factsheet

ANIMAL HEALTH AND WELFARE

Worm control in southern prime lamb production systems

Internal parasites (worms) can cause economically significant losses to prime lamb production systems in southern Australia. The main losses are from reduced growth rate of lambs. Worm infections can also affect the health and productivity of pregnant and lactating ewes.

The most important worms in southern Australia are black scour worms and brown stomach worms. Barber's pole worm is also widespread, but only sporadically important.

A recently completed MLA–SARDI (South Australian Research and Development Institute) project investigated the economic cost of worms to prime lamb production systems in southern Australia.

The project also indentified the main actions producers need to take to reduce the impact of worms on prime lamb production.

Economic cost of worms in southern prime lamb production systems

Fifteen on-farm experimental sites were established during 2004–2008; 12 in South Australia and three in Victoria. Dryland and irrigation (flood, pivot/spray) systems were included.

There were 28 lamb growth trials carried out on these sites over the four years of the project. In 38% of these trials worms reduced the growth of lambs by 12.2%, with daily penalties averaging 19g/day. Finishing was delayed an average of 5.6 weeks.

In 35% of the trials, liveweight at finishing was reduced by 0.66kg, resulting in a 0.3kg loss in carcase weight.

In the remaining 27% of trials, worm control was adequate, with an adverse impact of worms on lamb growth not detected.

Key benefits

- Worms can cause economically significant losses to prime lamb production systems in southern Australia.
- The main losses are from reduced growth rate of lambs. The health and productivity of ewes can also be affected.
- Unfinished lambs shedding worm eggs onto pastures in late autumn is a major contributing factor to the spread of worms on a property.
- Producers should aim to have all lambs turned-off before the autumn break. To achieve this, highly nutritious, low-worm risk lambing, weaning and finishing paddocks are required.Reliance on drenches alone is not enough.

Merino Ewes

Merino ewes are an important part of many prime lamb enterprises in southern Australia. Older Merino ewes in lamb are commonly traded or retained on property as a strategy to get lambs on the ground quickly. Producers need to be aware of the risks associated with this. On one of the experimental sites, the death of aged Merino ewes due to worms was relatively common (4–5% of ewes annually). Deaths of ewes due to worms were not common on the other experimental sites. Instead, worms had an adverse impact on pre-lambing liveweight (up to 5kg penalty). No effects on reproductive efficiency were confirmed.

The estimated annual economic impact of these losses to the prime lamb industry in southern Australia (South Australia, Victoria and the Riverina district of New South Wales) is shown in Table 1 following. The total cost was estimated to be $65.73m, of which $49.47 (75%) was direct losses and $16.26 (25%) were costs associated with routine control programs.

Table 1. Estimated annual economic impact of worms on the prime lamb industries in southern Australia (South Australia, Victoria and the Riverina district of New South Wales).

	Amount
Retention of prime lambs for finishing to market weight	$24.92m
Retention of prime lambs to hogget weight for finishing	$10.09m
Failure to gain weight in non-retained prime lambs	$3.28m
Growth penalties in other slaughter lambs	$6.99m
Deaths of ewes and lambs	$2.83m
Drenching and crutching costs	$16.26m
Drench failure	$1.36m
Total	**$65.73m**

Overall farm worm control is probably deficient if lambs require drenching 2–3 times prior to weaning.

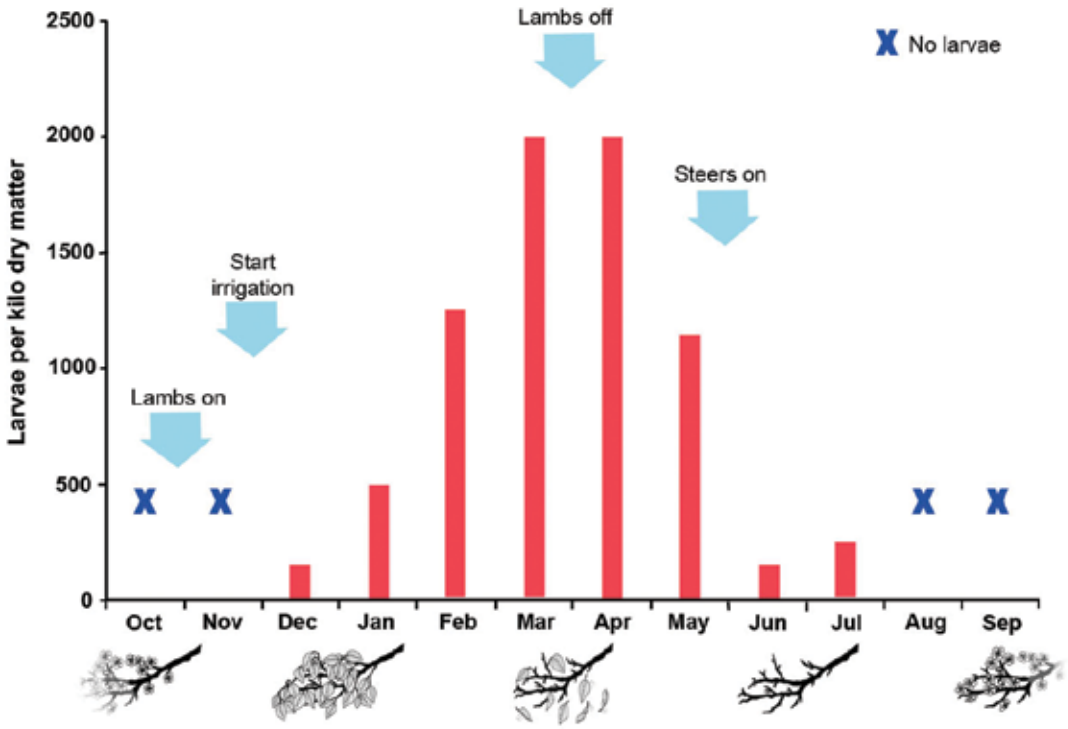
Seasonal pattern of worm larvae on pastures

