



Profitability. Sustainability. Competitiveness.

# Dairy farm analysis for the Waikato Impact JV

DairyNZ Economics Group

2 December 2014

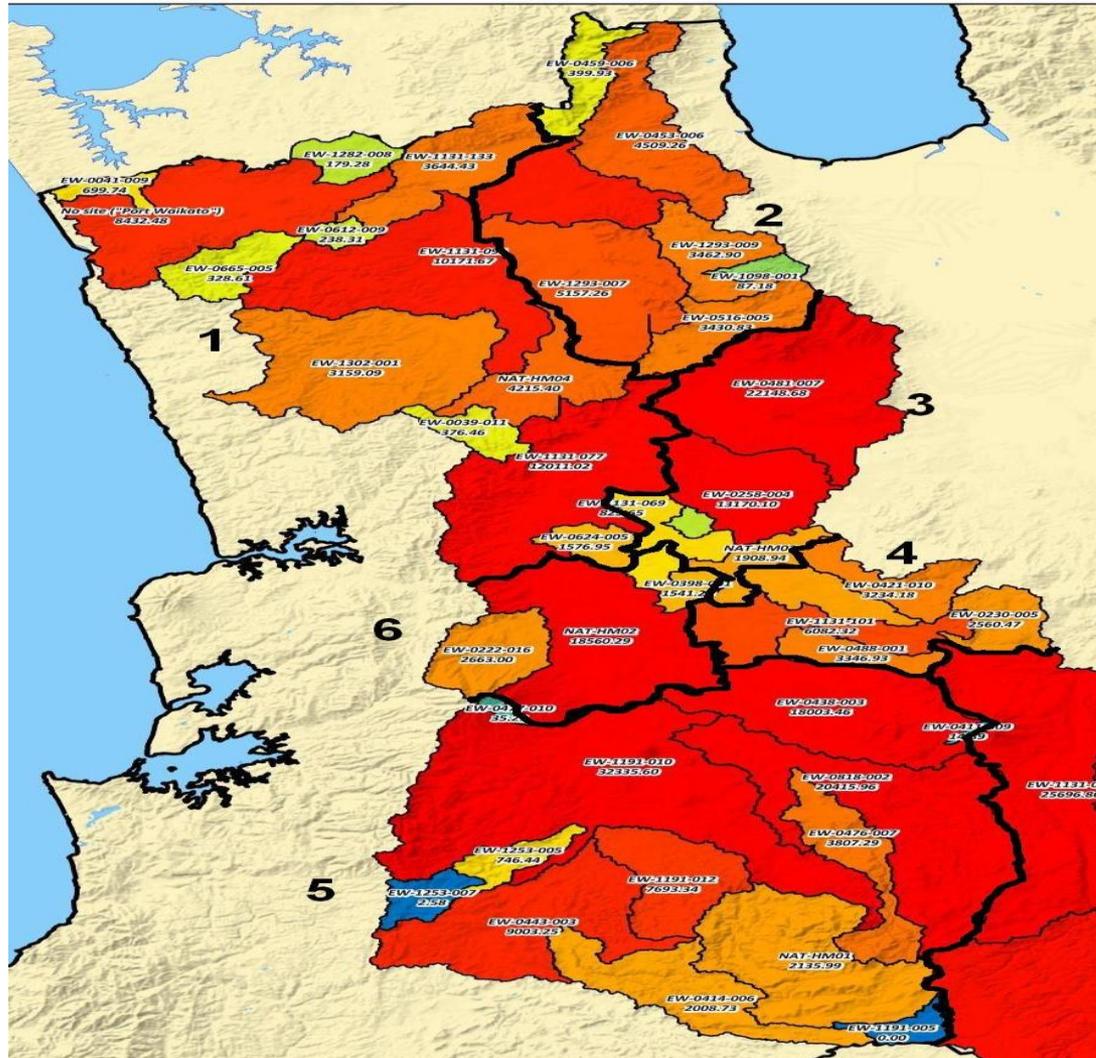
# Objective

- Determine the economic impact of reducing N loss on dairy farms in the Waikato River Catchment
- Create abatement cost curves – for the Waikato catchment model

# Overview of Methodology

1. Collection of Baseline data
2. Select farms for modelling - representation
3. Identify N mitigations and assumptions
4. Farmax and Overseer modelling
5. Checking and interpretation of results
6. Write up

