New Zealand
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Smart and Sustainable

A pathway for the future

Smart and Sustainable – The Partnership

- This is a 7 year Sustainable Food and Fibre Future (SFFF) project
- Its value is nearly M$15
- Partnership between NZAPI and MPI

Who	How Much
NZAPI	$5,852,000
In-kind	$1,470,000
SFFF	$7,488,000
	$14,770,000

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Governance Board and Operations

Governance

- Sarah Paterson – Independent Chair
- Chris Kerr (MPI) – Director Strategy and Insights; Policy and Trade
- Humayan Khan (MPI) – Investment Manager for SFFF
- Peter Langdon-Lane (NZAPI)
- Lesley Wilson (NZAPI) – RCG Member

- Dr Rachel Kilmister (NZAPI) – Operations.

Operations

- Dr Rachel Kilmister and team
- Industry Reference Groups for each work programme
- NZAPI Research Consultative Group
- Industry
- Service Industries

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Who's involved? - The Science & Tech

Plant & Food™ Research
Rangahau Ahumāra Kai

LINCOLN AGRITECH LTD

PlantTech

AGFIRST

FRUITION Horticulture

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

THE UNIVERSITY OF AUCKLAND
Te Whare Wananga o Tamaki Makaurau
NEW ZEALAND

Why are we doing this…?

- Face the immediate challenges of losing chemistry.
- Meet new MRL requirements in export markets
- Reduce chemical use
- Maintain NZ’s world leading position
- Meet consumer demand
- Increase our resilience
- Maintain/regain social license

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Outcomes

- Set the foundation and pathway to achieve Spray Free by 2050
- This is a stepwise transformation
- Focus of the next 7 years is
  - Consumer needs*
  - Environmental Outcomes
    - E.g. 35% reduction in apple orchard greenhouse gas emission by 2050
  - Economic outcomes
    - E.g. maintain our unique global position as the No 1 industry in the world

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How will be do this?

- One bite at a time…

- Look at our current state
- Set our foundation
- Move forward.

- We have divided the work load into 7 work streams

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7 Workstreams for the next 7 years

1. Industry plan for spray-free apple and pear orchards by 2050
2. Two new decision support tools
3. New alternate control options for 4 pests and diseases
4. 3 new technologies for pest and disease detection
5. New spray application methods
6. Integrated apple and pear industry online dashboard
7. Targeted extension and technology transfer

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1. Industry plan for spray-free apple and pear orchards by 2050

This may seem insurmountable, impossible, big, hairy AND audacious but what if…

- Sets the foundation and pathway
- Will be a live document
- It is workshops and seminars to understand
  - Opportunities
  - Challenges
  - Barriers
- Plan will guide the project.

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2. Two new decision support tools

- Focus on developing tools to assist with informed decision making around more precise chemical applications
- What will this need?
  - Initially focus on what current state is
  - Use data analysis, modelling and software development
  - Small trials leading to demonstration of commercial viability

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3. New alternative control options for 4 pests and diseases.

- Aim is to reduce or eliminate chemicals in both the orchard and the packhouse
- Over the next 7 years we will trial and evaluate 3 new chemical free options
- Develop at least one postharvest chemical free disinfestation technology
- Look at alternate on-orchard control options e.g. netting, lure and kill technology, cultural controls
- Develop best practice for using the new solutions

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4. Three new technologies for pest and disease detection

- Looking at real time remote sensing technologies that will identify the presence of a pest or disease quickly
- Indicate the level of risk
- Response will be precise and timely
- Examples
  - Spectral detection options
  - Greater granularity with weather data

The Vivid X system uses a small spectral imaging sensor that is mountable to a tractor or golf cart to look at the tree to detect diseases and pests, count blossom clusters and detect and measure apples. Shown here is the prototype. Photo: Jenny Lemieux

- What will be the most appropriate technologies to use, how to use the, when to use them?

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5. New spray application methods

- Start by using existing technology and apply it to the new high density planting systems
- How can technology be used to reduce the amount of chemical applied

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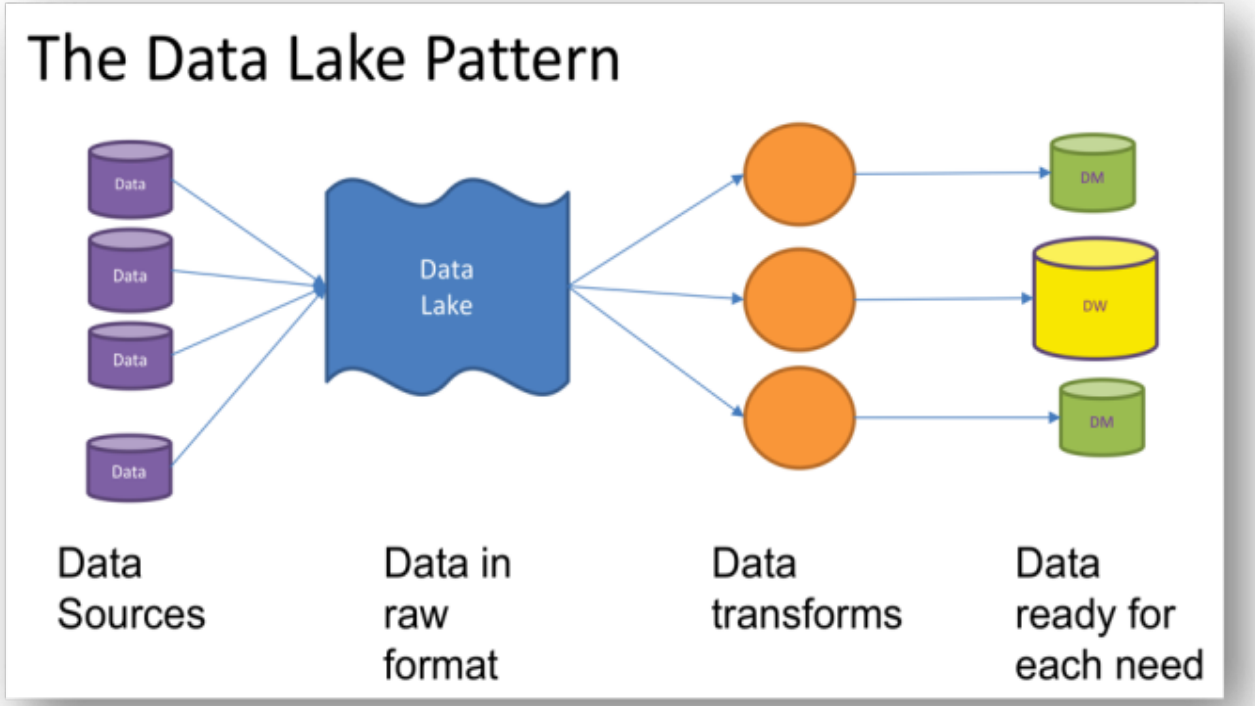
Integrated apple and pear online dashboard

