

Our Land & Water

Shaping the future of New Zealand Farming

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New Zealand



Population
4.794 million



Land Area
268,021 km²

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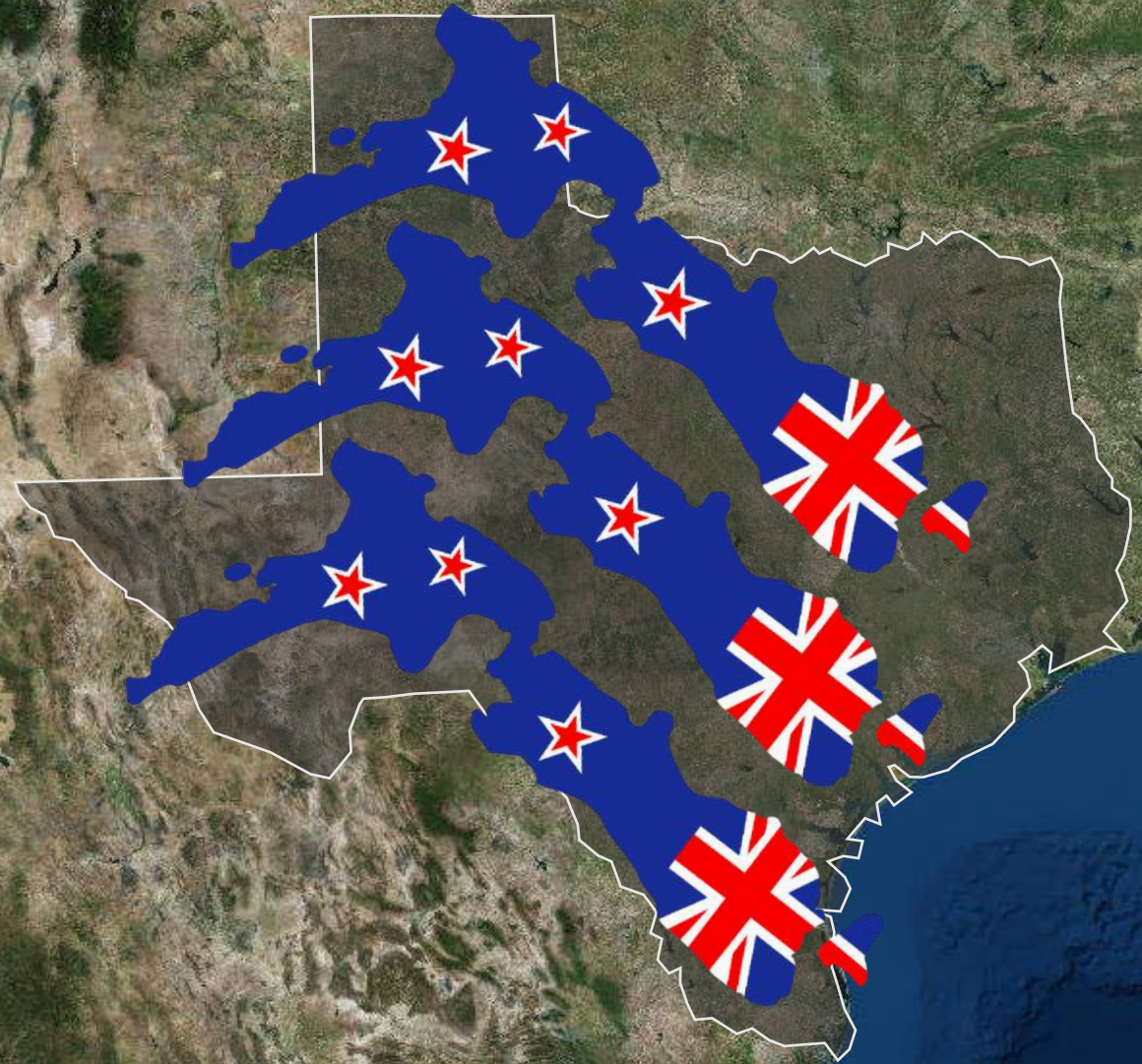
Texas, USA



