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Producer Research Support

Cell Grazing Worm Control

South East Cell Graziers

The impact of cell grazing on worm populations is not well understood. The recent increase in adoption of cell grazing has lead to the belief that worms are less likely to be a problem under cell grazing. This project was initiated to compare the production loss due to worms incurred under cell grazing and traditional set stocking.

Alternative grazing management strategies are known to impact on worm burdens, but the observations in this trial highlighted that variation in worm burdens due to seasonal differences is likely to have just as much bearing on the worm problems experienced.

Regular monitoring of worm burdens through faecal egg counts and worm risk through pasture larval counts, provide invaluable tools for limiting the impact of worms on sheep production.

Contact details

John Reeves
PO Box 822
MILLICENT SA 5280
Tel (08) 8734 8217

The project

Cell grazing describes intensive rotational grazing between 20 to 50 paddocks and with a flexible rotation interval based on assessed herbage mass on offer. The herbage mass or feed on offer (FOO) is quantified visually by a trained stockman and recorded as dry sheep equivalent (dse) or stock days per hectare (DDH). This is an estimate of carrying capacity - how long a specific number of stock can graze a paddock without overgrazing. Grazing pressure, or stock density, is generally maintained at 200 to 500 dse per hectare during the grazing phase to promote quick, even harvesting of pasture over the entire paddock. Emphasis is placed on how long a paddock is rested between grazing periods to allow adequate plant recovery.

Cell grazing is different to time controlled grazing, where the stock are moved between paddocks at set intervals regardless of the residual feed on offer; or set stocking, where the stock remain in a paddock for weeks, or even months.

Warn et.al. (2001) demonstrated in a three year trial in central north Victoria that 20 percent more stock could be carried under cell grazing than set stocking, without compromising per head production. Even simple rotation between four paddocks showed a ten percent advantage in stocking rate compared to continuous grazing, given adequate phosphorus input.

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Objectives

1. establish best practice for worm control in sheep under cell grazing;
2. train each group member in:
   a) sampling and submission for faecal egg counts and pasture larval counts;
   b) assessing feed availability;
   c) recording rainfall amount and distribution;
   d) worm drenching procedures;
   e) using effective drenches;
   f) recording sheep condition; and
   g) record keeping and monthly returns
3. characterise the pattern in sheep worm egg output under cell grazing on each of 12 cells;
4. correlate the pattern in sheep worm egg population in each cell with the observations of environment management and climates; and
5. establish optimum worm control strategies under cell grazing based on these observations.

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Key points

- The South East Cell Graziers group in South Australia in examined the impact of cell grazing on worm control.
- This was contrasted to the control achieved on neighbouring properties using set stocking as the preferred grazing management system.
- Over the two years of the project, more variation in worm control was evident within the set stocking and cell grazing groups than between the groups.

Producer Research Support

MLA Producer Research Support offers support funding of up to $15,000 over three years for groups of producers keen to be active in on-farm research and demonstration trials.

These activities include:

- Producer Initiated Research and Development
- More Beef from Pastures demonstration trials
- Prime Time Wean More Lambs demonstration trials
- Sustainable and productive grazing grants.

Contact Stephen Feighan - MLA Project Manager, Producer Delivery and Adoption.

Tel (02) 9463 9245 or
sfeighan@mla.com.au

What was done

From January 2001 to December 2002, herbage mass and worm contamination was monitored monthly on ten properties engaged in cell grazing in the mid south east of South Australia.

Monthly monitoring included DDH at sheep entry and exit to cell paddocks, rainfall, total sheep and cattle stocking rate and density, sheep condition score, average rest period, number of days since last grazed, faecal worm egg counts, pasture worm larval counts and supplementary feeding (if provided).

Details of sheep type, age, percent scouring, date last drenched and drench type used were also recorded in relation to the above data.

What happened?

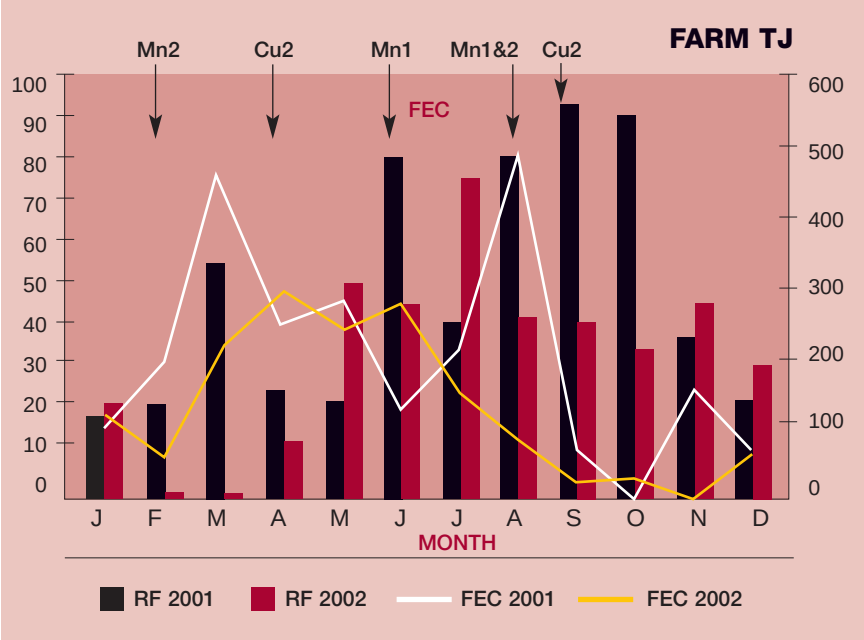
Monthly faecal egg count monitoring provided a valuable tool to determine sheep worm drenching requirements. Monitoring worms this frequently provided the producer with a good understanding of worm risk in the cell grazing system. Worm contamination on pasture as well as adult worm populations in the sheep was just as variable in sheep set stocked as it was under cell grazing, but frequent monitoring enabled the producer to make early decisions about control or preventative strategy.

