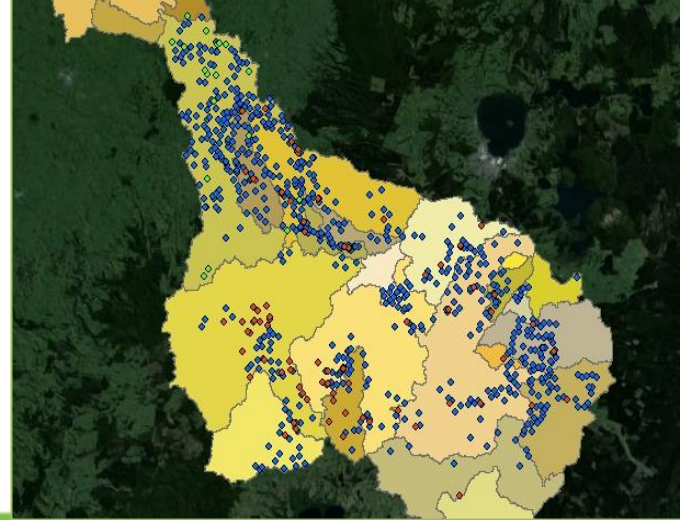




Profitability. Sustainability. Competitiveness.



# Accelerating the adoption of good environmental practice on dairy farms in the Upper Waikato River catchment

CSG December 2015

# Today's presentation

- Overview of the project
- A look at the Sustainable Milk Plan (SMP) process
- Project results
- SMP's in Healthy Rivers plan change

# Overview

- Largest environmental good-practice project ever undertaken by dairy industry
- Sustainable Milk Plan (SMP) provides a practical plan for change for 650 dairy farms
- Timeline July 2012 – June 2015
- Change quantified and reported back to community (e.g. CSG)
- Funding:
  - Waikato River Authority (1/3)
  - Government: Primary Growth Partnership (1/3)
  - DairyNZ levy (1/3)

# Aiming for success?

- The collective actions of farmers reduces dairy industry impacts on the Waikato River
- Farmers are better prepared for the future
- Project results assist the policy making process
- Farmer and advisor capability has been increased



# SMP principles

- Good practice plan / continual improvement
- Sets out the farmer's own time bound action plan to meet agreed catchment scale targets
- Provides farmer support opportunity
- Tailored to individual farms
- Avoids duplication & adds value to other activities
- 5 target areas:

Nutrients



Effluent



Waterways



Land



Water use



# Targets

- Clear objectives and expectations required for each target area
- Sets out what you are trying to achieve and how
- Suite of narrative objectives developed by steering group.
  - debate was robust!
  - debate was lengthy!
  - N-loss ranges agreed (quartiles), not numbers!
  - Sound familiar?



# Assessment

**“What are the potential farmer actions to influence the quality of the river”**



**Questionnaire utilised**



# Action plan for change

<b>Date:</b>		<b>Planning Period: 2013 - 2014</b>	
<b>Farmer goals:</b>	To improve efficiency where possible. Maintain profitability at an optimum stocking rate Be environmentally responsible		
	<b>Agreed action(s):</b>	<b>Who</b>	<b>By when?</b>
<b>Nutrient Management:</b> <i>(Industry expectation: Compliance with nutrient management rules)</i>	Update nutrient budget to Overseer 6 once the soil tests have been completed	A Brocksopp	June 2013
	Investigate the effects of a little and often approach to N application	A Brocksopp	June 2013
<b>Effluent Management</b> <i>(Industry expectation: Compliance with effluent management rules)</i>	Supply Farmer x with a effluent sampling kit from the labs	A Brocksopp	March 2013
	Supply Farmer x with details of AgITO training options	A Brocksopp	March 2013
	Arrange meeting with DairyNZ consultant to discuss future developments on farm	A Brocksopp	April 2013
	Investigate opportunity for water diversion	Farmer x	April 2013
	Formulate a risk map for effluent application.	A Brocksopp	April 2013
<b>Waterway Management :</b> <i>(Industry expectation: Cattle exclusion from waterways)</i>	Fence wet area in paddock C19	Farmer x	June 2013
	Fence wet area in paddock C30	Farmer x	June 2013
	Provide information on Riparian Management	A Brocksopp	March 2013
<b>Land Management:</b>	No actions		
<b>Water Use: (Industry expectation: Compliance with water take and use rules)</b>	Attend Smart Water use field day	Farmer x	March 2013
	Install a water meter	Farmer x	April 2013

