment with benefit for the goat and sheep (due to issues of cross resistance) industries.

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1 Background

ParaBoss manages the websites WormBoss, FlyBoss and LiceBoss and leads the discussion, development and extension of national best practice and industry information, training and tools for parasite management of sheep and engages industry participation in this process. There is no such entity for the major animal health issues for goats and this is required to support industry, reduce direct and control costs and manage chemical resistance.

Worms are the most important parasite of goats, and control strategies, while very similar to those used in sheep, have important distinguishing features; especially with regards use of drenches and management of drench resistance.

This project was conducted to include goat information into WormBoss so as to provide worm control decision guides, regional programs and information on management actions, tests and drenches. The timing of this project meant that findings from the recent report (B.GOA.0115; A review of parasite control recommendations for goats) completed by Woodgate et al. (2016) could be included in WormBoss.

2 Project objectives

- Modification of WormBoss website and resources completed now including up to date goat-specific information.
- ParaBoss Technical Forum modified to allow for and include discussion and debate about parasite control for goats.
- Provision of a final report detailing the project's process, its success/constraints, and recommendations to MLA to assist with awareness, delivery and uptake of information within the goat industry.

3 Methodology

The approach taken to include goat information into WormBoss used the following steps:

A. Review existing information

- Collate current best-practice information on worm control in goats.
 - Existing content was used where possible including the Going into Goats Manual and the updated information from the CSU project B.GOA.0115, *Review of Parasite Control Recommendations for Goats*, as well as any other information recommended by the Goat Industry Council of Australia. It also utilised the ParaBoss National Technical Committee to identify other sources of information.
- Compare WormBoss information for sheep to the best-practice information for goats.
 - This identified if and how the current WormBoss pages needed to be amended or supplemented with additional information.
- Add to or amend the information on the WormBoss site to cater for goats.
 - Pages of equal applicability to goats had references to sheep changed to sheep and goats.

- Pages that were largely applicable, but required some minor exceptions or provisos were changed from sheep to sheep and goats, and also amended to describe any exceptions and alternative information for goats.
 - Pages that were largely inapplicable to goats remained, but it was made clear they apply only to sheep and not goats.
 - New pages applicable specifically to goats were created.
- B. Create new material for:
- Regional Worm Control Programs for regional areas redefined for goats.
 - Regional Drench Decision Guides for regional areas redefined for goats.
 - Drench database modified to include searching by host species (sheep, goats, sheep and goats) and registered drench options.
 - ParaBoss News scope increased to include feature articles of relevance for goat producers.
 - Online Learning created for goats.
- C. Other changes:
- Include goat worm control in the on-line ParaBoss Technical Forum.
 - Establish a separate Facebook page for goat producers

4 Results

The changes to WormBoss (www.wormboss.com.au) were developed by consultants Dr Sandra Baxendell (Goatvetoz) and Maxine Murphy working with ParaBoss staff. These changes were informed from consultation with animal health advisors and state regulatory authorities and by reference to national and international literature and industry reports. Technical material was reviewed by the ParaBoss Technical Committee and also by staff from the NSW Department of Primary Industries, Trade and Investment.

Goat information was included into WormBoss in either of three ways.

1. Where information was largely identical and applicable for goats and sheep, the text in pages was changed to include goats.
2. Where information was applicable for goats but the technical content and procedural approaches differed from that for sheep, then within page tabs (Figure 1) were used.
3. Where new information was required for goats then a new page was created (Figure 2).

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The development of goat specific regional worm control programs (<http://www.wormboss.com.au/programs.php>) and Drench Decision Guides (<http://www.wormboss.com.au/tests-tools/drench-decision-guide.php>) provide options for helping to solve current worm control problems and developing plans for longer-term control. The regional boundaries for these programs and guides were changed to accommodate differences in the goat industry (Figures 3a, 3b) such as goat distribution.

Two other changes to the regional control programs included: (i) addition of a new region, “East Coast” developed to better cater for the worm control needs of goat producers who are typically exposed to high rainfall and mild climate; and (ii) addition of the Smallholder Program and Drench Decision Guide to accommodate smallholders who do not have the infrastructure to be able to practice grazing management to create low worm-risk paddocks and are able to assess each goat individually and then treat individuals as required.