# Waipa Franklin Sub Regions





# Waipa-Franklin Farms

Group	Representation of sub-catchment			System	Comments
	Farm	Percentage of sub region	Hectares represented		
1	Farm 2	60%	17,175	Low	Farm 2 well-draining soil. Farm 6 poor draining soil.
	Farm 6	40%	11,450	Medium	
2	Farm 1	100%	21,116	High	Farm on less well draining soil. Farm typical scale for area.
3	Farm 3	20%	7,786	High	Farm 3 is on well-drained soils which are less typical for the catchments. Farm 4 is on poorly drained soils. Farm 5 is on poor draining peat.
	Farm 4	30%	11,679	Low	
	Farm 5	50%	19,465	Low	
4	Farm 9	50%	19,966	Medium	Farms 4 and 20 balance each other in scale for the sub catchments.
	Farm 10	50%	19,996	Medium	
5	Farm 11	30%	76,478	Medium	Range of soil types for the four farms. Farm 12 is weighted lower than the others due to higher stocking rate and irrigation (minority of farms irrigated).
	Farm 12	10%	25,493	High	
	Farm 13	30%	76,478	High	
	Farm 14	30%	76,478	Low	
6	Farm 7	70%	54,222	Low	Farm 7 well-draining soil, Farm 8 poorly drained.
	Farm 8	30%	23,238	High	

# Upper Waikato Farms

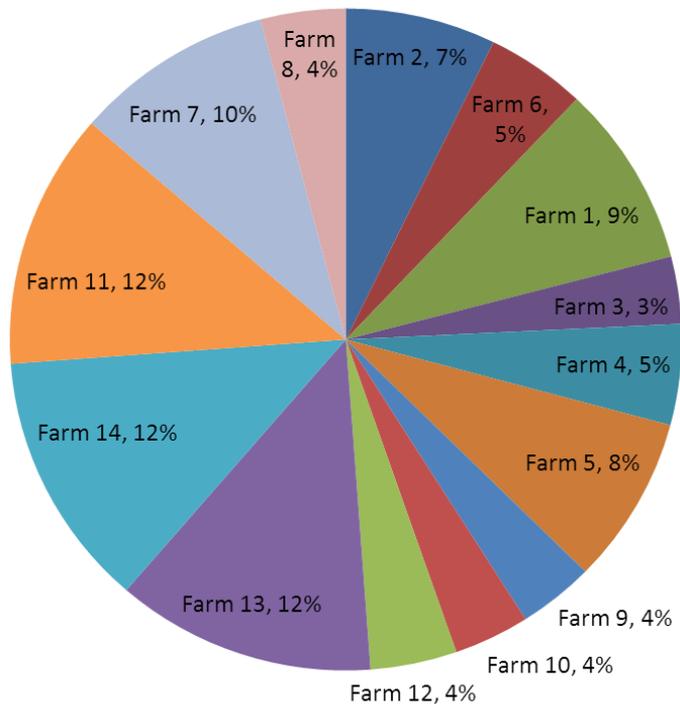
Group	Representation of sub-catchment			System	Comments
	Farm	Percentage of sub region	Hectares represented		
1	Farm 4	100%	3,364	Low	Typical large scale farm for this area on well drained soils
2	Farm 10	30%	6,359	Medium	Farm 10 is on well drained soils while farms 11 and 12 on less well drained soils. Farm 12 is higher input and more intensive than farm 11, who is typical for the area.
	Farm 11	40%	8,479	Low	
	Farm 12	30%	6,359	Medium	
3	Farm 1	75%	9,636	Low	Farm 1 is fairly typical of this small area. Farm 9 represents the small proportion of farms with some irrigation use.
	Farm 9	25%	3,212	Medium	
4	Farm 5	20%	17,861	Medium	All farms are on similar pumice soils in this area. Farm 5 is a well run farm in the area but not the top producer. Farm 7 is typical of new conversions on more marginal land. Farm 6 has typical production for the smaller scale older farms around Tokoroa. Farm 3 is a larger scale farm with typical production. Farms 8 and 2 balance each other in terms of production and inputs. Farm 8 is lower input and production.
	Farm 7	20%	17,861	High	
	Farm 6	20%	17,861	Low	
	Farm 2	13%	11,163	Medium	
	Farm 3	13%	11,163	Medium	
	Farm 8	15%	13,395	Low	