- Grower based
- Brings together
  - Pest and disease monitoring
  - Mapping
  - Decision support tools
  - etc
- Will include benchmarking tools
- Create real time decision support and analytical support



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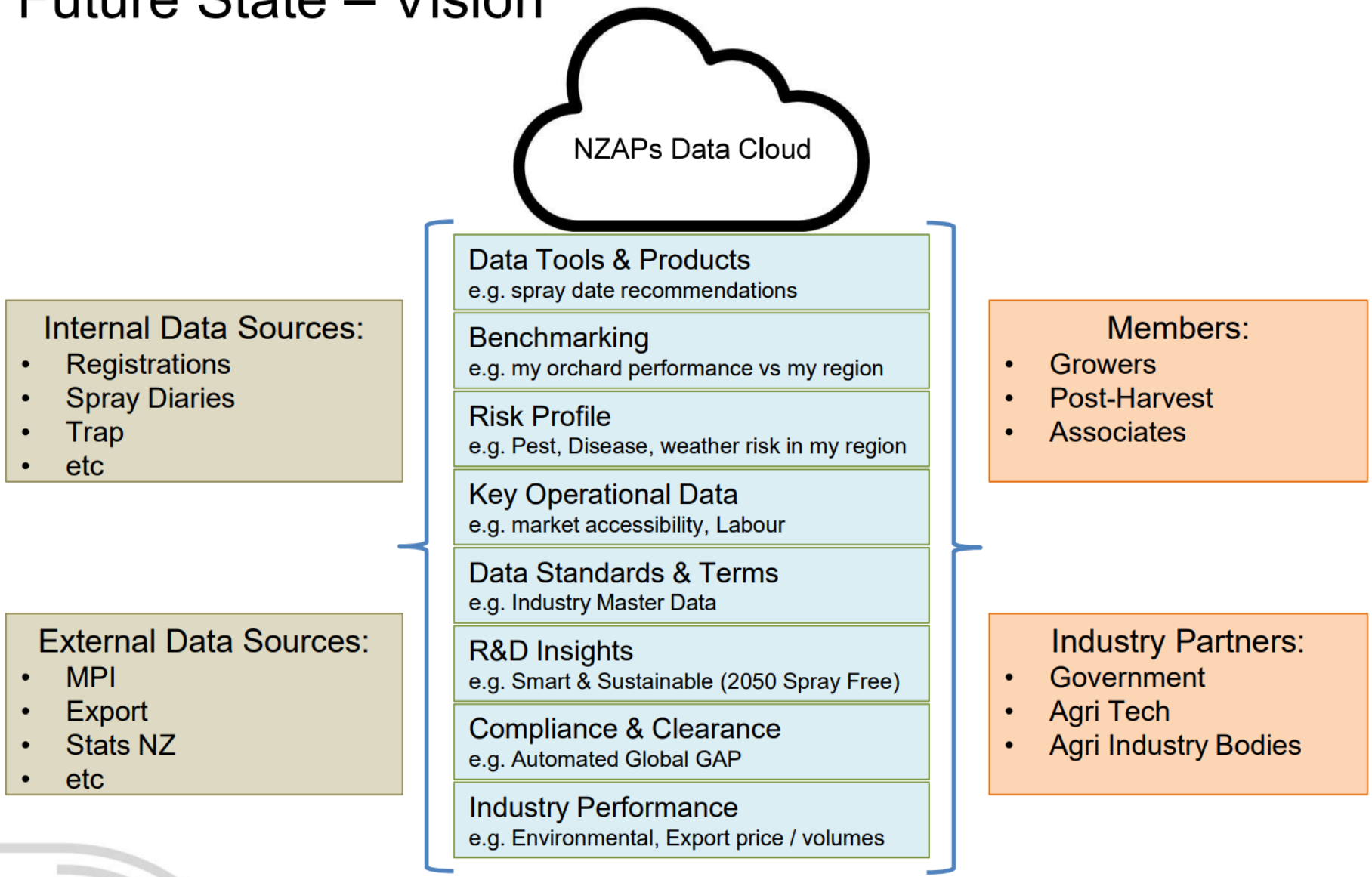
Future State – Vision



MONTAGE

7. Extension and technology transfer

- None of this will work unless we take the industry along with us
  - Field days
  - Demonstrations
  - Benchmarking
  - Speaking at seminars ☺
  - Robust feedback loops
- All 7 workstreams have an industry reference group
- Also includes RCG and NZAPI all of which serve as stop/go points to ensure progress is relevant.

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We are looking forward to the future

Thank you

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