

Using Gibberellic Acid to Promote Winter Pasture Growth

Keith Bolto & Tamara Rohrlach, Rural Solutions SA

Ettrick via Murray Bridge SA

Key messages:

- Growth hormones such as gibberellic acid can be used to stimulate winter growth of pastures filling the winter feed gap
- Extra production is at a cost and hence there needs to be a feed shortage to justify application
- Ensure application is to your best pastures (i.e. ensure there is not a nutrient deficiency) to gain optimum results

Aims:

- To determine if growth hormones can stimulate medic growth in the Mallee
- To find limiting factors to pasture growth in the area
- To establish the best scenario to promote winter growth

Background:

While stocking rates are similar throughout the year, pasture production varies with the season. In winter, stocking rates are often limited by feed availability. A trial was recently conducted to determine whether winter medic pasture production could be increased by the application of ProGibb®, a commercial form of gibberellic acid produced by Sumitomo Chemicals and others.

This trial investigated the merit of ProGibb® application in the Mallee, with the hope that it would assist in increasing winter production of pastures, leading to the ability to increase stocking rates and overall profitability. A similar trial was conducted on Kangaroo Island in 2007 showing that the use of gibberellic acid has merit in high rainfall regions.

About the trial:

Gibberellic acid is a naturally occurring plant hormone that is produced in higher quantities in warmer months. During the colder months, its production is low, hence plant growth is slower. The idea behind the application of the hormone is that it will stimulate cell expansion, resulting in leaf and stem elongation.

The recommended application of ProGibb® is 20g/ha, best applied to freshly grazed pastures when experiencing feed shortages. In this particular trial we compared ProGibb® at two different application rates 5g/ha and 15g/ha, as well as comparing to an overall nutrient mix 'Pasture Foliar' (4L/ha) and a liquid nitrogen application 'Easy N' (20L/ha). All ProGibb® applications also had 100mL/100L water BS1000 (see Table 1).

Table 1. Treatments applied and rate of application

Treatment	Rate/ha
Control	N/A
Easy N	20L
Pasture Foliar	4L
ProGibb 5	5g
ProGibb 15 + Pasture Foliar	15g + 4L
ProGibb 15	15g
ProGibb 15 + Easy N	15g + 20L

The trial was completely randomised and replicated using 28 3.5x25m plots. Soils were loamy sand and the medic pasture had been freshly grazed. Application was conducted on the 24th June 2009.

Assessments:

The collection of data at the trial site included:

- Dry Matter Cuts
- Grazing observations
- Farmer discussions

Results:

Results were visible within seven days. Medic growth was more upright where ProGibb® had been applied and the treated plots were also slightly more yellow in colour. This coloration change is due to the same amount of chlorophyll being stretched over larger cells. Suspicion arose as to whether there was more dry matter in these plots or whether it was just because the plants were more upright. Pasture cuts were taken 2½ weeks later on the 13th July 2009 (maximum dry matter production is reported as 3-4 weeks after application). Although there was some variation, all treatments increased the dry matter of the plot. The last column in table 2 indicates that the ProGibb® alone at 5g/ha and 15g/ha was the most cost effective methods of increasing feed production.

Table 2. Costs required to produce an extra tonne of feed.

Treatment	Total feed on offer Kg DM/ha	St Dev	Feed in addition to control (kg/ha)	Cost to produce an extra tonne of feed (\$)
Control	450	167.1	N/A	0
Easy N	525	201.0	75	240
Pasture Foliar	531	59.1	81	309
ProGibb 5	544	124.8	94	85
ProGibb 15 + Pasture Foliar	631	151.9	181	221
ProGibb 15	638	193.1	188	96
ProGibb 15 + Easy N	681	170.0	231	143

Feed test results have also shown that there was less than 1% difference in the quality of feed between the ProGibb® 15 application and the control.

Whilst the trial showed that the use of ProGibb® can improve winter pasture production, it is recommended that you apply the hormone to your best pastures to optimise results. It would also be beneficial to use ProGibb® as part of a cell grazing rotation so you can spray a paddock a few weeks prior to moving sheep into the paddock.

It is noted that extra production is at a cost so requires a situation of feed shortage. ProGibb® application in pastures is only for winter use when temperatures and sunlight hours are limited.

Who's Involved:

The trial is supported by;

- Farmer Co-operators - Chad and Neil Burbidge
- Fiona Hill of Sumitomo Ag
- MSF Inc.
- Agrichem
- Incitec Pivot
- DWLBC Branched Broomrape Eradication Program

Activities, Events and Industry Participation:

A Farmer Field Day was conducted at the trial site on the 16th July 2009. The trial also featured in *Agronomy Matters* Mallee newsletter in Winter 2009, which is also posted on the Mallee Sustainable Farming Inc website.

Future Directions:

We suspect that while the results of this trial were representative of pastures in the area, they weren't as successful as we had expected. For this reason in the coming season, we will investigate the effect of soil fertilisers on medic pasture growth.

References:

Kangaroo Island Agricultural Trials 2007 Results, Rural Solutions SA, the South Australian Department of Agriculture, Fisheries and Forestry and the Kangaroo Island Natural Resources Management Board.

Acknowledgements:

This research is supported by the South Australian Department of Water, Land and Biodiversity Conservation community grants for land care, water care and coast care.

For more information, please contact

Tamara Rohrlach
Farming Systems Consultant
Rural Solutions SA
Ph: (08) 85356400
tamara.rohrlach@sa.gov.au



Figure 1. Taller and more yellow pasture on RHS treated with ProGibb, control on LHS

