Dryland Pastoral Research at Ashley Dene

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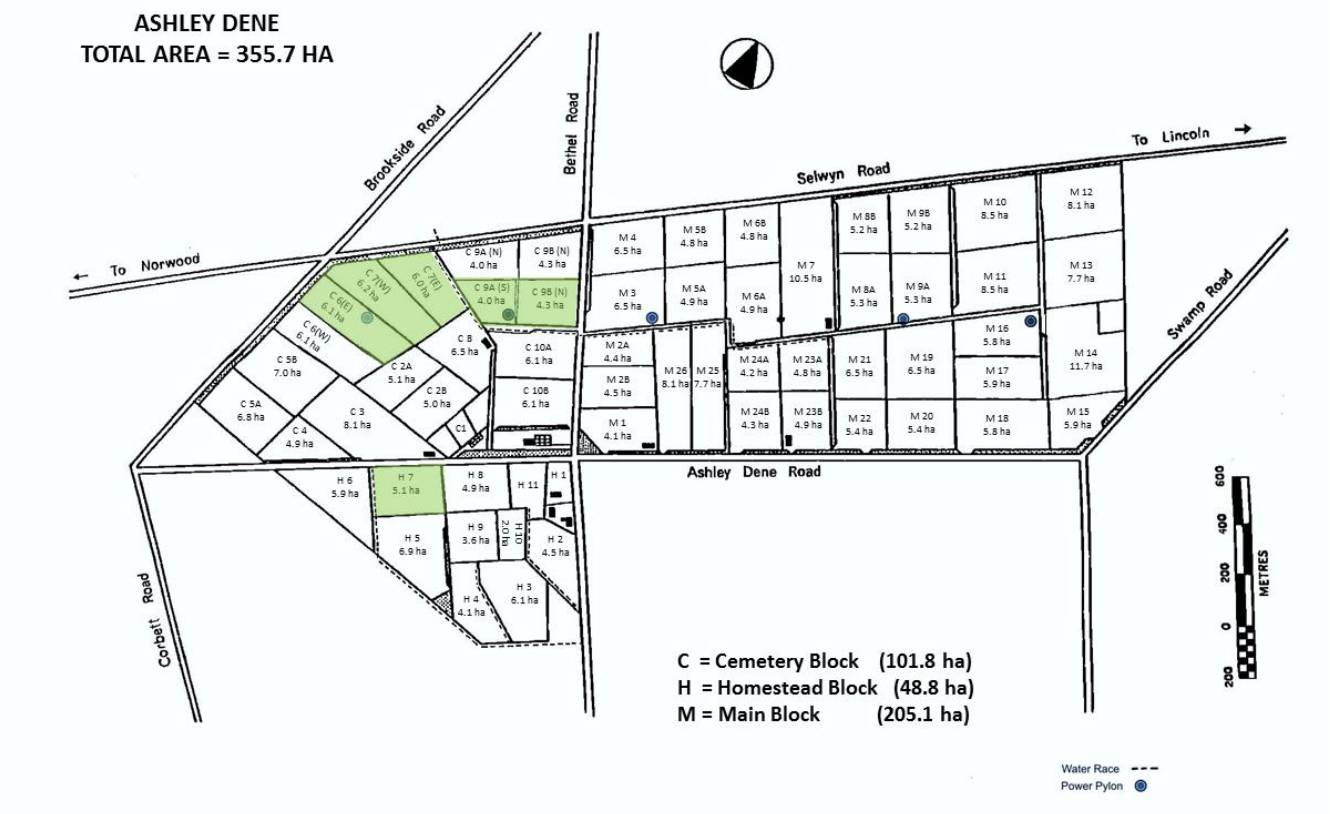
Location of today's visits:



