Sustainable practice development, and the Horticulture industry in NZ

The development of GAP and Good Management Practice

Presentation to Potato agronomists forum – 30 July 2013

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Changing structure of horticulture industry

For larger growers, cost as a proportion of production value is modelled as low as 0.8 %

For smaller growers, costs as a proportion of market value is as high as 10.5%

Incentive is to grow or fail. Some niche markets exist.

Modelled Compliance Costs – Horticulture industry	Cost (millions)
Consent monitoring fees (existing consents)	$8.3
Cost to obtain new consents	$19.0
Cost of renewals for existing consents	$21.4
S.36 Charges (SOE monitoring and measuring)	$1.3
Permitted activity cost (compliance with conditions)	$5.4
Water meter reporting (to regulator)	$2.4
Water meters new (installation and purchase)	$14.8
Compliance cost estimate	**$72.6**

The cost is roughly 7% on average of total industry value.

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Trends in Water quality and quantity management

- Traditionally limits for water quality and quantity have been used as *warnings or not heeded* in many places.
- The new national freshwater management framework put forward by the government does not provide for limits to be used in this way.
- Farmers and growers are *now being asked to participate* in limit setting processes that are designed to be completed by 2030.
- These processes *have the potential to curtail or reduce economic activity* in catchments or at the very least constrain growth.
- Farmers and growers are *ill-equipped to understand their rights and interests within the policy processes*, let alone the policy process itself.

Feedback from farmers and growers indicates they often feel uncomfortable expressing opposition to environmental and cultural values, but are unsure about how to balance environmental and cultural values with other values related to primary production and rural communities.

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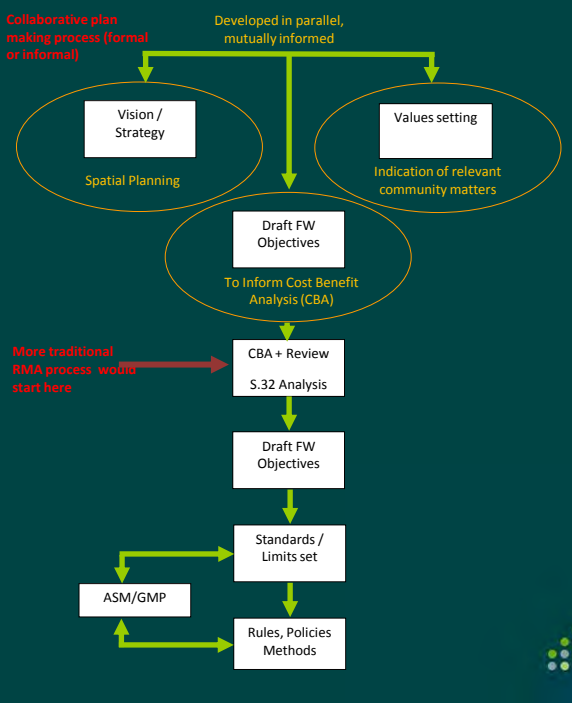

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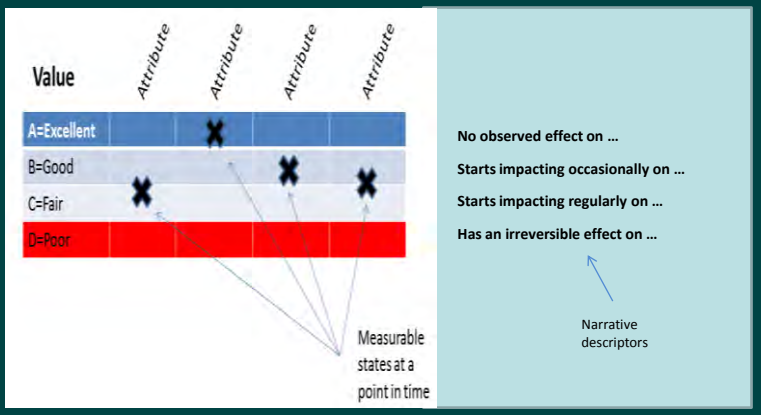

Communities will be required to evaluate their waterbodies, describe values and categorise their attributes using an A-D rating. There will be debate over where the attributes should be rated. Regulators will be required to ensure that the overall quality of waterbodies is maintained or improved – this does relate to the net quality, so the framework allows for some attributes to drop in quality and others to increase so long as the overall quality of the value they contribute to is improved).

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+ ECONOMIC VALUES

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Business Case – RMA / Sustainability

- Compliance reduction (all areas)
- Rising cost of production
- Certainty is key
- Access to resources is getting harder

Waikato Variation 6
- Dairyshed grandparenting
- Water for Auckland
- Waikato River health

Land supply:
- Matamata Piako
- Waikato DC
- Franklin PC 14

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GAP: A strategic response to strangulation from profligate market access systems

Nature's Choice PRODUCTS

YOUR M&S

Woolworths the fresh food people

WAL★MART

TESCO

LEAF LINKING · ENVIRONMENT AND · FARMING

groupecarrefour

GAP

NEW ZEALAND

GOOD AGRICULTURAL PRACTICE

www.newzealandgap.co.nz

Introduction to New Zealand GAP

Operates two market access modules

1. For New Zealand and export markets not requiring GLOBALGAP
2. For markets requiring GLOBALGAP

How widespread is the uptake of NZGAP?

= > 80% of produce is certified through GLOBALGAP or NZGAP.

What is the audit process?

= Independent 3rd party audit: SGS, Assure Quality.

What made growers adopt the NZGAP model?

= Customer compliance, market access

Where is the future for NZGAP?

= Meeting the market, meeting the needs of regulators. NZGAP or a system with equivalence covers all produce grown in NZ.

Picture: Field tests of sediment movement on dairy land converted to brassica production in the Horowhenua district

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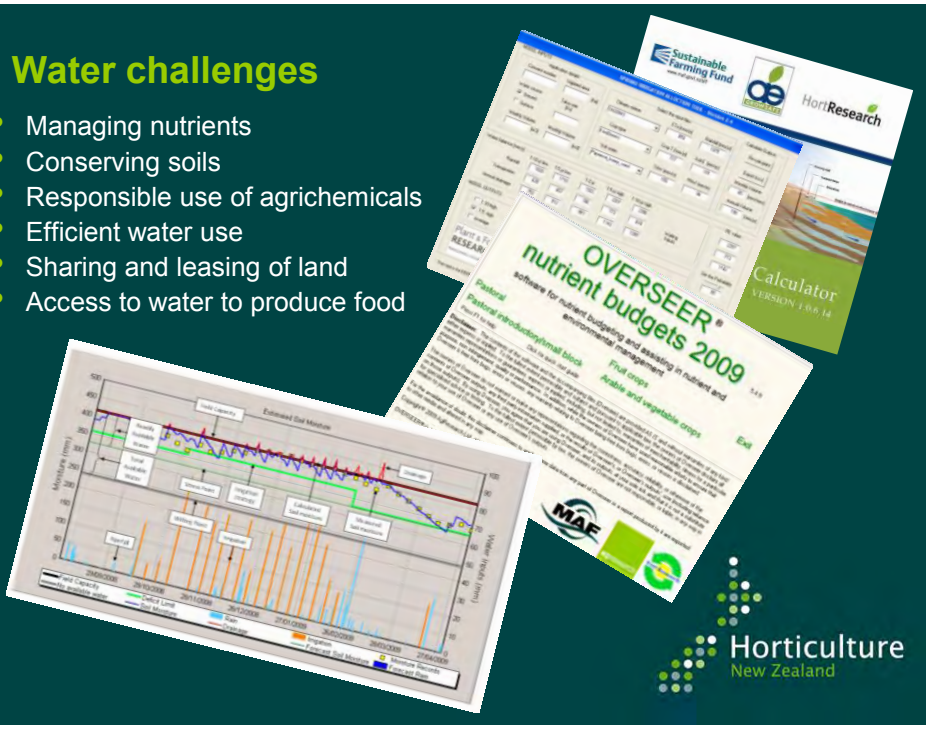
Water challenges

- Managing nutrients
- Conserving soils
- Responsible use of agrichemicals
- Efficient water use
- Sharing and leasing of land
- Access to water to produce food



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Plan Proposal for AC

Key Horticulture issues identified by Council with sectors and iwi

Land and Water Plan

Permitted activity status for NZ GAP certified growers meeting council N and Sediment discharge requirements

NZGAP incorporated by reference in Plan (appropriate modules in appropriate plan provisions)

Default to controlled / consented activity if PA requirements not met or not NZ GAP certified

Nitrogen — Developing Overseer module and GMP definition

Water Use — Adapt generic CoP's

Sediment
Phosphorous — Develop locally relevant COP's

GAP NEW ZEALAND www.newzealandgap.co.nz

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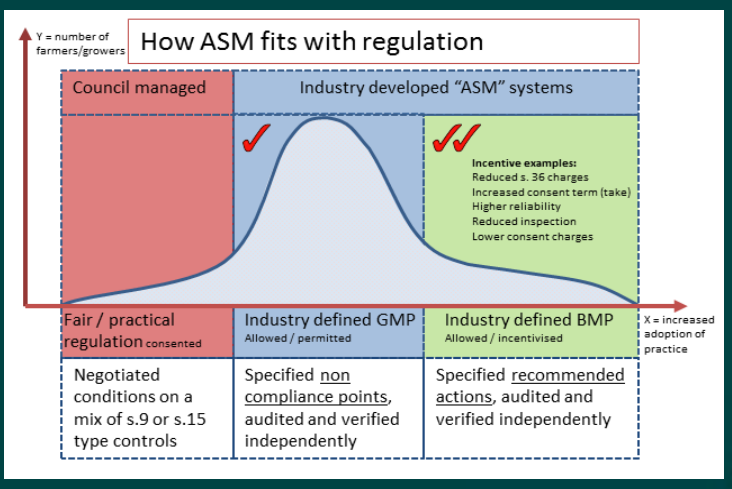
Strategy for horticulture sector



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Key Programmes 1

ASM Development

New Version Release NZGAP 2013 – modules currently in review

- Modules include Sediment / Nutrient Management / Water
- Development of new risk assessment technique for auditors

Figure 12: Comparison of control (left) and diked (centre) wheel tracks on the amount of surface runoff during a winter rainfall event. There was also a clear effect of wheel track practice on the amount of sediment in the runoff (right).

Soil Conservation

- HIT – comprehensive review of targeted BMP's for soil conservation
- Testing effectiveness
- Development of NGAP template for soil management
- Rule frameworks
- Continuous improvement cycle / risk assessment techniques
- Cost modelling

Overseer advancement

- New yield models being developed
- Industry training programme
- Benchmarking programme for vegetable sector
- Cost modelling
- Development programme for GMP

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Key Programmes 2

Irrigation efficiency
- Development of irrigation BP Guidelines Waikato (allocation / application)
- 2/3 years conjoint work on water balance model
- Benchmarking – 4% of use for Waikato!

Agrichemicals
- AIRCARE
- Currently rolling out new range of GROWSAFE Courses
- Developing high level GROWSAFE course for managers and planners
- Reviewed NZS8409:2004 – no changes required

Plan development
- Horizons incorporation of NZ GAP
- Continuance of sediment control work
- Instigate discussions on local catchment based programmes
- LUWQ Project Cant / PAG
- Tasman / Gisborne values setting process
- Benchmarking efficiency of use - nutrients / water

Picture: Measurement of rainfall as part of grower participation in EW's development of a soil water balance model.

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Key Programmes 3

Local solutions

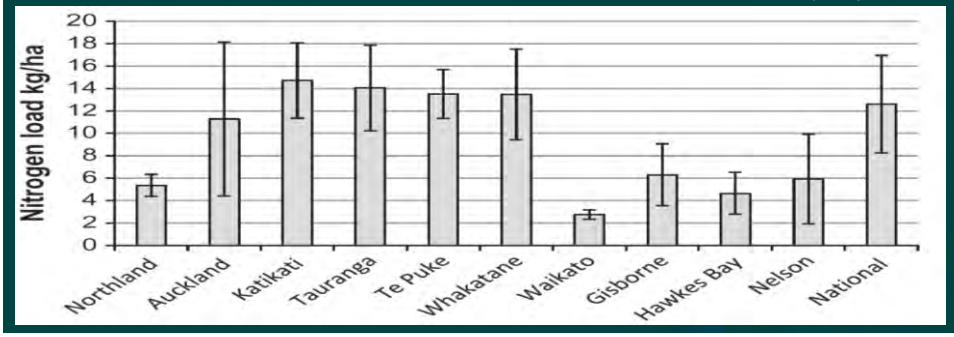
- Twyford side agreement progress
- Water user groups – Franklin
- Northland Growth Forum - metering
- Redevelop FSP "Doing It Right" manual

Subsector specific development

- Kiwifruit industry water and carbon footprint
- Potato industry water footprint
- Glasshouse COP for nutrient solution treatment

Picture: Auckland Council officers review sediment control devices in Pukekohe in a rainstorm

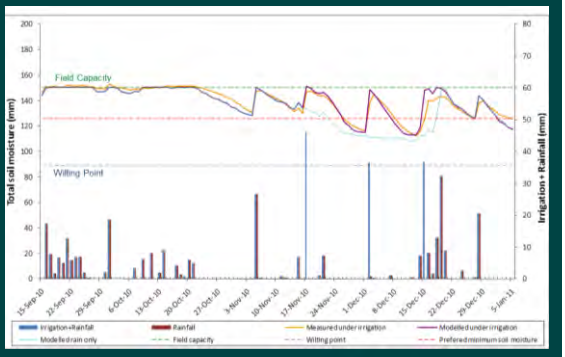
Graph: The annual average (April-to-April) nitrate load leaving the rootzone per ha of canopy area of ZESPRI GREEN. The bars are one standard deviation representing the variation of the 5 soils considered per region



Waikato – Irrigation Efficiency

4 Years work – Aqualinc, EW and Growers from a PVGA Reference Group

3 of those years collecting data for a soil water balance model.



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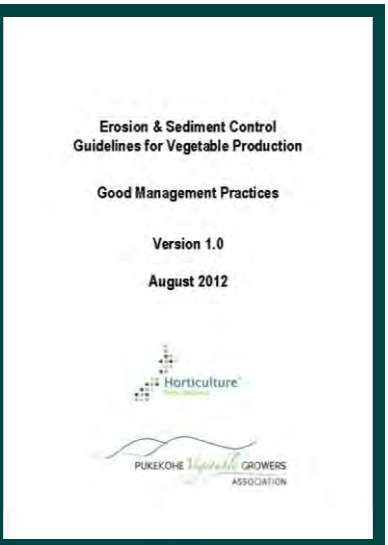
Waikato – Soil Conservation

- Based on Horizons Region Code of Practice - a revision of Ohakune CoP's and FSP
- New Approach: Risk based assessment, laying out a pathway to achieve maximum protection.
- Methods are inclusive and all encompassing.
- Likely to be released soon – waiting for comment from Waikato Tainui, EW (Auckland Council has responded).
- Also seeking to incorporate nutrient management but may publish separately.



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Costs and Benefits

Mitigation strategy	Range in effectiveness (%)	Cost per hectare	Tractor size	Time
Detailed erosion mgmt plan		$80 - $180		
Cover crop	90-99	$82	120	3.00
Minimum tillage	?	?	?	?
Stubble mulching	?	$66	120	1.00
Wheel track ripping	50-80	$33	120	2.00
Wheel track dyking	50-80	$33	120	2.00
Contour drains	30-70	$75		
Contour cultivation	50-80	Not recommended		
Setback strip by drain	50-80	$105		
Wind break crop				
Benched headlands	50-80	$64	170	1.25
Bund	80-95	$130		
Vegetated buffer strip	50-80	$255		
Silt fence	80-95	$378		
Silt trap	80-95	$750 - $1,300		
Silt trap maintenance		$75	180	5.55

Produced by Landcare Research 2013

Verified by Agricultural Engineer

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NZ – Nutrient Management Programme

SCIENCE

1.Establish protocols for collecting information to establish a "look up table" of values for:
- Benchmarks
- Defining GMP / BMP.

2.Collect benchmark data to inform science models (a representative snapshot of production and management practice).
3."Discretise" farming systems with growers / reference group.
4.Define industry GMP / BMP and gain consensus on how it meshes with industry and council regulation

ECONOMICS

1.Collect information on macroeconomic factors eg. External price effects, transferability of production
2.Collect microeconomic data (hopefully from same farms covered in NMP surveys) such as gross margin, etc. Establish efficiency of nutrient use.
3.Cost the various mitigation options available to reduce nutrients. Also factor in soil and water management costs.
4.Provide this information to inform a discussion on how to manage within limits.

PARTNERS: MfE, MPI, FAR, DAIRYNZ, ECAN, AUCKLAND COUNCIL, PRODUCT GROUPS, PLANT AND FOOD RESEARCH LTD.

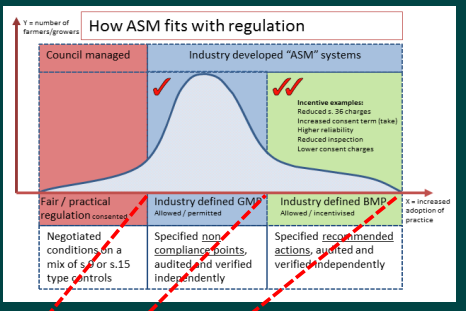
Strategy for vegetable sector (Fruit – less of a priority)

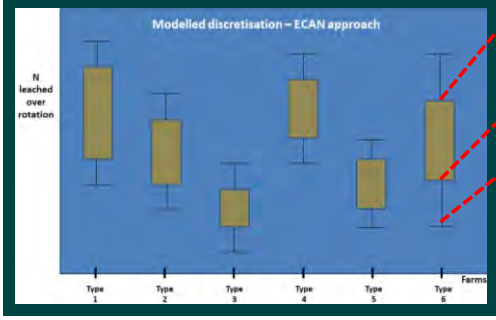
Categorise (discretise) farm type

Benchmark nutrient leaching

Benchmark management techniques

Define N efficiency





Define GMP

Define BMP

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Key Messages: Overseer

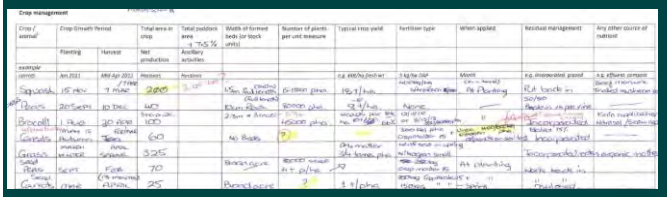
Horticulture New Zealand supports the development of with Overseer, and recognise it should become the preferred tool for nutrient management planning

We are undertaking our nutrient benchmarking work in APSIM because we have been advised by Plant and Food it is the most valid research tool to use.

We would envisage that the work we are doing will complement and inform the development of Overseer.

Plan development in ECAN cf. other regions

- **Resource constraints and nature of grower operations require a national approach**
- **HortNZ has and continues to invest significant resource in environmental management**
- **But we have a clear understanding of our ability to manage ECAN expectations to "speed it all up"**



Picture: Sample of information collected to define management practise

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Overall Matrix for GMP

	What is the problem?	Science and the toolbox	The system or vehicle	The audit and the story
Agchems	★	★	★	★
Sediment	★	★	★	
Phosphorous	★	★	★	
Nutrients	★			
Water use	★	★	★	
Biodiversity	★			

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Key Messages

- Increasingly court decisions are mandating requirements for whole farm management plans, nutrient management planning and cleaner production activities
- Commercial vegetable cropping may attract more transaction costs, given the complexity of the farming system
- Commercial vegetable cropping is particularly vulnerable to mandatory requirements because
  - **Growers share, lease and swap land regularly**
  - **They are often unable to predict when and where this land will become available**
  - **They are producing a broad range of crops, and the crops produced vary with the requirements of the market**
  - **Crops and growing practises may need to vary with limited predictability**
  - **Often make use of "extensive" pastoral land that has additional controls**
  - **Some crops require less or more nutrients so leaching risk and environmental impact varies across the rotation.**
- Nutrient management tools require significant work to be fit for purpose, particularly to measure the rotation
- The fertiliser industry is seeking to capture the space commercially, and this may result in increasing costs as well (certification and auditing).

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