

# **Economic Review of Wairarapa Water's Application for Stage 2 (Feasibility) Funding from the Irrigation Acceleration Fund**

*Presentation to accompany the review paper commissioned by Fish and Game (Wellington  
Region)*

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# Executive Summary

## Three issues:

- **Process problem** – Wairarapa Water (WW) submitted a funding application to MPI with outdated and misleading economic analysis, MPI failed to pick this up (so paid out regardless) and WW still peddle the same falsehoods unabated.
- **Scheme viability problem** – WW's proposal is dairy-centric, in that 55% of the irrigated area is assumed to be conversions to intensive irrigated dairying. However, this is premised on a \$7.07 milk price. Once a revised milk price assumption is applied the entire proposal collapses as dairying is unprofitable.
- **Scheme redesign issue** – In the absence of a large water-intensive industry like dairying there is no justification for 100M cubic metres of storage. This implies a fundamental scheme resign.

# What is Wairarapa Water claiming?

## Key features

- *Black Creek*
  - 67M m3 of supply
  - 20,000 ha irrigated
  - \$171.5M midpoint cost
- *Tividale*
  - 30M m3 of supply
  - 10,000 ha irrigated
  - \$82M midpoint cost

## Economic benefits (per 10,000 ha)

*Wairarapa district GDP will increase by **\$49 million per year.***

*Associated with this increase will be an additional \$17 million per year of household income **369 Full-Time-Equivalent jobs.***

*Impacts of irrigation over 30,000 ha will be **three times as great.***

# What is this based on?

## WW cites Butcher, 2014:

<http://www.waterwairarapa.co.nz/news/images/3-regional-economic-impact-report-analysis-of-proposed-wairarapa-water-use-project-october-2014.pdf>

The main factors to recognise are that product prices are based on a long term average (the last four years actual and the next three years forecast). Long term price assumptions (2013 prices) include \$7.07 per kg for milk solids, \$4.18 per kg for manufacturing beef, \$5.68 per kg for lamb, and \$26.58 per carton for apples.

**Table 1: Pre- and Post-Irrigation Land Uses**

	Existing Dry Land			Irrigated		
	%	10,000 Ha	30,000 Ha	%	10,000 Ha	30,000 Ha
Dairy	22 %	2,200	6,600	45 %	4,500	13,500
Arable & Mixed	40 %	4,000	12,000	30 %	3,000	9,000
Sheep & Beef	24 %	2,400	7,200	12 %	1,200	3,600
Dairy Support	14 %	1,400	4,200	10 %	1,000	3,000
Horticulture	0.0 %	0	0	3 %	300	900
<b>Total</b>	<b>100 %</b>	<b>10,000</b>	<b>30,000</b>	<b>100 %</b>	<b>10,000</b>	<b>30,000</b>

### Take home messages:

#1: \$7.07 is a completely unrealistic milk price: \$5 +/- \$1 reasonable

#2: 45% dairy + 10% dairy support = 55% dairying across the irrigated area  
– so accurate to describe Wairarapa Water's proposal as 'dairy centric'

# Is irrigated intensive dairy viable?

- **WW: 2014 Baker Report**

- Assumes milk price of **\$6.50 +/- 50 cents**
- *Excludes* a water price

(<http://www.waterwairarapa.co.nz/news/images/land-use-affordability-under-irrigation-april-2014---final.pdf>)

- **Rōpere Consulting adjustment to Baker**

- Revised milk price to **\$5.00 +/- \$1.00**
- *Includes* a water price of **\$1000 per ha** (based on irrigating 400mm per ha @ 25 cents per m<sup>3</sup> of water)
- *Includes* sensitivity analysis at **\$400 per ha**, using a 10 cents per m<sup>3</sup> price

# Profitability of Irrigated Intensive Dairy

Step 1: Adjust milk price

Step 2: Add the water price (25 cents)

Colour code	Milk price (\$kgMS)	Marginal Increase in dairy profitability with irrigation						Comment
		Soil type A (\$per ha)		Soil type B (\$per ha)		Soil type C (\$per ha)		
		Water free	Water costs	Water free	Water costs	Water free	Water costs	
	7.00	2,694	1,694	1,613	613	2,774	1,774	WW base assumption Barker upper bound
	6.50	1,881	881	946	-54	1,964	964	Barker base
	6.00	1,068	68	279	-721	1,154	154	Barker lower bound/ Revised upper bound
	5.50	255	-745	-388	-1,388	344	-656	
	5.00	-558	-1,558	-1,055	-2,255	-176	-1,466	Revised midpoint
	4.50	-1,371	-2,721	-1,722	-2,722	-1,276	-2,276	
	4.00	-2,184	-3,184	-2,389	-3,389	-2,086	-3,086	Revised lower bound

So once water costs are added, basically need a \$6 milk price...