Population
28.3 million

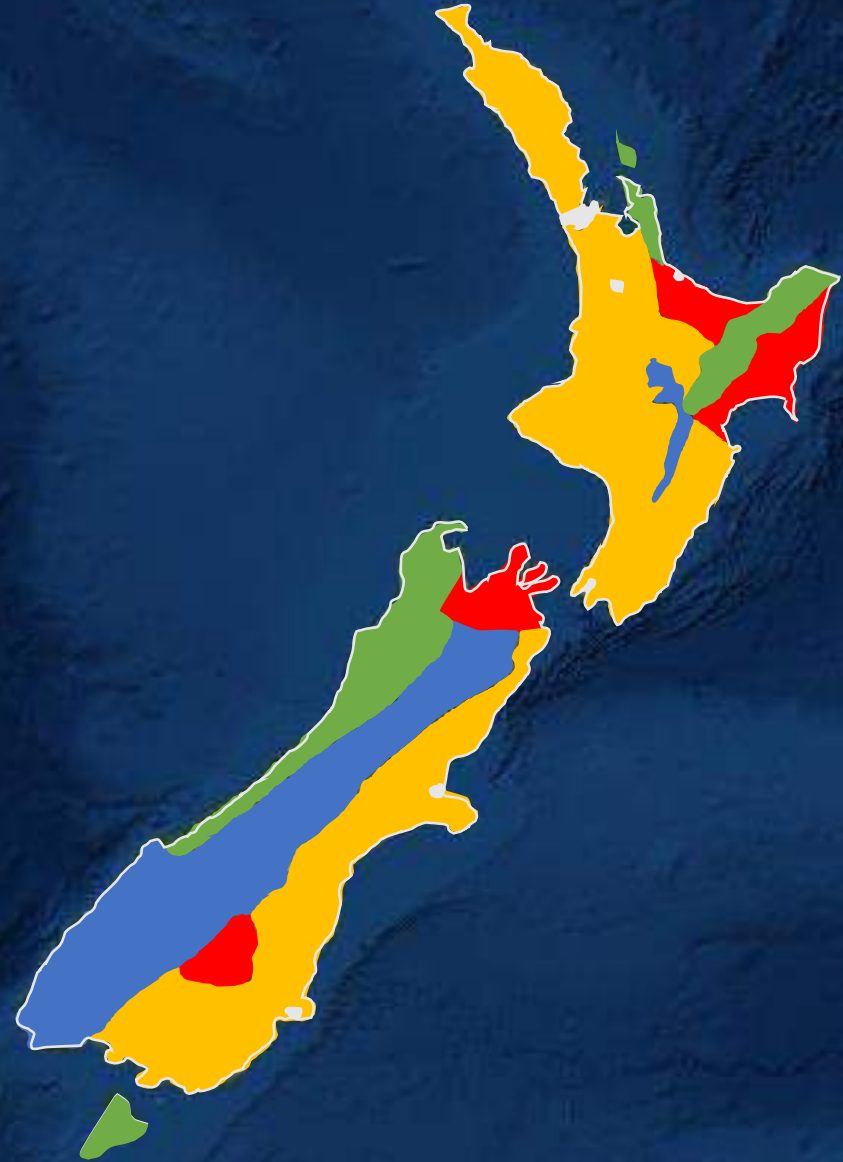


Land Area
695,662 km²



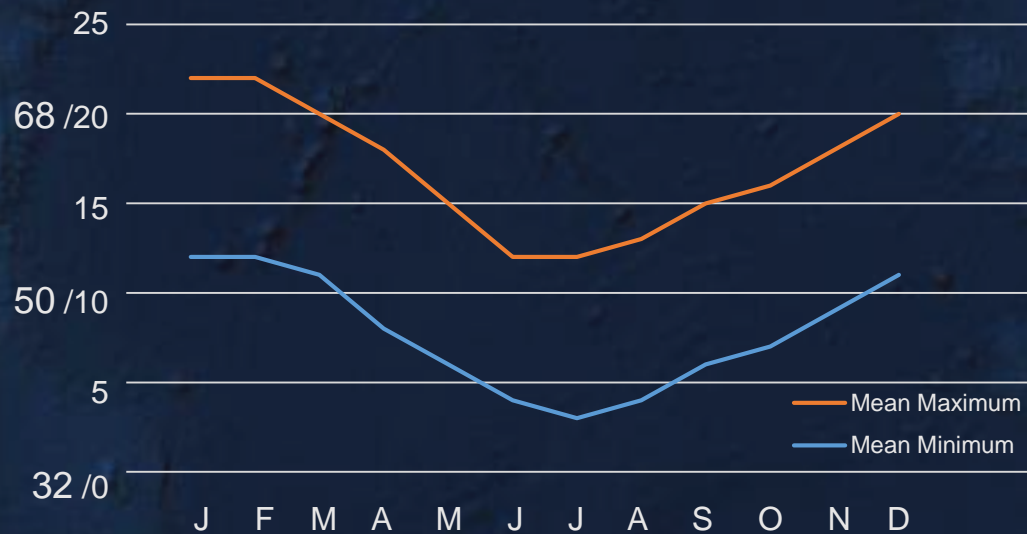
New Zealand Land Use

■ Urban	0.8%
■ Conservation Estate	16.0%
■ Native/Exotic Forest	31.8%
■ Horticulture	1.9%
■ Agriculture	49.5%



New Zealand

Daily Temperatures (°C)



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108°F / 42.4 °C
Rangiora
1973

-14°F / -25.6 °C
Ranfurly
1903

New Zealand Population (millions)

People



4.7

Sheep



27.0

Dairy Cattle



6.5

Beef Cattle



3.6





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Urbanisation

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New Zealand Urbanisation





Breaking the bonds of urban and rural New Zealand

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1893-1970



1971-2019





Immigration



No direct
connection



No farm
holidays



No farm
meat and
vegetables



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Water Quality

Safe for
Swimming
Drinking

Contaminants
Nitrates
Phosphorous
Pathogens

Bad news comes in threes...



Pressure is building

The Zero Carbon Bill

New Zealand is on the path to a low emission, climate resilient future; the Government aims to reduce our emissions to net zero by 2050.

- The Government is committed to New Zealand becoming a world leader
- It plans to introduce a new Zero Carbon Bill that will set a new emissions
- It also plans to establish an independent Climate Change Commission.

Interim Climate Change Committee Announced

Tuesday, 17 April 2018, 2:14 pm

Press Release: [New Zealand Government](#)

Hon JAMES SHAW

Minister for Climate Change

Tuesday, 23 October 2018 10:12

Farmers under the microscope

Written by Peter Burke

Farming has been under the microscope this month with three weight Government reports — on water quality, climate change and foot and mouth disease — all coming in just three days.

Farmers vice-president Andrew Hoggard says his response to these challenges was to



The government announces \$118 million grant to help plant one billion trees by 2028

30/11/2018 Holly Carran

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Essential Freshwater

Healthy Water, Fairly Allocated

[New Zealand Government](#)

The Vision is Clear - DairyNZ's new waterways movement

1 Nov, 2018 2:15pm

2 minutes to read



LET'S IMPROVE OUR WATERWAYS

DairyNZ has launched a movement to inspire farmers to get involved with looking after New Zealand's waterways.

Fonterra amps up plans for sustainability

November 29, 2018 Remedios Lucio

Dairy cooperative Fonterra has released its second annual Sustainability Report, detailing actions towards its environmental, social and economic goals.

Fonterra CEO Miles Hurrell said that the dairy giant is showing where it's at and where it needs to get to in sustainability.

