

“Growing Biomass Trial Results 2012”

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Key Outcomes:

- Coyote Sugarbeet produced the highest biomass (t/ha) in the trial
- UA 47 and Orion Wheat produced higher biomass when compared to other, more typical pasture species
- Ryegrass varieties (Tetelia, Tetrone, Surrey and Sungrazer T) were average performers

Trial Objectives: To compare the biomass production of a range of typical and atypical crop types

Trial Duration: 2012

Location: Navan

Farmer Co-operators: Pat & Mary Connell

Soil Type: Black Cracking Clay

Paddock History: 2010 Mace Wheat
2011 Wintaroo Oats Hay

Monthly Rainfall:

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
18	11	55	16	42.5	76.5	38	46.5	29	21.5	4.5	10

Yield Limiting Factors: Dry Spring, Patchy Establishment of small seeded species

Type of Trial: Small trial plot (unreplicated)

Trial Design: Randomized Demonstration

Treatments:

41 different species were sown in the Growing Biomass trial on 16/05/2012. All plots received 80 kg/ha of triple superphosphate (0:20:0). The varieties and species sown are shown below in **Table 1**. All plots received a total of 100kg/ha N in 2 separate applications during the growing season. The Canola plots received an extra 50kg/ha N (total N 150kg/ha). All plots were hand harvested from an average area of the plot on 01/11/2012

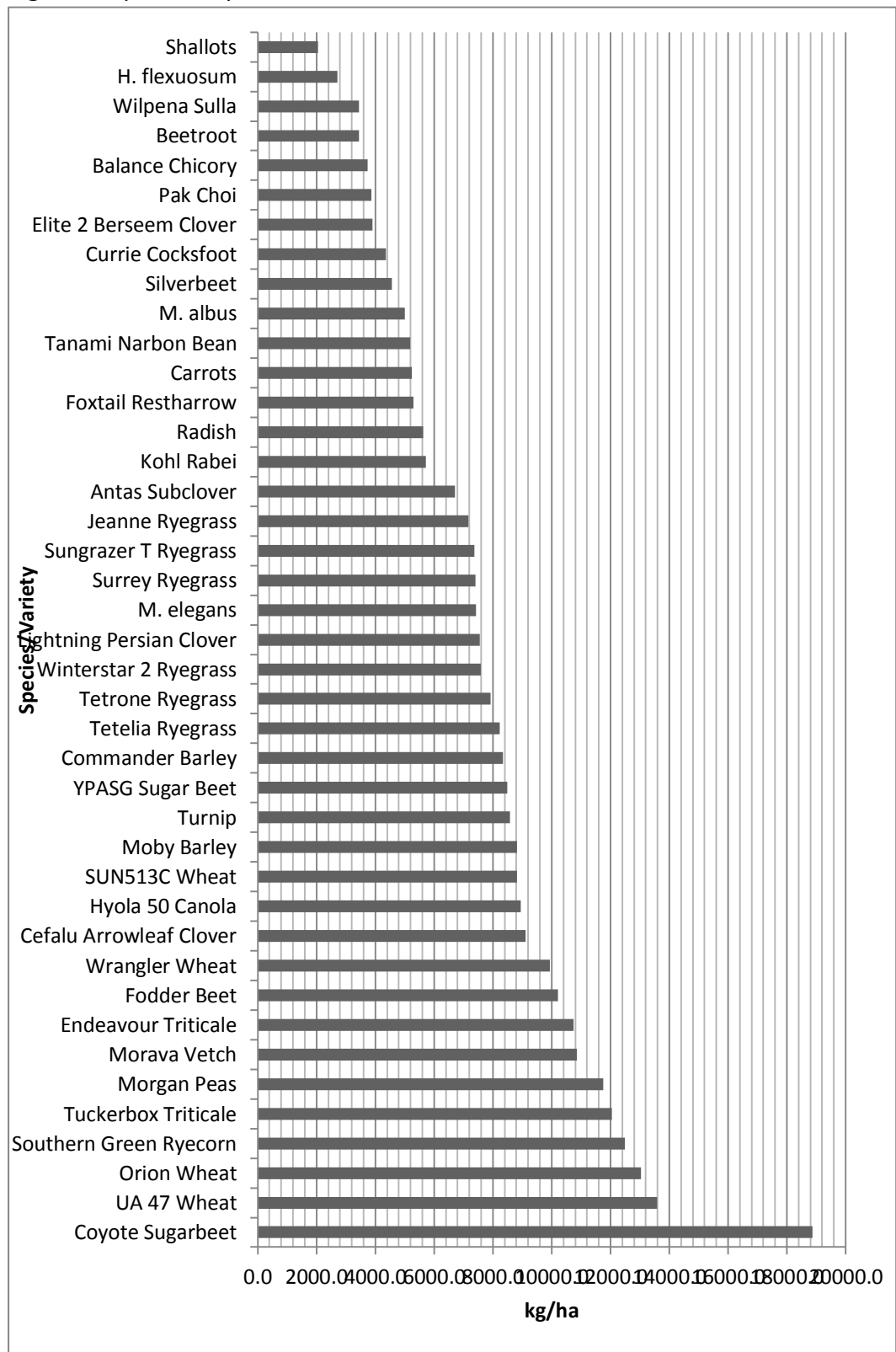
to determine dry matter production. Biomass cuts were then bagged, dried and weighed again to determine dry weight.