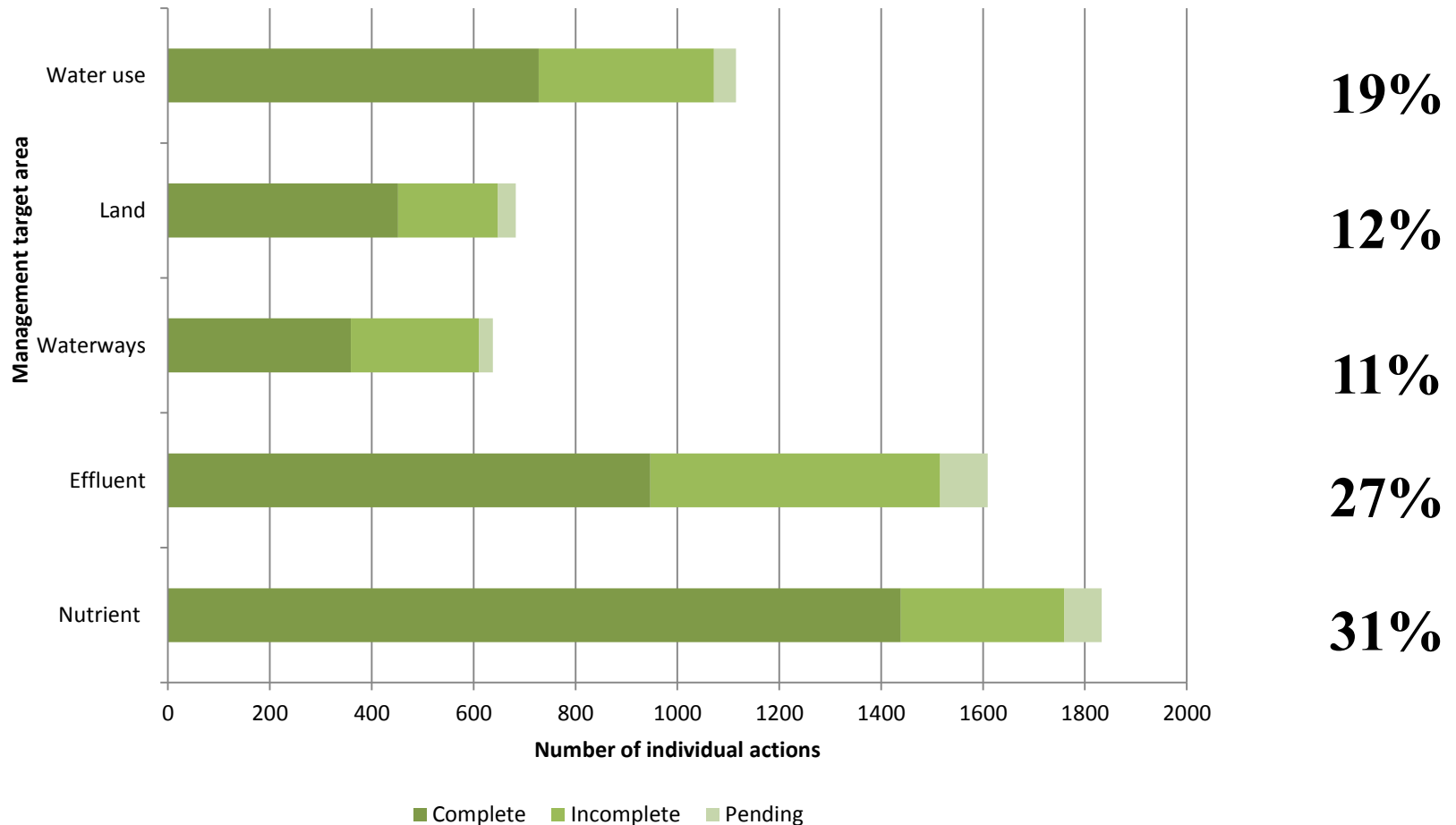


# Project Results:

- 648 plans received to date (642 in analysis)
- 623 completed whole process (598 in analysis)
- 5921 individual actions were recorded (9.2 per farm)
- 70% actions completed within support period for those actions (independent audit).
- Continual improvement: 1274 new actions documented at end of process

# Actions per target area (total)

**% of  
total  
actions**



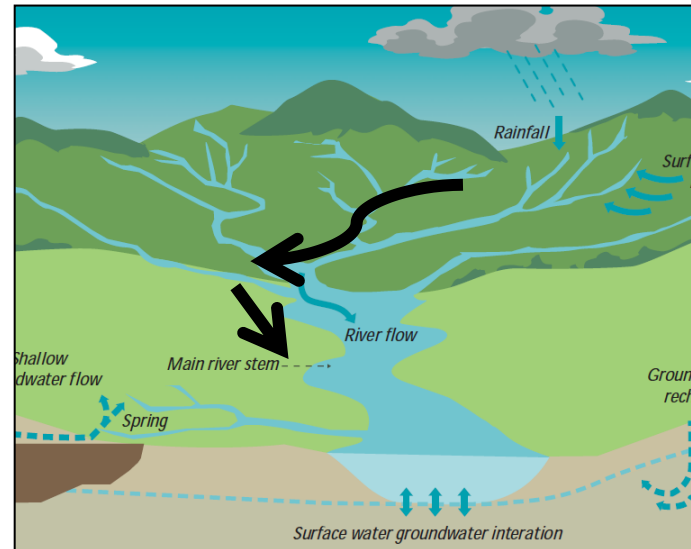
# Example: Top 5 nutrient actions

Management area	Agreed actions	% of farms	% actions completed
<b>Nutrient</b>	Utilise nutrient budget and scenarios to understand nutrient loss drivers, optimal nutrient requirements, efficiency rates and strategies to manage nutrient losses	65%	82%
	Update whole-farm nutrient budget to <i>Overseer V6</i>	60%	87%
	Improve records of fertiliser, effluent and/or supplementary feed applications (Dairy diary)	26%	80%
	Review optimal effluent block size, location and/or application rate	24%	76%
	Increase effluent area	17%	49%

- A total of 41 action categories and 141 sub-categories were defined.
- Not all farms recorded actions will have a direct impact on nutrient losses.

# Modelling objectives

- Estimate total nutrient load reduction as a result of SMP implementation
  - Nitrogen and phosphorous (direct output)
  - Sediments & E. coli
- Need robust estimates of mitigation effectiveness.
- Modelling completed by David Burger (DairyNZ) and Ross Monaghan (AgResearch)