"There are areas where we're leading the industry."



Farming leaders on board with zero carbon policy

Prime Minister Jacinda Ardern and the Farming Leaders Group - 05:00, Jul 01 2018



Media Release

B+LNZ welcomes launch of One Billion Trees Fund

Beef + Lamb New Zealand (B+LNZ) has welcomed the launch of a \$238 million One Billion Trees Fund that will complement the Government's One Billion Trees Fund.

Friday, 30 November 2018

beef+lamb new zealand | BY FARMERS. FOR FARMERS

Knowledge hub | Data & tools | Compliance

- Managing stock near water: Agricultural and horticultural on farmers to manage the effluent water.
- Holding on to soil: Some soil – or sediment – in a waterway can erode and kill freshwater species. It's important to hold on to soil.
- Making the most of nutrients: Nutrients are essential for both plants and animals, particularly when it comes to water quality.
- Improving biodiversity: Biodiversity refers to the variety of life forms, the healthier that environment.
- Dung and water: Dung – particularly in water – can be a problem for the environment.

CLIMATE LEADERS COALITION

ON A MISSION TO REDUCE EMISSIONS IN NEW ZEALAND

WHO | ACTIONS | NEWS & RESOURCES

Agricultural Policy Return in New Zealand

Almost
non-existent

1960's

increased to
'protect' NZ
from overseas
shocks

1970's

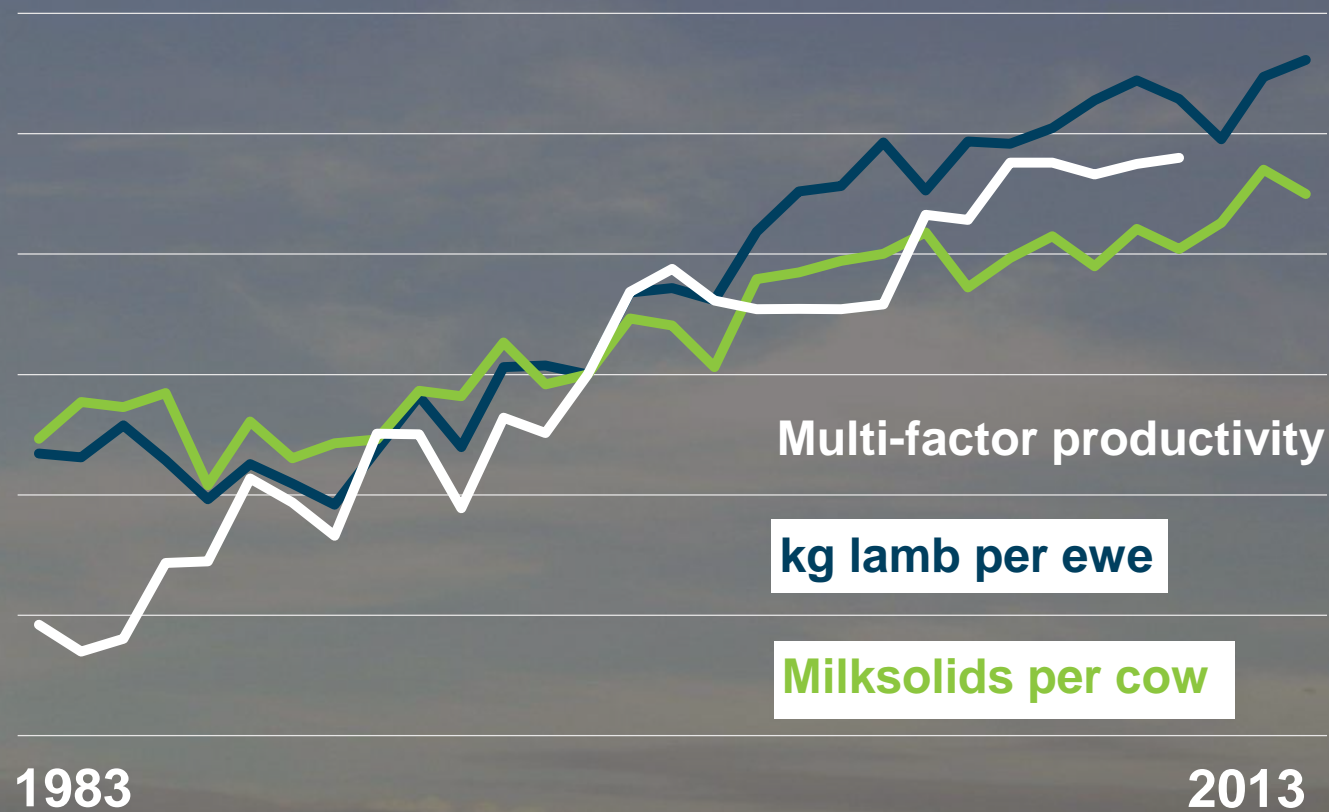
1980-4:
increased to
compensate for
high costs and
low commodity
prices

