



NSW Agriculture

# TURNING THE WORM



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## **Welcome**

to this issue of TTW. The main purpose of this informal newsletter is to share information with those particularly interested in the management of endoparasites of farmed animals, including sheep, goats and cattle.

## **Integrated Parasite Management in Sheep (IPMs) - A national AWI project**

**SW Walkden-Brown<sup>1</sup>, LP Kahn<sup>1</sup>, JW Larsen<sup>2</sup>, RG Woodgate<sup>3</sup>, GI Knights<sup>4</sup>, CR de Fegely<sup>5</sup> and SH Williams<sup>5</sup>**

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## WormBoss is coming!

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*The following abstract is reproduced here with the permission of the senior authors. The full paper was presented at the Australian Veterinary Association conference in May 2004 at Canberra and published in the Australian Sheep Veterinary Society proceedings. – Ed.*

This paper describes a major new Australian Wool Innovation (AWI) funded project (EC306) and progress on implementation to date. The core concept behind the project is the application and integration of existing knowledge on the control of both internal and external parasites of sheep into effective IPM strategies across the major sheep-producing regions of Australia. These should reduce reliance on chemical treatments and slow the development of resistance to chemicals while aiming to maintain or improve productivity and profitability. The project has 3 major strands. Strand 1 involves a series of 23 demonstration farms in which “best bet” IPM strategies will be developed and implemented over a 3 year period with close monitoring of performance. Strand 2 involves additional critical research into key areas where there is insufficient current knowledge. This will boost our understanding of the ecology of free-living stages of key gastro-intestinal nematodes in summer and winter rainfall areas, and the ecology of sheep blowfly in winter rainfall areas. Work in this strand will also develop strategies to reduce the incidence of summer drenching in WA, identify the optimum timing and duration of biological control treatments using nematophagous fungi and evaluate approved organic treatments for parasites. Strand 3 involves socio-economic surveys to benchmark key performance indicators and determine regional parasite control practices against which to assess the demonstration farms. On-farm and industry barriers to adoption of IPM will also be investigated in this strand. Information arising from the project will be demonstrated at field days on demonstration farms, and disseminated via specialist AWI technical communications and promotion projects. The project forms a key plank in AWI’s Animal Health and Exotic Disease

sub program, cutting across both internal and external parasite portfolios in the sub-program.

## Sheep Worm Control 'Demo Farms' -Western Australia

**Rob Woodgate and Bob Love**

Western Australian Department of Agriculture

The WA Department of Agriculture Sheep Worm Control 'Demo Farm' work has now been running at some sites since late 2001. The basic approach has been to try to monitor faecal worm egg counts (WEC) (by conducting 10 individual WEC's on randomly collected fresh paddock faecal samples from each monitored mob) on about a monthly basis on at least a mob of younger sheep (the current weaners if possible) and a mob of older sheep (typically mature ewes) on each of 20 or more farms located throughout the state.

For the bulk of the work thus far, the northernmost farm is near Northampton (north of Geraldton which is about 450 km north of Perth) and they spread southwards from Moora (about 150 km north of Perth) through Northam and Beverley (about 100 km east of Perth) down the Albany Highway (Darkan, Williams, Katanning, Kojonup) to Kendenup (about 75 km north of the south coast) and Albany (on the south coast) and east to Jerramungup and Esperance. Farms have also been included at Wickepin, Muntadgin and Yearlring (all east of Perth in the 'wheatbelt') and most recently near Eneabba (about 100 km south of Geraldton).

The work has generated a huge amount of data and analysis is ongoing but the apparent key points thus far include:

- 1) Out of the two summer's worth of monitoring very few mobs of weaners had 'low WEC's' at 'summer drench time' (for current purposes a mean WEC of 200 eggs per gram (epg) was set as a decision point figure) - only 2 out of the 27

mobs of weaners for which data is available had a mean WEC below 200 epg at the traditional time of the first summer drench (November, December depending on location).

So as a general recommendation it is suggested that producers still give the weaners a single, fully effective summer drench at their traditional time of the 'first' summer drench.

If advice can be obtained on an individual basis from a local vet or consultant then it could be worth WEC-ing weaners to pick up the odd chance when WEC's might be below 200 epg and such mobs would be suggested as not needing a summer drench provided conditions (sheep and seasonal) are and remain favourable. Such mobs, if not summer drenched, would also need to be watched very carefully during the summer and autumn, particularly if there are abnormal conditions such as summer rainfall events and/or false breaks.

2) One of the major findings of the 'Demo Farm' work has been that 43 out of the 58 mobs of mature ewes for which data is available had a mean WEC < 200 epg. Therefore it is strongly advised to monitor WEC's of mature ewes mobs and if they are below 200 epg at the traditional time of summer drenching then to not summer drench these mobs.

The number of mobs of mature ewes on a property that need to be monitored to get a good whole farm guide remains uncertain (current recommendations are monitoring a couple of 'more susceptible' mobs) but further research is planned to help to answer this query.

3) None of the mobs anywhere that received a 'first' summer drench (Nov, Dec) required a second summer drench (a second summer drench has been given in the past in some regions in late Feb, March but has not actually been routinely recommended for quite a while now). So it is strongly advised that producers who think that they still need to give a second summer drench do

some WEC's first to ensure that a treatment of the sheep at this time is definitely required.

