

Forages for Dryland

Poukawa Field Day

27th Oct 2016



Forages for Dryland

Project objective: To benchmark the yield, animal performance and profitability of lucerne, plantain and annual clovers against pasture and how they fit within a dryland farming system

Field Day Programme

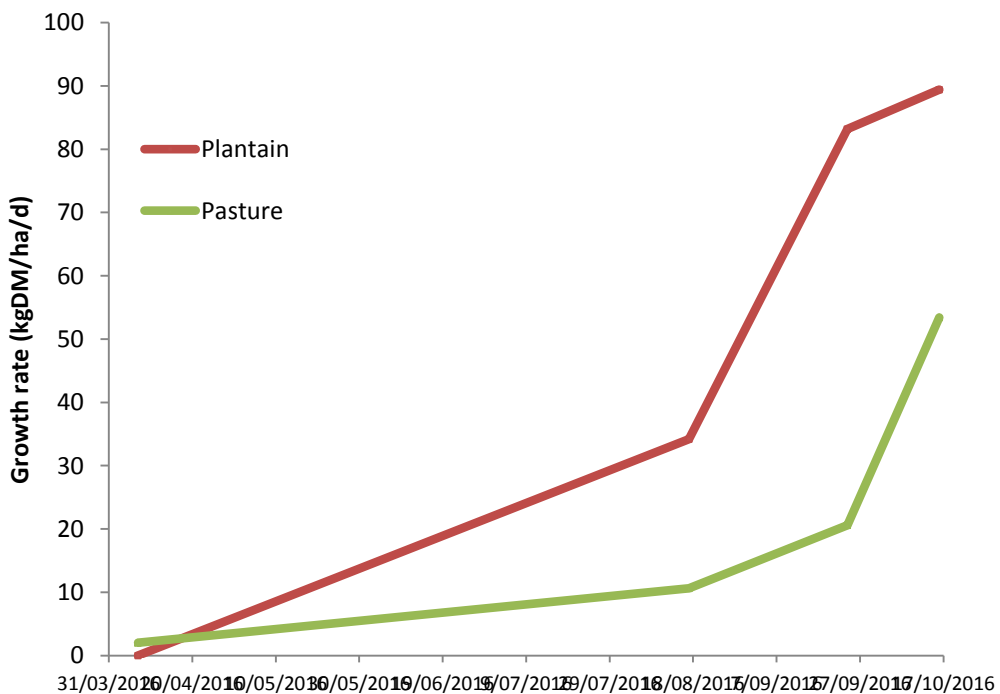
- Plantain at Poukawa (2016)
- Plantain cultivars
- Annual clover demonstration
- Oversowing of Arrowleaf clover (if time permits)

Plantain – Poukawa 2016 sowing

- Paddock history – ex early squash (harvested December 2015)
- Sown 7th April – 7 kg Tonic, 3 kg Balansa, 3 kg Persian, 3 kg Red, 3 kg White
- 150 kg DAP at sowing
- Driest autumn on record – 216 mm in 6 months from Feb-July
- Multiple plantain strikes through winter, poor clover strike
- Ewes (13.6/ha) and twin lambs (26.8 kg) added from 18th August
- As at 13th Oct, ewes 73.6 kg (up 13 kg)
- As at 13th Oct, lambs weighed 29.4 kg (345 g/d)

	Ewes	Lambs
Number/ha	13.6	26.8
No grazing days	5465	10765
Start weight (kg)	60.7	12.1
Final weight (kg)	73.6	29.4
Growth rate (g/d)	258	345

Plantain growth rates vs pasture (2016)