Worm larvae on pastures were monitored on the experimental sites. The overall pattern and numbers of worm larvae on pastures were similar on irrigated and dryland pastures in summer (Figure 1). Larval numbers were low during summer, began to increase in autumn as the weather cooled, were highest during late autumn and winter and declined during spring.

Irrigated pastures are not as dangerous to prime lamb production as some people think. On irrigated pastures worm eggs hatch quickly due to available moisture. The larvae migrate to pastures quickly and perish (Figure 2). On dryland pastures, worm eggs and larvae are trapped in faeces and perish more slowly.

The bigger threat is survival of worm larvae from dung pellets deposited in autumn once the weather has started to cool. These larvae are most important to the seasonal transmission of worms on a prime lamb property. Contamination of pastures by unfinished lambs in late autumn leads to a cycle of parasitism that has serious effects on all classes of sheep the following winter and early spring.

Figure 1: Seasonal levels of sheep worm larvae on pivot irrigation. Numbers of larvae were low during late spring and summer and increased in late autumn and winter. Lambs were marketed before the peak challenge period and cattle then grazed the paddock, helping to prepare low-worm risk paddocks for lambing ewes and weaners the following spring. (Adapted from Carmichael, I (2009) Parasite control in southern prime lamb production systems, MLA Report AHW.045).



Aim to finish and market all lambs before the autumn break. Contamination of pastures by unfinished lambs in late autumn leads to a cycle of parasitism that has serious effects on all classes of sheep the following winter and early spring.

Providing low–worm risk pastures

Drenching alone will not provide effective, sustainable worm control on prime lamb properties. Instead, drenching must be supported by providing good quality, nutritious, low–worm risk pastures for lambing ewes, ewes with lambs at foot and weaners.

The experimental sites on which worms did not have an adverse impact on lamb growth had worm control programs that included 'smart grazing' paddocks for lambing ewes, dedicated low-risk paddocks for weaners and frequent movements between pastures that had been spelled for around two weeks.

Low-worm risk pastures can be prepared by:

- Destocking shortly before the autumn break and grazing with cattle for around four months. This is a useful way to produce worm-free pastures for lambing ewes or for weaners the following spring. Cattle, especially animals less than 18 months of age, should be drenched because some cattle worms can infect sheep and reduce growth rates.
- grazing with cattle before the introduction of lambs
- hay or silage production before the introduction of lambs

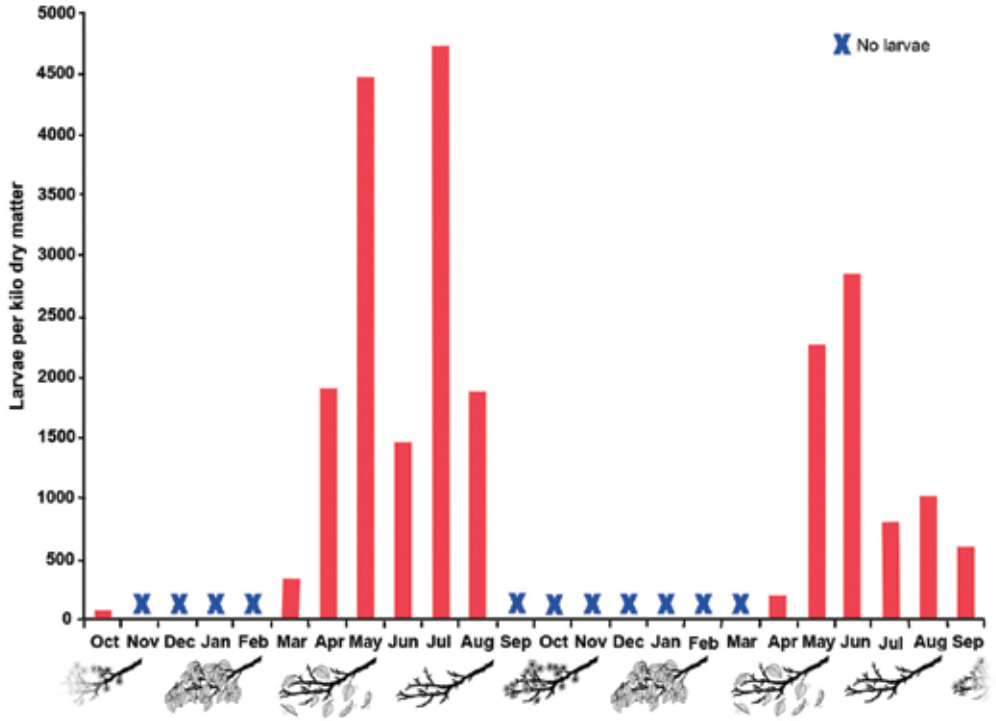
On many of the experimental sites, pasture quality was insufficient to ensure reasonable prime lamb growth rates. No amount of drenching will compensate for a lack of nutrition.