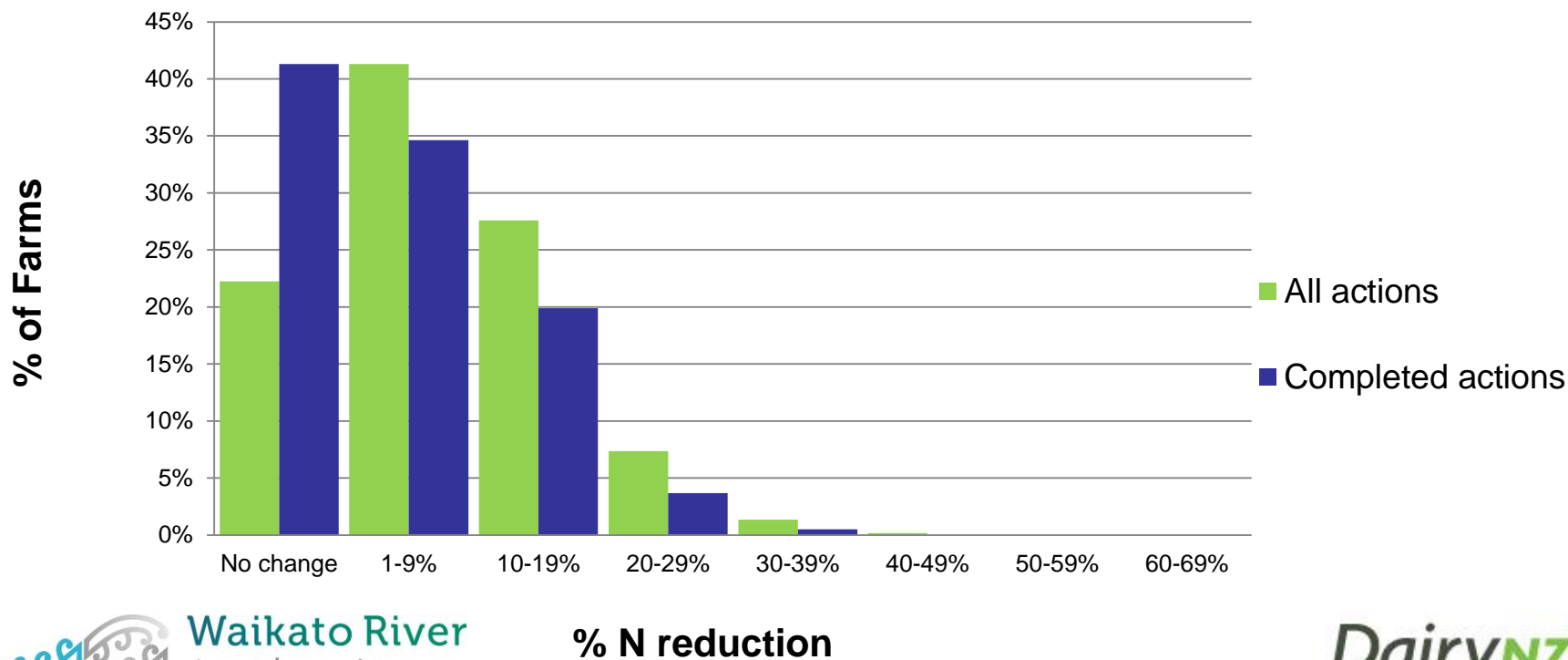


# Mitigation effectiveness

- Range of information used:
  - Best practice guidelines e.g.
    - e.g. WRC (2013) - Best dairy practice guidelines
  - Scientific publications e.g.
    - McDowell (2010) – Literature-based review of 14 potential strategies to mitigate agricultural P losses in the Lake Rotorua catchment.
    - Ballance MitAgator model supporting documentation developed by AgResearch (Lucci & Smith, 2014)
  - Overseer
    - 12 representative farms modelled from the Upper Waikato catchment to determine efficacy values for N and P for eight mitigation strategies (DairyNZ, unpublished data).

