



NZ Forage Systems Fact Sheet

Plantain - yield and animal performance

Key Points

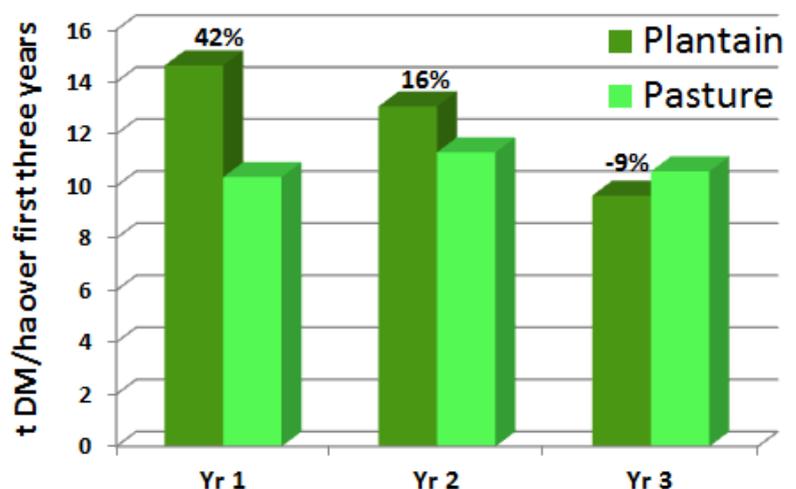
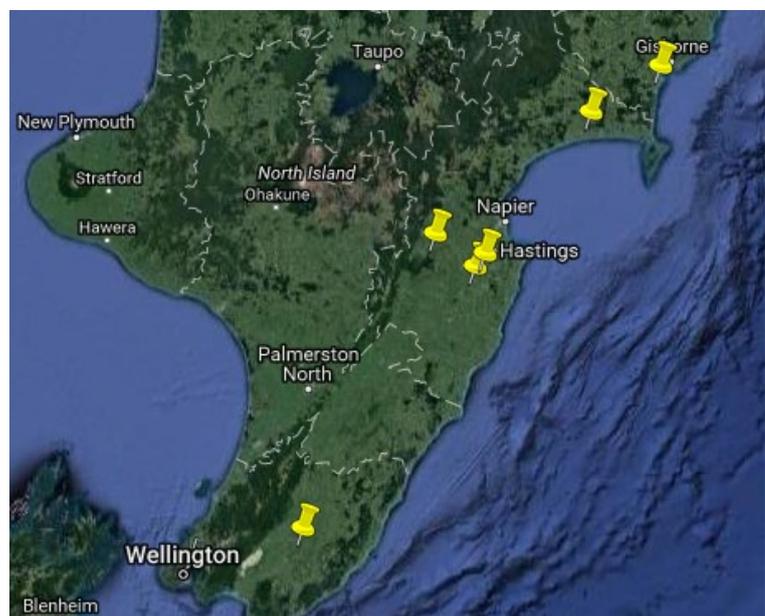
1. Plantain yields were measured across six dryland properties from Wairarapa to Gisborne. In Year 1, 2 and 3, average plantain yields were +42%, +16% and -9% of resident grass pastures. Data and observations across many farms suggests plantain is best viewed as a 2-3 year crop.
2. Plantain is a very good companion plant to clover, with clover contents typically 25% of total DM in spring.
3. Lambs grew 19% faster on plantain than pasture and had 2.3% higher DO% (Dressing Out Percentage). This resulted in significantly more lambs drafted FOM.
4. Ewes had 12% higher liveweight gains on plantain and a 3.4% higher DO% meaning significantly higher returns for cull ewes.