1980's

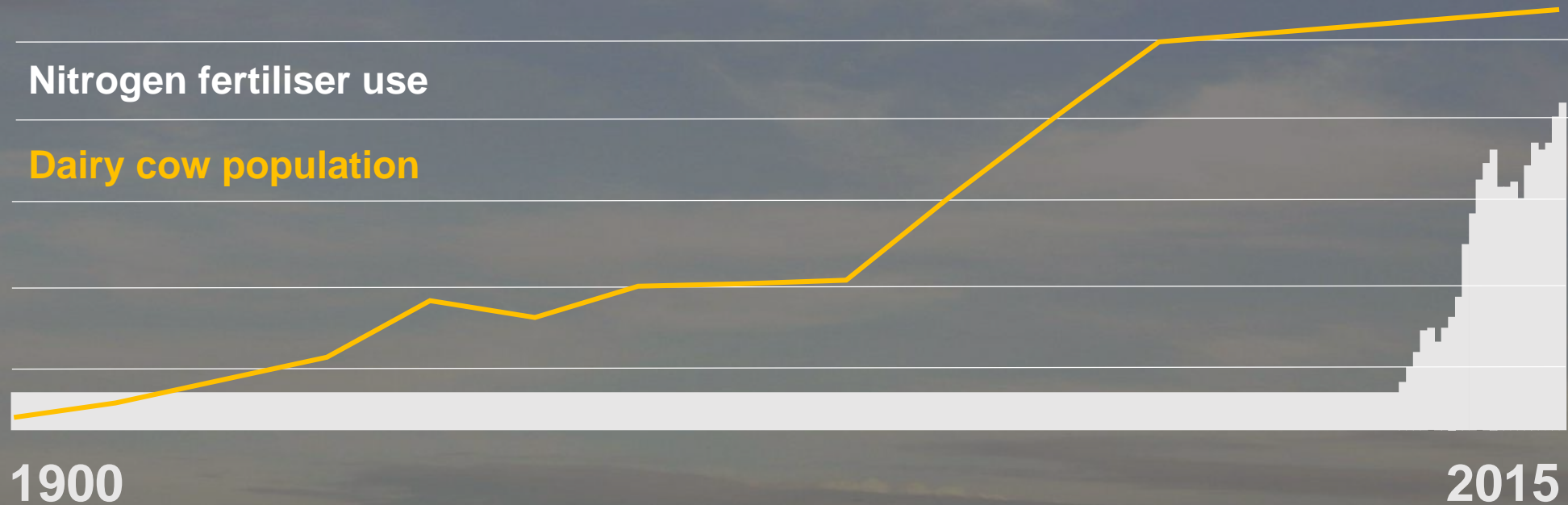
Post 1984:
most support
withdrawn

1990's

How subsidy removal affected the agricultural sector



Intensification and land use change



Drivers for changing farming's footprint

Expectations of
New Zealanders

Expectations of our
global discerning
consumers

The farmers dilemma

Risk if do not
adapt to
change

Huge risk to
change

Farmers must change

Tools

Technology

Knowledge

Evidence

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100% PURE NEW ZEALAND

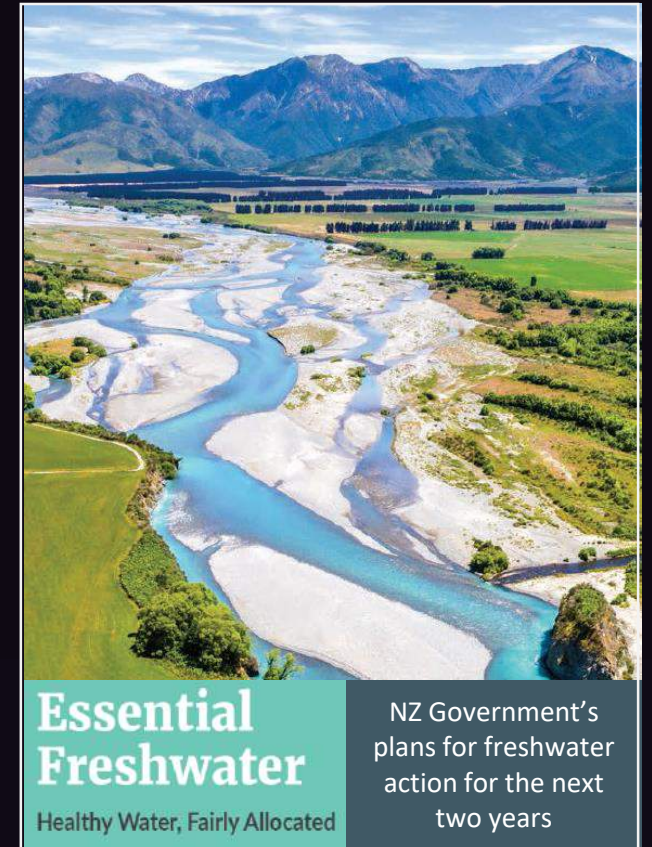
Regulation for water quality

A stick and goal posts



Policy Development

- 2004 Growing for Good
- 2006 Start National Policy Statement
- 2009 Land and Water Forum established
- 2014 National Objectives Framework
- 2018 Essential Freshwater



Regional Council Response

Hinds

2017

Moving to Good
Management Practice
Baseline

2025

15% reduction

2030

25% reduction

2035

36% reduction



Dairy



A photograph of two men standing in a green field with cows in the background. The man on the left is older, has a mustache, and is wearing sunglasses and a blue jacket. The man on the right is younger, wearing a cap and a black jacket with 'SIDDC' and 'WILD SOUTH' logos. The background shows a herd of cows grazing in a field under a clear sky.

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Image courtesy Dairy Exporter



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Image courtesy Dairy Exporter



	2011-2014	Current
Targeted Milk production	Max 1878	1750
kg MS/Cow	477	500 
Cows/ha	3.9	3.5 
Max Cows	630	560 
Return on Assets	6 - 10	6
N fertiliser	250 - 350	175 

Huge risk to change

- Financial risk
- Complexity
- More skilled staff
- Loss resilience?

An aerial photograph of a busy city intersection. The scene is filled with various vehicles including cars, a bus, and a truck. The road has white lane markings and a green-painted area. Buildings with grey roofs are visible around the intersection. The overall atmosphere is that of a bustling urban environment.

Beyond the farm gate

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TASTE
PURE NATURE



NEW ZEALAND
BEEF & LAMB

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Land use transformation

Emerging
Industries



More
Horticulture?



