

“Growing Biomass”

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Key Outcomes:

- Cereal and ryegrass species produced the most dry matter overall (10.5-14 t/ha DM)
- Brassica species are viable quality feed options for the production of early feed.
- Feed quality of the ryegrass species was again highlighted by excellent dry matter production combined with good feed test characteristics.

- **Trial Objectives:** To compare biomass production of range of species

- **Trial Duration:** 2015

- **Location:** Navan

Farmer Co-operators: Pat & Mary Connell

- **Soil Type:** Red Clay Loam

- **Paddock History:** 2014 – Faba Beans
2013 - Wheat

- **Monthly Rainfall:**

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
69.5	4	1	70	52	23	56.5	82.5	30.5	9	80.5	36.5

- **Yield Limiting Factors:** Below average spring rainfall
- **Type of Trial:** Non-Replicated small plot trial
- **Trial Design:** Non-Replicated, single plot per variety

Treatments:

26 different species were sown in the Growing Biomass trial on 11/04/2015. All plots received 80 kg/ha MAP 1% Zn fertiliser at sowing. 60 kg N/ha as urea was applied to all non-legume plots. The varieties and species that were sown are shown below in **Table 1**. Selected plots were hand harvested (2 x 50cm rows cut to ground level) on 06/06/2015 and 29/10/2014 from a representative area of the plot. The ryegrass species were cut at a later date when the majority were flowering to enable them to achieve maximum biomass. The samples were cut, then bagged, dried in a oven and weighed to determine dry weight. In addition to this, Anthony Pearce (Hills Farm Supplies) was involved in the project this year

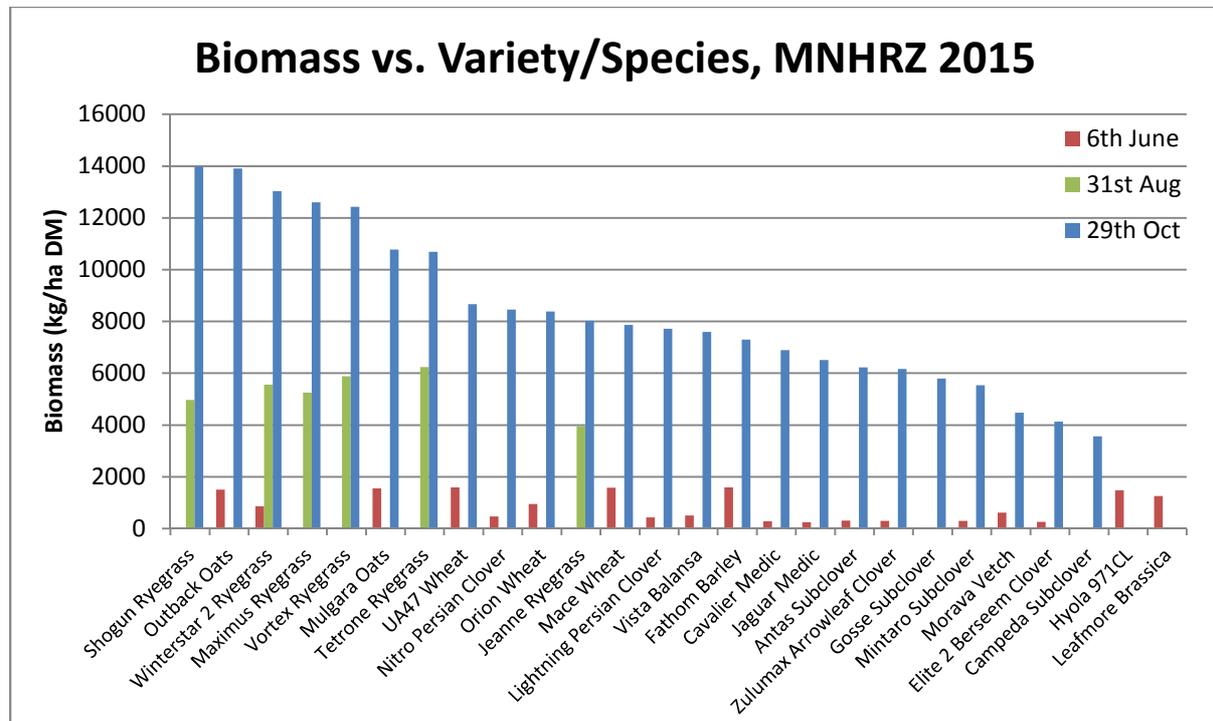
via Dairy SA funding. This enabled additional rising plate dry matter and feed quality assessments to be taken on selected species/varieties during the growing season.