Pastoral 21

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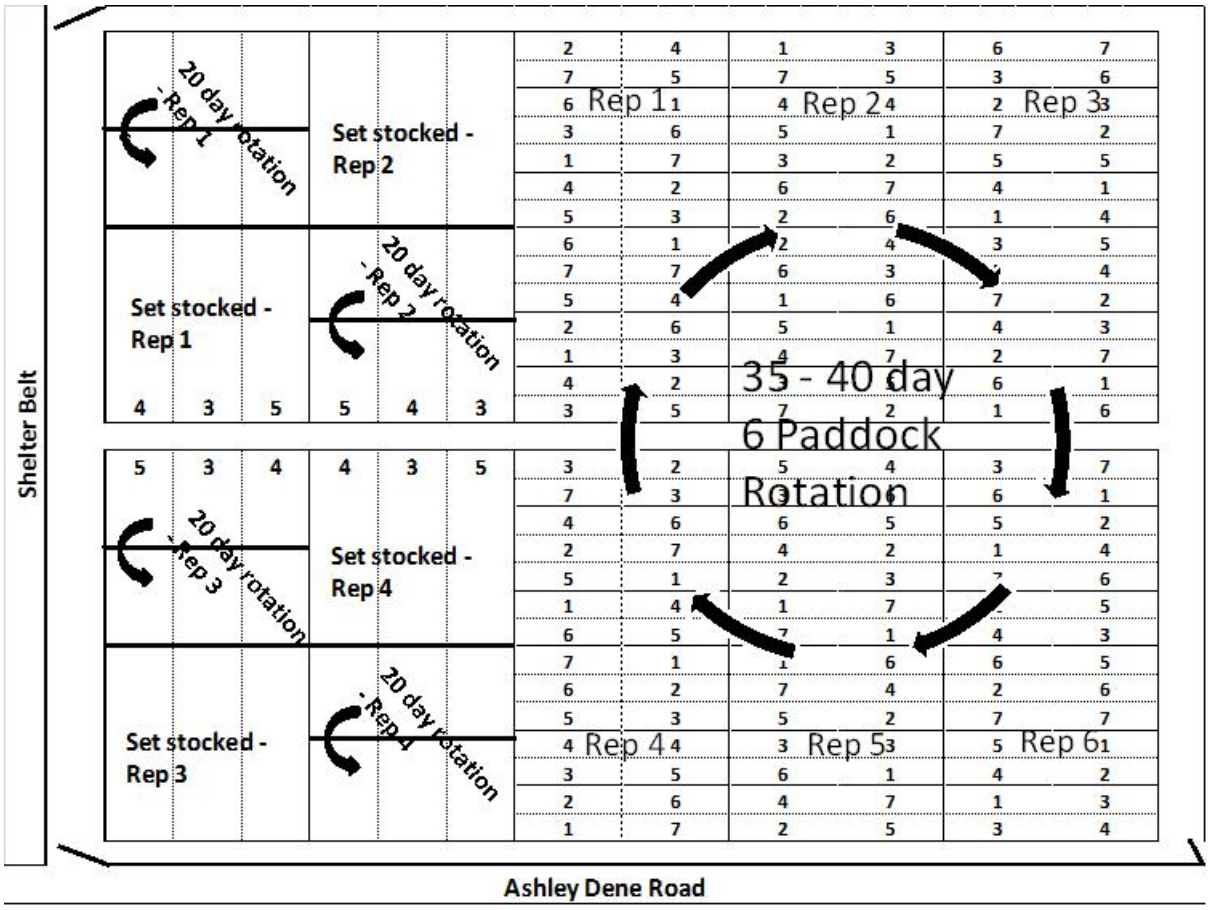
Effects of spring grazing management and lucerne cultivar on lucerne yield and sheep liveweight production

Site: H7
Experimental: Lucerne sown Nov 2008 at a bare seed rate of 7 kg/ha
Treatments: Two spring grazing treatments and seven lucerne cultivars

Treatment	Cultivar	Treatment	Cultivar
1	'Kaituna'	2	'Rhino'
3	'Runner'	4	'Stamina 6'
5	'Stamina 5'	6	AgR (grazing tolerant)
7	AgR (high preference)		

Plan of plot and treatment layout



'Rhino' and 'Runner' are American cultivars, 'Stamina 5' and 'Stamina 6' are from Australia and AgR (high preference), AgR (grazing tolerant) and 'Kaituna' are New Zealand bred. AgR (high preference) and AgR (grazing tolerant) are two lines bred for their grazing attributes, 'Stamina 6' is a new selection with higher winter activity than 'Stamina 5' which is the Australian standard. Kaituna was included as the New Zealand standard lucerne cultivar.

The cultivars were chosen to give a range of late winter/early spring activity. 'Rhino', 'Runner' and AgR (high preference) are considered to be winter dormant, while AgR (grazing tolerant), 'Stamina 5', 'Stamina 6' and 'Kaituna' show more late winter/early spring productivity. They were also selected to cover a range of "grazing tolerance".