# Representative farms

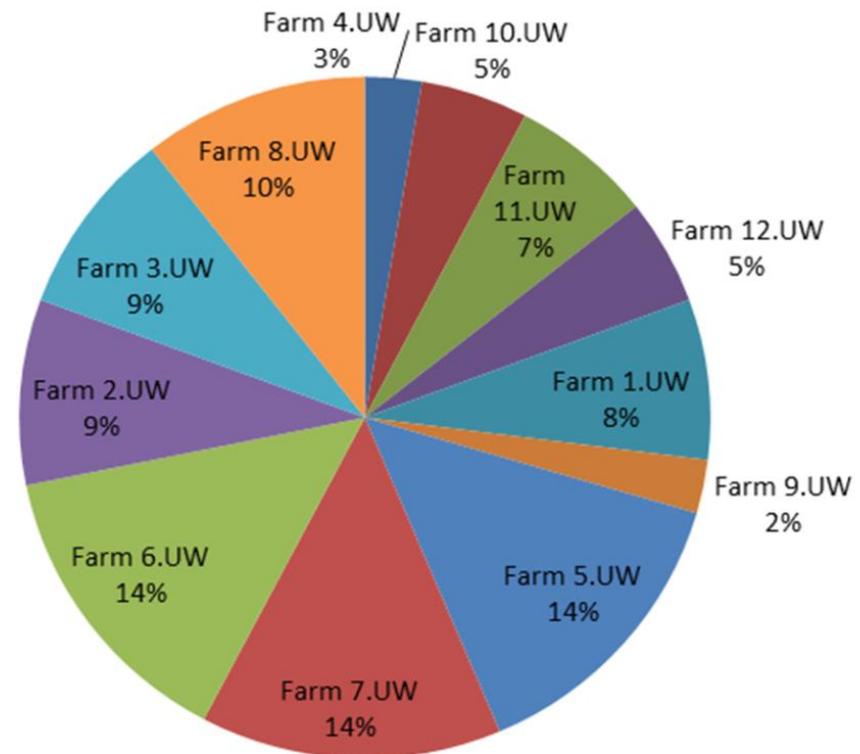
## Assign a weighting to each farm

- consultation with local Consulting Officers

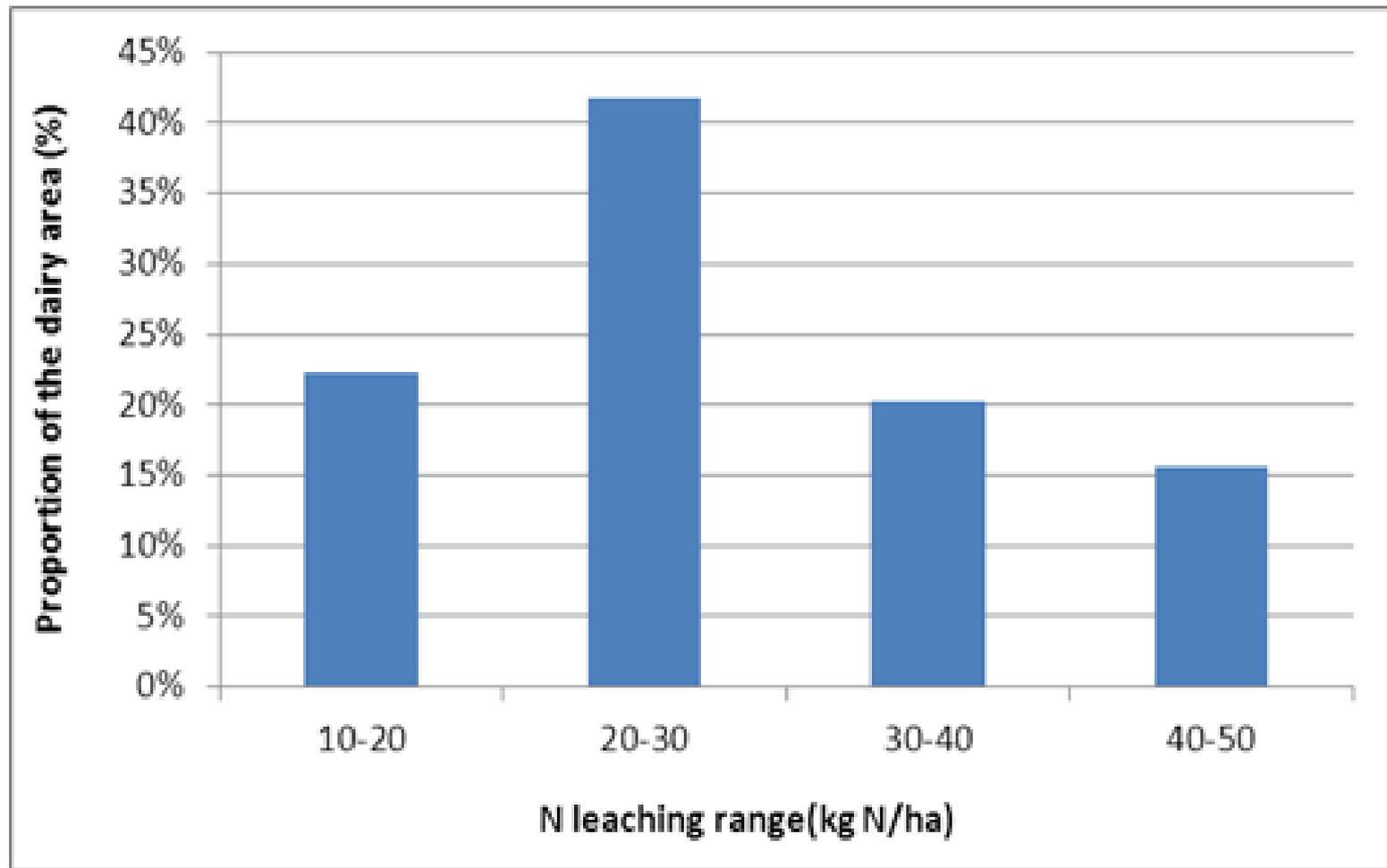
### Waipa-Franklin



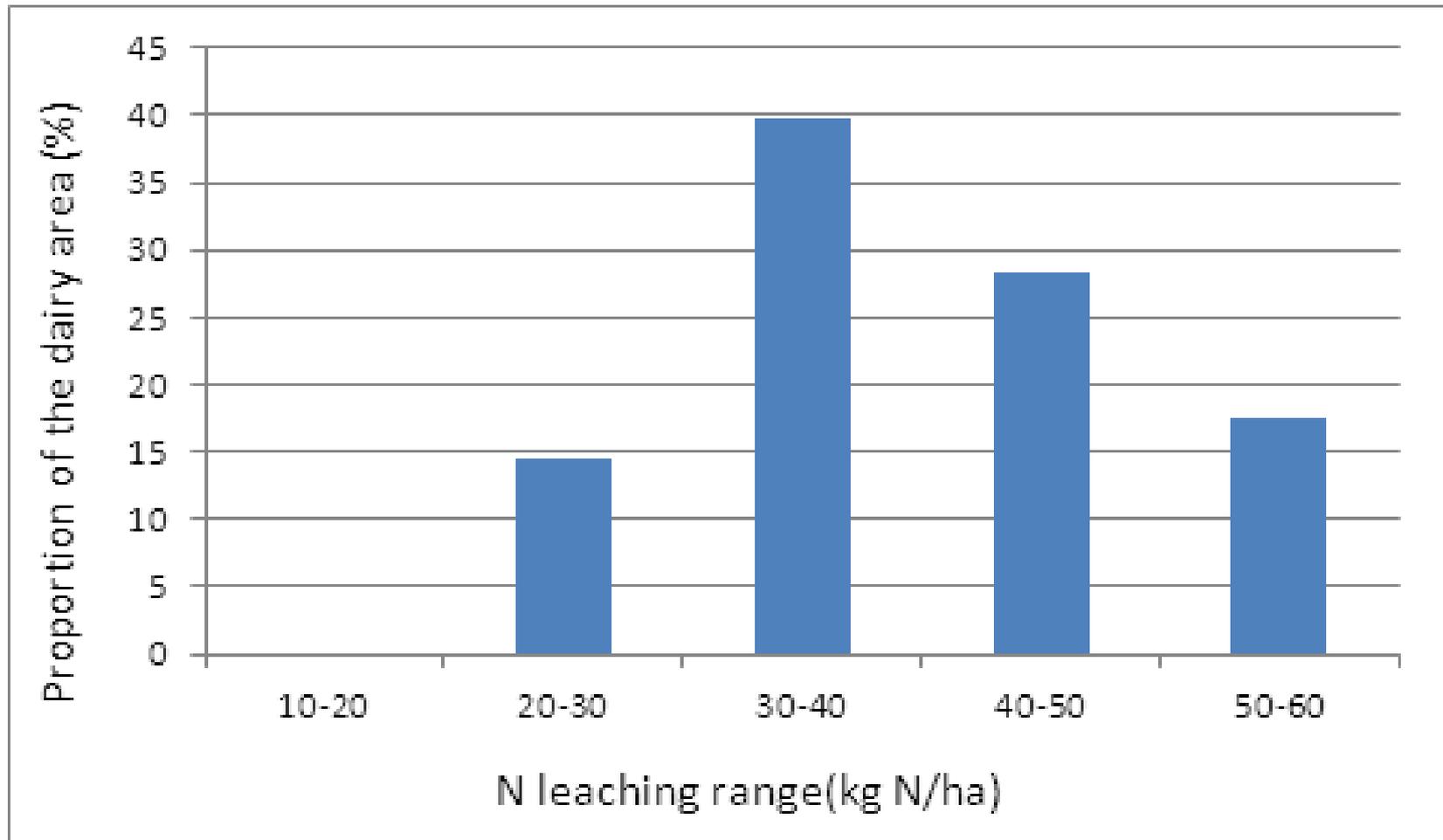