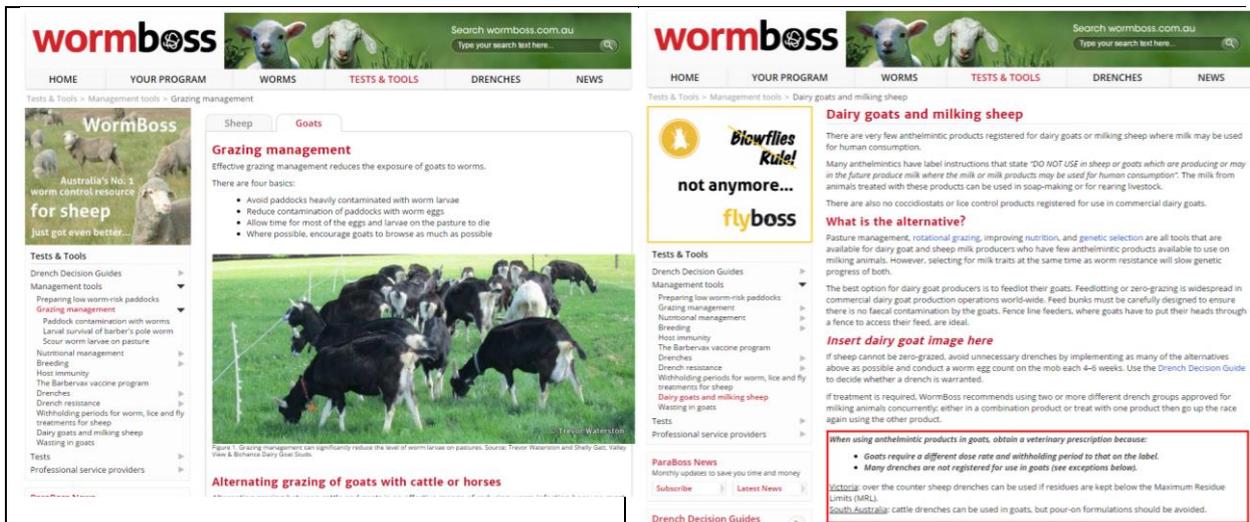


Figure 1: Within page tabs allowing options for information specific for sheep or goats.

Figure 2: Example of a new page created for goats.

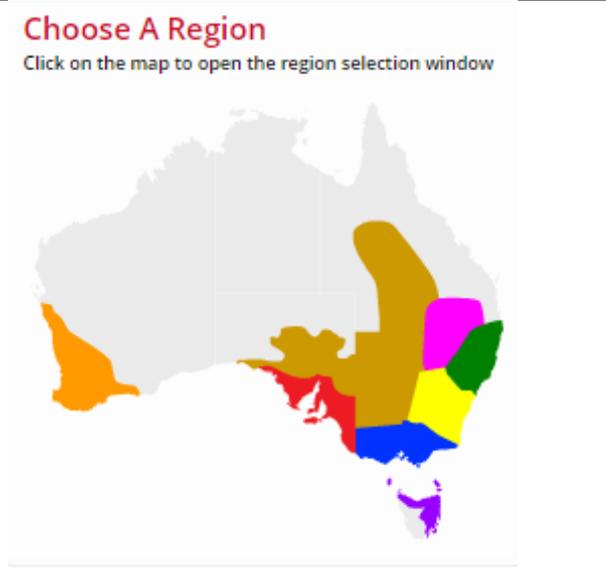


Figure 3a: Regions for sheep programs and guides.

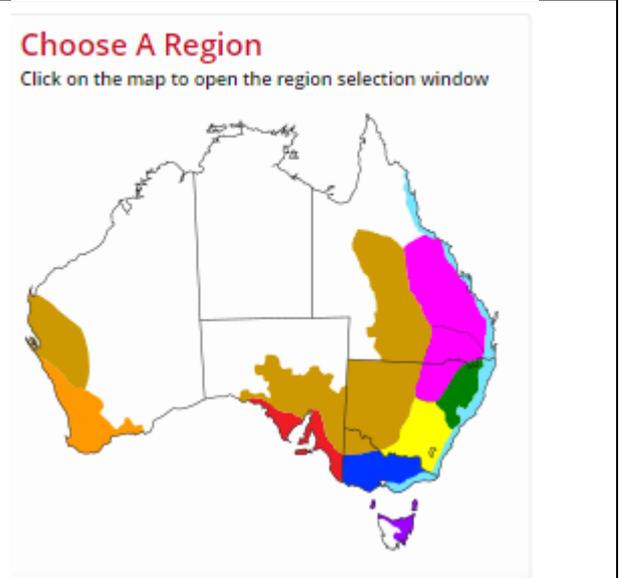


Figure 3b: Regions for goat programs and guides.

The Drench Database (Figure 4) (<http://www.wormboss.com.au/drenches.php>) now allows searching to find anthelmintics registered for goats or sheep and goats. The results of the search provides information such as likelihood of drench resistance, dose rates and a link to the product label.

The Facebook site, ParaBoss Goats (<https://www.facebook.com/ParaBoss.Goats/>) was established separately to that for sheep (currently <https://www.facebook.com/paraboss.com.au/>) with the expectation that content and users of the site will be sufficiently different to warrant this approach.