The lucerne plots are grazed in **spring** by ewes and lambs under 3 management systems; 1) the standard 6 paddock system, 2) a 2 paddock, 20 day rotation system and 3) set stocked (not recommended).

Key points – 2012/13 growth season

- Higher than normal early spring soil and air temperatures led to excellent early spring lucerne growth and plots were stocked with 14 ewes with twin lambs per hectare 10 days sooner than last year.
- Low over night air temperatures in September and October slowed lucerne growth considerably and stock numbers had to be reduced by about 40% on 16 October.
- When lucerne growth rates improved, the original stocking rate was restored on 6 November.
- Lambs were weaned after the completion of 2 6-paddock rotations on 16 November 2012.
- The weaned lambs were returned to the lucerne 1 day later and remained there until the lucerne stopped growing due to moisture stress on 12 January, after completing a further 1.5 6-paddock rotations.
- Large mobs of ewes were then used to clean up the remaining lucerne stems as follows:

Paddocks	5 & 6	2 & 3	1 & 4	8 & 10	7 & 9
Date on	18 Jan	21 Jan	24 Jan	27 Jan	31 Jan
Date off	21 Jan	24 Jan	27 Jan	31 Jan	4 Feb

- Ewes and lambs on set stocked and semi-set stocked grazing management systems during lactation grew more kg LWG/ha than rotationally grazed treatment.
- Rotationally grazed lambs grew more kg LWG/ha than other treatments after weaning and marginally so for the whole season to date.

Ewes with twin lambs in a rotationally grazed paddock

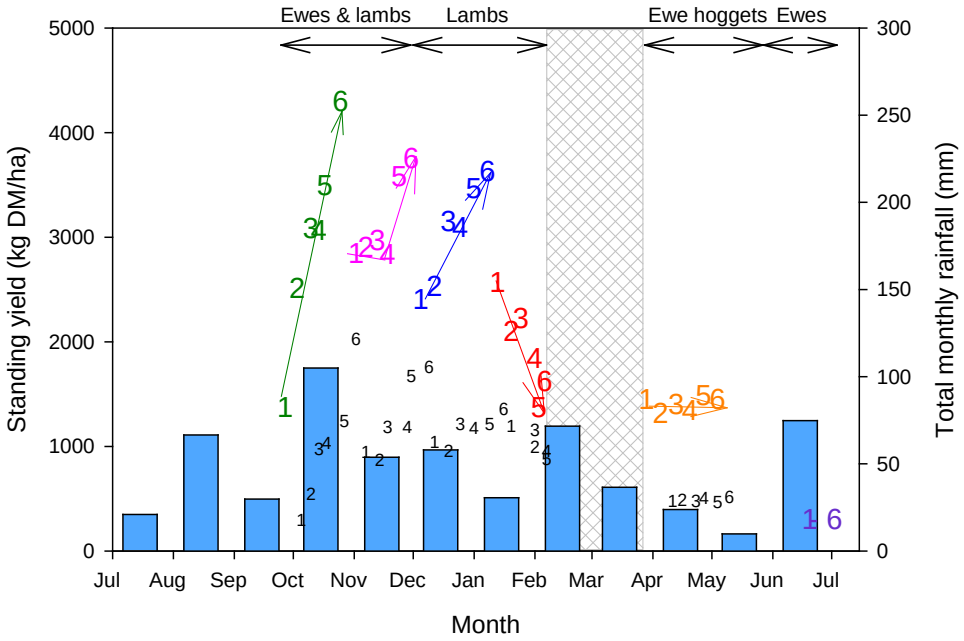


Figure 1 Standing lucerne dry matter (kg/ha) for Paddocks 1-6 over six rotations during the 2011/2012 growth season in H7, Ashley Dene, Canterbury. Numbers in black are the post-grazing residuals for each paddock and coloured numbers refer to the pre-grazing dry matter. The blue bars represent monthly rainfall (data taken from Broadfields meteorological station (43°62'S, 172°47'E)) (Bennett, 2012).

References:

Bennett, S.M. 2012. Dry matter production of lucerne (*Medicago sativa* L.) under rotational grazing at Ashley Dene. B.Ag.Sci. (Hons) dissertation, Lincoln University, Canterbury, New Zealand. 77 pp.