4) Critically, for any mobs that haven't been summer drenched it is imperative that they get WEC-ed in late March or the first week or so of April as this is the timing from when it has been shown that some of the eggs coming out of sheep start to survive on pastures and so can start to contribute to winter/spring worm contamination levels (even if the opening rains to the season haven't yet occurred). Again, at the moment, it is suggested to treat non-summer drenched mobs with a mean WEC > 200 epg at this time. The main concern here is that if they are not cleaned out then paddock worm contamination levels will gradually start to rise and there is the real risk of winter/spring worm problems, especially in younger stock.

## Worm-related FarmNotes from WA

*Below is a list. (Thanks Dr Rob Woodgate)*

*Try going to the home page [www.agric.wa.gov.au](http://www.agric.wa.gov.au) then searching for an appropriate phrase eg Farmnote 51/2002.*

*Ed.*

Current publications include

-  Farmnote 51/2002 - "Sheep worm control in Western Australia"
-  Factsheet 3/2002 - "Sheep worms - quarantine drench to combat resistance"
-  Factsheet 4/2002 - "Sheep worms - 'summer-autumn' worm control"
-  Farmnote 55/2002 - "Sheep worms - testing drench resistance and effectiveness"
-  Farmnote 54/2002 - "Sheep worms - faecal worm egg counts"

(May be hard to find on the Dept Ag WA website)

- ✚ Farmnote 53/2002 - "Sheep worms - breeding worm resistant sheep"
- ✚ Farmnote 57/2002 - "Sheep worms - Barber's pole worm"

Bob McKinnon (District Veterinarian, Tamworth, northern NSW) at his FAMACHA field trial at Weabonga recently



Photo: *SLoveNLY Inc*

For more information on FAMACHA, see the last issue of *Turning the Worm* ('FAMACHA – the eyes have it') (Pages 5-6)

## New Agnote on cattle worms

**Cattle worm control – the basics.** Love S and Hutchinson GW. Agnote DAI 312, February 2004.

Available through NSW Agriculture offices, or on the web at

<http://www.agric.nsw.gov.au/reader/cattlehealth>

## Sheep worm info: 'Worms on the Web'

[www.agric.nsw.gov.au/reader/sheep-internal](http://www.agric.nsw.gov.au/reader/sheep-internal)

The information contained in this publication is based on knowledge and understanding at the time of writing (May 2004). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of New South Wales Department of Agriculture or the user's independent adviser.

Recognising that some of the information in this document is provided by third parties, the State of New South Wales, the author and the publisher take no responsibility for the accuracy, currency, reliability and correctness of any information included in the document provided by third parties.

### **WormBoss is coming!**

'WormBoss' is a CD/web-based decision aid tool for farmers. It is a joint project of the Australian Sheep Industry Cooperative Research Centre and Australian Wool Innovation Ltd. Watch this space.

**Next page: Australian Wool Innovation 'Worm' projects**

# Australian Wool Innovation

## Internal Parasites and Scouring Projects

[www.woolinnovation.com.au](http://www.woolinnovation.com.au)

Code	Title	Description	Research Partners
EC32	Adoption of Nemesis	Aims to increase the adoption of technology to breed worm resistant sheep.	CSIRO Livestock Industries, regional partners
EC42	Worm resistance vs scouring	Aims to determine whether increased resistance to worms, as measured by faecal worm egg count, is associated with more or less scouring and dag.	CSIRO Livestock Industries, WA Department of Agriculture
EC43	Multi-species WormWorld	Aims to further develop WormWorld, a computer simulation model of worm populations, by combining models for three separate species and including further validation data.	CSIRO Livestock Industries, WA Department of Agriculture
EC306	Integrated parasite management	Aims to demonstrate, validate and improve integrated management systems for worms, lice and flies, across all regions of Australia.	University of New England, University of Melbourne, WA Department of Agriculture, QLD Department of Primary Industries
EC307	Golden Ram	Aims to identify gene markers for worm resistance in sheep.	University of New England
EC385	Anthelmintic investigation	Aims to identify compounds with promise as sheep anthelmintics, which could be progressed to market through collaboration with pharmaceutical companies.	Baron Strategic Services

### More information from the AWI website:

#### Highlights

- EC306 Integrated Parasite Management is a project to demonstrate, validate and further develop integrated management strategies for worms as well as lice and flies. The project includes research and demonstration sites in major wool producing regions of Australia. Read the media release; Listen to the Innovation Radio program.
- EC307 Golden Ram aims to find the genes responsible for conferring resistance to worms in certain sheep.
- A suite of six projects has recently been announced in partnership with Meat and Livestock Australia Limited (MLA). The projects will exploit molecular technologies to unravel the weaknesses of worms, with the aim of developing new drugs, vaccines and other control methods.

See a list of active projects (above).

#### Strategy

AWI's strategy for investment in internal parasites and scouring research and development (R&D) is presented in the Animal Health and Exotic Disease Strategy (PDF 104Kb).

The applied research and extension end of the sub-program is known as AWI WormMaster. AWI WormMaster replaces the previous Sustainable Control of Internal Parasites of Sheep (SCIPS) portfolio of projects. A review of SCIPS was commissioned by AWI in 2001 - Keeping Sheep Alive (PDF 587Kb).

Email AWI's WormMaster Coordinator, Charles de Fegely, at [charlesdefegely@woolinnovation.com.au](mailto:charlesdefegely@woolinnovation.com.au) for further information.