# Does a lower water price help?

Milk price (\$kgMS)	Marginal Increase of Disposable Surplus		
	Soil type A (\$per ha)	Soil type B (\$per ha)	Soil type C (\$per ha)
6.00	668	-121	754
5.50	-145	-788	-56
5.00	-958	-1,555	-866
4.50	-1,771	-2,122	-1,676
4.00	-2,584	-2,789	-2,486

**UNVIABLE PRICE RANGE**

**No.**

No matter how you cut it, irrigated intensive dairy in the Wairarapa needs at least a \$6.00 milk price to break even – and in most seasons the price is going to be less than that...

# So is there an alternative?

- Without a large-scale and water-intensive water industry like dairy to act as a 'cornerstone user' or 'anchor tenant', there's no need for circa 100M m<sup>3</sup> of water
- In comparison, everything else is niche (i.e. dairy sheep) and outside of dairy, only horticulture created additional jobs (and on only 300ha)
- As a planning exercise, dairy is left 'as is' and land is re-allocated across the other land use types in the same ratio assumed by Butcher.



# The counterfactual

	Status Quo		WW Irrigated		Revised Irrigated	
	%	10,000	%	10,000	%	10,000
Dairy	22	2,200	45	4,500	22	2,200
Arable & mixed	40	4,000	30	3,000	43	4,267
Sheep and beef	24	2,400	12	1,200	17	1,707
Dairy support	14	1,400	10	1,000	14	1400
Horticulture	0.0	0	3	300	4	427
<b>Total</b>	100%	10,000	100	10,000	100%	~10,000

**Step 1:** Reallocate land across arable & mixed, sheep and beef, and horticulture

**Step 2:** Reallocate job ratios

**Result:** 352 v. 369 jobs in Wairarapa and 384 v. 403 across region

Ha	Jobs (FTEs)	
	10,000	10,000 Revised
Dairy farming direct	90	0
Other pastoral and arable direct	-32	-11
Horticulture (or similar)	142	202
<b>Subtotal - Direct Farming</b>	<b>200</b>	<b>191</b>
Farm support in Wairarapa	169	161
<b>Total Wairarapa impacts (rounded)</b>	<b>369</b>	<b>352</b>
Farm support elsewhere in Wellington	34	32
<b>Total Wellington impacts (rounded)</b>	<b>403</b>	<b>384</b>

# What the counterfactual tells us

- In theory, it is possible to create a similar number of jobs but with a orientation towards horticulture
- However, there are caveats about horticultural jobs that need to be noted (i.e. seasonality, use of migrant labour)
- If you can generate 352 jobs from 427 ha, why have a proposal based on irrigating 10,000 ha?

# So in a nutshell

- WW application for MPI funding was based on outdated and misleading analysis that gives a completely unrealistic view of the scheme's viability and benefits (this is bad) and
- MPI failed to pick this up so paid out anyway (which is worse – as other funders rely on MPI doing its job) and
- WW **continues** to use the same outdated and misleading data to promote its irrigation scheme and seek funding from others (which is unconscionable and disingenuous)

# Conclusions

- WW's scheme doesn't stack up – and never has
- WW needs to acknowledge this, revise its numbers and redesign its scheme
- Without irrigated dairying significantly less storage capacity is required, as everything else is 'niche' in comparison – even horticulture

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*Rōpere* is the Māori word for strawberry, which at first glance is a strange name for a consultancy.

A hint can be found in the French word for strawberry, which is *fraise*. *Fraise* was also the name granted to a French nobleman Julius de Berry, who, according to legend, was knighted after giving the King of Normandy a magnificent plate of strawberries out of season – a miraculous feat in time before the advent 24 hour convenience stores.

De Berry's descendants travelled with the King's descendants and fought a particularly noteworthy battle in 1066. The family, however, decided to continue north, and eventually ended up in the Highlands of Scotland – whence they then spread across the globe.

In the process the name was anglicised to *Fraser*.



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