Figure 1. Monthly Rainfall and Worm Burdens against Drench Strategy, illustrates the relationship between monthly rainfall and worm burdens, and the drenching strategies employed. Drenching strategy relied on organic anthelmintic use, and frequent monitoring enabled the producer to decide when to best use the organic treatments. Less frequent monitoring increases the risk of suffering production loss before a significant worm burden is noticed.

Seasonal conditions accounted for greater variation in worm egg output than the grazing management system, or the type of anthelmintic used during the winter months.

Figure 1. Monthly Rainfall and Worm Burdens against Drench Strategy

Mn1/2 = Mineral drench administered in 2001/02
Cy2 = Moxodectin drench administered in 2002
Cu2 = Two grams copper sulphate administered in 2002
Cb2 = Combination drench administered in 2002



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MLA also recommends

Sheep Genetics Australia

Sheep Genetics Australia (SGA) is the national genetic evaluation service for the Australian sheep industry. It is built around the world's most comprehensive sheep genetics database, and will deliver genetic information on a fee-for-service basis.

Tel (02) 6773 2493 or
www.sheepgentics.org.au

EDGEnetwork

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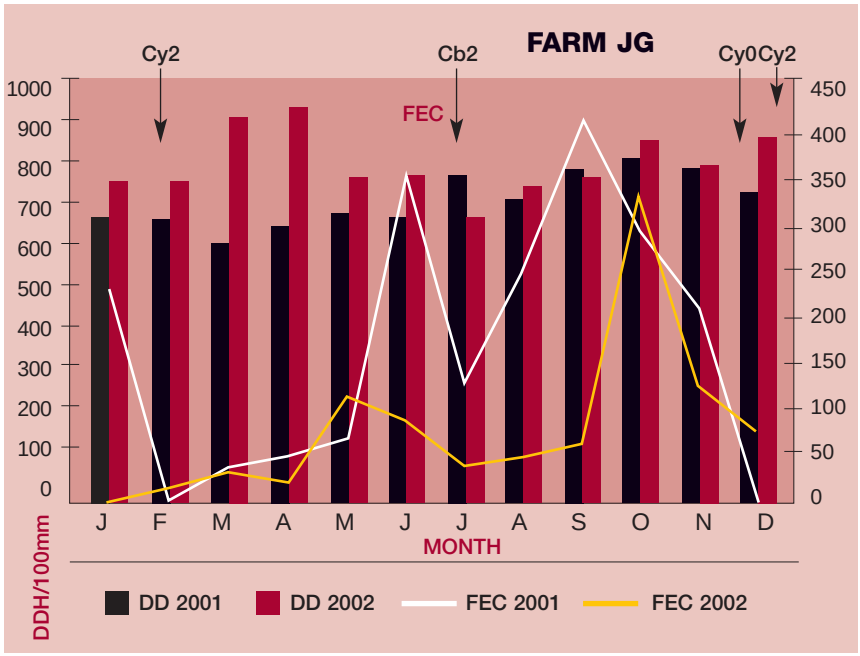
Regular faecal egg count monitoring enabled producers to minimise drenching. Rather than constantly rising, on many occasions faecal egg counts fluctuated and the initial decision not to drench paid off as the counts remained static or fell. This is illustrated in *Figure 2*. where the faecal egg counts rise during winter with the pasture larval contamination, but fall again in spring in 2001 without any worm treatment or apparent sheep suffering. In the interest of delaying the onset of drench resistance, this is a useful strategy.

Figure 2. also highlights a relationship between the higher carrying capacity through autumn 2002 and the winter rise in faecal egg counts. The higher carrying capacity is evident through the higher DDH compared to 2001. This corresponds to a relatively dry start to 2002, resulting in less feed on offer.

A contrast between Farm TJ *(Figure 1.)* and Farm JG *(Figure 2.)* is the worm control achieved by use of organic treatments on the former and conventional anthelmintics on the latter. Farm TJ achieved reasonable worm control by strategic use of one or two grams of copper sulphate drench supplemented by periodic mineral drenches such as Supamin® and Benefit®. The producer also included apple cider vinegar and Bio-Start® with each mineral drench.

Figure 2. DDH per 100 millimetres rainfall and faecal egg counts



A composite of the average results of all cell grazier participants indicated that worm control is very specific to each farm, but general trends can be observed irrespective of the grazing strategy undertaken.

The concept of rolling averages to monitor variations in stocking rate between years is an invaluable means of predicting the need to offload or increase stock numbers. It is also a useful tool to compare with worm burdens and as an aid guiding the on-farm worm control strategy.

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Discussion

Alternative grazing management strategies are known to impact worm burdens, but this trial highlighted that variation in worm burdens due to seasonal differences is likely to have just as much bearing on the worm problems experienced.

Regular monitoring of worm burdens through faecal egg counts and worm risk through pasture larval counts, provide invaluable tools for limiting the impact of worms on sheep production.

The potential for worm control using organic products needs urgent attention as it could be a useful means of steadying the relentless advance of multiple drench resistance.

Reference

Warn L, McLarty G and Frame H. Improving pasture and wool production with rotational grazing. *Proc 42nd Grasslands Soc Vic (2001);* 168-169.

Meat and Livestock Australia
Level 1, 165 Walker Street
North Sydney NSW 2060
Tel (02) 9463 9333
Fax (02) 9463 9393
Free Phone 1800 023 100 (Australia only)
www.mla.com.au