

Finetuning pasture utilisation

New research has shown that sheep producers trying to manage seasonal risk have a powerful tool at their disposal: intensive rotational grazing (IRG).

During a 28-month demonstration trial in the New England region of NSW, IRG lifted returns per hectare from fine wool Merinos by more than \$215 compared to low-density continuous grazing.

Intensive rotational grazing is a step beyond the more familiar rotational and cell grazing techniques.

continuous grazing, but only under IRG could you predictably maintain that stocking rate through seasonal variations without degrading pastures and soils.”

IRG maintained sheep in more even condition through seasonal fluctuations than high-density continuous grazing too.

Feed budgeting wasn't used in the low CG trial, but it was applied to sustain the higher stocking rates of the high CG and IRG treatments.

Lewis said the resulting gross margins showed that feed budgeting alone could substantially lift returns, regardless of the management strategy used.

“We saw that you could increase production by lifting stocking rate under IRG or high-density continuous grazing, but only under IRG could you predictably maintain that stocking rate through seasonal variations without degrading pastures and soils.”

It ‘systemises’ management by running small mobs of livestock side by side in a series of long parallel laneways. Electric tape is used to progressively move stock down each laneway at higher grazing densities and more frequently than under regular rotational grazing systems.

Dr Lewis Kahn of the University of New England assessed the trial and said that IRG proved far more stable and predictable than continuous grazing.

“We saw that you could increase production by lifting stocking rate under IRG or high-density

In the trial, the IRG stocking density averaged 9.4 ewes per hectare over 28 months.

Lewis's study compared IRG to low-density continuous grazing (low CG) at an average 5.3 ewes/ha and high-density continuous grazing (high CG) at an average 8.3 ewes/ha. (The low CG mob approximates standard management practice in New England.)

There was regular variation in the stocking rates of all management groups, to match feed availability through the variable 2006–08 seasons.

However, Lewis reported that the high CG group went through about 1.5 times the stocking level variation of IRG and more than twice the variation of low CG because destocking in response to pasture deficits was more substantial than in the other two treatments.

Key production drivers

The trial was conducted on Rob Kelly's property ‘Mt William’, east of Guyra. It was designed to assess key production drivers identified in an earlier MLA project on intensive rotational grazing, feed budgeting, protein supplementation during pregnancy, and managing for specific fat scores.

Feed budgeting helped to lift stocking rates of the high CG treatment by 3 ewes/ha over the low CG levels of 5.3 ewes/ha.

As a result, the average gross margin over two years was \$153/ha under high CG, compared to \$29/ha under low CG.

Applying the same feed budgeting principles to pastures under IRG management further boosted gross margins to around \$245/ha.

“The improved gross margins under IRG are the outcome of several factors including better health and management, but the bottom line is that IRG provided a way to sustain higher stocking rates per hectare, and to finetune pasture utilisation,” Lewis said.

Lewis made a range of other measures during the trial.

The low CG treatment gave some indication of why it has become the standard New England management practice to maintain slightly higher weights and better fat scores through difficult winters.

IRG ewes maintained roughly the same condition as their low CG counterparts, but under a 77% higher stocking rate.

Key points

- While few in the wool industry have adopted the technique, intensive rotational grazing has substantial benefits over continuous grazing.
- Gross margins under intensive rotational grazing were nearly double those from continuous grazing methods.
- Intensive rotational grazing delivered more positive and predictable environmental outcomes, suggesting the technique is more sustainable across variable seasons.



Managing the land

A 28-month intensive rotational grazing demonstration trial was conducted on Rob Kelly's (pictured) property 'Mt William', east of Guyra, NSW.

The weight variation in the high CG treatment was 13kg between maximum and minimum ewe weights because of the difficulty of accurately matching stocking rate to pasture availability. Weights varied 8kg and 7kg in the low CG and IRG treatments, respectively.

All treatments presented ewes with acceptable fat scores (3.0–3.3) at mating, but the low CG ewes were below target fat score for lambing in 2006 and 2007.

Annual wool production per hectare averaged 17.0kg under low CG, 26.1kg under high CG and 28.4kg under IRG. On average, IRG ewes cut wool 0.5 micron finer, contributing to the gross margin result.

Overall, staple strength was highest in the low CG group but wool strength in all treatments was well above the industry average.

Lamb worm burdens

While IRG ewes appeared to have modestly lower worm burdens than those under the CG treatments at weaning, the difference in lamb worm burdens at the same point was substantial.

Lambs under IRG were found to have negligible faecal worm egg counts (on average a few hundred eggs per gram compared to well

over 11,000/g under the CG treatments).

When Lewis assessed the effect of the treatments on pastures, he found some of the reason for the better performance of IRG.

Pasture growth rates under IRG were 22% greater than high CG and 64% higher than low CG. Correspondingly, water use efficiency was higher under the better-performing IRG pastures.

Under the CG treatments, the higher the stocking rate, the lower the infiltration of rain. However, IRG maintained the same water infiltration rates as low CG, despite having the highest stocking rate.

Perennial grasses accounted for 88% of the herbage mass in the CG swards, and only 55% of the IRG herbage. Lewis noted that the difference was mostly due to much more red lovegrass (an unpalatable and short-lived species) in the CG treatments.

IRG carried about 30% annual species in its herbage, compared to 15% under high CG and just 1.5% under low CG.

Numbers of black and slender thistle were also greatly reduced under IRG. Under the CG treatments, thistles covered 4–6% of the

paddocks, usually trending toward the upper end of this figure. Under IRG, thistle cover was always less than 1%.

Third year cash flow

Lewis acknowledged that IRG was expensive to set up. At Mt William, it cost \$300–\$350/ha including labour.

But taking all financial factors into account, including the depreciated capital cost of infrastructure, Lewis calculated that the higher gross margins of IRG would develop a positive cash flow in its third year, compared to adopting a low CG management regime.

Compared to a high CG regime, Lewis estimated that it would take five years to make a positive return on an investment in IRG.

“However, no provision has been made for the fact that continuous grazing is a more fragile system, and that it might be necessary to buy feed or sell into a low market,” he said.

“Nor have I been able to properly assess the run down of natural resources that might occur under continuous grazing.”

More information

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