



NZ Forage Systems Fact Sheet

Plantain - on-farm returns

Key Points

1. Farmax models were developed (+/- plantain) for average East Coast summer dry hill country using B+LNZ Economic Service data from 18 farms. The hypothetical farm comprised 495 ha of which 50 ha was cultivatable.
2. Data on plantain growth was collected across 6 East Coast farms and used to model seasonal yields, animal growth rates and Dressing Out Percentage (DO%).
3. Gross margins were increased by \$200/ha for farms with plantain.
4. Plantain is not a substitute for ryegrass and needs to be viewed as a 2 or possibly 3 year crop. It requires a change in thinking and specialised management around establishment, weed and pest control and grazing management.



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Assumptions - Summer dry (no plantain) model

A Farmax model was developed using data collected by the B+LNZ Economic Service for a typical summer dry hill block. The data is collected from 18 farms and represent 975 Class 4 farms on the East Coast of the North Island. The hypothetical farm is 495 ha, 50 ha of which is flat and used for silage and/or winter crop. Average DM produced from the flats is 9.4 t DM/ha. The farm carries 2800 breeding ewes and 860 hoggets. No hoggets are mated, Only 8% of lambs are drafted at weaning and remaining lambs are finished through summer and at average carcass weights of 16.1 kg. Cattle make up 40% of the stock units with 90 breeding cows and steers finished at 2.5 - 3 years. 108 weaner bulls are purchased in summer and autumn and sold at 2.5 years. The base model shows a gross margin of \$347,916 or \$703/ha.

Assumptions - Summer dry (plus plantain) models

In the two plantain models, the 50 ha flat block has been assigned to either a 2 or 3 year plantain system. In each case, plantain is followed by an annual ryegrass as a weed control strategy then followed by a summer brassica crop prior to autumn sowing of plantain. The 2 year system has 33.4 ha in plantain and 16.7 ha in annual ryegrass/summer brassica. The 3 year system has 37.5 ha in plantain and 12.5 ha in annual ryegrass/brassica. Assumptions around yield and animal performance are based on data collected across a number of East Coast properties. Plantain was only grazed by sheep and had no impact on cattle policy or returns.

- Plantain produces +42%, +16% and -9% of resident pasture dry matter in Years 1, 2 and 3.
- One year ewes and their lambs are stocked on plantain between docking and weaning. Lambs grow 18% faster on plantain pre-weaning and have a 2.3% higher DO%. This means that 37% of lambs are drafted FOM with plantain in the system compared to 8% in the base model. Lambs not drafted FOM are placed back on plantain after weaning and grow 21% faster than lambs in the base model.
- Lactating ewes are 8 kg heavier at weaning following grazing on plantain. Cull ewes slaughtered directly off plantain have a 3.4% higher DO% than in the base model.

Results

- Higher DM production, higher growth rates and DO% combine to increase gross margins by \$200/ha for both 2 and 3 year old plantain. This can add \$100,000 to the bottom line when well-managed plantain is incorporated into this type of farm.

- Plantain decreases on-farm risk with more stock drafted before summer, with 37% of lambs FOM.
- Cull ewes are slaughtered off plantain in November at heavier carcass weights and a higher price (+\$36/head).
- The extra feed available from plantain means the 50 ha cultivatable block becomes a force multiplier for the rest of the farm. More feed is available to other ewes on the farm and their liveweights increase from 60 kg to 68 kg over time. This results in lambing percentage increasing from 123% in the base model to 135% in the plantain model.
- Ewe lambs are heavier at weaning and enables hogget mating to occur. The combination of heavier ewes, a higher lambing % and hogget mating means around 500 more lambs are available for sale. Lambs are 2-3 kg heavier.
- Plantain crops are expensive to establish and maintain so they need to be grazed with the highest returning class of stock - ewes with twins or hoggets rearing lambs.
- Plantain is not a substitute for ryegrass and needs to be viewed as a 2 or possibly 3 year crop. Successful plantain management requires a change in thinking and specialised management around establishment, weed and pest control and stock management.
- Plantain is suited to summer dry areas with winter growth potential but choose winter active cultivars.

Assumptions	Base model	3 yr plantain	2 yr plantain
Ewe liveweight (kg)	60	68	68
Ewes wintered	2800	2600	2600
Hoggets mated	0	440	440
Lambing %	123%	135%	135%
Lambs drafted FOM at weaning	8%	37%	37%
Number of lambs sold	2585	3076	3017
Ave lamb carcass weight	16.1	18.6	19.0
Financial results	Base model (\$)	3 yr plantain (\$)	2 yr plantain (\$)
Sheep (Sales - purchasers)	232,347	345,004	352,682
Wool	70,285	66,519	64,434
Beef (Sales - purchasers)	212,860	212,860	212,860
Total revenue	515,492	624,383	629,977
Conservation	6,000	0	0
Forage crops	9,619	12,406	16,515
Plantain establishment/spray etc	0	19,195	22,249
Plantain extra fertiliser	0	1167	1040
Re-grassing	4,800	0	0
Nitrogen	12,281	14,381	13,634
Total crop, feed, N & extra fertiliser	32,700	47,149	53,438
Stock costs - animal health	24,419	23,031	22,925
- shearing	33,043	28,656	27,941
Interest on capital (livestock & feed)	77,414	77,723	77,539
Total variable expenses	167,576	176,559	181,843
Gross margin	347,916	447,824	448,134
Gross margin per ha	703	905	905