



Management of giant rat's tail grass in the Pioneer Valley

CASE STUDY

Tony Brown and Sue McCall, successive owners of a property near Mirani in the Pioneer Valley, Central Queensland, have progressively tackled a serious infestation of *Sporobolus natalensis* and *S. pyramidalis*, commonly known as giant rat's tail grass (GRT).

Their management approach included:

- up to 3 years of intensive spraying and/or ploughing
- pasture reseeding on a paddock-by-paddock basis
- vigilant ongoing spot-spraying to control regrowth
- changes to grazing strategies and use of fertiliser to maintain positive results.



Before (left) and after (right) treatment

About the property

The McCall property is a 42 ha grazing property about 40 km west of Mackay, currently carrying about 25 head of Angus-cross cattle. Sue bought the property in 2008 from Tony, who had owned it since the 1980s.

Pastures on the property include Callide rhodes grass (*Chloris gayana*) and humidicola (*Urochloa humidicola*). Soils are predominantly sandy duplex and grey clays.

Average annual rainfall at Mirani from 2000 to 2018 was 1511 mm (Bureau of Meteorology, accessed 11 March 2019).

The problem

Like many properties in the Pioneer Valley area, the property had extensive infestations of GRT, which had significant negative impacts on pasture production.

Tony remembers GRT getting so thick that he would 'struggle to ride a horse through it'.

'In the mid-1980s, knowledge of seed spread prevention was poor. With normal grazing practices, such as moving cattle between paddocks, GRT came to dominate much of the pasture in all eight paddocks.'

Management

Early attempts—Tony

In the 1980s, Tony first attempted to manage GRT in a 5 ha front paddock, where the worst of the GRT was located.

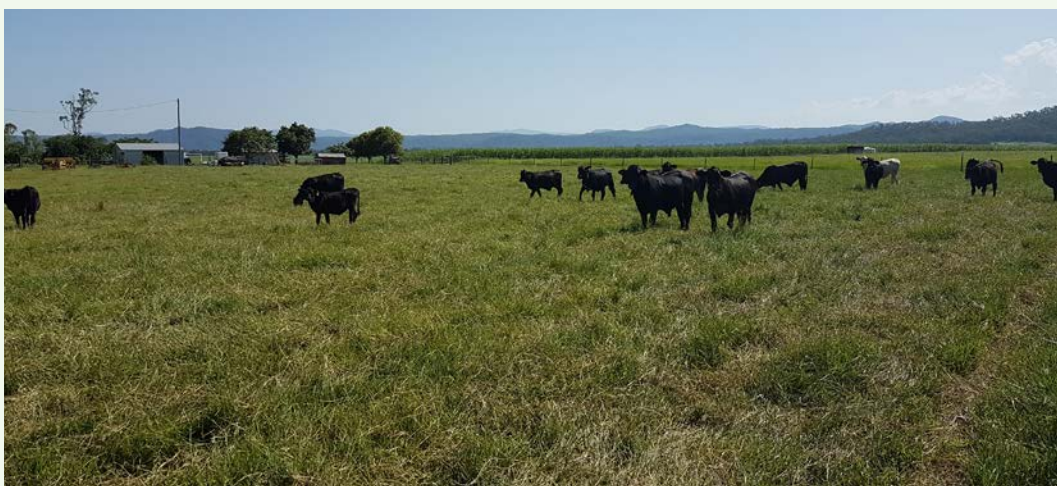
He began in winter, boom-spraying the area with a mix of glyphosate and flupropanate. He found the glyphosate provided a quicker kill and enabled treated areas to be easily visible within only a few days of spraying. This helped to reduce overlapping of treatments undertaken days or weeks apart.

In early spring, he burnt the front paddock and worked the soil over. Tony said the initial results looked great, with few signs of GRT in the first year. However, within 18 months it was back. He continued to boom-spray, burn, plough and reseed each year for 3 years (reseeding with Callide rhodes grass, humidicola and fertiliser).

Cattle were kept off the paddock for 12 months to allow improved pasture establishment.

Through this management cycle, Tony was satisfied he was making progress in the war against GRT.

Livestock management through reduced stocking rates



Ongoing management—Sue

When Sue took over the property, she continued Tony's GRT management program, with a few adjustments of her own.

She said she initially tried to do it 'all at once', with a one-off aerial application of flupropanate to 20 ha. However, she soon realised it was too time-consuming, and it was difficult to maintain initial results across multiple paddocks with high-density GRT.

Now, Sue works on a paddock-by-paddock basis and treats high-density GRT paddocks by first boom-spraying, then spot-spraying.



Sue's spray set-up



Spraying high-density GRT

She has also reduced stocking rates, from 60–70 head (about 1.6 head/ha) to around 25 head (about 0.6 head/ha), to allow the more desirable pastures to outcompete GRT. Cattle are also rotated between paddocks so that pastures never get too short, and the worst GRT-infested paddocks are used when GRT is not seeding.

Sue said it takes 2–3 years to achieve effective control of GRT in a heavily infested paddock, and constant vigilance to maintain that result.

'In 2018 alone, it took 49 days of spot-spraying and 7 days of boom-spraying just to mop up the low-density GRT paddocks', she said. 'On top of that, we also cut the seed heads, and bagged and destroyed them, to reduce soil seed loads.'

DAP fertiliser was also applied in 2018 at 200 kg/ha, and lime at 1300 kg/ha is applied to promote competitive pastures across clean paddocks, totally 20 ha.

Sue said getting rid of GRT completely is 'not an option'. Instead, she aims to achieve a balance of productivity and a competitive pasture-base through good pasture management.

She said the costs of herbicide, occasional contract labour and equipment range up to \$5000 per year, with her own labour uncoded.

Results

About 50 per cent of the property is now largely free from GRT; 25 per cent is moderately infested, and 25 per cent remains heavily infested.

Low-density paddocks require regular spraying for maintenance. The level of effort cannot be reduced until the remaining 50 per cent is addressed, in future years.

Lessons learned

1. Good initial results do not mean that you have won. They may give a false impression the hard work is over, but a systematic and sustained effort is required over a number of years to restore good pastures from high-density GRT.
2. To get on top of GRT, you need to commit the time and effort. Once a commitment to control a high-density infestation is made, ongoing high-level commitment over at least 3 years is needed to protect the initial investment and lower the density to a mop-up stage.
3. Taking on too much GRT is too hard; it is best to tackle one paddock at a time and to maintain results. Only undertake management of a dense area of GRT if you have the time and resources to follow up.
4. A key goal for GRT control is good pasture management. For long-term benefits, the competitive advantage of desirable pastures goes hand in hand with GRT control activities.
5. To reduce seed spread, use heavily infested paddocks for grazing only when GRT is not seeding. GRT seeds are easily spread by livestock, especially in dewy or muddy conditions.
6. Fertilisers help reduce re-establishment of dense GRT. Healthy competitive pastures will help reduce seedling survival and re-establishment of GRT.



Assessing results

Acknowledgements

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