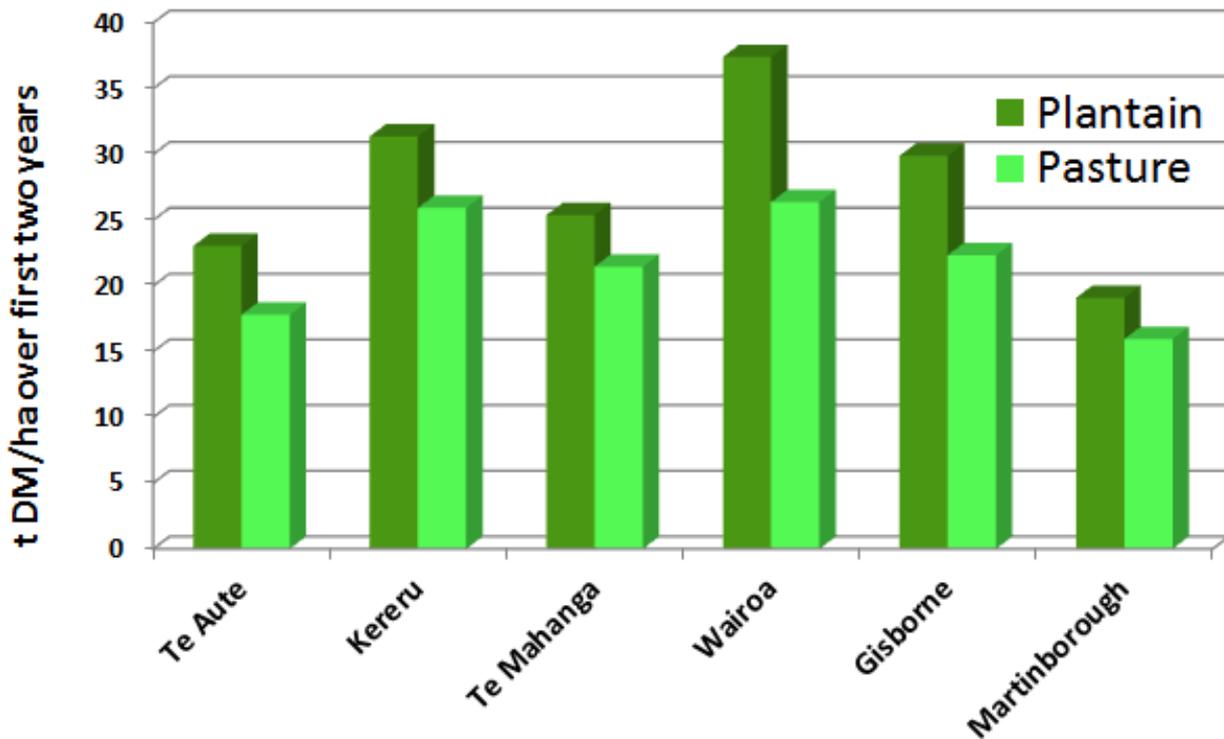
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Yields

The forage systems programme has gathered yield and animal performance of livestock grazing plantain based pastures on six East Coast North Island properties from Wairarapa to Gisborne. In each case, pasture growth rates were measured from resident pasture on neighbouring paddocks of similar contour.



