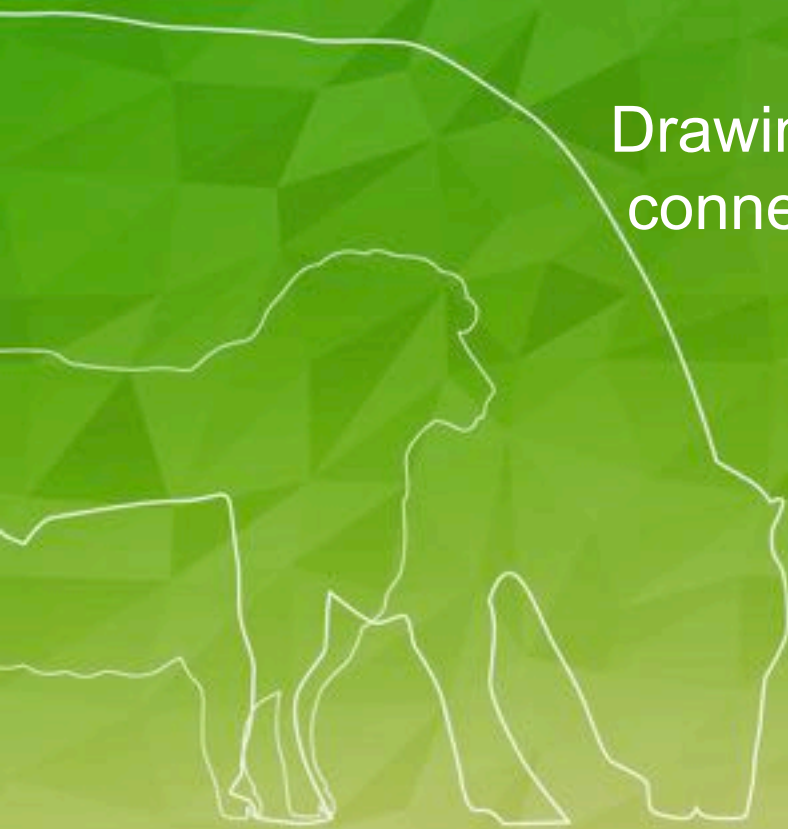


# FARMING FOR THE FUTURE 2017

Drawing the treads together: The fundamental connection between good farm business and the environment

Corina Jordan

Environment Policy Manager (NI) B+LNZ



# The Future of Farming is dependent on its ability to operate within Environmental Limits



*“Sustainable development refers to development that meets the needs of the present without compromising the ability of future generations to meet their own needs”*

Both domestically and internationally consumers are starting to demand food which is environmentally sustainable, and ethically produced.

Producers need to be able to tell their story with honesty, transparency and integrity.

Humane, ethical, & environmentally sustainable farming are likely to be prerequisites just to enter markets

Increasing National Regulation



# BUT WHY THE CONCERN?



***New Zealand's reliance on primary production has important implications for the types and scale of environmental pressures the country faces***

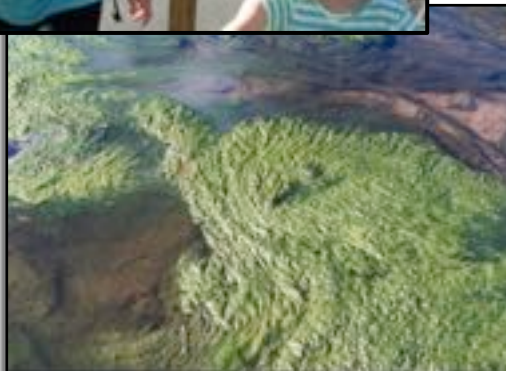
- Today, around 40% of our land area, is under primary production land uses.
- The last decade has seen significant intensification of land use, particularly pastoral land use.
- Agricultural land use is now arguably the largest pressure on New Zealand's land, freshwaters, coastal environments, and atmosphere, despite sectoral efforts to minimise the environmental impact of our land based primary production