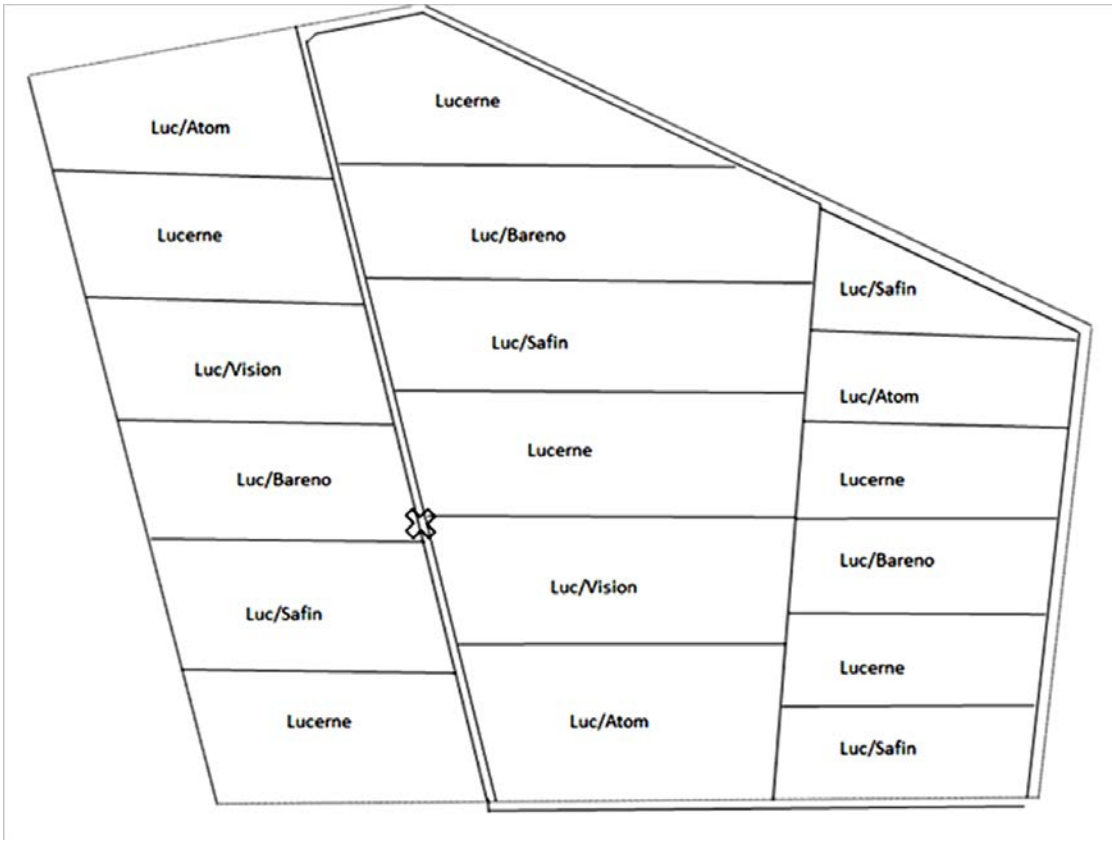
MaxLucerne lucerne/grass mixes grazing management experiment at Ashley Dene

Three lucerne grazing treatments: lucerne; lucerne/brome; lucerne/cocksfoot
Lucerne stands are 2 different ages
Middle paddock is 6.5 years old and was drilled in Oct 2006
Other 2 paddocks are 1.5 years old and were drilled in Nov 2011
Grasses were cross drilled in Mar 2012 once lucerne had established itself
Older lucerne paddock sprayed with Velpar in Jan 2013 to control nodding thistles
Each of the 3 treatments is 5.7 ha in area and has 6 plots

Table 1 Pasture treatments and sowing rates for MaxLucerne

Treatment	Lucerne cultivar	Rate (kg/ha)	Grass cultivar	Rate (kg/ha)
Lucerne	'Stamina'	8	-	-
Lucerne/brome	'Stamina'	8	'Atom' prairie grass	9
			'Bareno' brome	10
Lucerne/cocksfoot	'Stamina'	8	'Safin' cocksfoot	3
			'Vision' cocksfoot	3