### Upper Waikato



# Base N leaching Waipa-Franklin



# Base N leaching Upper Waikato



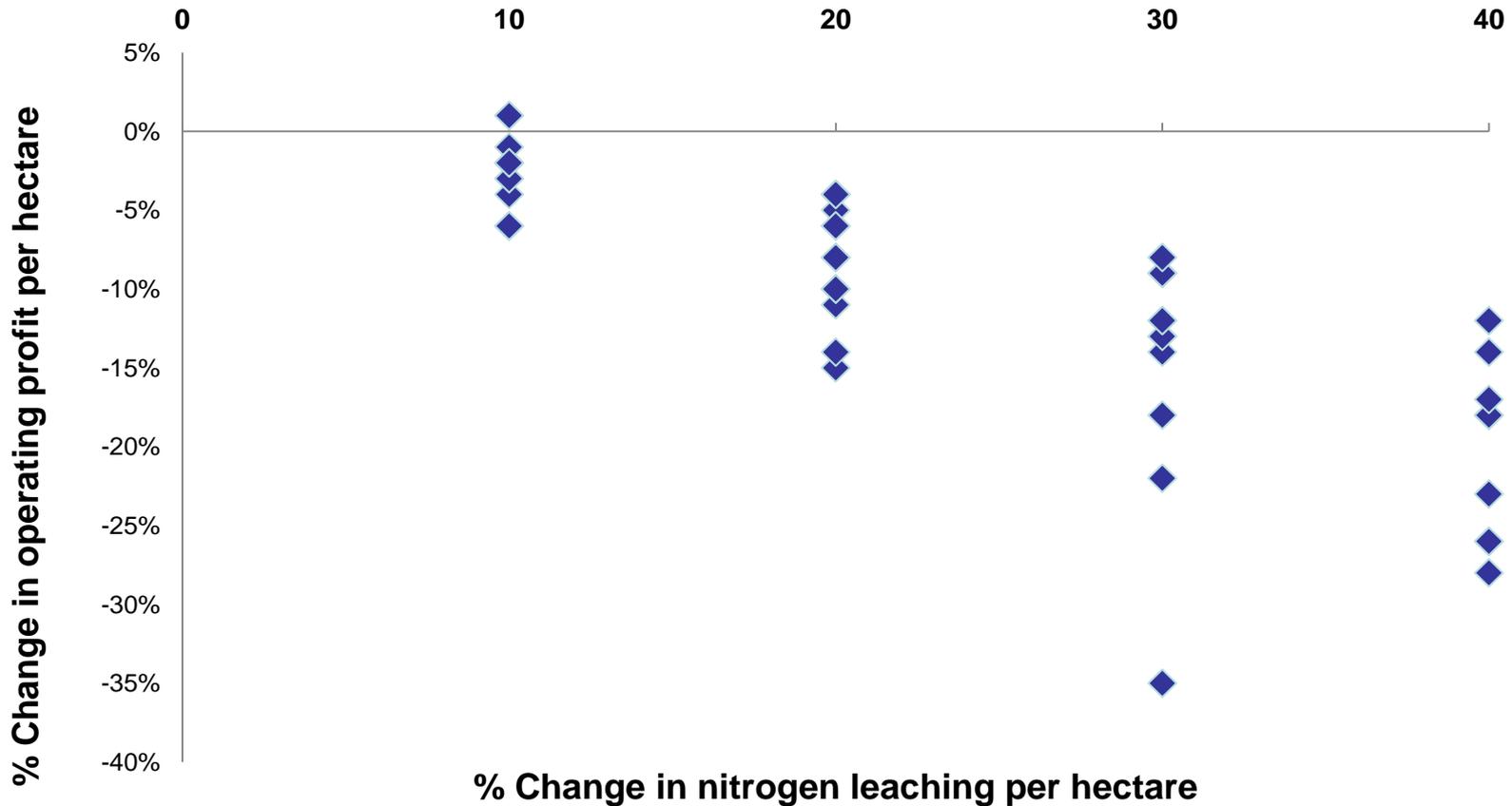
# Modelling Assumptions

- Milking platform only
- \$6.50 milk price
- Standardised feed and fertiliser prices
- Milk production per cow - fixed
- Labour fixed, unless 100+ cows removed
- Size of effluent area not increased
- Concrete standoff pad with bark - cows not fed on pad

