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MEAT & LIVESTOCK AUSTRALIA

factsheet

ANIMAL HEALTH AND WELFARE

Low-worm risk pastures for sheep

If sheep are treated for gastro-intestinal roundworms and then returned to the same paddock, they can be rapidly re-infected with worms. Used in this way, drenches add little to productivity and have limited impact on reducing worm levels on pasture.

When sheep are moved to low-worm risk pastures after drenching it takes much longer for worm infections to re-establish, which means that the interval between drenches can be prolonged. Productivity also increases.

Total elimination of all parasites from pastures is rarely possible. Low-worm risk pastures are usually not worm-free, but levels are low enough that productivity is not limited and disease does not occur.

Low-worm risk pastures are an important part of an integrated approach to parasite management in sheep. The availability of low-worm risk pastures is especially important for lambing ewes, weaners and prime lambs being finished for sale.

There are several different ways of preparing low-worm risk paddocks for sheep. This means that there will be at least one method suitable to all sheep production enterprises in Australia.

Ways of preparing low-worm risk pastures

Ways of preparing low-worm risk pastures for sheep include freshly sown pastures, cropping, rotational grazing with cattle, 'Smart Grazing', hay or silage production and spelling (Table 1). This range of options means that low-worm risk pastures can be prepared by all sheep producers, regardless of their property size or enterprise type.

Key benefits

- Low-worm risk pastures are an important part of an integrated approach to worm control in sheep.
- The availability of low-worm risk pastures is especially important for lambing ewes, weaners and prime lambs being finished for sale.
- There are a number of different ways of preparing low-worm risk paddocks for sheep. This means that there will be at least one option suitable to all sheep production enterprises in Australia.

Planning and preparing low-worm risk pastures can often be the most difficult part of a parasite control program. However, the rewards can be large, or larger, than the impact of chemical drenches alone.

Freshly sown pastures or cropping

Paddocks that have been cropped or freshly sown with perennial pastures typically have very low levels of roundworm larvae. Larval levels are reduced by the long duration without grazing, soil disturbance and the generally unfavourable environment produced by crops.

Rotational grazing with cattle

Most parasites complete their life cycle in only a single animal species (see Table 2) on the following page. Producers that run both cattle and sheep can take advantage of this with rotational grazing between cattle and sheep to 'break' the parasite life cycle. This means that a paddock can still be used for grazing while it is being prepared as a low-worm risk paddock for sheep.

Table 1. Different ways of preparing low-worm risk pastures for sheep (adapted from The Cattle Parasite Atlas: a regional guide to cattle parasite control in Australia*)*

Management practice	Duration of de-stocking	Residual number of roundworm larvae	Nutritive value	Usefulness for worm control
Freshly sown pastures	32 weeks or more	Decimated	Very good	Excellent
Cropping cereals	32 weeks or more	Decimated	Poor	Excellent
Rotational grazing with cattle	Grazing with cattle for 4–6 months	Reduced	Good for sheep; poor for cattle	Very good
'Smart Grazing'	1–2 months following intensive grazing by drenched wethers for 1 month	Reduced	Good	Very good
Hay or silage production	4–8 weeks	Reduced	Very good	Good
Spelling	Variable	Depends on the season and pasture type (ie irrigation vs. dryland). Larvae rapidly killed by hot and dry conditions but can survive for long periods if cold and wet	Variable	Variable

The only well adapted roundworm of both sheep and cattle is the stomach hair worm. Although this parasite is not particularly harmful for sheep it can cause reduce growth rates so cattle, especially animals less than 18 months of age, being grazed in rotation with sheep should be drenched.

However rotational grazing between sheep and cattle is not an effective control measure for liver fluke.

Examples of rotational grazing strategies are shown in Figure 1. Each grazing period should usually be longer than two months – preferably four to six months. Cattle are usually grazed during late autumn, winter and spring and sheep in spring, summer and early autumn.

An exception to this is over summer in northern Australia, where research has shown that short rotations of at least 50 days are useful for the control of barber's pole worm.

'Smart Grazing'

On properties that run only sheep and not cattle, the stronger immunity of older animals, such as wethers, to worms can be used to provide low-worm risk paddocks for weaners or lambing ewes.

Research conducted in the both the summer and winter rainfall zones has shown that using a 'Smart grazing' approach is more effective than set-stocking wethers over the summer as a way of preparing low-worm risk pastures for weaners and lambing ewes the following winter and spring. Smart Grazing includes two periods of intensive grazing (3–4 weeks each at a 1–2 month interval) with recently drenched adult sheep over late spring and summer (Figure 2). Intensive grazing reduces herbage mass, exposing worm larvae to heat and sunlight to produce pastures with lesser numbers of worm larvae the following winter and spring.

