

Alternative winter pastures



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Take home messages

- *Alternate forage cereal and legume pastures offer grazing opportunities at different times during the season.*
- *Choose varieties according to your needs: their ability to fill feed gaps, what they offer to your rotation in terms of nutrition, root and foliar disease management, weed control and suitability for hay production.*

Background

Sowing a pasture gives greater assurance of feed quality and quantity as apposed to reliance on 'regenerating pastures'. More intensive cropping over recent years and a run of below average seasons have reduced populations of grass and medic seedbanks. Many paddocks now fail to grow the bulk they used to. Investing in sowing a pasture for forage is again attractive given current high sheep prices. Forage choice will depend where in the rotation the pasture phase lies and how its growth habit will provide feed or fill a feed gap for livestock.

Several alternative pastures are now available with adaptations to low-medium rainfall environments. These could potentially offer an alternative forage source for livestock during winter. They include:

- **Forage ryecorn:** produces quick winter feed, as it does not have a vernalisation (cold temperatures) requirement and goes into reproductive mode almost immediately. Plants should be grazed early, before GS31 (stem elongation), to ensure 2 – 3 grazings. After GS31, grazed plants will not recover well and will lose palatability and feed quality. They are therefore not a good silage or hay option. Ryecorn is best sown in combination with another forage, either as a mix, or followed by a spring-sown summer forage. It can be grown in all rainfall areas, but as rainfall decreases, its ability to produce biomass and recover from grazing declines.
- **Forage wheat:** awnless wheat bred for forage; requires vernalisation to produce grain and as a result remains in the vegetative state longer. It recovers well after grazing, and is thus suitable for silage or hay, even after being grazed several times. Mid maturity, recommended for 400mm rainfall areas.
- **Eastern star clover:** Sothis is the first cultivar of eastern star clover commercially released. Its hard seed protects it from false breaks and it germinates late in the season compared with traditional pasture legumes and weeds, providing an opportunity to control weeds chemically or by grazing before establishment. It grows rapidly in late winter/spring and has an upright growth habit suitable for hay. It should not be grown following a legume crop as it is very susceptible to chocolate spot (*Botrytis fabae*) and grey mould (*Botrytis cinerea*). Eastern Star clover is early-mid maturing and is suitable for low-medium rainfall areas (325 – 450mm). Seed may be harvested with modified grain harvesters. Seed will shed; harvest timing is critical.

Aim

To compare the production of different winter pastures and their recovery from grazing.

Method

Location:	Culgoa
Replicates:	2
Sowing date:	21 May 2010
Seeding density:	forage ryecorn, forage wheat & oats 70kg/ha, medic 5kg/ha, eastern star clover 15kg/ha
Treatments:	Southern Green forage ryecorn, mackellor forage wheat, Winteroo oats/Jasper medic mix and Sothis eastern star clover
Seeding equipment:	BCG cone seeder (knife point, press wheels, 30cm row spacing)
Rainfall:	annual April–October GSR 237mm, 2010 GSR 248mm
Initial soil fertility:	34kg/ha total N, 34mg/Kg Colwell P
Fertiliser:	50kg/ha MAP

Dry matter (DM) production was measured prior to grazing. On 6 – 9 July, grazed treatment plots were fenced. Five ewes (equivalent to 98 DSE/ha) were placed inside for three days, during which time they ate the crop down to 2 – 3cm from the ground. Once sheep were removed, crops were grown through to harvest.

Dry matter was measured during anthesis and grain yield measured using a plot harvester.

Results

The forage ryecorn was outstanding in early dry matter production, reaching 416kg DM/ha at GS14/21 (4 leaf stage, 1 tiller) only two weeks after sowing (Table 1) on 5 July. At the same time, forage wheat and oats were at GS13/20 (3-leaf, 0 tillers), medic had one trifoliate leaf and sothis had one trifoliate leaf open and a second trifoliate leaf closed.

Table 1. Alternative pasture dry matter production (kg/ha), Culgoa 2010.

Pasture	5 July	15 July	14 October		Grain yield Grazed (t/ha)
	Ungrazed	Ungrazed	Grazed	Ungrazed	
Forage ryecorn	416	885	8759	6962	Not intended for harvest
Forage wheat	142	287	4602	4389	2.50
Oats/medic mix	160	255	4952	3262	1.44 (oats)
Eastern star clover	41	56	4799	1569	*

* Not harvested - much seed had shed, and needed a modified harvester to collect.

Ten days later on 15 July, forage ryecorn had increased DM production by 469kg/ha to 885kg/ha, an exceptional production at this time of year. Clover production was still slow at this time at only 56kg/ha. However, by anthesis, clover DM was similar to the forage wheat and oats/medic mix plots.

DM production at anthesis was highest for the ryecorns. However, they had been grazed only once: in a farm situation they would have been grazed multiple times and would not recover as well.

Suitable for hay production, forage wheat, the oats/medic mix and eastern star clover responded to the early graze. All had over 4.6t/ha DM, compared with 1.5 – 4.3t/ha for the ungrazed regenerating pastures.

Interpretation

All alternative pastures - forage ryecorn, forage wheat and eastern star clover - showed potential as feed sources in 2011, filling feed gaps at different times and offering different end uses and rotation benefits.

Forage ryecorn produced exceptional bulk early, giving the greatest early season forage value, but must be grazed before GS31 as it does not recover well from grazing after that time. Other forages such as oats and forage wheat have slower early growth rates, but can be grazed multiple times, including after GS31, and are more suitable for hay production.

Eastern star clover growth was slow early on, but performed very well against the more traditional oats/medic mix during spring. It offered a good pasture legume break for cereal root diseases and soil nitrogen fixation. The hard seed trait offered a weed control opportunity before the pasture was established.

There will be further evaluation of varieties, multiple grazing and hay production of forage cereals and legumes in 2011.

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