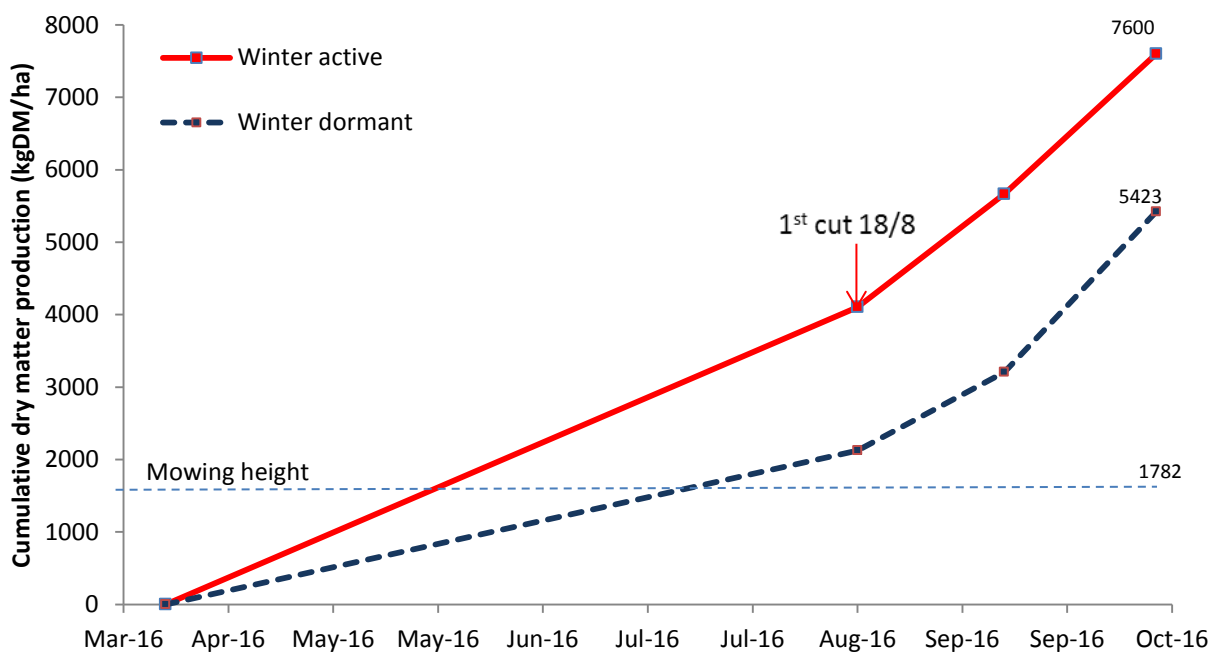


Cultivars

- We have seen considerable differences in winter activity between cultivars. Cultivars such as Tonic, PG742 and N16PL3 produced substantially more grazeable winter DM than winter dormant cultivars such as Boston and Tuatara. These less winter active cultivars are also late seeders so will they produce more summer feed ?



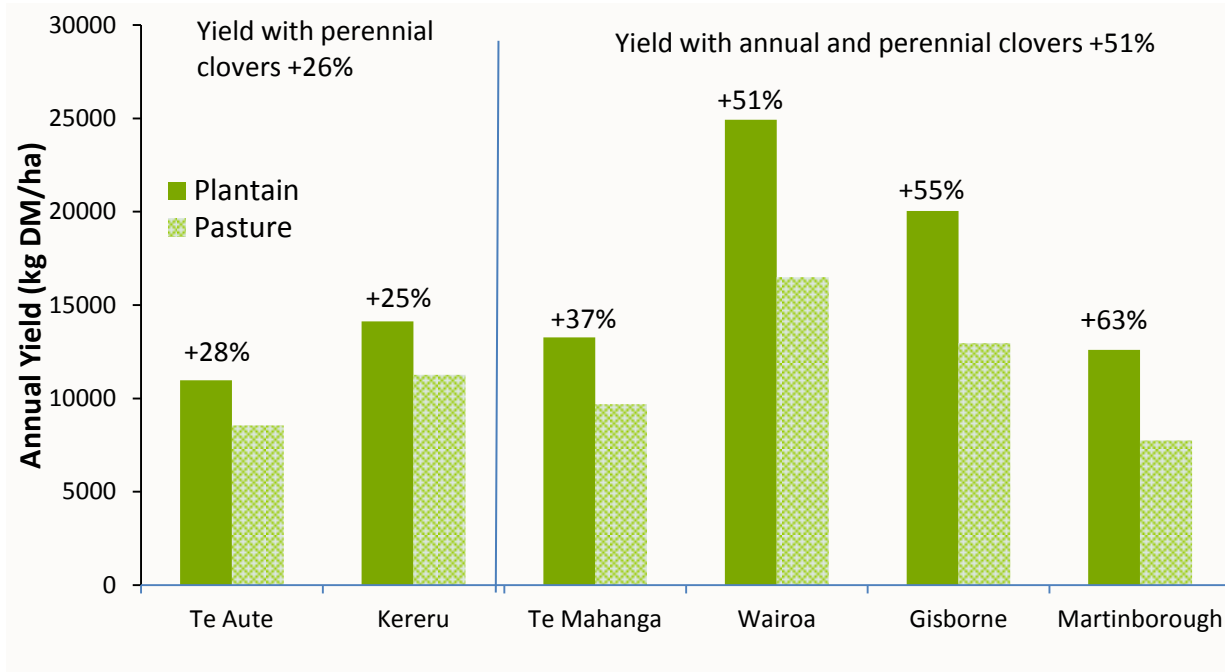
Plantain cultivars – total DM accumulation from sowing