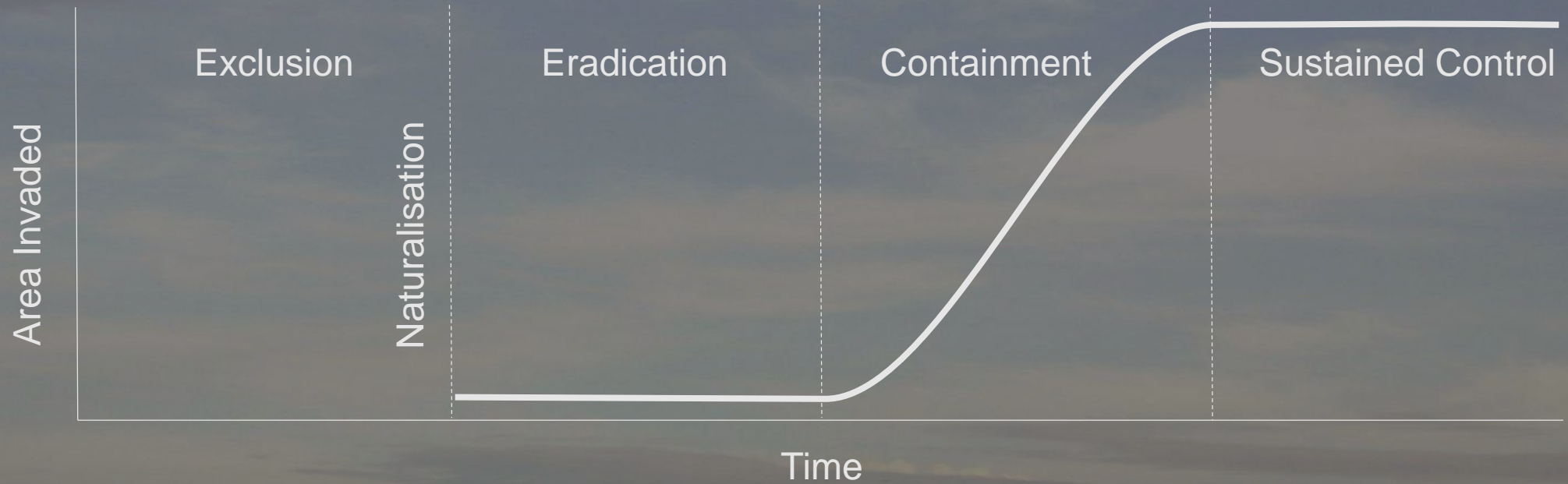
More
diversity?



More
value



Pastoral Weed Sector Strategy



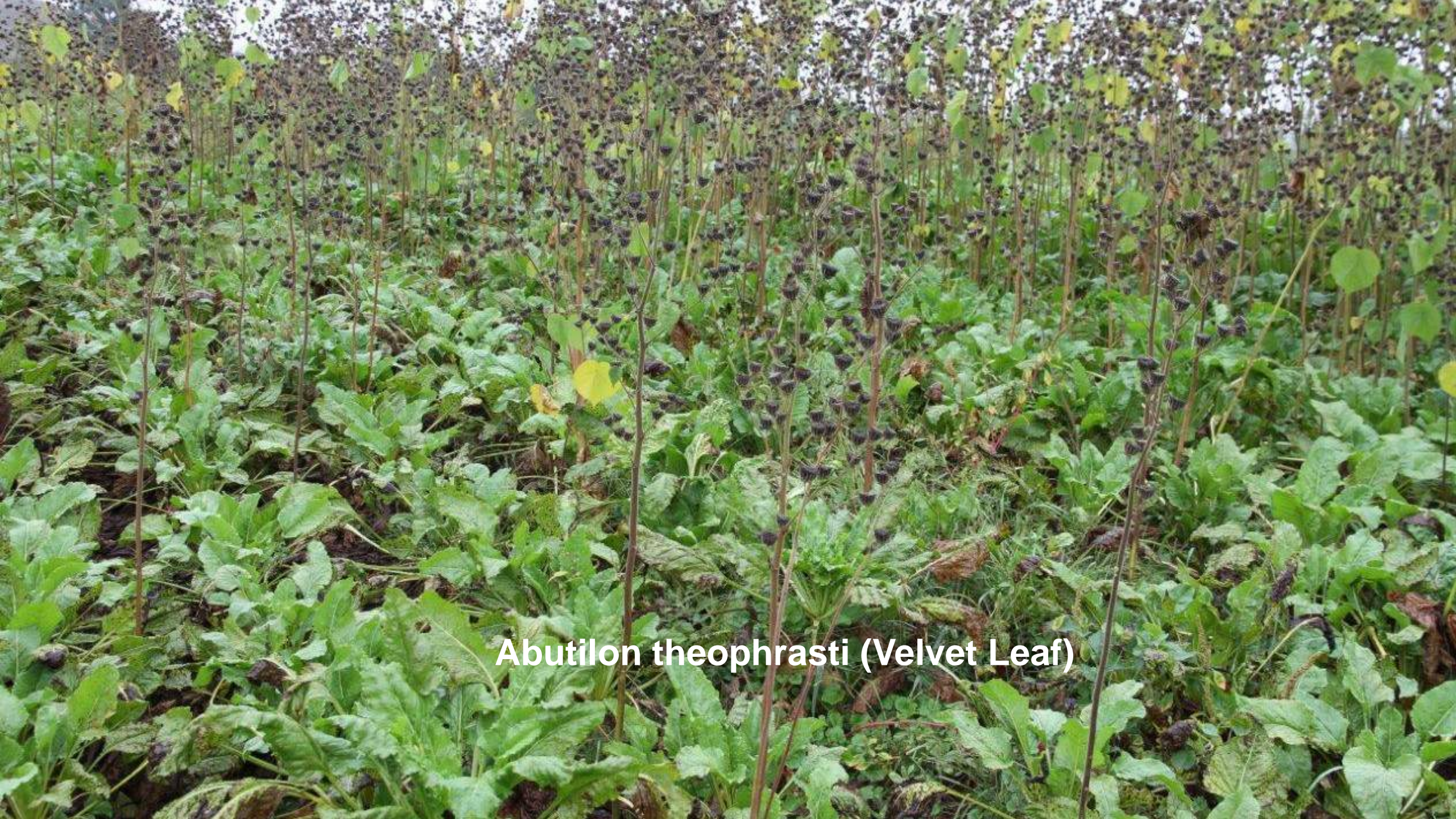
Exclusion (Border biosecurity)

