

Improved perennial pastures for Kangaroo Island: an update

Background

The establishment and cultivars for this trial were detailed in the publication 'Kangaroo Island Agricultural Trials: 2009 results'.

Three replicated pasture trials were successfully established on Kangaroo Island in May 2009 on the following properties:

- Merve and Marilyn Tremaine, Playford Hwy, Parndana
- Dale Paxton, Harriet Road, Vivonne Bay
- Simon Murton, Johncock Road, Stokes Bay.

The trials were assessed for plant density (perennial plants/m²) and plant size/vigour (% ground cover) in late February 2011, following nearly two summers (Table 1, 2 and 3).

Total dry matter production was measured in September 2010 and again in February 2011 (Table 4).

All trial paddocks have been rotationally grazed since establishment, and have been fertilized annually.

TABLE 1 Perennial pasture species

What has "bombed out" with zero plants remaining late February 2011

Tremaine	Paxton	Murton
Exceltas grazing brome Hercules plantain Tonic plantain Puna chicory	Porto cocksfoot Megatas cocksfoot Sendace cocksfoot Uplands cocksfoot Laserly cocksfoot Vision cocksfoot Oxen cocksfoot Exceltas grazing brome Landmaster phalaris Sirosa phalaris Hercules plantain Tonic plantain Flairdale lucerne Puna chicory There was severe annual grass competition at this site, mainly annual ryegrass. Despite excellent grazing management, and reasonable establishment, all perennial grasses failed to survive a second summer, except for Fletcha Tall fescue (with MaxP endophyte). This shows the importance of annual grass control before sowing perennials.	All are present. This was a very clean site with excellent weed control the year before sowing.

TABLE 2 Perennial pasture species
What has survived to the end of February 2011

	Tremaine		Paxton		Murton	
	Density of plants/m ²	% of ground covered	Density of plants/m ²	% of ground covered	Density of plants/m ²	% of ground covered
Porto cocksfoot	80	41	Failed to survive		24	3
Megatas cocksfoot	43	33			16	6
Lazuly cocksfoot	62	26			Not sown	
Vision cocksfoot	47	26				
Uplands cocksfoot	57	20			67	11
Fletcha Tall Fescue	59	10	47	3	Not sown	
One 50 AR1 perennial rvegrass	41	10	Failed to survive			

TABLE 3 Perennial pasture species
What is looking sad at end February 2011

	Tremaine		Paxton		Murton	
	Density of plants/m ²	% of ground covered	Density of plants/m ²	% of ground covered	Density of plants/m ²	% of ground covered
Sendace cocksfoot	58	8	Failed to survive		18	2
Oxen cocksfoot	38	5			Not sown	
Landmaster phalaris	19	3				
Sirosa phalaris	20	2				
Exeltas grazing brome	Failed to survive				38	5

TABLE 4 Perennial grass dry matter production February 25 2011 (**Tremaine only**)
Kg/ha green leaf (December 1 – February 25 = 87 days)

* included significant kg dead flower stalks

Summer production

Porto cocksfoot	2160	= 25 kg/ha/day Green leaf
Megatas cocksfoot	1970	= 23 kg/ha/day Green leaf
Vision cocksfoot	1960	= 23 kg/ha/day Green leaf
Lazuly cocksfoot	1860	= 21 kg/ha/day Green leaf
One 50 AR1 perennial ryegrass	1670	= 19 kg/ha/day Green leaf
Uplands cocksfoot	2080 *	Mostly dead stalks/leaves
Fletcha Tall Fescue	1930 *	Mostly dead stalks/leaves

Results

Perennials

Porto cocksfoot is still the “standout” perennial grass cultivar of those tested. The plant numbers are dropping relatively slowly, but surviving plants are becoming larger. Porto is also a summer active cultivar. **Megatas cocksfoot** (Tasmanian) has a similar growth pattern to Porto, but plant numbers are

dropping quickly, even though individual plants are quite large. **Lazuly and Vision** are similar to Megatas. **Uplands cocksfoot** (also Tasmanian) is quite summer dormant, with a fine leaf. Its persistency seems similar to Porto, but with much smaller

plants. It would not be a good weed competitor, and more difficult to establish. This explains why it is performing better than other cultivars at Murtons, which is a very clean site, but with shallow stony soils subject to drying out in early summer.

Time will tell whether the potential persistency of **Uplands** makes up for its early maturity, and lack of summer productivity. **Feed quality of Uplands in winter** may be low, due to carry over seed stalks.

Sendace cocksfoot (Tasmanian) is an extremely summer dormant cocksfoot with very fine leaves. It has not performed well.

Fletcha tall fescue is also highly summer dormant, and even though plant numbers are acceptable, plants are very small. It has competed well with annual ryegrass at Paxton's. Again, time will tell whether persistency makes up for small plant size, and whether plants will become larger with age. Tall fescues prefer a deeper soil over clay compared to cocksfoots. Feed quality in winter may be low due to carry over seed stalks.

One50 AR1 Perennial ryegrass numbers have already started to drop significantly, so how long will it last?

Phalaris cultivars showed early promise, but plant size is still very small, and plant numbers are declining.

Annual Legumes.

Funding/Sponsors

- KI Natural Resources Management Board
- SA Government Community Landcare grant
- Yankalilla seeds
- Stephens seeds
- TasGlobal seeds
- Seed Force
- Cropmark
- Seed Distributors
- Pristine Forage Technology

The legume plots at Tremaine's and Paxton's were sprayed with Raptor® in July 2010 for silver grass and annual ryegrass control, with excellent results. Raptor was donated by Cropcare.

Sub clovers are still the preferred annual legume, with no other legume showing any promise for persistence and productivity. **Gosse** is a standout sub clover, with an excellent ability to compete with capeweed. **Napier** is a surprise, showing good promise for a very late flowering cultivar. **Trikkala** has also performed well.

There is nothing to recommend arrowleaf and Persian clovers or serradella.

Take home messages

- Porto cocksfoot the standout perennial grass cultivar, with Uplands cocksfoot showing promise for persistency in shallow dry soil environments.
- Gosse sub clover the standout annual legume, with Napier showing promise as a later cultivar. Trikkala sub clover still a good performer.
- Persistence and productivity will continue to be monitored over several years, subject to further funding.

For further information contact

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