The screenshot shows the WormBoss website's drench database search interface. At the top, there is a navigation menu with links for HOME, YOUR PROGRAM, WORMS, TESTS & TOOLS, DRENCHES (highlighted in red), and NEWS. Below the navigation is a banner for WormBoss, stating it is now also Australia's No. 1 worm control resource for goats. The main search area is titled "Search by host animal, worm type, and length of protection". On the left, there is a sidebar titled "Search for drenches" with four search options: "Search by host animal, worm type, and length of protection" (highlighted), "Search by drench group, then active ingredient", "Search by less important worms and other parasites", and "Search by drench product name or active ingredient". The main search form has three sections: "Which animals will you be treating?" with radio buttons for Sheep (selected), Goats, and Sheep and Goats; "Which worms do you want to kill?" with checkboxes for Important scour worms (black scour worm, small brown stomach worm, thin-necked intestinal worm), Barber's pole worm, Nodule worm, and Liver fluke; and "What length of protection do you want to achieve?" with radio buttons for Short-acting (1 day) (selected), Mid-length (2-6 weeks), and Long-acting (3 months). A red "Search" button is located at the bottom right of the search form.

Figure 4: Searchable drench database.

5 Discussion

The project met all of the stated objectives and goat producers and their advisors now have access to a professional resource that will help improve worm control and the management of drench resistance in goats. The process of partnering with experienced and prominent consultants, linking with professional networks and using the ParaBoss Technical Committee and other experts as a review process worked well to ensure the material added to WormBoss has been well vetted.

As this was not a research project, the discussion is used to bring prominence to the key issue to emerge from this project, namely drench use in goats and uncertainties about dose rates and withholding periods. There are very few drench groups (benzimidazole and macrocyclic lactone for roundworms and triclabendazole for liver fluke) registered for use in goats, an issue also discussed by Woodgate et al. (2016). Of those drenches that are registered for goats, most have dose rates that do not discriminate between sheep and goats.

There are many publications in the literature that have demonstrated that, for many drench groups, goats require a higher dose rate than sheep to achieve a similar pharmacokinetic profile following drench administration. Providing drenches at a dose rate below the therapeutic optimum, referred to as under-dosing, is a key practice that encourages drench resistance.

Therefore, a problem arises because the use of registered goat drenches at an appropriate goat dose rate is often at odds with the label claim. In addition, a higher dose rate makes the withholding periods on the label no longer relevant. In effect, this means that goat producers require a veterinary prescription for almost all uses of drenches in goats, regardless of registration status.

Worm control programs, Drench Decision Guides and general information of relevance for goats that has been added to WormBoss include reference to drench use in a manner that has not been constrained by registration. For example, the Program Summary for regional worm control programs contains the following passage under the section, Drench Strategically at Recommended Times

Quarantine drench all introduced goats with an effective short-acting drench that provides (for meat goats) four drench groups including one from the most recently available products or (for dairy goats) the two drench groups registered for use where milk is for human consumption.

As discussed, there are not four drench groups registered for use in meat goats (the only registered drench groups are benzimidazole and macrocyclic lactone for roundworms) and because this practice requires a veterinary prescription, the WormBoss material carries the following passage in prominent locations.

When using anthelmintic products in goats, a veterinary prescription is often required because:

- *Goats require a different dose rate and withholding period than specified on most products, even for many registered goat drenches.*
- *Most sheep drenches are useful, but not registered for use in goats.*

While cattle drenches can be used at the label rates on goats in South Australia and sheep drenches on goats in Victoria, a veterinary prescription is still required for dose rates recommended for goats.

This approach seeks to marry good drench practice with legal compliance but places responsibility with veterinarians. To provide support for veterinarians, WormBoss has produced a document titled, *Worm Control in Goats: Advice for Australian Veterinarians*. This document will be made available as a booklet only to veterinarians and will not be placed on-line at WormBoss.

The key purpose of the document is to advise veterinarians of their obligations under relevant veterinary medicines legislation and how to use worm control products correctly and legally. The two key knowledge gaps are in relation to appropriate drench dose rate and withhold periods.

Formalising the understanding of goat appropriate drench dose rates and withhold periods, in order to provide the evidence required for veterinarians to confidently provide off-label prescriptions is identified as a high priority for further investment with benefit for the goat and sheep (due to issues of cross resistance) industries.

6 Conclusions/recommendations

The project has incorporated goat specific worm control information into WormBoss providing goat producers and their advisors with access to a professional resource that will help improve worm control and the management of drench resistance in goats. The process of partnering with experienced and prominent consultants, linking with professional networks and using the ParaBoss Technical Committee and other experts as a review process worked well to ensure the material added to WormBoss was well vetted, relevant and up to date.

Formalising the understanding of goat appropriate drench dose rates and withhold periods, in order to provide the evidence required for veterinarians to confidently provide off-label prescriptions to goat producers is identified as a high priority for further investment with benefit for the goat and sheep (due to issues of cross resistance) industries.

7 Key messages

WormBoss provides practical, independent and up to date information to help goat producers and their advisors improve worm control in goats. Drench Decision Guides are available for all goat-producing regions that help solve current problems or questions about worm control. Regional worm control programs outline approaches for the use of grazing management, genetic selection, worm testing and drench use. Follow WormBoss on Facebook (ParaBoss.Goats) and subscribe to receive ParaBoss News state outlooks and feature articles.