Yield over three years — Plantain vs resident pasture

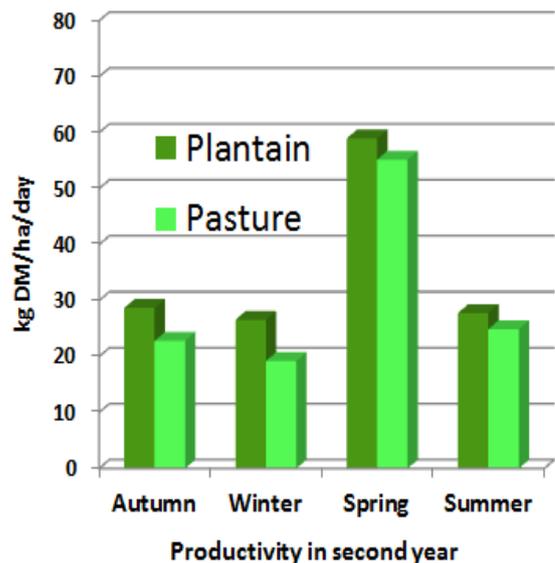
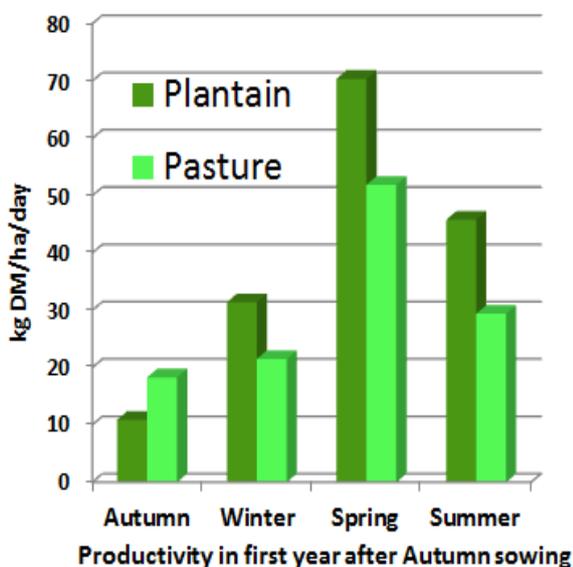


Yields by site and by season

In the first two years after sowing, production was variable across the six sites but showed a clear advantage to plantain. Wairoa, which is a high fertility and high rainfall site, produced 11 t/ha more in the plantain clover mixture over the two years than the resident pasture. The smallest gain was in Martinborough with just 3.1 t/ha advantage to plantain over two years. In very dry environments, plantain is only lasting two years but where summers are less harsh, plantain is lasting longer. The best approach is to regard plantain as a two year crop in summer dry areas. Any more than that is a bonus .

Yields by season—following Autumn sowing

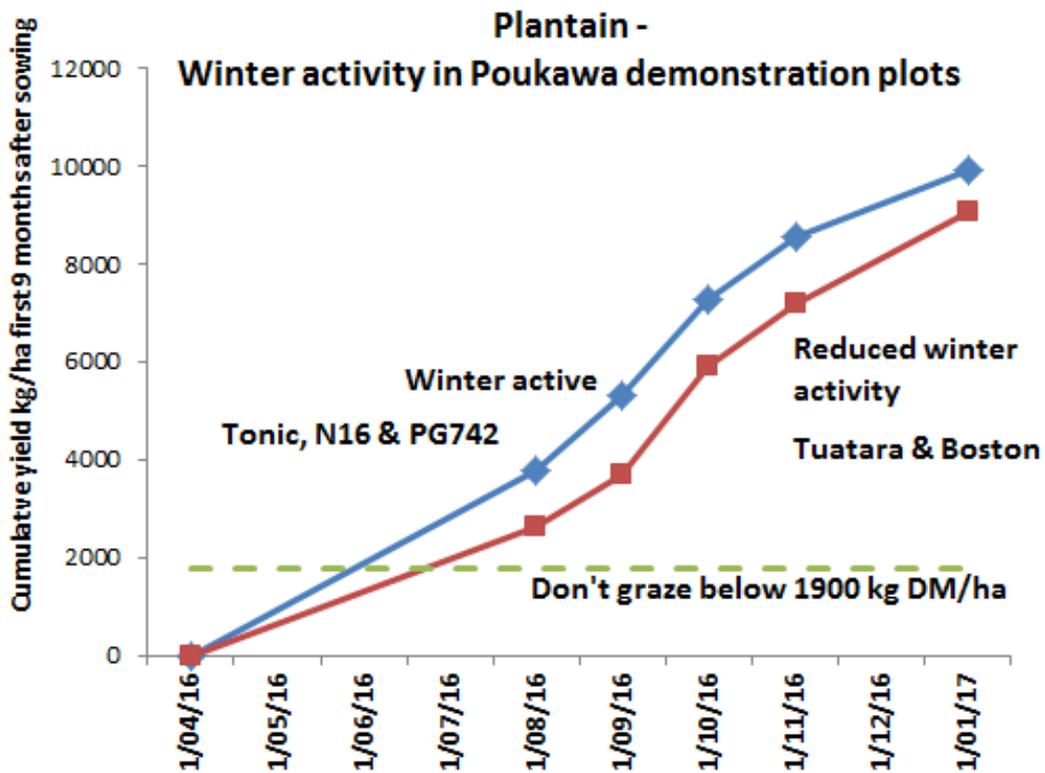
Across the six farms monitored, average production was lower for plantain than pasture in the first autumn because on two farms a late autumn meant poor growth of establishing plantain. Otherwise seasonal yields indicate that plantain produces more dry matter than resident pastures in each season of the first two years— but a winter active cultivar must be chosen.





