

# Future Forage Systems

## Plantain Hub Update Te Aute, 23 July 2013

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### *Establishment*

Three paddocks (19 ha in total – pH 5.9, Olsen P 30) were sown with different pasture mixes on 24<sup>th</sup> March, 2012. In each case, the sowing rate of the clover components (white clover, red clover, sub clover) remained the same. Because of the higher ryegrass sowing rate, the amount of seed sown in the ryegrass based pastures was greater (31-33 kg/ha) and more expensive (\$300/ha) than the plantain/clover mix (17 kg/ha and \$180/ha) (Table 1). Prior to establishment, pastures had been planted in a summer brassica crop (Hunter) and then fully cultivated and sown with a Great Plains disc drill along with 125kg/ha DAP. Fertiliser was applied aerially on the 18/6/2012 (90 kg/ha Urea) and on the 12/8/2012 (200 kg/ha DAP 13S).

**Table 1 - Sowing rates**

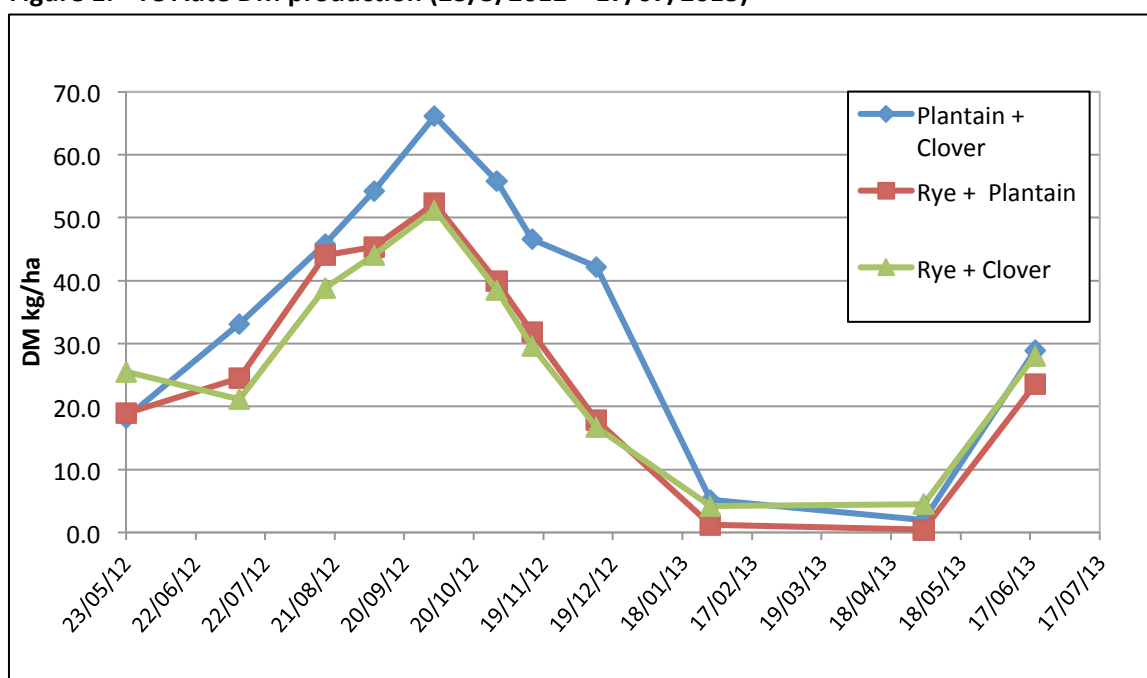
	Black Tank	North hill	Duck pond
Treatment	Ryegrass/clover	Ryegrass/plantain/clover	Plantain/clover
Area	7.8	5.8	5.4
<b>Sowing rates (kg/ha)</b>			
Ryegrass - Extreme AR37	20	20	
White Clover – Nomad	2	2	2
White Clover – Tribute	1	1	1
Red Clover – Tuscan	2	2	2
Sub Clover – Denmark	6	6	6
Plantain – Tonic		2	6
Weight seed/ha	31	33	17
Cost seed/ha	287	309	181

### Pasture growth rates

From sowing until mid-summer, plantain/clover produced more dry matter per hectare per day than either ryegrass/plantain or ryegrass/clover (Figure 1). Plantain/clover pasture consistently had a lower dry matter percentage (~14%) than the ryegrass based pastures (~20%), making visual estimates of pasture dry matter more difficult.