The summer decline in pasture quality also needs to be kept in mind. The summer decline in pasture quality has two important effects. 1. it reduces lamb growth rates, delaying finishing and increasing the risk that lambs will not be turned off until late autumn. 2. it can increase the economic impact of black scour worms and brown stomach worms on lambs. When growth rates are declining because of poor nutrition, low scour worm burdens (<4000 worms) can have an additive effect.

The summer decline in pasture quality is most important for later finishing lambs.

Drenching must be supported by providing good quality, nutritious, low-worm risk pastures for lambing ewes, ewes with lambs at foot and weaners.

Figure 2: Seasonal levels of sheep worm larvae on flood irrigation. Numbers of larvae were highest in late autumn and winter. During the summer irrigation phase larvae were regularly released from dung pellets, but quickly killed by exposure to high temperatures and desiccation between irrigation cycles. Larvae only accumulated once irrigation stopped in March. (Adapted from Carmichael, I (2009) Parasite control in southern prime lamb production systems, MLA Report AHW.045).



Drenching for effective worm control

Effective, sustainable worm control includes good drenching practices coupled with providing good quality, nutritious, low–worm risk pastures for at-risk classes of stock.

On some experimental sites, lambs were drenched at both marking and weaning. The need to drench at both of these times reflects poor worm control earlier in the year and will not solve production problems. Some lambs were under-drenched because bodyweight was incorrectly estimated. Others with minimal worm burdens were drenched based on clinical signs (scouring), which were not caused by worms but by perennial ryegrass toxicoses. Faecal WECs should be used to underpin decisions about drenching.

All prime lambs not sold as suckers should be given a highly effective drench at weaning. Growth penalties can reach 60g/day if this is not done.

All lambs should also be given a highly effective drench before they are moved to finishing or irrigation paddocks. It is important to recognise that this practice on its own can be a high risk for selecting for drench resistance. Any lambs reared on finishing or irrigation paddocks and retained should be treated with a quarantine drench prior to moving to other parts of the property. Finishing and irrigation paddocks should be appropriately prepared (destocking, alternate grazing with cattle, hay or silage production) before being used to finish the next crop of lambs.

Quarantine drenching of all new arrivals is also important to reduce the risk of introducing resistant worms to the property.

The bottom line

On most farms in southern Australia, it should be possible to minimise the losses caused by worm infections in prime lambs.

To achieve this, planning is required to ensure that high quality, nutritious, low-worm risk pastures are available for lambing ewes, ewes with lambs at foot and weaners, and that all lambs are finished before the autumn break. Reliance on drenches alone is not enough.

In addition, it is important to recognise that, unlike primarily wool-based systems, production of prime lambs is not a maintenance-of-livestock system. Instead, best results are achieved once it is realised that prime lambs are a production-based system that requires active management.

Summary of worm control practices for prime lamb production systems in southern Australia

- Prepare high quality, nutritious, low–worm risk pastures for lambing ewes, ewes with lambs at foot and weaners.
- Give all prime lambs a highly effective drench at weaning and/or before entering specific finishing or irrigated paddocks.
  A drench at marking should not be routinely required. If it is, it reflects poor worm control earlier in the year.
- Plan to minimise the impact of the summer decline in pasture quality and the additive effect of poor nutrition and worm burdens on lamb growth rates and finishing.
- Finish lambs as early in the season as possible to meet market specifications and before the autumn break.
- To reduce the risk of drench resistance, send all lambs reared on low-worm risk paddocks directly to market or to a feedlot for finishing. Treat all lambs retained on the property with a quarantine drench.
- Treat any introduced stock, including pregnant ewes, with a quarantine drench and hold in the yards for 24–48 hours.

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Further information

MLA Tips & Tools: Improving internal parasite control in sheep with nutrition and Perennial ryegrass toxicoses available from the MLA website at www.mla.com.au/publications

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