



# Keeping things moving

**F**our years after buying his grazing property near Yass, New South Wales, Matt Doyle is reaping the rewards of a rotational grazing system. Increased feed availability, improved groundcover, reduced land degradation and better biodiversity are just some of the benefits he shared with Catriona Nicholls during a recent chat.

“When we bought Glenryan at the start of 2004 it had been managed in a traditional manner, with continuous grazing on predominantly native pastures,” Matt said.

I saw the property as a blank canvas for me to make my own system.

I’d been exposed to holistic management previously, probably first during my time at Marcus Oldham during the early 1990s.

I see holistic management as a low-cost way to address land degradation issues such as bare ground, weeds, erosion and salinity.

The basic principles of such a system include allowing adequate rest after grazing and maintaining groundcover at all times.

This leads to increased soil organic matter, less run-off and healthy grassland with better water-use efficiency, which leads to more pasture and lower costs because we’re not having to use as much fertiliser.

Because we maintain groundcover we also have less weed problems and don’t have to spend time and money spraying.

## Breaking up the boundaries

I manage the property in three parts; hilly granite country, pipeclay creek flats and strong clay loam country.

A third of our country is hilly granite with gravel ridges. I use this country for winter grazing, when the lower-lying areas can become waterlogged.

## key points

- A focus on maintaining groundcover reduces weed burden and improves soil fertility and biodiversity
- Timing of grazing is critical to manipulate pasture species
- Perennial pastures combined with rotational grazing maintains feed year-round.

## farm info.

**Case study:** Matt and Maree Doyle

**Location:** Yass, NSW

**Property size:** 1300 ha

**Mean annual rainfall:** 650 mm

**Soils:** Granite, clay loam and pipeclay

**Enterprises:** Beef cattle (440 breeding cows producing feeder steers)

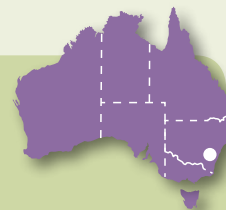


Photo: Maree Doyle

Matthew Doyle in a 30 ha paddock of tall fescue being grazed by cows and calves in his rotational grazing system.

This hilly country is original native pasture country, never farmed and not heavily fertilised. We set stock the cows here during August-September for calving.

We rest the hills during spring so they can grass up a bit before the summer storms. This area may be given a short grazing during summer but it is then rested through autumn to provide winter feed.

A lot of the native pasture on the hilly country is made up of perennial grasses that maintain feed quality through to winter and fill a winter feed gap. Instead of having a shed full of hay for winter feed, I use a paddock full of grass.

The timing of grazing these areas seems to be working. I have noticed greater water infiltration and less run-off on the slopes during summer.

In addition, a couple of spring and autumn rest periods on this country have led to more than 40 different plant species being found by CSIRO researchers working in the FFI CRC in developing its *Biodiversity in the paddock, a land managers guide*.

This added benefit has come out of a management strategy that aims to reduce run-off and erosion and improve grazing efficiency.

## The breeding country

Then we have our pipeclay creek flats, where the cows and calves are run after calving through spring, summer and into autumn. This is where I am really focusing my improved pasture management. There are eight paddocks that we rotationally graze with all 440 cows and calves in one mob.

These paddocks are predominantly cocksfoot, phalaris, annual and perennial ryegrass and summer-active fescues with some areas of Yorkshire fog.

During 2004, we started sowing a more diverse pasture mix into this country. It includes lucerne, chicory, cocksfoot, phalaris and fescues and, so far, we’ve sown 50 ha and try to average 40 ha per year of this mix.

I also plan to further subdivide these eight paddocks. In the whole-farm plan, I’d like there to be about 40 paddocks, 10 ha each,



which can be grazed for two to four days on a rotation. This would allow for 80-160 days rest, depending on pasture growth rates.

Our old pasture paddocks are recovering with better management. Even aged stands of perennial ryegrass and cocksfoot are thickening up. The average stocking rate I'd like to get to on this breeding country (800 ha) is a cow to about 1.5 ha (about 10DSE / ha). We currently run a cow to 1.8 ha or about 8DSE / ha.

### Keeping the best till last

The final third, about 400 ha, of strong clay-loam country is where the young stock are grown out. It is a mix of introduced and native annual and perennial pastures.

Steers and heifers are grazed in same-sex mobs across an area of about 400 ha, broken into 12 paddocks.

We are not sowing any pastures here. It's our best country and has pretty good biodiversity anyway. It's clean, doesn't have land degradation problems and seems stronger country with areas of shade and shelter. At the moment our pasture improvement dollar is better spent on our degraded country.

I recently went round one of these paddocks and there were patches of phalaris in one corner and microlena in another. This biodiversity is the result of the rotational grazing; one week on, five weeks off. I basically don't do anything on this country except manage the groundcover.

### It is all in the timing

The steers are weaned during April and gone by the following January; the paddocks are rested until April. I think that is the time of year your land can get degraded in this area and with no stock pressure we are insuring ourselves against the autumn feed gap.

The same with the country the heifers are on. They are weaned in April and run through till October. We run them in and draft off the better-grown, well-structured replacement heifers and try to cull about a third into the spring restocker market.

Replacement heifers are joined for five weeks and then we pregnancy test and get rid of any that are not in calf.

By the time the feed starts to cut out during late summer, the mob of heifers rotating through the area is getting smaller with less grazing pressure. And then by the following April, after weaning, we bring on the new heifers, taking older heifers to join the cows on the pipeclay country after weaning.

I concentrate on keeping the cow mob on the breeding country to about 440 by culling aged and poor performing animals.

We are just starting to see the results of the change in management in terms of the volume of feed and biodiversity.

I'm really sold on rotational grazing. I haven't experienced a feed gap. It is like climbing a staircase that never ends: I



Photos: Maree Doyle

*Cows and calves enjoying a productive spring with the cows score 3.5 or better for joining. INSET: A diverse sward of species on unimproved country during spring.*

haven't had a moment where I've gone to move them and the next paddock isn't ready.

I also think perennials hold the key to ongoing feed availability. They make use of rainfall at any time of the year. During the past few years we've had a dry spring and rain during November. Annual systems don't benefit from this out-of-season rainfall like those with perennials." 🌱

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## science behind the story

By Jacqui Stol, CSIRO

- As Matt has highlighted, there are many significant benefits of adopting a planned grazing system that provides long pasture rest which include increased groundcover, better control and flexibility of stock numbers and an ability to predict feed requirements. Such a system also provides opportunities for less grazing-tolerant plants and animals to prosper.

However, levels of fertiliser use and stocking rates, rather than a paddock being rotationally or continually grazed, were found to be the main influences on biodiversity with lower stocking rates and fertiliser use linked to higher biodiversity.

At this stage what Matt is probably noticing is an increase in abundance of those more grazing-sensitive species.

His observations of increased groundcover under rotational grazing

reflects that continuous grazing, particularly during drought, can lead to soil surface degradation, loss of perennial plants and breakdown of litter cover. A thick cover of native perennial plants and plant diversity are critical for managing climate variability. This biodiversity supports the potential of different plants to respond to rainfall at different times of year, and widespread perennial cover reduces wind and water erosion on hills in particular.

Exotic annual grasses and weeds often result from sustained high grazing pressure and fertiliser use – our research found exotic dominated pastures quickly collapsed under drying conditions whereas native perennial grass cover was resilient with little loss of overall live plant cover during periods of severe soil moisture deficit.

By reducing his inputs Matt is reducing his overall costs reflecting that rotational

grazing and native pastures are typically low input systems.

Native pastures with strong biodiversity and reduced or minimal fertiliser or other inputs play a vital part in overall farm management. Matt has clearly identified the areas of land more likely to provide a high return for his input – sowing pasture grasses and fertiliser on pipeclay creek flats – and realised his native pastures can provide an important role by filling seasonal feed gaps (along with protecting soils from erosion).

- Jacqui is a researcher with the Agricultural Landscapes Group within the CSIRO Sustainable Ecosystems Division.

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