Table 2. Common worms of sheep and their host specificity

Parasite name	Host
Barber's pole worm	Sheep
Brown stomach worm	Sheep
Stomach hair worm	Sheep and cattle
Black scour worm	Sheep
Thin-necked intestinal worm	Sheep
Large bowel worm	Sheep
Nodule worm	Sheep
Large-mouthed bowel worm	Sheep
Liver fluke	Sheep, cattle plus a range of other animals species

Figure 1. Examples of rotational grazing systems as a method of preparing - low worm risk paddocks.
(adapted from The Cattle Parasite Atlas: a regional guide to cattle parasite control in Australia*)*
1a: Six-month, single paddock rotational grazing system suitable for the northern summer rainfall zone.
1b: Single paddock rotational grazing system suitable for the southern winter rainfall zone.
1c: Double paddock rotational grazing system suitable for the southern winter rainfall zone.

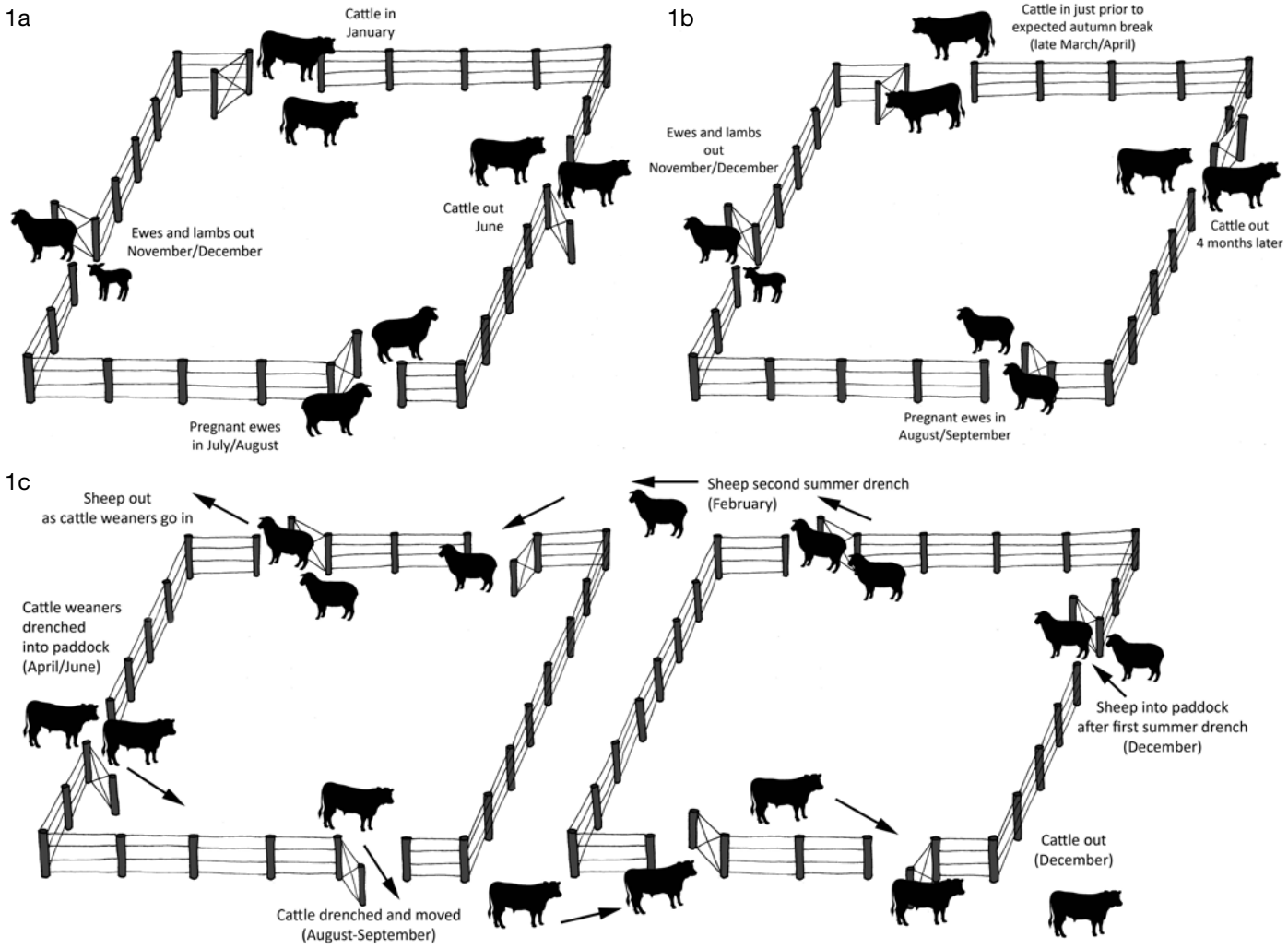
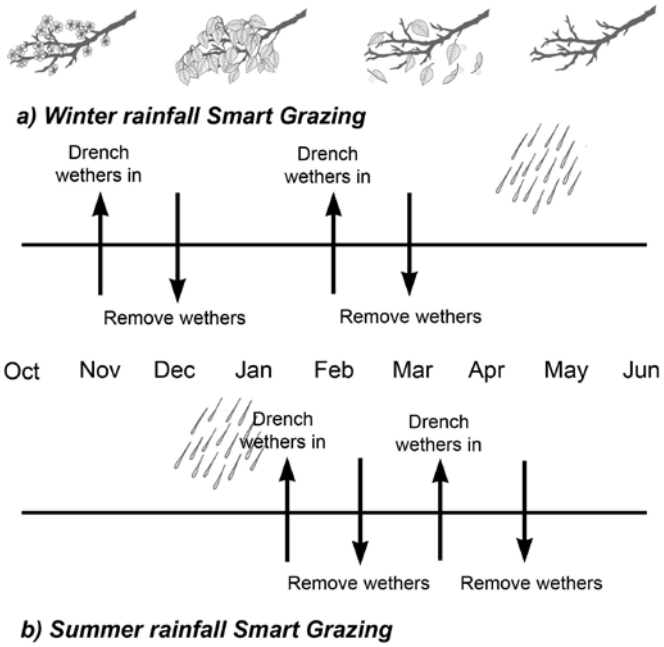