# INCREASING PUBLIC & POLITICAL CONCERN AROUND FARMING AND FRESHWATER



***“Management of contaminants in water is inextricably linked to the management of land use”*** [para 317 BOI final decision dated 18 June 2014]



# BUT WHY THE CONCERN?



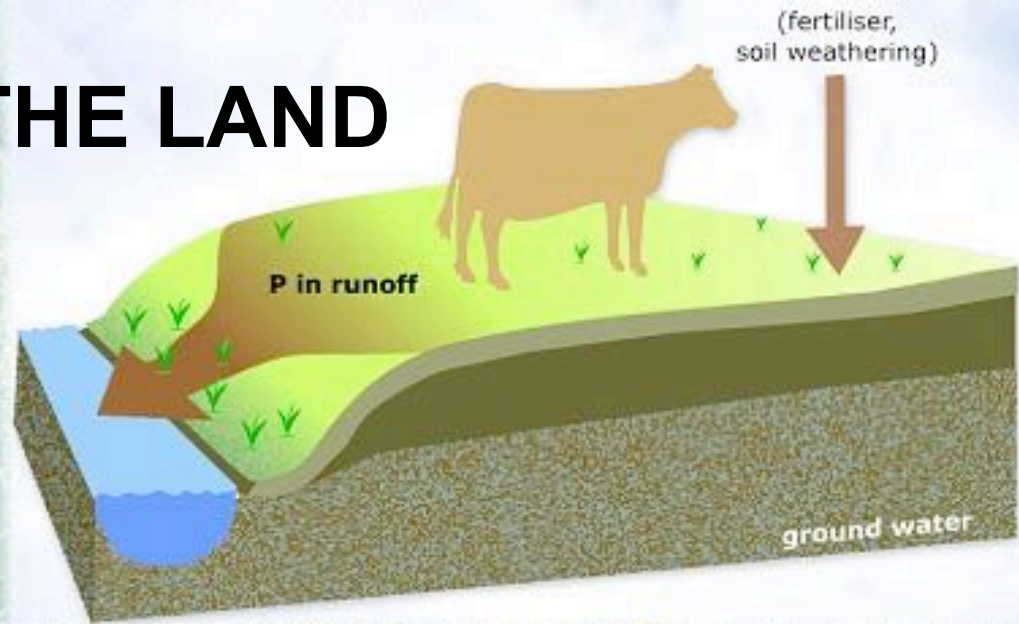
Rivers and their biological communities are subject to a wide array of environmental stress from intensification of farming.

- Changes in hydrology
- Changes in geomorphology
- Loss of riparian habitats
- Enrichment
- Sedimentation
- Pathogens

As a result freshwater ecosystems are impacted and the fisheries heavily modified or degraded