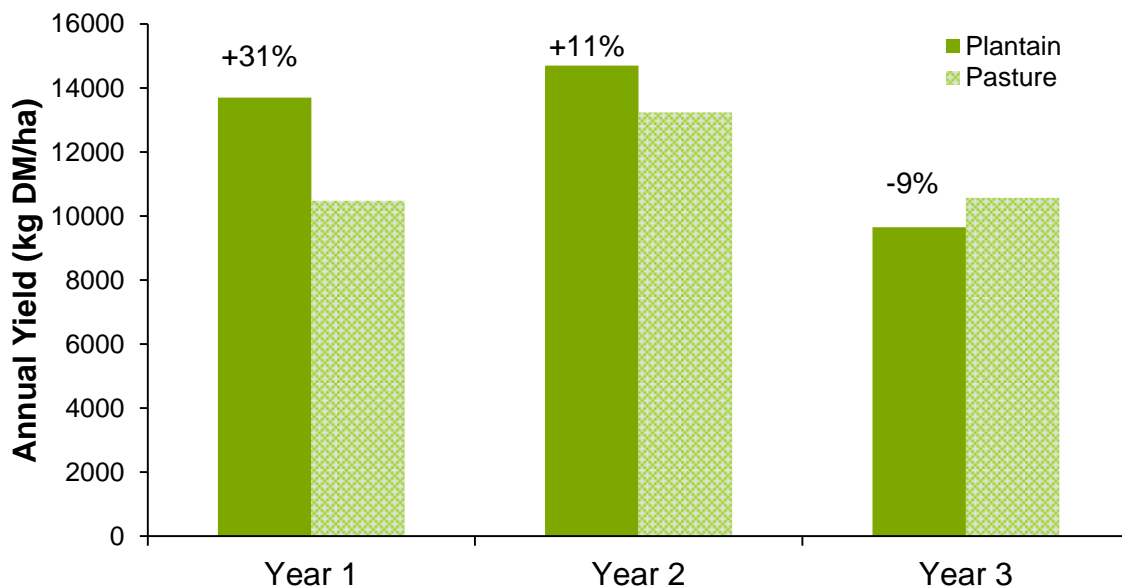
Summary of data collected over the project (Wairarapa to Gisborne)

Yield

- In Year 1, inclusion of 6 kg of annual clovers (Balansa and Persian) in the mix appears to increase DM yields significantly – from +26% to +51%



- Cut data over 3 years (only from two farms) suggests significant decline in productivity of plantain pastures with little or no yield advantage over pasture after 3 years



Animal Performance

- Animals perform significantly better on plantain pastures – across 8 trials we have measured lambs growing 65 g/d faster on plantain than on resident pastures.
- Lambs drafted off plantain have a higher DO% because they are fatter (virtue of a faster growth rate) and because the higher quality plantain/clover mix means they have smaller rumen contents. This is the equivalent of 20 g/d liveweight gain from birth to weaning.
- Ewe liveweights increase dramatically. In 7 local trials ewes and hoggets at weaning were 6.8 kg heavier off plantain. These differences are even greater when the increase in DO% is taken into account.
- In 2015, two case studies (Martinborough and Gisborne) were undertaken with new plantain pastures sown with annual and perennial clovers. In both cases plantain and resident pastures were stocked with 1 year ewes rearing twins. The combination of higher productivity yields and higher stocking rates, heavier lambs and ewes at weaning and better premiums in early November saw spring sheep gross margins around 3x those of similar sheep set stocked on resident pasture.

Gisborne (2/9-3/11/2015)		LWG/head	LWG/ha	Value/kg	Value/ha
Plantain (11 ha)					
16.5 ewes & 31.3 lambs/ha	Ewes	11	181	\$1.50	\$272
	Lambs	22.2	695	\$3.00	\$2085
2 hoggets/ha	Hoggets	15	30	\$2.00	\$60
					\$2417
Pasture (20.7 ha)					
7.2 ewes & 13.6 lambs/ha	Ewes	0	0	\$1.50	\$0
	Lambs	19	258	\$3.00	\$774
Martinborough (1/9-18/12/2015)		LWG/head	LWG/ha	Value/kg	Value/ha
Plantain (12 ha)					
19.2 ewes & 27.8 lambs/ha	Ewes	7.6	153	\$1.50	\$230
	Lambs	17.2	477	\$3.00	\$1431
	Extra wool	1		\$4.34	\$83
18.3 hoggets & 19.8 lambs/ha	Hoggets	3.5	64	\$2.00	\$128
	Lambs	6.9	137	\$2.50	\$342
					\$2214
Pasture (12.1 ha)					
6.5 ewes & 11.6 lambs/ha	Ewes	8	52	\$1.50	\$78
	Lambs	20.9	242	\$3.00	\$726
					\$804

Summary and lessons learnt

- High winter and spring yields in dryland.
- The leaf architecture of plantain encourages clover growth.
 - 20 kg ryegrass plus red and white clover → 5% legume
 - 6 kg plantain plus red and white clover → 25% legume
 - 6 kg plantain plus red and white plus Persian and Balansa → 45% legume
- On dryland, autumn sowing means the benefits of annual clovers can be captured. Spring sowing means missing out on large amounts of high octane spring feed.
- Big gains in animal performance possible through more DM, higher energy feed and better carcass yields.

But To get the gains that are possible, need to **change management**

- Plantain/clover pastures best viewed as short term forage crop (2-3 years) rather than as a replacement for ryegrass.
- Susceptible to springtails, slugs and moths. Need close monitoring for insect attack. Sowing in remote paddocks just doesn't work.
- Post emergence spray to take out broadleaf weeds usually essential.
- Manage the forage, not the animals – get the forage management right and animal performance will follow. Rotationally graze but keep high residuals. Optimum management is start grazing at 20 cm and move stock out when residuals are 10 cm. Monitor carefully – the time from 10 and 2 cm can be short!
- Plantain pastures do not need a “nip-off” or a “clean-up” when feed is short. But what they do need is careful monitoring and avoidance of over grazing.