Keeping NZ safe

No trade = No Risk

Non-tariff barriers

Taking risks and not hindering exports
and imports



Abutilon theophrasti (Velvet Leaf)

Weeds of pasture

- Californian thistle (*Cirsium arvense*)
- Nodding thistle (*Carduus nutans*)
- Scotch thistle (*Cirsium vulgare*)
- Ragwort (*Jacobaea vulgaris*)
- Buttercups (*Ranunculus* spp.)
- Rushes (*Juncus* spp.)
- Barley grass (*Critesion murinum*)
- Stinking mayweed (*Anthemis cotula*)
- Oxeye daisy (*Leucanthemum vulgare*)
- Storksbill (*Erodium* spp.)
- Pennyroyal (*Mentha pulegium*)
- Dandelion (*Taraxacum officinale*)



Herbicide Resistance

glyphosate



2 4 D

thistles

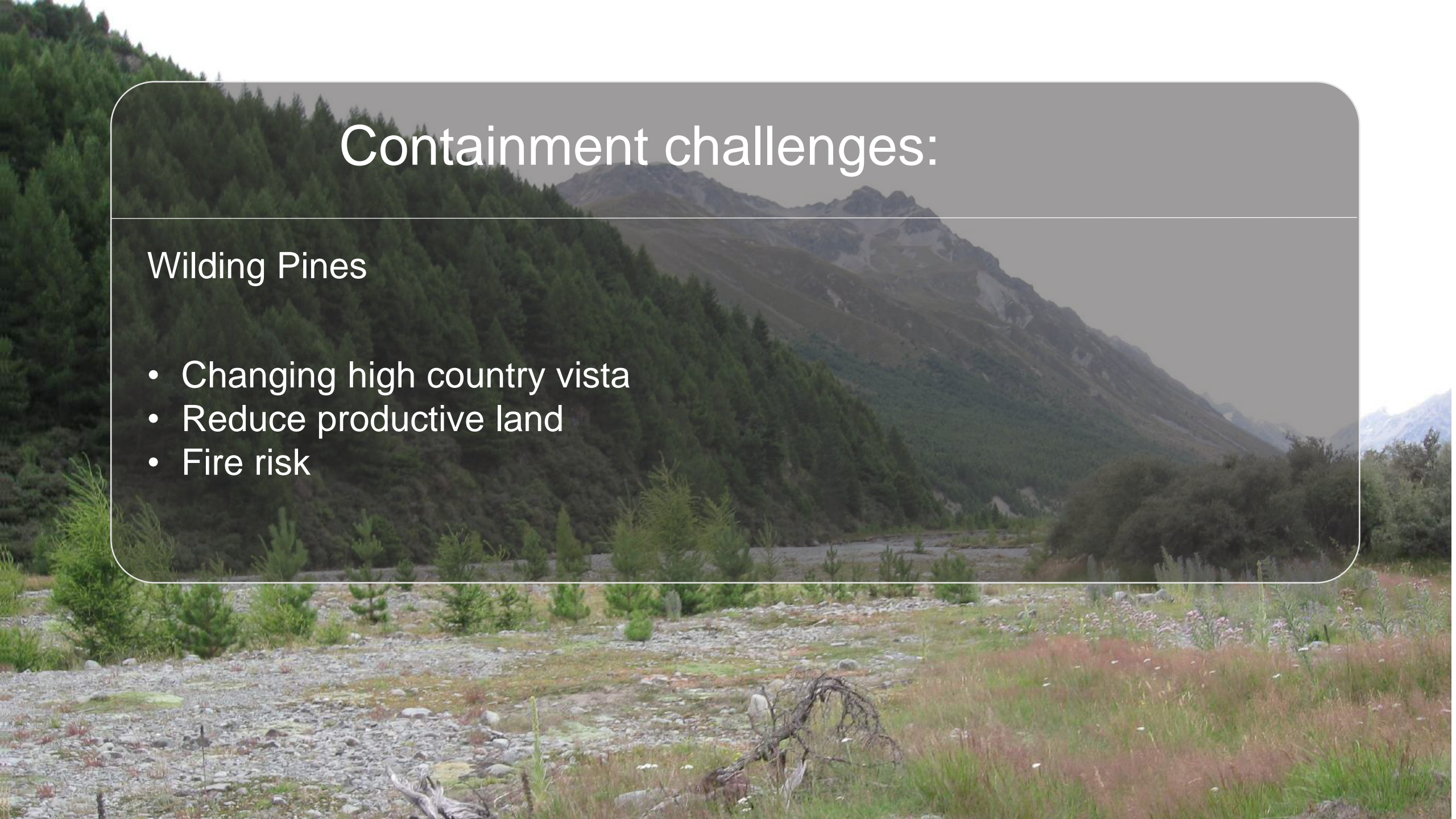
Group A + B

Annual ryegrass
Perennial ryegrass
(in cereal cropping)

Containment challenges:

Wilding Pines

- Changing high country vista
- Reduce productive land
- Fire risk



Urbanisation + perceptions - the anti herbicide movement

Threat to: Productivity
 Conservation
 our global export markets
 premium value for products

Exclusion, eradication, containment and sustained control of weeds

= major threat and risk to our farming systems and the environment

= challenge for amenity and urban vegetation management

(aka shooting yourself in the foot)

Summary

- Shaping our farming future
 - Urban NZ
 - Global consumers
- Regulation = uncertain future
- Science ; priorities through co-development





