



Welcome to the first fact sheet from the Murrumbidgee Grain & Graze project.

Grain & Graze is a new national research program funded by GRDC, Land & Water Australia, MLA and AWI, aimed at improving the financial and environmental performance of mixed farming systems. The Murrumbidgee Grain & Graze project, one of 8 regional projects within the program, involves 5 organisations:

- FarmLink (host agency)
- Murrumbidgee Catchment Management Authority
- NSW Department of Primary Industries
- CSIRO
- Charles Sturt University

The project will receive \$1 million over 5 years from the funding bodies, as well as significant in-kind contributions from the agencies involved.

The focus of the Murrumbidgee project is on managing the enterprise mix to optimise whole farm feed supply as well as protecting the natural resource base, particularly water use, ground cover and species diversity. The project is made up of 4 modules:

- **R&D trials** - grazing wheats & long season annual legumes
- **Focus farms** - 10 across the catchment, monitoring the impact of mixed farming practices on profitability and sustainability
- **Prograze™ for mixed farming systems** - incorporating short season pastures, stubbles & grazing cereals
- **Communications** - including fact sheets, case studies, field days, etc.

For more information on the Grain & Graze program go to www.grainandgraze.com.au

Grazing wheats - R&D trials

The R&D trials were the first module to kick-off the project, with 3 replicated trial sites sown this year at Grenfell, Marrar and Yerong Creek. Guy McMullen (DPI) is the primary researcher on this module.

- Treatments include 6 varieties sown at 3 sowing times. Varieties are:

Lorikeet	Wedgetail
Mackellar	Whistler
Marombi	Wylah

Additional plots of Wedgetail (ungrazed) and Diamondbird were sown in the 2nd sowing time to compare water use.

- 3 sowing times were sown at each location despite the late break and locusts. (Table 1)

Table 1 - sowing dates for grazing wheat trials

Site	1st sowing	2nd sowing	3rd sowing
Grenfell	19th April (locust damage)	28th May	23rd June
Marrar	13th April (dry)	27th May	8th June
Yerong Ck	13th April	23rd May	8th June

AgriTech sowing the grazing wheat trial at Grenfell

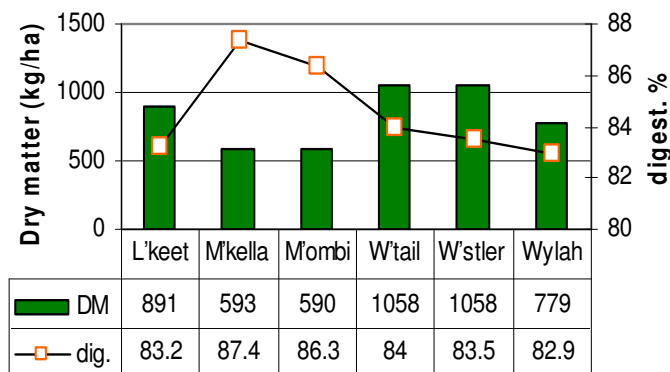


Results to date

Dry matter (a measure of feed quantity) and digestibility (a measure of feed quality) was measured in the 1st sowing time at Yerong Creek before grazing (Figure 1). Wedgetail and Whistler had produced the greatest amount of dry matter (DM) and Mackellar and Marombi the lowest. Digestibility was very high in all varieties.

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Figure 1 - DM & digestibility for 1st sowing at Yerong Ck (2nd July)

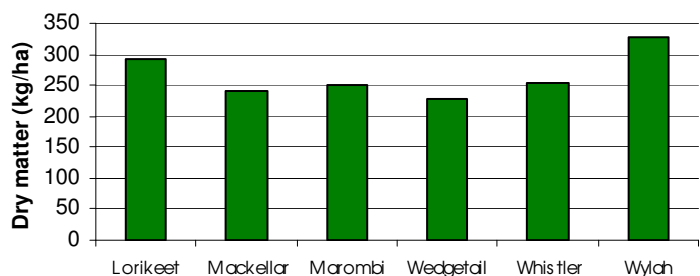


The computer model GrazFeed was used to predict liveweight gain based on DM and quality results of the 1st sowing time. Results were similar for all varieties. The higher DM in Wedgetail resulted in a slight increase in steer weight gain over Marombi, but had no impact on lamb weight gain (already eating at 100% of potential) (Table 2).

Table 2 - GrazFeed predictions of weight gain (2nd July)	Lambs (weaners)		Steers (1-3 yrs)	
	Wedgetail	Marombi	Wedgetail	Marombi
DM (green) t/ha	1.05	0.59	1.05	0.59
Dig. % (max. 80%)	80	80	80	80
Protein %	30	28	30	28
Height (cm)	20	15	20	15
DM intake (kg)	1.7	1.7	10.4	10.0
Weight gain (hd/d)	241 g	241 g	1.21 kg	1.13 kg

The 1st sowing time at Yerong Ck was grazed from the 8th-11th July down to ~500kg DM/ha. DM was measured 10 days after grazing to determine recovery (Fig. 2), with Wylah the quickest to respond.

Figure 2 - grazing recovery at Yerong Creek (difference in DM between immediate post-graze and 10 days post-graze)



Acknowledgement: Guy McMullen (NSW DPI)

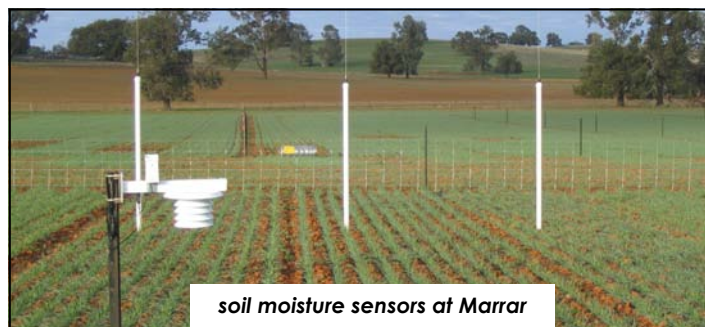


Yerong Ck - 1st sowing pre-graze (5th July)

Water use - comparing winter vs spring wheats and grazed vs ungrazed

Sensors measuring soil water potential have been installed by CSIRO (Warren Bond) at the Marrar R&D grazing wheat site. These sensors indicate where the moisture is in the profile and how wet or dry it is, with the greater the reading the drier the soil (a cheaper and easier alternative to measuring soil water content). The measurements allow us to compare water use between treatments (grazed and ungrazed Wedgetail and Diamondbird).

The sensors have been placed at 20cm intervals to a depth of 1.6m in each treatment. Data loggers record information from the sensors, which is then downloaded via radio frequency telemetry to a nearby receiver (pc-ePhone). The data is then automatically uploaded to a website: (www-test1.clw.csiro.au/fenceline/projects/takada/plots.htm) enabling viewing of 'real time' water movement in the soil profile. Please note this is a test version of the website which will undergo further development.



The data collected at Marrar so far clearly shows moisture is now down to 60-80cm in all plots (Figure 3). (Lower depths are still equilibrating). Later in the season, the drying pattern of the soil at different depths will indicate the rooting depth of the crops.

Acknowledgement: Warren Bond (CSIRO)

Figure 3 - Soil water potential at Marrar (Wedgetail rep 1)

