



NZ Forage Systems Fact Sheet

Lucerne — yield and animal performance

Key Points

1. Lucerne yields were measured across five East Coast properties from Hawkes Bay to the Wairarapa.
2. In the establishment year, yields were 8% more than resident pasture. Thereafter, lucerne out-yielded resident pasture by 38%. This ranged from 15% in a higher rainfall environment to 50% in a very dry environment.
3. Lucerne's greatest advantage was in the summer. Winter production of lucerne was 16% lower than pasture.
4. Lamb growth rates while on ewes rotationally grazing lucerne were 15% higher than those on set stocked pasture. Summer growth rates of weaned lambs were double that on pasture but highly variable and dependent on the quality of the summer pasture.



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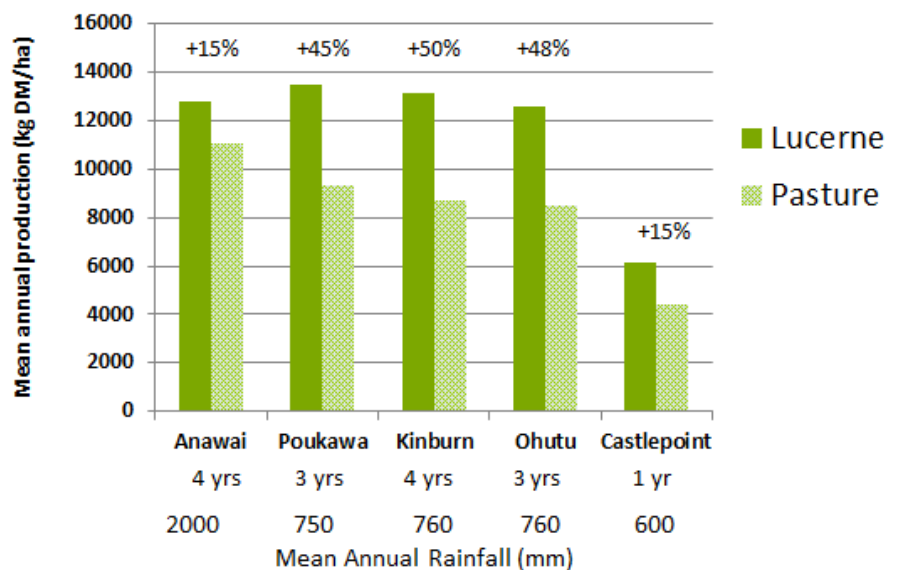
Background

The forage systems programme gathers data on the yields and sheep performance when grazing lucerne on five dryland properties of East Coast, North Island.

Lucerne yield data was collected, for up to four years, from established stands from the Wairarapa to Hawkes Bay. In each case, data on pasture growth rates was collected on resident pasture on neighbouring paddocks of similar contour.

Annual yields

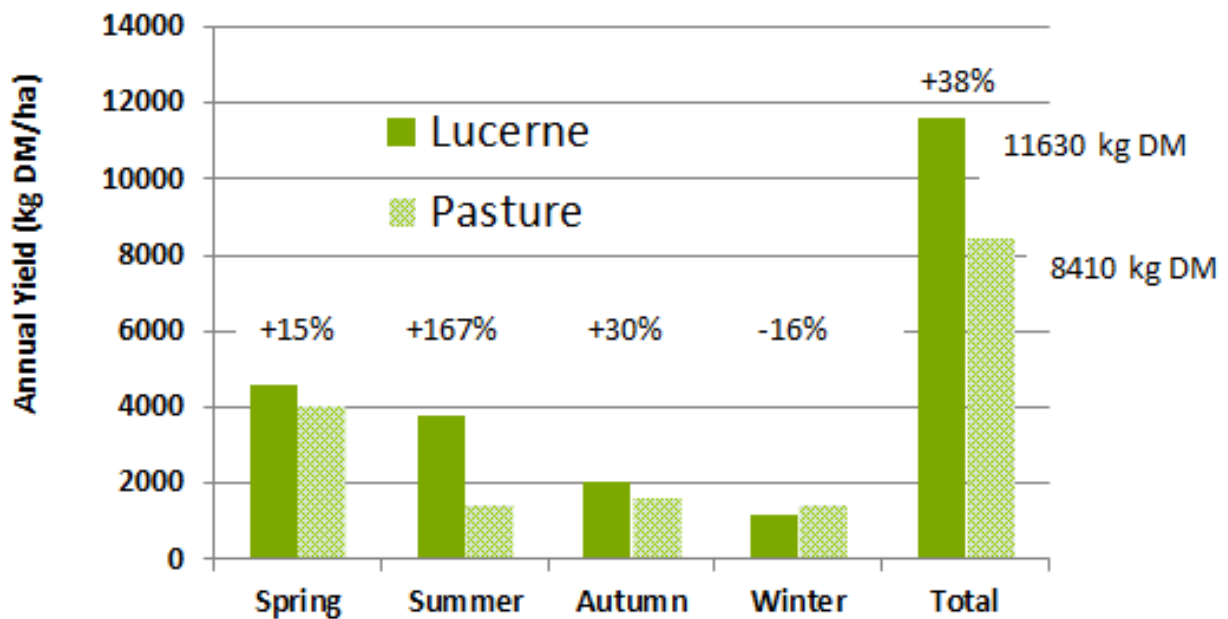
In general terms, lucerne's advantage in a farming system is greatest when rainfall is lowest. Anawai (below) showed only minimal benefit from adding lucerne to the farm system and it's rainfall was approximately 2,000 mm.



North Island East Coast properties are warm enough to maintain winter growth in pasture at between 10-15 kg DM/ha/day. Lucerne's minimal winter growth and requirements for delayed spring grazing make it challenging to fit feed supply and animal demands—especially around lambing. In these North Island conditions it is important to have an appropriate percentage of lucerne in the farm and also consider other pasture options. Winter active cultivars of plantain are worth considering. Refer fact sheet on plantain yield and animal performance.

Seasonal yields

Only in winter does lucerne's consistent yield advantage tip in favour of pasture (16% more pasture –refer below). However, during dry summer periods lucerne has more than doubled pasture production. The deep lucerne tap root allows the plant to access water that is unavailable to shallow rooted pasture species.



Animal performance

Across five trials where lactating ewes were grazed on both lucerne and pasture, lambs grew 15% faster on lucerne (285 g/d) than on pasture (248 g/d).

On three trials where weaned lambs were grazed on lucerne, average liveweight gains were 178 g/d compared with 82 g/d on resident pasture. These late spring/summer lamb growth rates on lucerne were reasonably consistent but the performance on the summer pasture was highly variable due to variability of summer pasture.

Pre-weaning lamb growth rates on pasture and lucerne	Pasture (g/d)	Lucerne (g/d)	Advantage to Lucerne
Lambs on ewes (5 trials)	248	285	+15%
Weaned lambs (3 trials)	82	178	+117%

In general, lamb growth rates on lucerne do not appear to match the apparent quality of feed on offer. This is because of the rotational grazing that needs to be employed for optimum lucerne management. When stock are put on a new lucerne break they are consuming a high energy ration—around 12 MJME/kg DM. But towards the end of their break they are having to eat stalk which might be 9 MJME/kg DM. So on average they are grazing a diet of 10.5 MJME/kg DM which may not be all that different to ewes and lambs set stocked on pasture. We have tested this by set stocking lambs for 9 weeks over summer on an old lucerne stand. These lambs grazed on newly growing shoots and grew at an average of 430 g/d.

Perhaps optimum lucerne stand management is to move ewes and lambs through to graze leaves and follow up with an appropriate class of cattle to graze the stalks.