Acknowledgements

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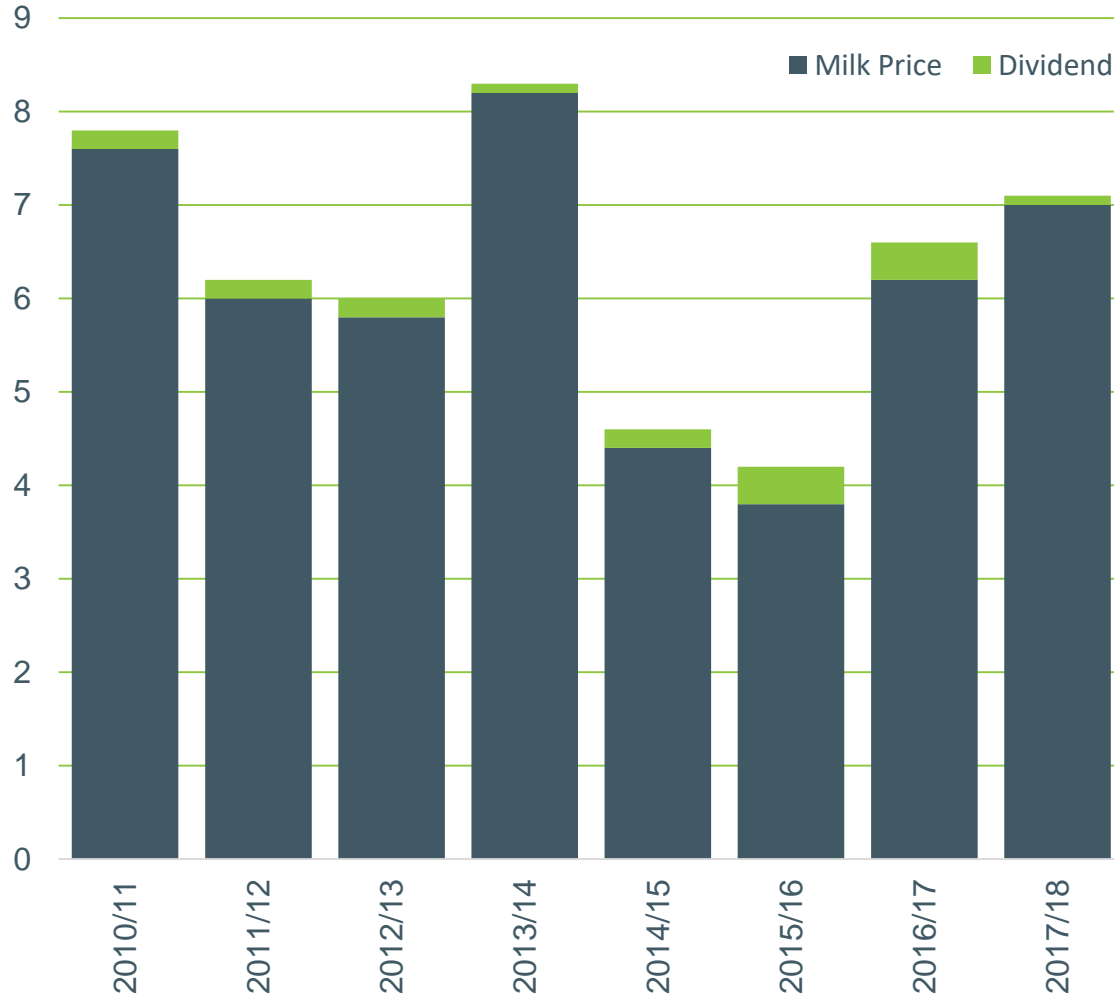
Lincoln University

