

Alternative Pastures in the Upper North

Key Messages

- Amount and quality of feed are important considerations when grazing livestock
- Barley and canola/vetch had fastest early growth rate to 21st August
- Oats/vetch and canola had the fastest growth rate between 21st August and 28th September
- Alternative pastures produced more dry matter overall than medic varieties

Why do the trial?

The purpose of the trial was to compare growth rates and dry matter production of alternative pastures with traditional medic pastures

Background

In low rainfall areas, growth and development of annual regenerating medic pastures is often slow due to hard seed content and naturally slow early growth rates. Often this occurs under cold conditions (especially in the Upper North) resulting in delayed development until warmer temperatures and longer days later in the season enable faster growth rates and more dry matter production. Medic pastures often provide an abundance of feed at a time when growers already have a lot of feed, so a trial comparing alternative pastures was established attempting to provide more feed earlier in the growing season to help reduce the 'feed gap' between late summer and autumn.

How was it done?

All treatments were sown on 6th May at appropriate seeding depths into soil with a dry surface but moist seed bed. Medic plots were scratched into the surface and were sown in two passes (half seed and fertiliser rate each time) with the second pass being sown 'inter-row' of the first (to simulate a regenerating pasture). 50 kg/ha DAP was applied to all plots at seeding. The site was treated with 1 L/ha PowerMax and 50 mL/ha Lemat prior to seeding. A follow up application of 500 mL/ha Select, 250 mL/ha Targa and 1% Hasten (at robust rates) was applied on 3rd July. Table 1 below shows the treatments included in the trial. A range of alternative pastures were selected including some aerially seeded medic varieties (Cheetah barrel and Jaguar strand).

Table 1: Treatments sown in the Morchard pasture trial 2010

	TREATMENT	SEED RATE kg/ha
1	Jaguar medic	10
2	Tarcoola canola	4.5
3	Wintaroo oats + Morava vetch	Oats: 60 Vetch: 20
4	Angel medic seed rate 1	10
5	Hindmarsh barley	60
6	Cheetah medic	10
7	Angel medic seed rate 2	20
8	Oasis juncea	4.5
9	Morgan forage peas	100
10	Jester medic	10
11	Tarcoola canola + Morava vetch	Canola: 2.5 Vetch: 25
12	Morava vetch	30

Pasture cuts were taken from each treatment at various stages during the growing season to determine dry matter produced per hectare. Each sample was dried and weighed. These measurements were also useful to compare growth rates between treatments. Plots containing oats and barley were harvested on 19th November while all other treatments were harvested on 23rd November.

What happened?

Barley and canola/vetch produced the most dry matter by 21st August and also had the fastest growth rates of all treatments. By 28th September oats/vetch had overtaken barley, canola/vetch and canola and remained the highest producer all season (figure 1). Table 2 includes the total dry matter produced for all treatments until the beginning of November.

After 28th September, growth rates of oats/vetch, peas and Cheetah medic began to plateau while canola, vetch and Angel medic SR2 began to decline, indicating senescence of plant material had occurred. This means less dry matter that livestock could consume. Dry matter of barley and canola/vetch however continued to keep increasing, suggesting that nitrogen fixed by vetch helped the canola in the mix to keep growing. Canola/vetch had a more steady and consistent growth rate than canola when grown alone (figure 1). Overall dry matter was the same by 4th November; however the vetch in the mix would have increased the quality of the feed. In terms of plant establishment in the canola/vetch mix, the ratio was approximately 5:1. Although canola plants were superior in this mix, vetch still added value to the pasture.

Of the medic varieties grown, Angel SR2 produced slightly more dry matter by 21st August however by 28th September Angel SR1 had a slight advantage and continued to all season. Cheetah and Jaguar medics (aerial seeded – that is they can be harvested with a conventional header) competed well with traditional varieties throughout the season, until the last month when they remained greener for longer and maintained their bulk (as is their nature). The higher seeding rate of Angel SR2 (compared with Angel SR1) appeared to cause Angel SR2 to senesce (die off) earlier.