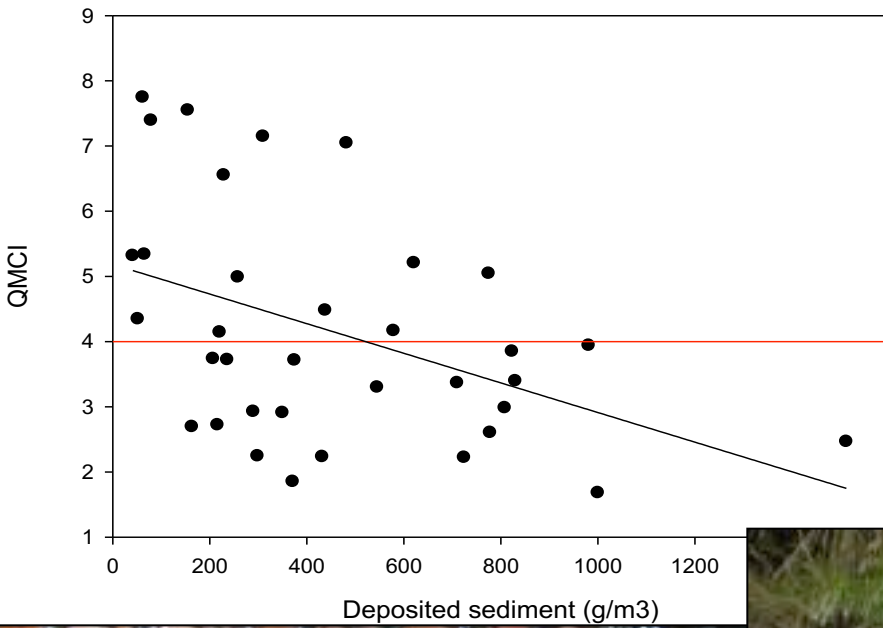


# OVER THE LAND



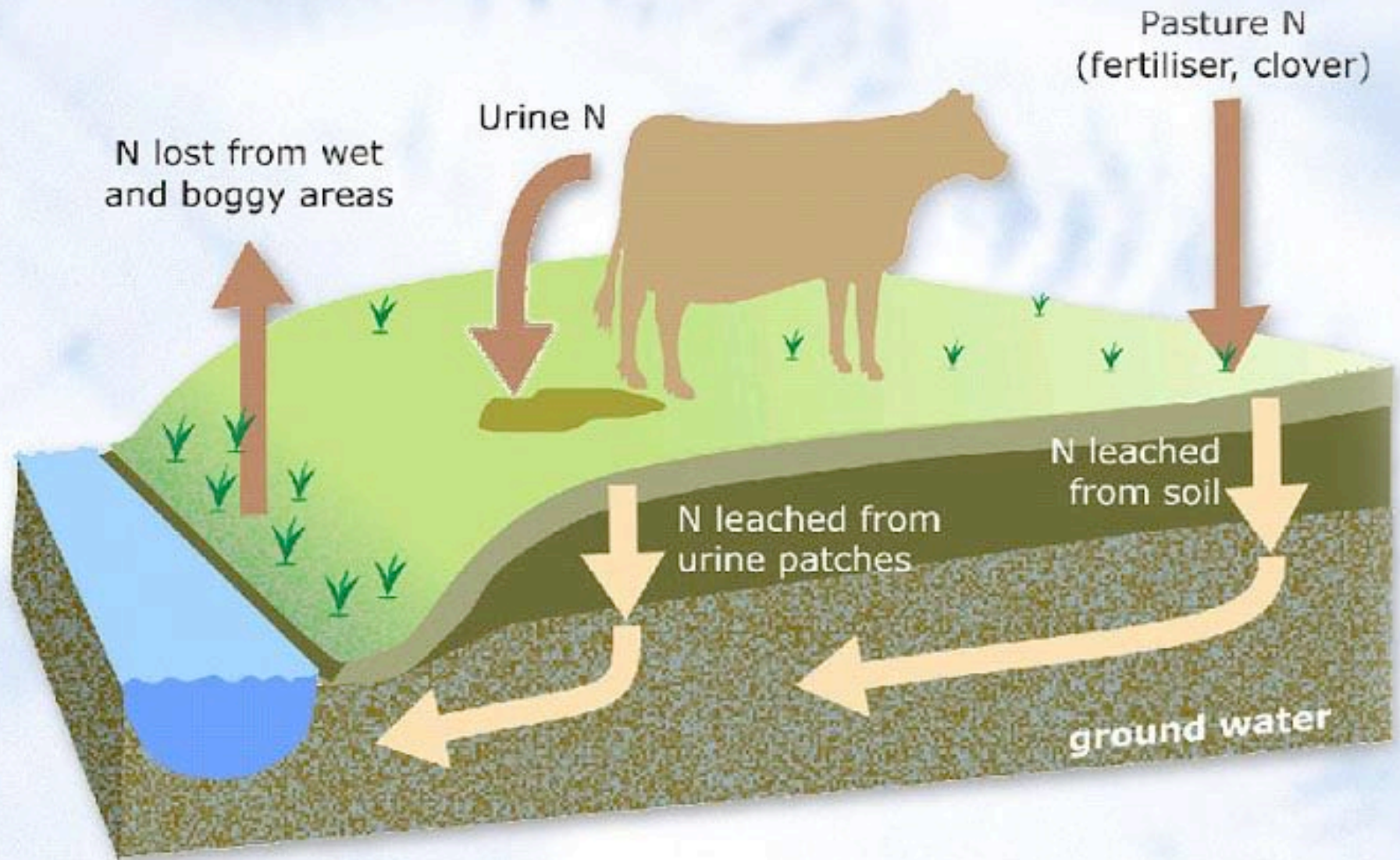


# SEDIMENT



**Tamaki River (2008)**

# THROUGH THE SOIL PROFILE





# Elevated nutrient levels impact on the health of freshwater



***“Management of nutrients in water is inextricably linked to the management of land use” [para 317 BOI final decision dated 18 June 2014]***

- Eutrophication associated with nitrogen (N) and phosphorus (P) pollution is undoubtedly one of the major threats to the associated values of ecosystem health and life supporting capacity in New Zealand
- Elevations in both N and P, can lead to excessive periphyton growth
- Nutrient levels influence the growth of cyanobacteria
- Periphyton & cyanobacteria proliferation may reduce invertebrate diversity by smothering habitats, and increase diurnal variations in DO and pH, which can increase the potential for ammonia toxicity.



# Microbial contaminants & Human Health



*Zoonotic diseases – “infectious disease is transmitted between species (sometimes by a vector) from animals other than humans to humans)”*

- NZ High Rates of:
  - Campylobacter, Giardia, Cryptosporidium, & Salmonella
- 17,000 notified causes of gastroenteritis per year
- Up to 34,000 cases of waterborne illness per year
- Highest rate of Campylobacteriosis in the world
- Increasing rates of E Coli 0157
- 90% of monitored lowland pastoral and urban rivers & 62% of all rivers are unsafe to swim in (pathogens)



# Farming within Environmental Limits to protect Values for Freshwater



- Community values and aspirations for freshwater to be recognised and provided for;
- Maori Values, perspectives, and knowledge systems used to inform values;
- Safeguard the life supporting capacity of freshwater, and its Ecological Health;
  - Ecosystem services
  - Swimmability
  - Mahinga Kai
  - Mauri





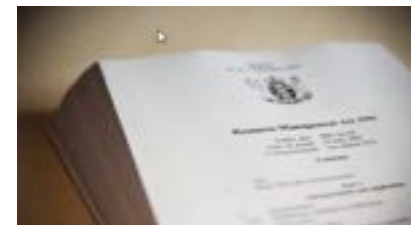


# DRIVERS OF CHANGE – NATIONAL POLICY

## National Policy Statement Freshwater Management



- National Policy Statement for Fresh Water Management (NPS-FM) 2014.
- Regional councils required to 'give effect' to the NPS-FM:
  - set goals that describe the desired state of freshwater
  - set water quality and quantity limits
  - set the methods to achieve the desired objectives and the limits.
  - Increased focus on managing land use activities and non point source discharges to achieve desired freshwater outcomes
- Strengthened concept of environmental bottom Lines under the Act and made these explicit
- Each regional council has until 2025



# DRIVERS OF CHANGE



## Setting and Managing to Environmental Bottom Lines

Allocation

Amount of resource use  
available

---

Determined by  
community (values)  
and by science

---

Other environmental  
outcomes

Freshwater objectives  
(limits/ attributes/  
standards)

Determined mostly by  
science

Life supporting capacity  
ecosystem health &  
processes

Fig. Adapted from Perception Planning



# ALLOCATION OF DISCHARGE ALLOWANCES

Setting and Managing to Environmental Bottom Lines



***“Regulation should underpin sustainable land use and water management – voluntary or permissive approaches are not enough”***  
***[Day vs Manawatu Regional Council, E Court decision on Horizons One Plan]***

- New Zealand is seeing increasing stringency in regulation of agricultural land uses
  - Movement away from activity based regulation to holistic farm operation regulatory approaches (consent to farm)
  - Combination of input standards and output standards
- Application of nitrogen leaching standards which relate to an environmental outcome are seen as an essential component of any primary production land use management framework, along with application of GMP which contain clear, measureable, and enforceable standards.

# ALLOCATION OF DISCHARGE ALLOWANCES

## Setting and Managing to Environmental Bottom Lines



Essentially two sorts of allocation systems in New Zealand presently:

- Based on existing land use;
  - Grandparenting – emissions (SU) or land uses are held to historic levels (Taupo, Waikato, Canterbury);
  - Sector averaging – Emissions are allocated based on land use averaged across a sector (Bay of Plenty Regional Council – Rotorua Lakes).
- Decoupled from existing land;
  - Equal Allocation – Emissions are allocated irrespective of current land use, to achieve a total catchment load;
  - Land Use Capability (Natural Capital) – Emissions are allocated based on the productive capability of soil (with limited inputs and no irrigation) rather than existing land uses (Horizons and Hawkes Bay).



# ALLOCATION OF DISCHARGE ALLOWANCES

Setting and Managing to Environmental Bottom Lines



*Economic theory does not provide clear guidance on what is the best method for establishing the initial allocation entitlements*

- All allocation systems involve wealth transfers either between emission sources or between emission sources and the local authority, to some extent;
- Equity implications, of the allocation options are very different and should form the basis of any allocation framework;
- All land use should be considered in management and allocation frameworks;
- Long term investment certainty is a critical part of a viable nutrient management system;
- Transition arrangement may be appropriate .

# Waikato Regional Council Healthy Rivers Wai Ora Plan



## KEY ISSUES FOR FARMERS

- Achievement of the 80 year aspirations could require conversion from farming to forestry
- Restrictions on Land Use Change
- Nitrogen management adopts a 'grandparenting' approach
- Reducing contaminant losses from farms
- Stock exclusion from waterbodies
- Farm Management Plans



# WAIKATO HEALTHY RIVERS PLAN

## Immediate Restrictions on Land Use Change



- Any change in land use is a non-complying activity;
- Rule has Immediate effect;
- This means a resource consent will be required and it will be difficult to get approval from the Council;
- For example land use change from forestry to pastoral or pastoral to horticulture;
- Provision has been made for some flexibility of Maori owned land that has not yet been able to be developed.

# WAIKATO HEALTHY RIVERS PLAN

## Nitrogen Allocated Based on Historic Land Use



### Nitrogen Leaching Grandparented at Historic Levels

- Property scale Nitrogen Reference point to be established for most S+B farms;
- Restricts Nitrogen losses from the farm as modelled through OVERSEER to the losses from that property for the 2014/15 or 2015/16 years;
- Farms with the highest 25% of Nitrogen loss will be required to reduce their Nitrogen leaching;
- Limited ability if any to increase leaching beyond historic rates.



# NEW REGULATORY PRESSURE CREATING FEAR & UNCERTAINTY



“Farmers for Positive Change (F4PC), Primary Land User’s Group PLUG, and King Country River Care (KCRC), now collectively now represent ~3,000 farmers in the Waikato catchments”

*“PC1, in its current form, has created fear and uncertainty for the future aspirations of farming families and communities within the region. Our constituents are gravely concerned about the impact on their businesses and on the ability for PC1 to be implemented effectively, despite its considerable social and economic costs. They also question whether PC1 will achieve the desired improvement in the health and wellbeing of the Waikato and Waipa rivers”*

(Letter to Waikato Regional Council dated 2/2/2017)

# WAIKATO HEALTHY RIVERS PLAN

## Nitrogen Allocated Based on Historic Land Use



### Allocation of Nitrogen Leaching Allowances:

- Nitrogen allocation through the Nitrogen Reference point at a property level limit is 'Grand-parenting';
- Viewed as rewarding the polluter while penalising low leaching land uses and early adopters of mitigation;
- Reduces flexibility in land uses and management systems
- Farm optimization studies have shown that provision of nitrogen restrictions on the drystock sector reduces the ability for those farmers to retire marginal land with associated biodiversity gains and sediment and phosphorus loss reductions, while maintaining resilient and profitable farming operations
- Drystock sector seeking allocation mechanisms based on the natural capital of soils



# COSTS TO FARMERS OF IMPLEMENTING HEALTHY RIVERS PLAN



Costs to a drystock farming property can be broken into four main categories:

- 1) up front capital costs of between \$26,139 to \$541,437 per farm,
- 2) ongoing annual costs of between \$5,905 (\$66/Ha) to \$70,859 (\$219/ha) per farm,
- 3) Opportunity costs of imposing nitrogen limits range between \$75,698 (\$164/Ha) to \$256,800 (\$285/Ha) per farm.

On certain farms land values will depreciate (20 – 40%). This will create issues with the 'bankability' of some businesses and current lending arrangements.

# ALLOCATION OF DISCHARGE ALLOWANCES

## Setting and Managing to Environmental Bottom Lines



Overall the most efficient and effective allocation frameworks should ensure that:

- Allocation approaches should be equitable, ensure efficient resource use, be future proofed, promote sustainable management, not reward current or historic poor practice
- Land owners need to have the ability to respond to changes in climate, input costs, markets and technological innovation in order to maintain a profitable and sustainable farming enterprise;
- Appropriate timeframes must be set to allow for transition from current state to one where allocation of nutrients apply;
- Allocation approaches should provide for adaptive management and new farm systems information

# CHALLENGES TO OPPORTUNITIES

## Telling the sector's environmental story



- Farmer Environmental Champions/ Leadership
- Professional, reputable, and expert guidance and advocacy
- Proactive engagement with wider communities and Councils to build trust and confidence
- Influence Plans before they are written
- Share experiences & grow and tell the sectors story
- Strong farmer voice which is honest, integrity, environmental stewardship and a love of the land and farming



# CHALLENGES TO OPPORTUNITIES

## Telling the sector's environmental story



### *Transparency, Honesty, Integrity underpins what we do*

- By Farmers for Farmers
- Representation and leadership by farmers on collaborative catchment groups & in regional sustainable management forums
- Develop and implement non regulatory catchment management initiatives which show real environmental progress
- Developing sound data to underpin the sector's environmental story:
  - Nutrient budgets and outputs
  - Level of uptake LEP, FEP, FEMP, SLUI
  - Environmental mitigation adopted - Biodiversity and habitat protection (wetlands, lakes, native forestry, manuka)
  - Farmer \$ environmental work (\$14m SLUI)

# SUMMARY

## Farming within Environmental Limits Mandatory



- Domestic public demanding sustainable agricultural within environmental limits
- Ethical, humane, sustainably produced food is likely to be a prerequisite just to enter markets in the future
- Councils are frantically working to implement the NPS-FM, this requires environmental bottom lines to be set and managed to
- Direct impact on what farmers can and can't do on their farm.
- Regulatory pressure looks to be increasing and this is not likely to change in the foreseeable future
- Challenging environment to be in – but if we understand the pressures and risks and build understanding and leadership within our farming communities we can turn risks into opportunities
- Build a vibrant, resilient, and credible Sheep and Beef sector which are seen as leaders in sustainable management



# TAKE HOME MESSAGE



Production and consumption activities have environmental effects which impose considerable costs on the sustainability of not only present and future human activity, but also significantly impact on societal wellbeing as well as the ecosystems that support us.

Natural resources are not in fact free, they make important contributions to long term economic productivity and should be considered as assets whose values lie not only in the potential income, but importantly through the life support systems they generate

Business as usual for New Zealand Agriculture is not going to be enough