Scion

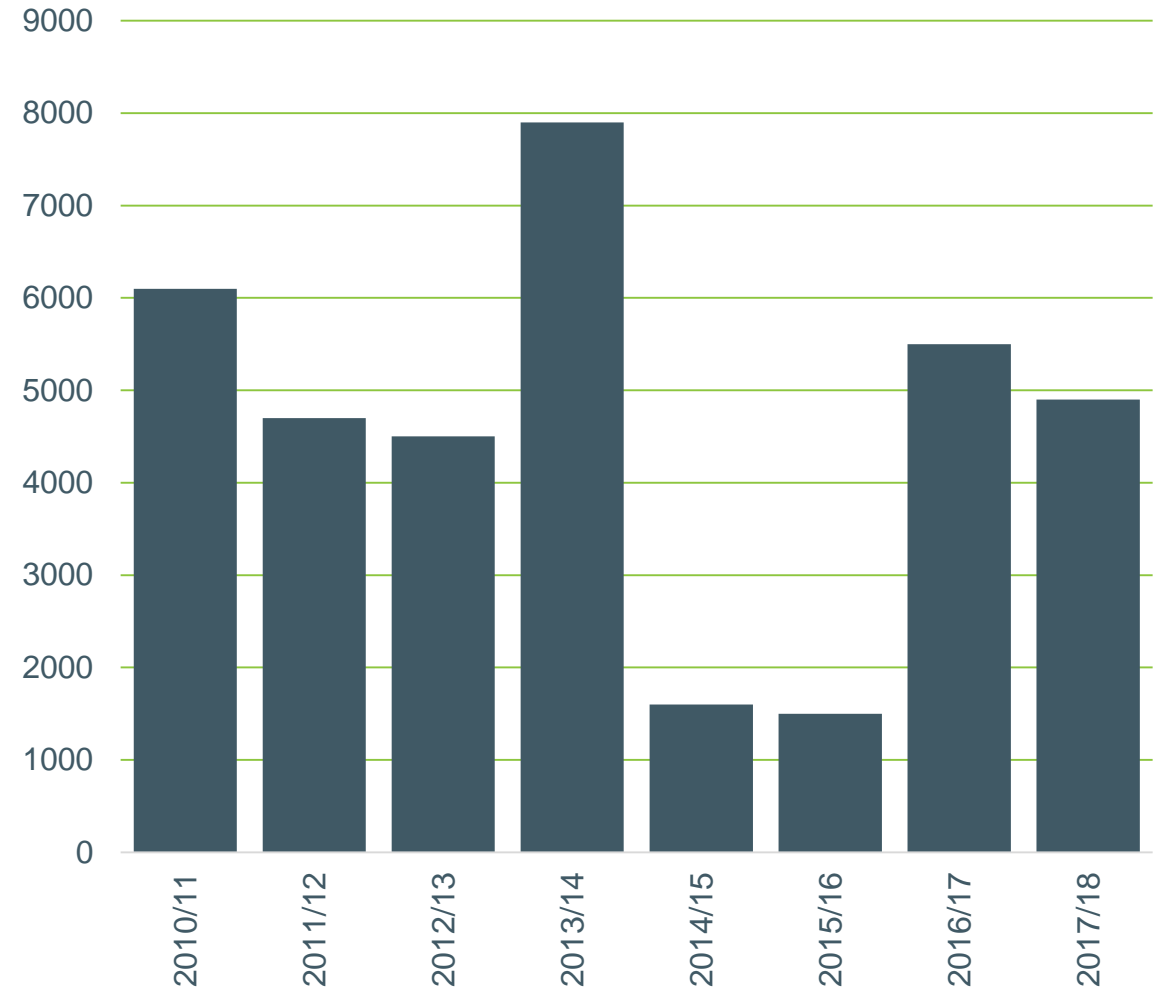
Scion

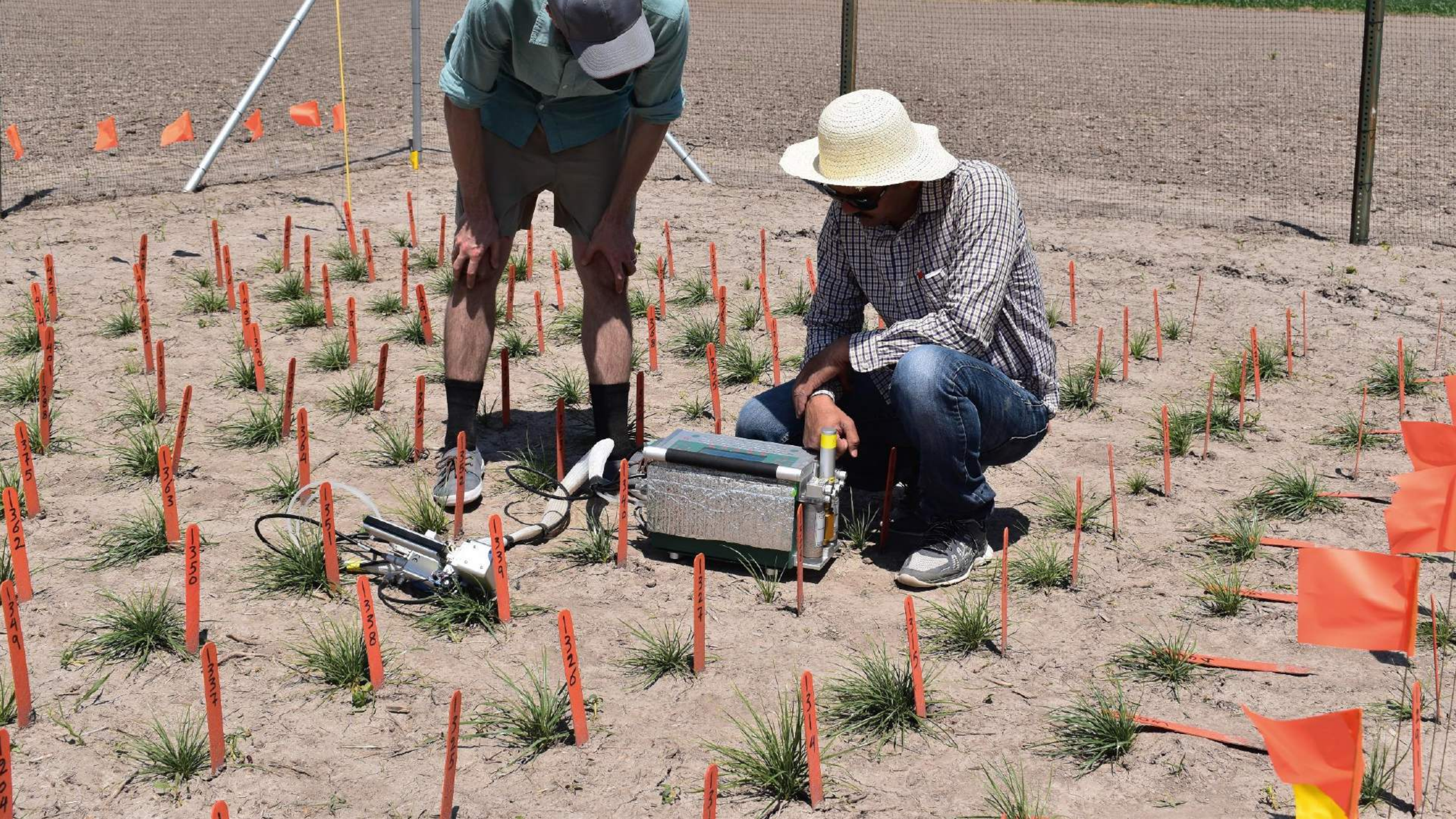


Middle Income over time



Average Operating Profit (\$/ha)





Highlands

Dryland Farming

	2013/14	2015/16	2016/17
N leaching losses (kg N/ha)	18	13	16
Total animal production (kg product)	123,841	86,723	121,356



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