Table 1: Species in the ‘Growing Biomass’ Trial, MNHRZ 2015

Varieties		
Winterstar 2 Ryegrass	UA47 Wheat	Vista Balansa Clover
Vortex Ryegrass	Fathom Barley	Antas Subclover
Shogun Ryegrass	Mulgara Oats	Mintaro Subclover
Tetrone Ryegrass	Outback Oats	Gosse Subclover
Maximus Ryegrass	Morava Vetch	Campeda Subclover
Jeanne Ryegrass	Cavalier Medic	Lightning Persian Clover
Mace Wheat	Jaguar Medic	Nitro Persian Clover
Orion Wheat	Zulumax Arrowleaf Clover	Elite 2 Berseem Clover
Hyola 971 Canola	Leafmore Forage Brassica	

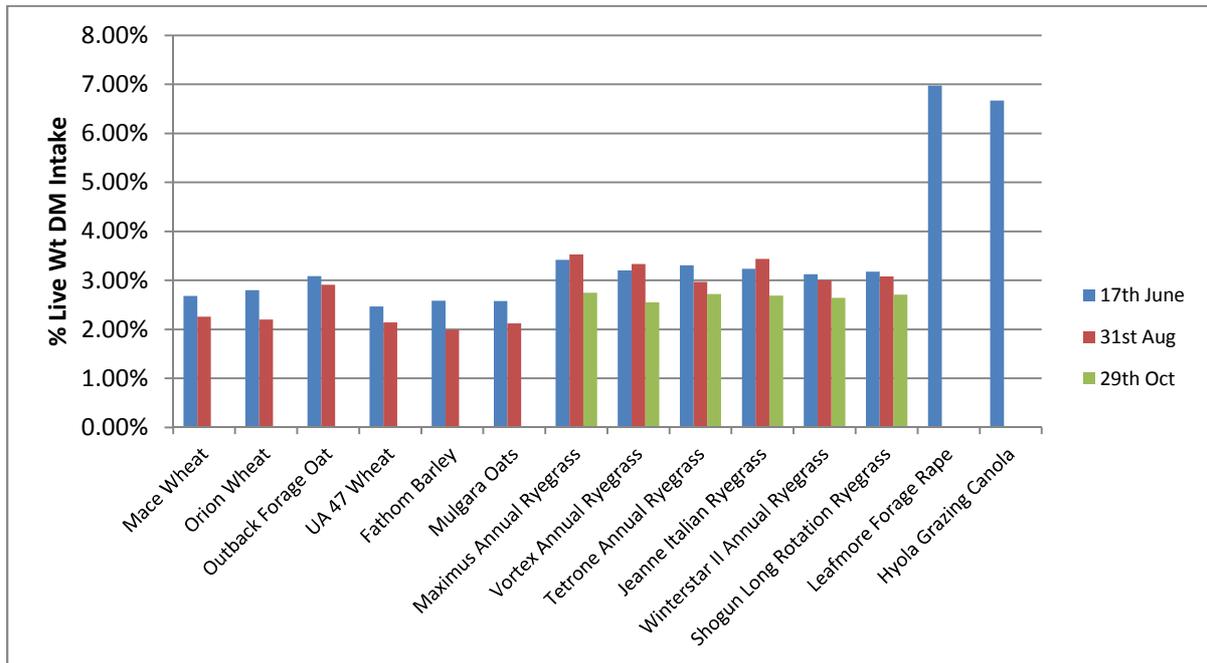
Results:

Figure 1: Dry Matter Production for select species at various dates, Growing Biomass Demonstration 2015, MNHRZ



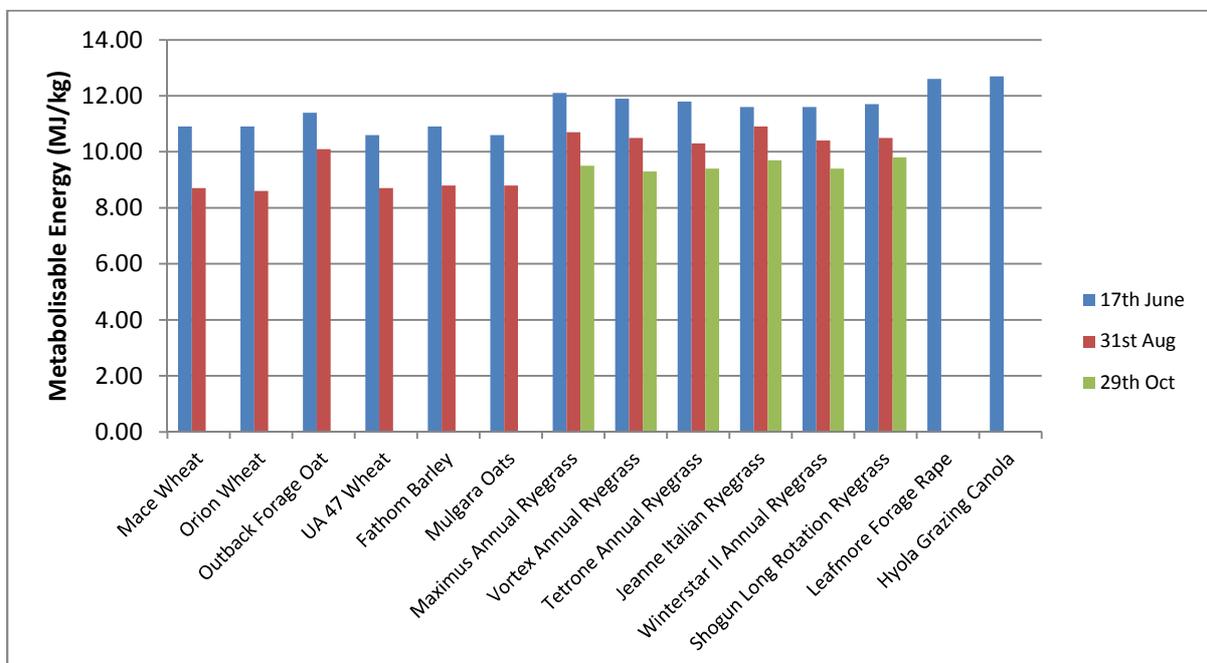
Data Not Replicated therefore no statistics

Figure 2: Intake percentage for select species at various dates, Growing Biomass Demonstration 2015, MNHRZ



