



Profitability. Sustainability. Competitiveness.

# **Profitable Dairying with Low N Input: the Pastoral 21 experience**

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# Pastoral 21- Testing Future Farm Systems aimed at

- High MS Production & Profit from low N input
- Reductions in N leaching
- Strategies and tactics that deliver this

# Objective 1: Waikato

- Decrease N leaching from 40-60 to 20-25 kg N/ha/yr
- Maintain MS/ha between 1100-1300 kg/ha/yr
- Profitability maintained
- **Hypothesis** – that milk production and profit can be maintained/increased and environmental impacts decreased by a combination of high genetic merit cows, lower stocking rate and better N management

# Testing the concept – Farmlets Scott farm (2011-2015)

	<b>Current 13 ha</b>	<b>Future 13 ha</b>
Stocking rate (cows/ha)	3.2	2.6
Cow genetic merit (BW)	140	194
Replacement rate (%)	22	18
N fertiliser (kg N/ha)	Up to 150	Up to 50 Revised target 90
Standoff- urine collected	No	Yes
Grain feeding (kg/cow)	0	Up to 400
Nitrification Inhibitors	No	First year only

# Results: Milking platform 13 ha

## Mean for 4 years 2011 to 2015

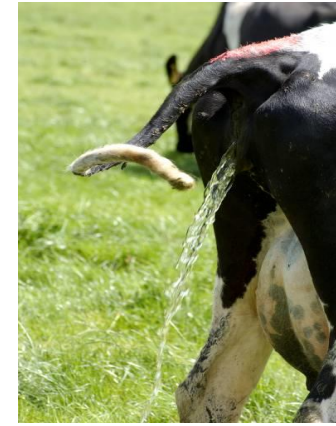
<b>Farmlet</b>	<b>Current</b>	<b>Future</b>
N fertiliser on pasture (kg/ha)	139	56
Estimated Pasture grown (t DM/ha)	16.9	15.4
Estimated Pasture eaten (t DM/ha)	14.4	12.9
Pasture Utilisation %	85%	84%
Supplements purchased (t DM/ha)	1.37	1.29
Annual Feed offered per cow (t DM/cow)	5.7	6.5

# Production and Profit 2011-2015

	Current	Future	% diff. (Future-current)
Milksolids (kg/cow)	370	444	+20%
Milksolids (kg/ha)	1193	1164	-2%
Operating costs (\$/kg MS)	\$4.11	\$4.15	
Operating profit (\$/ha)@ \$7.40 kg MS	\$4310	\$4083	-5%

# N leaching reduced by 40-50%

- Decrease N inputs ( ↓ 100 kg/ha)
  - More efficient use of inputs
  - Lower urinary N onto paddocks
- Stand cows off paddock
  - Remove urinary N
  - Gains from pasture protection and effluent spreading



# Production per hectare maintained

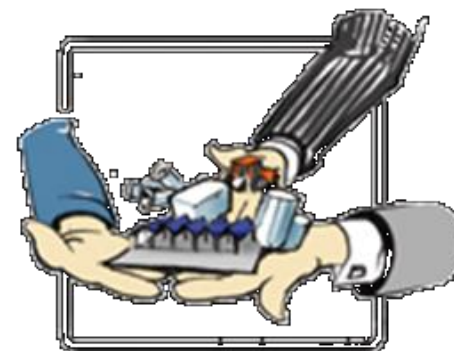
- More production per kg liveweight ( 0.93 vs 0.77)
  - Fewer cows ( ↓ 0.6 cows/ha)
  - More days in milk ( ↑ 20 days)
  - More annual pasture offered per cow
  - Better genetics helps
- Good pasture management
  - Sharp on residuals and quality
  - Limited use of N fertiliser



# Profit maintained

- Stand off costs can be high
  - Look for cheaper alternatives
- Gains from saved inputs
  - Fewer cows, fewer inputs
  - Lower replacement rate ( 18 vs 22%)
- Full economic analysis still to be done
  - Message not expected to change

Money



# How Achieved

- More pasture offered, + 0.8 t DM/cow/year
- Maintain intensity of pasture management
  - Aim for recommended grazing residuals
  - Use spring rotation plan – slope may differ
  - Take surpluses, fill deficits (Gibberellic acid)
- Lactation days are important
  - Calve early, cull later, dry off later
- Avoid chasing excessive peak production
  - 2.3 kg/cow v 2.6 kg/cow

# How Achieved

- N management, Strategic v Tactical approach.
  - Choose amount, timing for most efficient use & fit consent
  - P21 was 30 kg N/ha from late July, repeated late August, + November
  - + 20 kg N/ha returned via effluent
- Comparative Stocking Rate (kg Lwt/t DM)
  - Current herd 84, drops to 75 for Future herd
  - Avoid predicted drop in pasture utilisation (-4% v -1%)
  - Exceed expected increase in MS/cow (50 kg MS/cow v 74 kg MS/cow)



Environment

Production  
and Profit



# Take-home message

- Holding production & profit while lowering N leaching is possible
- There is no silver bullet – we need a combination of strategies