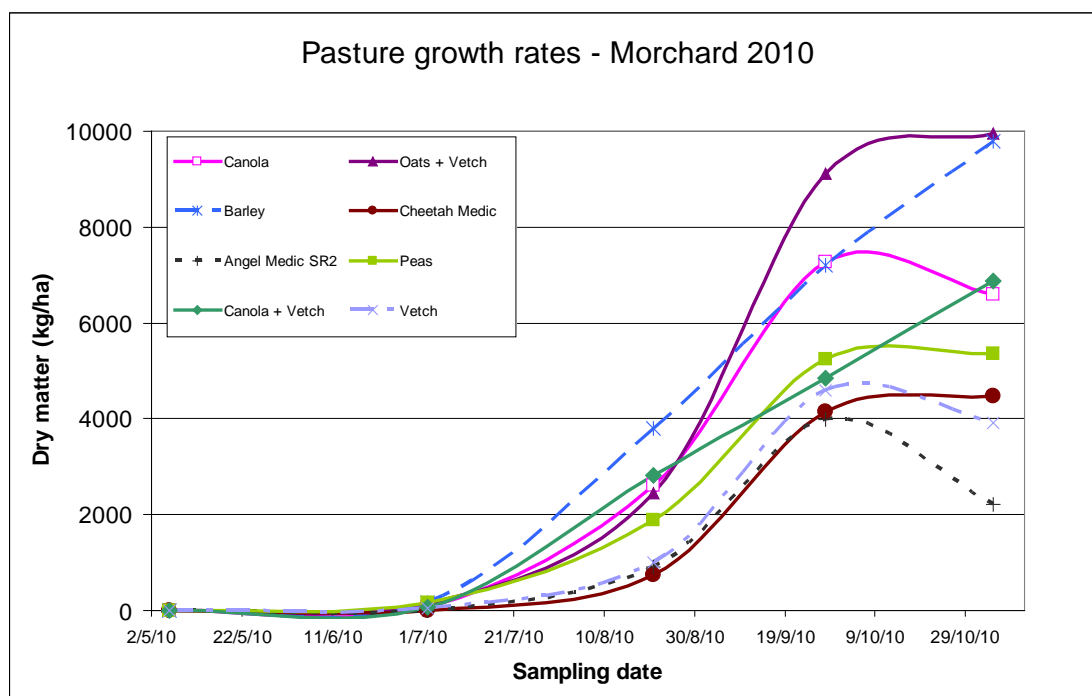


Figure 1: Dry matter production and growth rates for selected pastures grown at Morchard to 4th November 2010.

Table 2: Full results of pasture dry matter production at Morchard up until 4th November 2010

Treatment	Dry Matter (kg/ha)			
	2/7/2010	21/8/2010	28/9/2010	4/11/2010
Angel Medic SR 1	0.64	748.9	4719.4	2243.1
Angel Medic SR 2	0.68	914.3	3997.3	2218.8
Cheetah Medic	0.69	751.1	4158.0	4479.1
Jaguar Medic	0.69	956.7	5217.9	3013.9
Jester Medic	0.7	710.9	5710.3	3288.2
Tarcoola Canola	64.6	2603.1	7263.9	6604.7
Canola + Vetch	68.8	2825.9	4839.8	6879.4
Oats + Vetch	145.8	2457.9	9113.6	9949.6
Morava Vetch	40.3	998.3	4602.8	3923.6
Oasis Juncea	100.7	3562.8	5923.8	6578.2
Hindmarsh Barley	159.7	3806.3	7210.8	9794.9
Morgan Peas	159.7	1891.3	5238.2	5365.4

What does this mean?

Some of the alternative pastures (to medics) such as oats/vetch, barley and canola produced the most dry matter; however as these are not legume pastures (except vetch in oats/vetch mix), they have not fixed their own nitrogen and have depleted soil nitrogen reserves. Therefore the cost of additional nitrogen for non-legume crops to follow must be factored in.

The benefit of legumes in a rotation is an important consideration, not only for nitrogen fixed but also for a root disease break. In 2010, in low rainfall areas, the benefits of legumes grown in 2009 really showed up in 2010 wheat crops. Therefore if some non-legume pastures are grown to maximise dry matter, the absence of suitable disease breaks and cost of additional nitrogen must be considered.

Barley and canola/vetch had the fastest early growth rates of all treatments meaning these feed sources would have helped reduce the feed gap in this season. While pastures cannot be grazed immediately from emergence, barley and canola/vetch would have provided feed for livestock for around three to four weeks before medic pastures could have been grazed. This would reduce the amount of time spent supplementary feeding livestock to prevent them grazing poor quality pastures in late summer and losing condition.

Areas in plots where dry matter cuts were taken indicated how well these pastures would recover from grazing. All medic varieties recovered well from early and late grazing throughout the season, as did cereals; however Morgan forage peas and canola/vetch pastures only recovered from early grazing.

While medic pastures have feed quality benefits and are tolerant to grazing and trampling, particularly in good seasons like 2010, some alternative pastures have other advantages such as providing abundant feed early in the season and allowing livestock to graze earlier and for longer periods. While medic pasture is high in quality and has benefits for paddock rotations, a grazier must be patient for it to grow bulky enough before it can be grazed.

When pasture production reaches its peak in mid-late spring, growers often struggle to utilise all the available feed due to insufficient livestock. In favourable seasons such as 2010, cutting some paddocks for hay (or making silage) is a good option to ensure plenty of feed is on hand for when feed is scarce.

In a drier season or on a different soil type, the above results and trends are likely to be different, however the relative comparisons between different pasture types is likely to remain similar.

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Product acknowledgement

Le-Mat – registered trademark of Bayer

RoundUp Powermax – registered trademark of Nufarm

Select – registered trademark of Arysta LifeScience Corporation

Targa – registered trademark of Sipcam Pacific Australia Pty. Ltd.

Hasten – registered trademark of Victorian Chemical Co Pty Ltd

Location: Upper North

Town or District: Morchard SA

Farmer Name: Gilmour Catford

Group: Upper North Farming Systems

Rainfall

Av. Annual: 325 mm

Av. GSR: 233 mm

2010 Total: 379 mm

2010 GSR: 255 mm

Yield

Potential: 3.2 t/ha (wheat)

Actual: 3 t/ha wheat (farmer paddock)

Paddock History

2009: Fallow

2008: Fallow

Soil Type

Alkaline, red clay loam

Plot size

15 m x 2.2 m x 4 reps

Livestock

Enterprise type: Crossbred lambs

Stocking rate: 4 dse/ha

Type of stock/breed: 1st cross Merino

Water Use

Water use efficiency: 11.7 kg/ha/mm