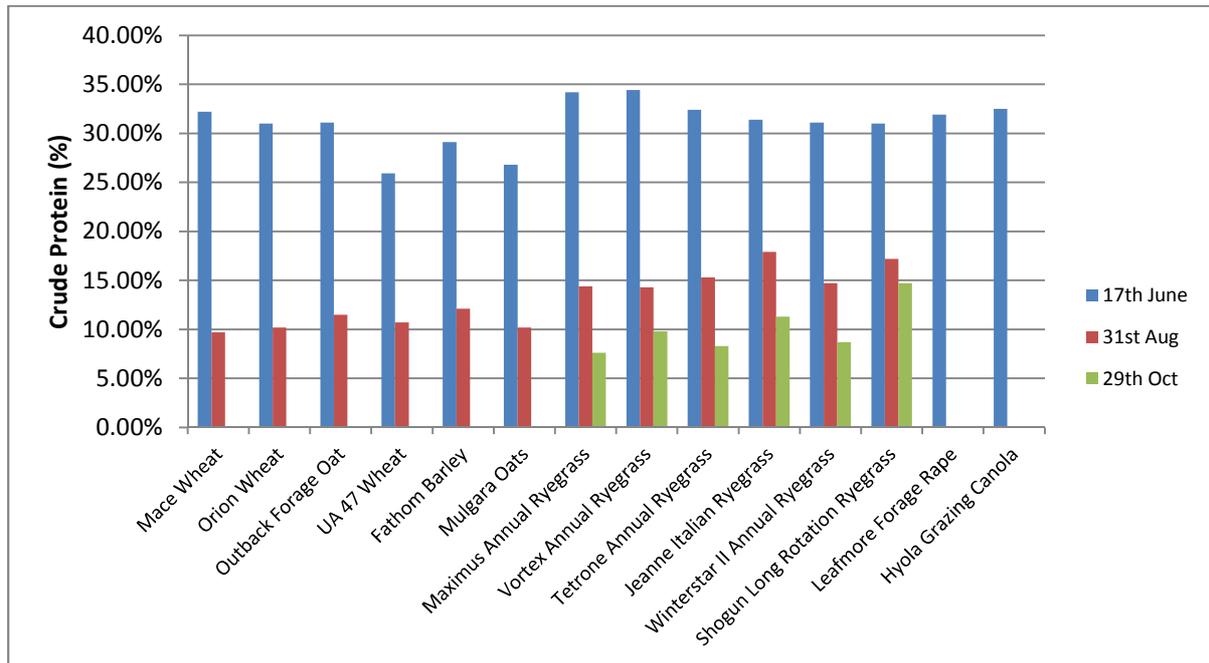
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Figure 3: Metabolisable Energy for select species at various dates, Growing Biomass Demonstration 2015, MNHRZ



Data Not Replicated therefore no statistics

Figure 4: Crude Protein for select species at various dates, Growing Biomass Demonstration 2015, MNHRZ



Data Not Replicated therefore no statistics

Comments:

The oat and ryegrass species produced the most dry matter in the trials this year. The exception to this was Jeanne, which was severely affected by the dry conditions and heat late in the season. The best performing legumes were the persian clovers Nitro and Lightning aswell as Vista balansa clover. These species were able to make the most of the early sowing opportunity in 2015 to produce outstanding amounts of dry matter considering the season. The early growth of the brassica species was extremely good, however following a simulated grazing of part of the plot, dry matter produciton declined sharply, so much so that it was decided not to take further dry matter assessments from these plots.

Figure 2, shows how palatable the brassicas were early compared to all other species tested. This result adds weight to the argument of including some retained canola seed in the pasture mix for early feed. There was little difference between the ryegrass and cereals for early dry matter intake. However, by the end of August this difference was quite pronounced, with the ryegrass species beginning to show their value. The exception to this was Outback oats which were akin to the ryegrass species. Similar results of feed quality vs time can be seen in **Figure 3**.

Protein content of the cereal and grass species varied considerably, as seen in **Figure 4**. This appears to not be a protein dilution effect caused by dry matter production, as Shogun ryegrass was able to produce outstanding dry matter production whilst maintaining protein levels close to 15%.

Conclusion and into the paddock

The value of these trials has been boosted considerably thanks to the work of Anthony and the feed testing that he has done. Normally, we are not able to produce feed test results for the different species due to time and funding constraints.

The results this year highlighted again the value of having a mixture of pasture species in a grazing system. Looking at the feed test quality of these species at the time when feed is required, will enable better production potentially, as there were marked differences between species in this regard.

It would appear that separate paddocks/parts of paddocks containing species that produce dry matter and quality at different stages of the year would be the most profitable, allowing more stock to be carried for longer periods, potentially with less supplementary feeding.

Testing the species under early sowing this year has allowed us to see major differences between the legume species for dry matter production also. Traditionally Persian clover and balansa clover have been included in mixes with Subclover to accommodate for areas of the paddock where sub will not grow as well. These results highlight that these species may be a pasture option in their own right, given seasonal conditions suitable to sow them.

Acknowledgements

Pat & Mary Connell: for allowing the trials to be conducted on their land.

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