Figure 2. Smart Grazing systems for winter and summer rainfall regions



'Smart Grazing' approach is more effective than set-stocking wethers over the summer months to prepare low-worm risk pastures for use by weaners and lambing ewes the following winter and spring.

Hay or silage production

Hay or silage production is an effective method of preparing low-worm risk pastures. Large numbers of larvae are removed and killed during hay or silage production. The reduction in groundcover exposes any remaining larvae to heat and sunlight, which reduces their survival. The net result is pastures with lower numbers of worm larvae.

Spelling

The effect of spelling pastures on survival on worm larvae depends on the time of year and type of pastures being spelled.

Worm larvae on pastures are rapidly killed by hot, dry conditions. In contrast, larvae can survive for long periods when it is cool and wet. This means that spelling paddocks is usually much more effective during hot, dry periods over summer than in winter.

Recently completed MLA-funded research has shown that in southern Australia short-term (two-week) spelling of irrigated pastures during hot, dry periods over summer can reduce the number of roundworm larvae on these pastures. On irrigated pastures worm eggs hatch quickly due to available moisture. Larvae migrate to pastures quickly and perish in the hot summer sun. On dryland pastures, worm eggs and larvae are trapped in dung pellets. This protects the eggs and larvae from the hot summer sun so they survive longer. On these pastures, spelling for around eight weeks is required.

Drench and move

To maximise productivity, sheep are normally drenched prior to being placed on low-worm risk pastures. It is important to recognise that this practice on its own can be a high risk for selecting for drench resistance. All lambs reared on low-worm risk pastures and retained should be treated with a quarantine drench prior to moving to other parts of the property. Lambing, weaning and finishing paddocks should be appropriately prepared (destocking, alternate grazing with cattle, hay or silage production) before being used for the next crop of lambs.

The bottom line

Low-worm risk pastures are an important part of an integrated approach to parasite management in sheep. The availability of low-worm risk pastures is especially important for lambing ewes, weaners and prime lambs being finished for sale. The range of options available to prepare low-worm risk worm pastures means that there should be at least one option suitable to all sheep production enterprises in Australia.

Acknowledgement

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Further information

For more information see also *MLA Tips & Tools: Improving internal parasite control in sheep with nutrition; Worm control in southern prime lamb production systems; Perennial ryegrass toxicoses available at www.mla.com.au/publications*

For more information contact the MLA animal health and welfare team on 02 9463 9333.

Level 1, 165 Walker Street
North Sydney NSW 2060
Ph: +61 2 9463 9333
Fax: +61 9463 9393
www.mla.com.au

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