Table 1: Crops included in the ‘Growing Biomass’ Trial, MNHRZ 2012

Varieties		
Coyote Sugarbeet	Turnip	Foxtail Restharrow
UA 47 Wheat	YPASG Sugar Beet	Carrots
Orion Wheat	Commander Barley	Tanami Narbon Bean
Southern Green Ryecorn	Tetelia Ryegrass	<i>Melilotus albus</i>
Tuckerbox Triticale	Tetrone Ryegrass	Silverbeet
Morgan Peas	Winterstar 2 Ryegrass	Currie Cocksfoot
Morava Vetch	Lightning Persian Clover	Elite 2 Berseem Clover
Endeavour Triticale	<i>Melilotus elegans</i>	Pak Choi
Fodder Beet	Surrey Ryegrass	Balance Chicory
Wrangler Wheat	Sungrazer T Ryegrass	Beetroot
Cefalu Arrowleaf Clover	Jeanne Ryegrass	Wilpena Sulla
Hyola 50 Canola	Antas Subclover	<i>Hedysarum flexuosum</i>
SUN513C Wheat	Kohl Rabei	Shallots
Moby Barley	Radish	

Results:

Figure 1: Species Dry Matter Production, 2012 MNHRZ



Comments:

Coyote Sugarbeet was the stand out performer in this unreplicated trial, producing 18.9t/ha of biomass (See **Figure 1**), 5.3t/ha higher than the second highest performer. Interestingly, the second and third highest performers were both wheat varieties, UA47 Wheat (13.6t/ha) and Orion Soft Wheat (13.0t/ha). Hyola 50 Canola (8.9t/ha), did not produce high levels of biomass compared to other species in the trial, yet received 50 extra units of N. The three worst performers included Wilpena Sulla at 3.4t/ha, *H flexuosum* at 2.7t/ha and Shallots at 2.0t/ha.

Conclusion and into the paddock

Coyote Sugarbeet produces high levels of biomass, and could be a potential source of pasture or biofuel in the future in South Australia. Further research on a broadacre scale could be undertaken to establish knowledge gaps. UA 47 and Orion Wheat can produce high amounts of biomass, and anecdotally could be suited in a grain and graze situation. Further research could be carried out to determine the recovery and grain production of these varieties.

Of the annual legumes, both Morgan Peas and Morava Vetch produced significantly more dry matter than any of the clovers tested. Cefalu Arrowleaf Clover, Lightning Persian Clover and Antas Sub Clover were the highest yielding of the dedicated pasture legumes and worthy of consideration. The production of dry matter of annual legumes is mostly in spring although Morava Vetch and Morgan Peas can produce substantial amounts of winter grazing.

Although not included in the trial results, a “best bet” pasture mix containing Commander Barley, Morava vetch and Cefalu Arrowleaf Clover was sown to determine if a once off mix sown in May could provide feed for the whole year. Half of the 12m plot was treated with a grass herbicide in early August to remove the Barley, leaving the vetch and clover. However, the dry spring and early barley competition resulted in limited dry matter production following this treatment. In commercial paddocks, this strategy has been very effective as it allows a disease break by removing the grasses from the paddock with a selective herbicide.

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