Impacts on Dairy from meeting Horizons One Plan requirements

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Impacts on Dairy from meeting Horizons One Plan requirements

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Outline

• Objective of analysis
• The One Plan
• Estimating Benefits
• Estimating Costs
• Issues with Overseer
• CBA – direct benefits and costs
• Conclusions
Objectives of the analysis

• RMA Section 32 analysis
  – benefits and costs of a proposed policy change
  – assessment of the risk
    • acting or not acting if there is uncertain or insufficient information about the policy

• The extent the objectives of the policy are appropriate to achieve the purpose of the Act

• Whether the policies are the most appropriate for achieving the objectives
  – efficiency and effectiveness
The One Plan

• Bringing together 6 separate plans
• management of natural resources
• environmental roadmap for the next 10 years
• “Big Four” issues
  – increasing water demand
  – unsustainable hill country land use
  – threatened native biodiversity
  – surface water quality degradation
    • Priority catchments
Estimating Benefits

- Primary aim to reduce nutrient concentrations to decrease periphytons
- Main control in unshaded rivers is the frequency of flushing flows
- Impractical for the management of large free-flow channels - Manawatu River
  - limit plant available nutrients
    - Soluble Inorganic Nitrogen (SIN)
    - Dissolved Reactive Phosphorus (DRP)
Nutrient Reduction Targets

• N 0.444 g SIN/m3 and P 0.01 g DRP/m3
• Apply year round at all flows less than the highest 20% of flows (below flood flows)
  – Flood flows remove periphytons
• equivalent to average annual target loads
  – 358 t SIN/year and 8.1 t DPR/year at Hopelands
  – 268 t SIN/year and 6 t DRP/year at Mangatainoka
• **Requires 16% reduction** from existing dairy farms, conversions at Controlled Activity limits
LUC Max NL (kg N/ha/yr)

- **Limits**

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- **Restricted Discretionary Consents (RDCs)**
  - Overseer 5.4  20% RDCs?
  - Overseer 6.0  80% RDCs?
Current Performance

• Average regional N loss 23 kg (Overseer™ 5.4)
• Range 4 to 55 depending on LUCs and farming intensity
• Priority zones average 12 to 23 across zones range 4 – 46
• Half the dairy farms required to reduce N loss Yr 1
• Some by more than 50% depending on LUC class
• Implies a major system change
• Some farms will struggle to remain viable
Issues with Overseer™

• One Plan formulated with Overseer™ 5.4 and Implemented using Overseer™ 6.0

• Overseer™ is a powerful management tool
  – Set baseline and assess changes
  – But not suited to Yes/No regulatory compliance
    • 30% margin of error between reality and the model
    • Pasture in situ v off-pasture and spreading effluent
    • Per cow efficiency not recognised
    • Ryegrass dominated v mixed sward
    • Rainfall seasonal variation
Changing from Overseer™ 5.4 to 6.0
(NL kg/ha/yr)
Estimating impact on Dairy – a collaborative process
(Overseer 6.0)

• Scenario 1: Limits
  – all farms meet Controlled Activity limits

• Scenario 2: System Change (RDC)
  – Optimise using LP model
    • production under N loss constraint
    • Profit down ≤ 10%

• Scenario 3: Within System (RDC)
  – Farmax
  – N mitigation without reducing production
GSL LP model

- Current leaching
- Target leaching
- Farm profit
- N leaching
- Model effect

Optimised line

Optimised

Current Base

N restricted

Target leaching

Current leaching

N leaching
CBA – direct benefits and costs

- Marginal analysis
  - Impacts on dairy sector only in Priority Zones
- Project life 20 years
- Discount rate 2%, 5%, 8% real 2012 dollars
- MS $6.70/kg including Fonterra dividend
- Representative farm NL, Rev. & Exp. $/ha/yr
- Aggregated to Priority zones
  - Tararua and West Coast
CBA Preliminary Results
Comparison between Zones

Tararua  West Coast
Conclusions

• Economic analysis highlights the risks of getting the policy wrong
• EIA will show impacts on communities at the district and regional level
• The collaborative process needs to be embodied in implementation
• A huge job ahead negotiating - 440 farmers
• Key is to shift farmer attitudes from anger to action (denial – anger – resignation - action)