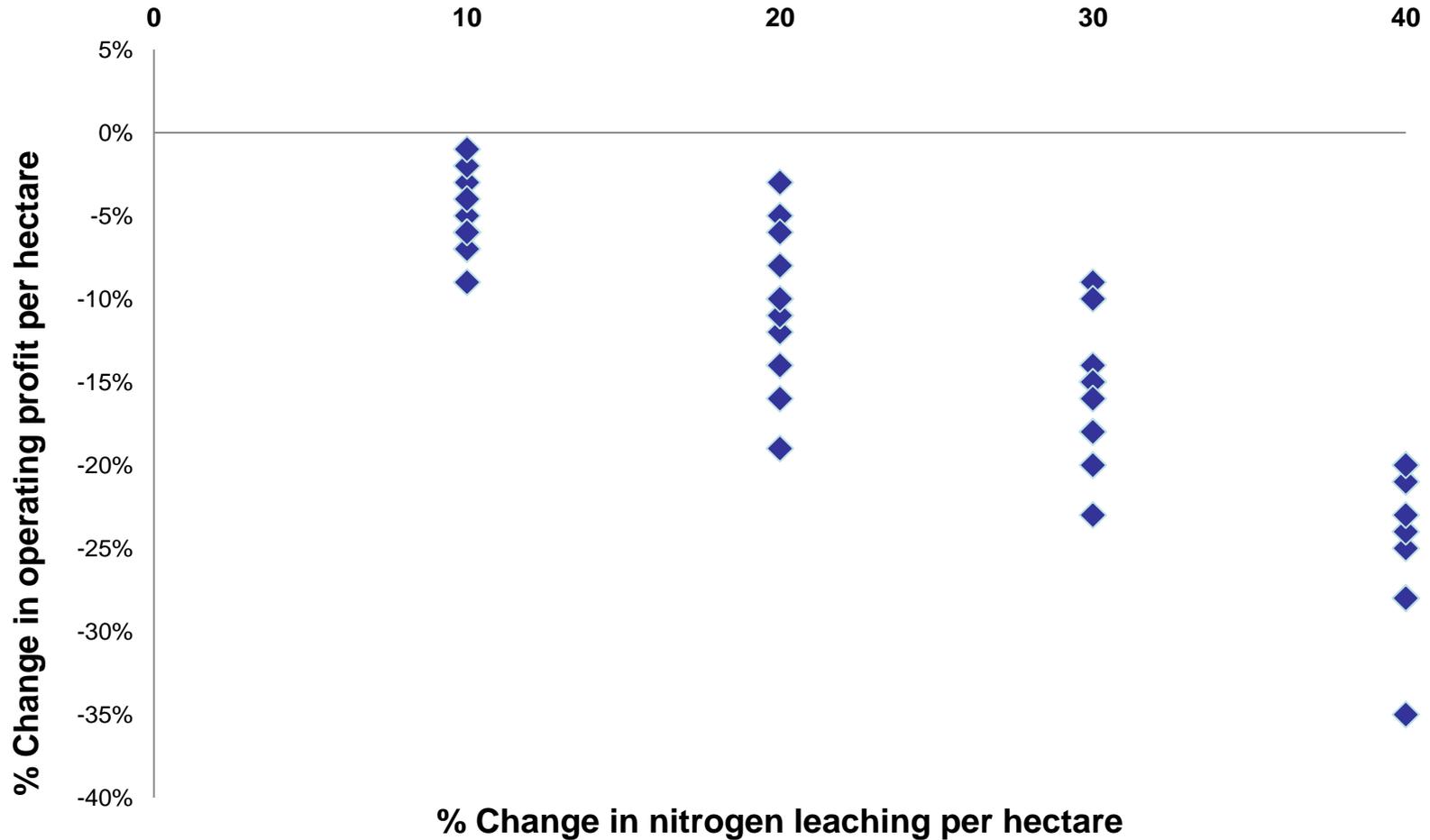
# N Mitigations

1. Optimise feed pad / standoff pad
2. N fertiliser – timing, applications, volume
3. Reduce Imported supplements (up to 20%)
4. Reduce stocking rate (up to 20%)
5. Introduce standoff pad

# Impacts – Waipa-Franklin



# Impacts – Upper Waikato





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# Conclusion

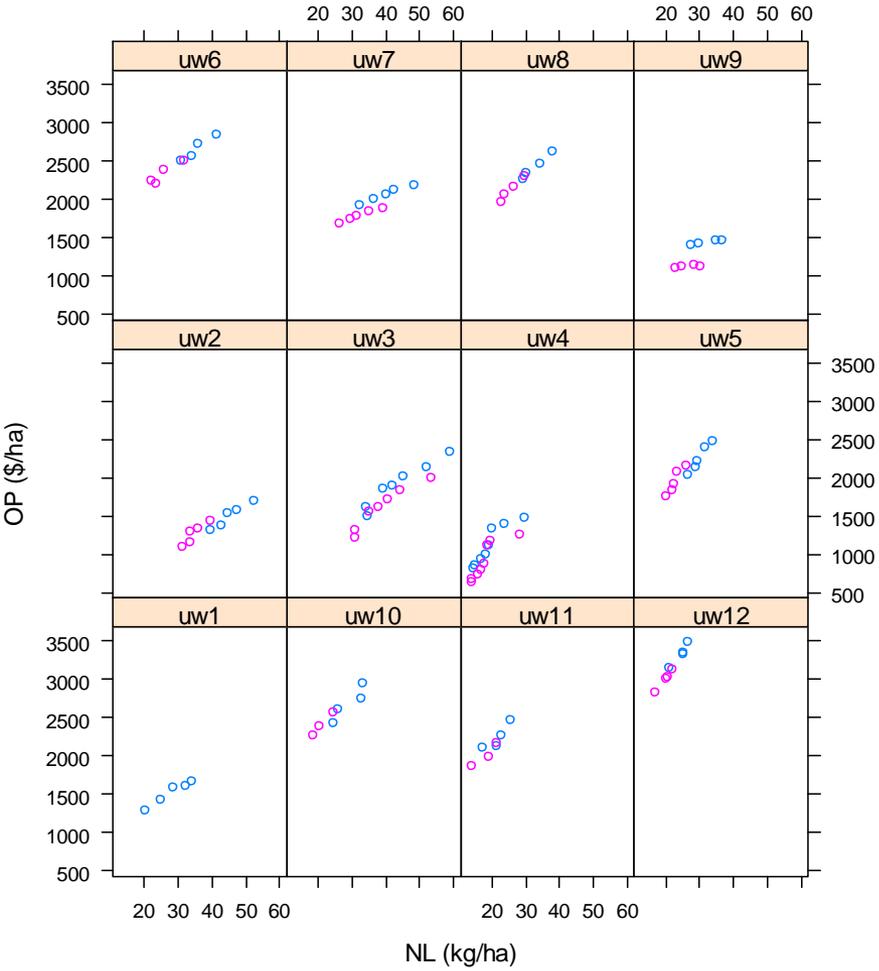
- 26 farms modelled across 2 catchments
- Represent dairy farm land based on biophysical and farm system
- Higher N leaching in Upper Waikato
- 10-20% reduction in N loss, smaller impact on profit
- 20%+ reduction in N loss - larger impacts on production and profit requiring more change on-farm with different management skill level

# Questions?



# Reduction in OP

## Upper Waikato



## Waipa-Franklin