Despite being sown with the same amount of clover, the plantain/clover pasture had more clover through spring (32% on a DM basis) whereas the ryegrass/clover pastures had 20.6% clover and the ryegrass/plantain/clover had 6.5% clover. Plantain comprised 65% of the sward in the plantain/clover pasture, but it only made up 10% of the ryegrass/plantain/clover sward. This suggests the 20 kg ryegrass sowing rate has negatively impacted on both the clover and plantain.

**Figure 1. - Te Aute DM production (23/5/2012 – 17/07/2013)**



## Lamb performance

A lamb grazing trial was started on the 18<sup>th</sup> July 2012 and finished on the 1<sup>st</sup> October 2012. Each paddock was fenced into a grazing rotation with three wire electric fences. Lambs with an average LW of 33.4 kg were drenched and tagged. Additional lambs were added on the 10<sup>th</sup> August 2012 and again on the 5<sup>th</sup> September to control pasture growth. For this reason, yearling bulls were added to each farmlet on the 14<sup>th</sup> Sept 2012.

Lambs over 48 kg were drafted for slaughter on the 5<sup>th</sup> Sept and 1<sup>st</sup> Oct 2012 and all lambs were scored for dags. The criteria used was “would they have to be dagged if they were being sent for slaughter”. There was evidence that lambs grazing plantain/clover appeared to have fewer dags, with an average of 22% classed as dirty compared to 32% of lambs grazing the ryegrass based blocks. In general, lambs grew faster (321 vs 240 g/d) over the first grazing period (18/7/2012 – 5/9/2012) than over the second grazing period (5/9/2012 – 1/10/2012) (Table 2). However, lambs on plantain grew consistently faster and over the 73 day trial period grew at 273 g/d compared to 220 g/d for the ryegrass based blocks. As a result, more lambs were drafted for slaughter off the plantain/clover block at both the first and second kills.

There were also significant differences at slaughter, with lambs off plantain having a higher dressing out percentage (47.3%) versus 45.5% for lambs off ryegrass based pastures. This happens on highly digestible feeds with a faster rate of passage resulting in reduced rumen contents. The end result was that lambs on plantain had significantly heavier carcass weights.

Over the 75 day trial period (18/7/2012 – 1/10/2012), the combination of higher liveweight gains and higher dressing out percentage meant that lambs on plantain/clover produced 222 kg of carcass weight/ha compared to 181 kg for lambs on ryegrass/clover and 156 kg/ha for lambs on ryegrass/plantain/clover. At \$5.50 per kg carcass, this meant an advantage of \$291/ha for plantain/clover pastures over the ryegrass based farmlets.

**Table 2. Lamb performance**

		Ryegrass/clover	Ryegrass/plantain/clover	Plantain/clover
18/7/12	Start at start	93	67	63
10/8/12	Lambs added	81	62	57
5/9/12	Lambs added	109	89	88
14/9/12	Bulls added	10	6	10

### For a 75 day grazing period from 18/7/2012 and 1/10/2012

Grazing days (number/ha)	1734.0	1741.0	1722.0
Stocking rate (lambs/ha/day)	23.1	23.2	23.0
Lamb growth rate (g/d)	233.0	205.0	273.0
Total lamb LWG/ha (kg)	403.0	357.0	471.0
Average dressing out %	45.0	43.9	47.2
Average carcass weight (kg)	22.3	21.8	23.5
Increase in carcass value/ha (\$)	997.0	862.0	1223.0

## *Summary*

- Plantain pastures were established at a lower seed cost (\$100/ha cheaper)
- High sowing rates of ryegrass appeared to suppress plantain and clover growth.
- If a mixed pasture is desired, the challenge will be to establish the optimum mix of grass and plantain so that plantain and clover are not suppressed.
- Apart from a short period during the establishment phase, plantain based pastures produced more DM at each cut.
- The growth habit of plantain appears to encourage clover growth
- In spite of producing more DM and having higher clover contents, stocking rates were similar. It appears the higher production and quality of plantain/clover simply enabled higher feed intakes and better liveweight gains.
- As well as having higher liveweight gains, lambs on plantain dominant pastures had a higher dressing out percentage, resulting in extra carcass weight per ha. This double whammy of better liveweight gain and a better DO% meant a \$290/ha advantage over a 75 day spring grazing period.
- With plantain, the big unknown will be on-going productivity and persistence and a change in thinking around weed control.