Plan of plot and treatment layout of C6/C7



Key points

- The three treatments are grazed by different mobs.
- Each treatment has 6 paddocks and the stock are shifted approx. weekly.
- Pre- and post-graze dry matter measured at each shift.
- Animal live weights are recorded whenever plots are grazed.
- Measurements commenced in spring 2012 with ewes and lambs stocked at 10 ewes/ha.
- Lambs were weaned on 10 Nov and all male lambs over 34 kg were sent for slaughter
- Remaining lambs were returned to their respective grazing treatments.
- All lambs removed from plots on 14 Jan, 2013 because lucerne had stopped growing due to moisture stress.
- All plots had a clean-up graze by large mobs of ewes in Jan/Feb 2013.
- All lucerne plots will be allowed to flower in autumn before being grazed again and then destocked for winter by mid-June.

Grass being overdrilled into lucerne – Feb 2012

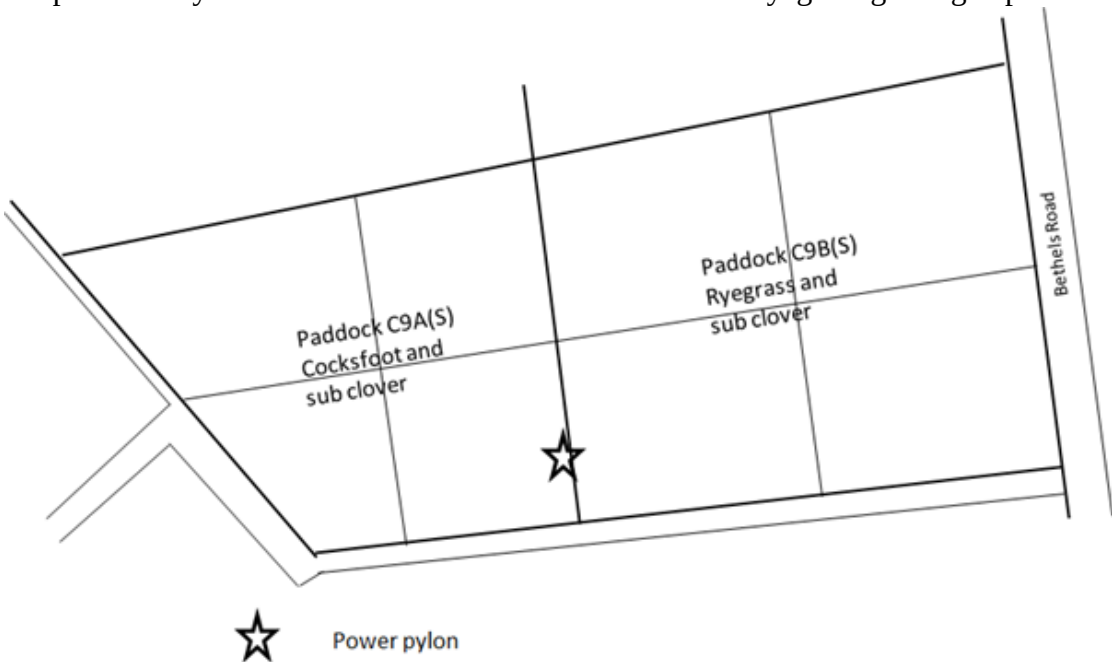
Lucerne with grass – Aug 2012

Ewes with twin lambs grazing lucerne - Sep 2012

Spring lamb production from sub clover sown with either cocksfoot or ryegrass pastures

An existing cocksfoot pasture (Paddock C9A(S) in the Cemetery block at Ashley Dene), sown with Vision cocksfoot at 2 kg/ha in Oct 2002, was oversown with subterranean clover (a mixture of 5 kg/ha of Leura and 5 kg/ha of Campeda) in Mar 2005. The paddock was stocked with ewes suckling twin lambs in early Sep 2012 and the live weight gains achieved during the lactation period were compared with similar ewes and lambs grazing an adjacent ryegrass/sub pasture (Paddock C9B(S)) sown with Extreme ryegrass AR37 at 15 kg/ha and sub clover sown at 10 kg/ha in Apr 2008.

Plan of paddock layout for sub clover with either cocksfoot or ryegrass grazing experiment



Ewes with twin lambs grazing cocksfoot/sub clover pasture in spring 2012