Winter growth

The above photo taken in mid August shows the difference cultivar can make. There are a number of cultivars on the market which are effectively winter-dormant. These later flowering cultivars produce around 2 tonne/ha less grazeable winter DM. Cv. Tonic was used on all six of the farms being monitored.



Ewe weight gains during lactation on pasture and plantain	Pasture (kg)	Plantain (kg)	Advantage to Plantain
Ewes (4 trials)	67.6	76.0	+8.4
Hoggets (3 trials)	57.1	61.8	+4.7
Overall	64.5	71.7	+7.2 kg

Lamb growth rates on pasture and plantain	Pasture (g/d)	Plantain (g/d)	Advantage to Plantain
Lambs on ewes (8 trials)	289	341	+18%
Lambs on hoggets (3 trials)	229	280	+22%
Overall	272	324	+19% (+52 g/d)

Plantain and animal performance

Clover content

Plantain is a very good companion crop for clover. In newly sown ryegrass/white clover pastures, clover content only makes up around 5% of total DM during spring because ryegrass competes for the available water, nutrients and light. When similar amounts of white clover are sown with plantain, spring clover content is typically 25% of DM. This is because the architecture of the plantain plant allows clover to express itself. When we sow erect annual clovers (Persian and balansa at 3 kg/ha each) along with white and red clover, we find that spring legume content is around 45% of total DM. This is because these erect annual clovers grow so vigorously under the North Island East Coast spring conditions.

Sheep performance when grazing plantain

Plantain is a high value crop and it deserves the highest returning sheep enterprise— this could be lambing hoggets where the better feeding will allow lambs and heavier two toothed ewes at mating. Another option is to graze one year ewes, particularly those with multiple lambs. At weaning, plantain fed ewes can be drafted early and for a premium at good carcass weights. Furthermore a higher percentage of lambs can be drafted for slaughter when compared with standard grass based systems. Across 11 trials with lambs reared on both ewes and hoggets, lamb growth rates on plantain have been consistently higher (324 g/d), than in lambs reared on pasture (272 g/d).

Post-weaning, lambs can be put back on plantain with little or no check in growth rate. Lambs also consistently have a higher dressing out percentage off plantain (around 2.3% higher). This is because plantain is a high quality feed with a faster rate of passage so rumen contents are reduced when compared with pasture fed animals. This means that a liveweight of 36 kg, lambs off pasture will have a carcass weight of 16.4 kg whereas those off plantain will have a carcass weight of 17.2 kg. Better growth rates and DO% enable significantly more lambs to be drafted at weaning.

Ewes perform well during lactation when fed on plantain pastures. In seven trials, ewes and hoggets were on average 7.2 kg heavier at weaning than their contemporaries grazed on pasture. This extra liveweight at weaning has a significant impact on subsequent mating performance the following year. As with lambs, ewes slaughtered off plantain have a significant higher DO% - a gain of 3.4% at the same liveweight.