Arable cropping in Canterbury

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What is FAR?

• Science-based research and extension provider
• Accountable to arable farmers
• $4.5m annual turnover
• Income from:
  – Compulsory crop levies (grain, seed, silage)
  – R&D grants and contracts
• Expenditure on:
  – In-house and collaborative research
  – Events, publications, tools
New Zealand Arable Industry

- Globally small, locally significant
- Diverse crops over whole country
- Diverse end-uses

ADDING VALUE TO THE BUSINESS OF ARABLE FARMING
New Zealand Arable Industry

- Globally small, locally significant
- Diverse crops over whole country
- Diverse end-uses
- Sustainable crop rotations

Adding value to the business of arable farming:

- Wheat and barley
- Perennial ryegrass seed
- Vining peas
- Radish seed
- White clover seed

Maintaining soil structure
Building soil fertility
Avoiding disease build up
Enabling weed control
Reducing pest pressure
Spreading economic risk
NZ Arable Production

Adding Value to the Business of Arable Farming
Integrated Farming Systems

ADDING VALUE TO THE BUSINESS OF ARABLE FARMING
Nutrient management in crops

2001 Cereal crop N dose and timing R&D
2005 Launch of the Wheat Calculator
2006 Ryegrass seed crop N dose and timing R&D
2007 Launch of AmaizeN calculator
2008 Deep soil N testing
2010 Mopping up with maize
2011 N strategies for wheat and ryegrass
2012 Nutrient management plans
2013 Review of cropping model of OVERSEER®
N management in crops

- Tactical, in season decisions informed by:
  - Deep soil N testing
  - Crop calculators
  - Within paddock variability

- Mineralisation of N?
Nutrient management plans

- Catchment Plan
- Whole farm plan
- Nutrient management plan
- Nutrient budgeting
- Soil testing and monitoring

ADDING VALUE TO THE BUSINESS OF ARABLE FARMING
What about OVERSEER and crops?

- Estimates long term, average nitrate leaching from the root zone
- Potential to integrate a range of farming systems
- Origins in a model of cow metabolism
- Not a daily time-step model
- Lack of transparency and engagement
Peer review of OVERSEER crop model

• What are the strengths and weaknesses of OVERSEER 6 crop model?
• What further developments would improve its usefulness and usability?
1. Testing OVERSEER

- Crop/soil models typically daily time step
- OVERSEER aimed at annual average
- