

Sixty days spelling improves grass growth for better livestock production

Wongan, Winton

BACKGROUND

Doug and Fiona Nicholson have developed their own style of management for their 19100 ha sheep and cattle business in the open Mitchell grasslands of north-western Queensland. They added Wybenia to their original property, Wongan, in 1997 and decided to learn more about grazing management to lift the productivity of this new purchase. They have distilled the messages from a number of training courses to one simple principle: ensuring every paddock receives at least 60 days rest during the summer growing season.



Doug and Fiona Nicholson at Wongan

Wongan is 90 km north-west of Winton on the Mt Isa highway and was first drawn in 1914. Doug and Fiona took over from his parents in the mid 1990s. It had been run as a medium-wool Merino sheep enterprise. Wybenia joins Wongan and had little infrastructure and areas of poor land condition—dominated by annual pastures instead of the perennial Mitchell grass. The Nicholsons could see the potential to lift the productivity across their holdings but knew they had to find a new way of managing to achieve it.

‘We went to as many courses as we could. We wanted to learn about other ideas—new ways of doing things—and work out what could work at home’ said Doug. ‘I definitely have a thirst for knowledge, and so does Fiona. We just like

learning—all different stuff. You don’t stop learning when you leave school do you’?

Business goals and planning

Doug and Fiona’s main goal is to keep improving their property and business. ‘We want to hand on the business in a better state than when we took it on’ said Doug. ‘We want the fences, the waters, the stock, the pasture and the soil to all be better than when we started’. They are achieving this through good planning and monitoring. ‘We have plans and goals—if you write your goals down they almost magically seem to happen’.

Doug and Fiona base their planning on property maps, paddock areas and carrying capacity. This is refined through paddock based rainfall records, stock numbers and movements, grazing charts, photographs and pasture yield estimates at photo-monitoring sites. ‘You can’t manage what you don’t measure’ said Doug. ‘You need good records to know where you’ve been and plan where you’re heading—what your country can really handle’.

They have five permanent monitoring sites on Wybenia where available feed, ground cover and weeds are recorded at the end of the wet and dry seasons each year. In addition, available feed and ground cover is regularly assessed in each stocked paddock.

Their good planning, record keeping and monitoring means Doug and Fiona have a sound idea of how much feed paddocks have yielded and how many cattle have been carried. This refines the carrying capacity for each paddock, which is used in conjunction with a feed budget at the start of the dry season to plan stock movements until the next wet season.

Natural resources

Wongan straddles a major watershed. A small amount of their country drains north into the Gulf of Carpentaria through the Flinders River catchment. The remainder drains into the Diamantina and eventually finds its way to Lake Eyre. This results in little potential for surface water and both properties rely heavily on bore water. The land is very gently undulating clay soils dominated by Mitchell grass country. Average annual rainfall is 411 mm, summer dominant, and with very high variability.



Open Downs country at its best during the summer growing season

Livestock enterprises

Doug and Fiona have focused on cattle trading to remain flexible and be able to respond to the highly variable rainfall conditions. They do not have a preference for breed and will buy 'whatever comes up' that can put on weight, condition or calve down while there is grass available.

About 25% of the livestock are sheep, mainly as breeding but with some opportunistic trading. Weaner weathers are sold after their first shearing, leaving enough capacity to carry the breeding ewes.

'When you say you trade cattle to use the feed that's available people can think you're flogging your country. Some traders might, but we're not. We stock conservatively according to the grass that's there. We budget our feed and plan ahead ready to sell or agist stock when it gets dry. We constantly monitor and measure what's there to

make sure we leave the country in better condition than when we took over' said Doug.



Cattle are trucked off Wongan once pasture or cattle targets are met

Infrastructure

Wybenia is now divided into 27 paddocks averaging 400 ha in size. The cost of the 90 km of internal fencing was minimised by using two-strand electric. This also provides the flexibility to easily allow cattle access to two paddocks together. Cattle become familiar with the electric fencing with a short period of training. Maintenance of electric fencing can be higher than traditional fencing at times, but Doug is prepared to accept that electric fences need regular checking as a necessary trade-off. 'The rest of the show needs a lot less work though. Once we got all the new waters and fences in, we found that we've got a really good setup that doesn't require maintenance for a long time. What we had in the past was an old trough here and an old trough there, and all this sort of stuff, so we were always chasing water. It was never ending. It's much easier now'.

Water locations and supply volumes into these smaller paddocks required planning. Doug and Fiona decided to provide enough water to each paddock for twice the estimated carrying capacity to cater for the years with above-average pasture growth. Initially designed to water 1500 head, the system has been able to water 2000 head in recent years with well above-average rainfall and pasture growth. Water is pumped from a single bore to a turkey's nest dam on the highest point on Wybenia. The mono pump in the bore delivers about 19,000 litres an hour. It runs for 12 hours each night, delivering around 130,000 litres a

night into the turkey's nest. The nest is designed to gravity feed across Wybenia as a back-up, but the high numbers of stock in each paddock generally requires the water to be pumped through the 40 km of 63 mm poly pipe.



Water is pumped to 27 paddocks on Wybenia

Doug and Fiona worked within the existing fencing and waters on Wongan, which has seven smaller paddocks with the water in the middle of the hub of these paddocks. According to Doug 'if you get stuck, you can use all seven of those paddocks if you want to because the water's in the middle not the corner. The only interaction of stock over that electric fence is away from a water point'. They have retained one of the larger paddocks on Wongan for times when everyone needs a break.

The holiday paddock

'There's a quality of life point somewhere in it and basically it's a holiday paddock' said Doug. 'We've left one big paddock on Wongan so we can get away. Like when we went away the other day, for a week, it was hot. So we kept the ewes up in that paddock on the open water up there. Anyone can look after the place without putting them under a lot of pressure. They don't have to understand the water system or our rotations'. If the stock are in the smaller paddocks when Doug and Fiona need to get away, they can open gates and let them spread out to take the pressure off the stock, the country, the water system and the part-time manager.

Infrastructure funding

Doug and Fiona were able to accelerate the development of Wybenia through some astute trading. 'After we bought Wybenia we didn't have any money to start putting in fences or waters' recalled Doug. 'In the year 2000 we had a big

rainfall year. We were fortunate enough to buy about 5000 sheep that didn't cost us very much and were full woolled. The wool paid for the sheep and next year the sheep prices went up. We got 150 grand from that one trade—that's what put the development in'.

Through improving the land condition on Wybenia and developing the infrastructure to take more stock, the Nicholsons have created even more opportunities for themselves.

Improved carrying capacity

Doug observed that 'when you increase your carrying capacity—you increase your stock numbers and increase your turnover from an economic point of view. Some of it's got to turn into profit. You become more profitable if you can increase your grass—you don't have to buy any more country, if you're happy with what you've got. We've got 47,000 acres here, and it's a good living area for us at the moment.'

Doug and Fiona have been able to increase the long-term carrying capacity of Wybenia from around 530 Adult Equivalent (AE, a 450 kg steer maintaining its weight) to over 1000 AE by improving pasture production. Country in poor condition can only grow about 45% of its potential on average. By lifting the land to good condition, average annual pasture growth on Wybenia has increased from about 900 kg/ha to between 1500 and 2000 kg/ha. This translates to being able to safely run a lot more cattle.

'The country up there was in pretty poor nick' said Doug. 'It had probably been a few light, dry years there, so there were a lot of annuals growing up there. There was a lot of blow-away [star] grass when we bought it'.

'That country has really improved' said Doug. 'We don't have to think about buying more country. We're now able to increase our stocking rate and improve return on investment with the area we've got.'



Wybernia monitoring site in June 2001—346 mm rain for the wet season (1 October-31 March)



May 2007—185 mm rain for the wet season



May 2003—246 mm rain for the wet season



May 2009—564 mm rain for the wet season



May 2005—293 mm rain for the wet season



May 2011—670 mm rain for the wet season

‘The thing that really excited me was seeing little Mitchell grass plants in areas we’d never seen it’ recalled Fiona. ‘Like lots of it, and having the ability to get the stock off them and spell those seedlings so they could flourish was really exciting’.

Doug and Fiona acknowledge that they’ve had four above average seasons to help their country along. ‘At the moment the only limitation to running more stock is the amount the bank’s willing to lend us’ said Doug. ‘We know the good run can’t last forever. You manage the country carefully by trading, through using the extra feed

that is there in the good times and reducing numbers in the bad times’.

‘If it gets really bad we’ll just sell or agist everything and go on holiday. People think you’re mad when you tell them that. But why not? We can always buy more stock with the cash we’ll be able to invest from sales. Why stay here and get depressed trying to struggle through a massive drought?’

Stocking rate management

The Nicholsons have benchmarked their long-term carrying capacity for Wongan and Wybenia to guide their overall stocking approach. The long-term carrying capacity is based on average long-term rainfall—and the average amount of pasture grown in a year. It accounts for different land types being more or less productive and for reduced land condition growing less feed.

Doug and Fiona use forage budgets to match their cattle numbers to the available feed as seasons improve or get worse. If there is well above-average feed on offer extra cattle will be bought in. The number of cattle could be twice the long-term carrying capacity—based on the feed grown in that season being twice the amount grown in an average year. Using a forage budget approach ensures that stock numbers do not push the country too hard—especially when drought starts to impact on pasture production. One of the key aspects of a successful forage budget is planning how much pasture to leave at the end of the grazing period. For example leaving enough for effective growth with the next rains usually requires 1000-1500 kg/ha. If another grazing period is planned, then 2000 kg/ha or more may be needed. If a drought is likely, then having 2500 kg/ha in reserve may help ease the initial impact of a failed growing season.

Doug and Fiona budget their feed using the ‘stock days’ concept—estimating how many days of feed can safely be removed from the paddock in a grazing period. They are able to quickly respond to changing conditions or inaccurate estimates of how long the feed should last by having a highly flexible trading business. They are able to buy in stock if there is a good season and have no hesitation in selling to reduce the

pressure on the pasture e.g. in response to fire or spoiling rain.

Doug notes that there are benefits to grazing both cattle and sheep. ‘When the Mitchell grass tussocks get big and rank you can graze them down a bit with cattle to carefully open the pasture up. This can spur the Mitchell grass along and get a better variety of plants to grow in the pasture. Sheep prefer the shorter pasture and don’t have the impact of cattle.’



Cattle are better than sheep at opening the pasture up and stimulating a Mitchell grass response

Wet season spelling

Doug and Fiona operate wet season spelling across their entire aggregation with each paddock receiving at least 60 days rest during the growing season. They are able to accomplish this by grouping cattle into a small number of paddocks and moving them onto fresh pasture relatively often during the wet season.

According to Doug ‘wet season spelling is the guts—the cornerstone of what we do here’. He sees himself as a grass producer first—in recognition that without the grass you can’t produce the cattle. He maintains that if you look after your pasture and work out how to manage the Mitchell grass and the herbages, you can produce more wool and beef. This makes your business as productive, sustainable and economically sound as possible.

Stock are moved most frequently over February as the pasture is in peak growth during the wet season. This is when their relatively small paddocks help. ‘Smaller paddocks provide us with quieter cattle and helps us to manage the animals between the two of us—without the need to hire more labour. With wet season spelling and the way we’re doing it, you’re moving the stock

more frequently and so they become easier to manage' said Doug. As the dry season approaches the frequency of stock movements declines and cattle are allowed to spread out more across multiple paddocks. Some paddocks remain ungrazed depending on Mitchell grass stubble height, ground cover and land condition.

When it rains they bring the cattle back together to re-start rotating them through the individual paddocks.

Doug's understanding of the way grass grows over the wet season recognises that Mitchell Grass responds well to stimulation through grazing. He tries to manage to take out enough grass from a paddock to promote a good response to rain, without eating into its potential to re-grow. Doug and Fiona recognise that Mitchell Grass re-grows from the nodes (small lumps) which are spaced along the tillers (stalks) of the plant as well as from the rhizomes at the crown (base) of the tussock. With this in mind they move their stock to ensure a minimum of 15-20 cm of tiller remains after grazing. This avoids damage to the grass and helps it to respond effectively to rain.



Leaving at least 15-20 cm stubble helps Mitchell grass respond effectively to rain

During the dry season grazing management is more about their stock. 'The grass is usually dormant over winter' said Doug. 'We come back to managing our stock during that period more than our grass. At the end of the day it's the grass production that drives the cattle production—you've got to have both working for you.'

Doug is quite clear on why the grass is so important to his productivity. 'The more perennial grasses you have the more root system you've

got, and when it rains the more water that goes back into your soil to grow plants. Whereas if you've got a very short root system, it'll soak up to that level and then it'll run off. If it looks like a bare road 90% of it—unless you get really gentle rain—90% of it goes down the creek. So you've wasted your sunshine and wasted your water'.

The deep and extensive root system of Mitchell grass helps rainfall to infiltrate deep into the soil. Mulch on the surface slows the water from running off which also increases moisture infiltration. The more moisture in the soil, the more pasture grows and the longer it can stay green. The risk of soil erosion is reduced as less rain runs off down tracks and gullies.

'Having country in good condition helps in a lot of ways' said Doug. 'Fire burnt out about a third of one of our paddocks towards the end of October 2011 before the rain put it out. We took the stock off straight away and spelled it for the 2011/12 wet season to avoid the burnt area getting flogged out. The Mitchell grass came back really well because the country was healthy'.

'We don't get the bare flogged out areas around our waters, either' according to Doug. 'The cattle don't stay in the paddock long enough to camp there and make a mess of things'.

Doug and Fiona see the benefits of implementing wet season spelling to their overall enterprise. By focussing on managing their pasture by moving the cattle to match pasture growth, they have been able to increase their carrying capacity. This has benefits to the bottom line and provides them with stronger pasture and healthier soil.

The final word

Doug's advice to anyone starting out for the first time would simply be, 'have a crack!'

Doug and Fiona would strongly advise any younger person starting out in grazing to accumulate as much information as they can from training and from experienced land-holders. They also recommend seeking the support of graziers with knowledge to help make better decisions.

For more information

For more information about grazing management you can:

- Attend a Stocktake pasture monitoring course
- Attend an *EDGE*network Grazing Land Management workshop
- Contact your local DAFF FutureBeef extension Officer on 13 25 23 or beef@deedi.qld.gov.au
- Visit the FutureBeef website <http://futurebeef.com.au/> for more case studies, fact sheets, videos and information
- Visit the LeadingSheep website <http://www.leadingsheep.com.au/>
- This case study is also available as a video by following the link <http://youtu.be/qivjF99DnLk> or searching the Desert Channels Digital YouTube channel at www.youtube.com/user/DesertChannels

This work was made possible through support from Meat and Livestock Australia and the Australian Government.