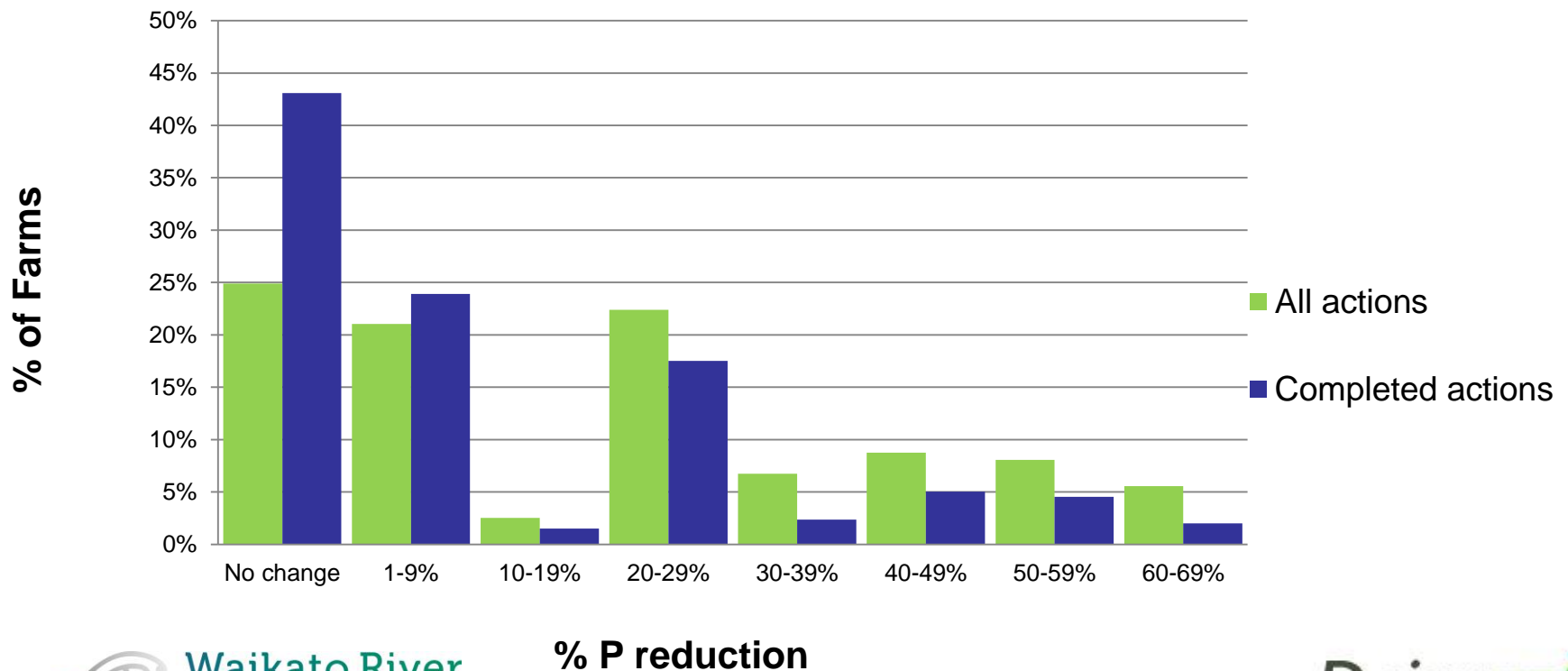
# % Nitrogen reductions across individual farms for all actions (642 farms) and completed actions only (598 farms)

- Mean reduction 5% for N (range from 0 to 35%)
- Increase to 8% for N when all actions are fully implemented.



# % Phosphate reductions across individual farms for all actions (642 farms) and completed actions (594 farms).

- Mean reduction 12% for P (range from 0 to 73%)
- Increase to 21% when all actions are fully implemented.



# Key points: reducing loads

- Greatest N reductions were observed for farms implementing multiple strategies involving stock exclusion from streams and optimised effluent/fertiliser application.
- Riparian and critical sources area management, stock exclusion and optimised effluent applications were the most effective measures for reducing P losses to water.





# Key points: engagement

- Communication is key for all parties
- A voluntary, farmer agreed process to change has increased engagement
- Process stimulated continual improvement
- Farming calendar and financial position influences the rate of change



# SMP's in Healthy Rivers plan change



- Scalability has been demonstrated
- Process for continual improvement
- 650 farmers out of 2500 already engaged
- Methods for auditing developed
- Methods for demonstrating reductions at catchment level developed

# Increasing Capability

- Upper Waikato
  - Nine consultancy businesses used
  - 40 consultants
- Waipa
  - 13 new consultants trained additional to Upper Waikato Consultants
- Recognised support
  - Farm Systems certified
  - Nutrient Management Adviser Certification Programme
  - DairyNZ developed training to support consenting



# Summary

- Farmers actions have resulted in reductions of contaminants leaving the farm
- Changes take time for many reasons
- Appropriate support developed to accelerate change
- Implementation and modelling processes developed for future support (Waipa SMP project)
- **Action on farm, at scale, can be achieved**





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# Questions?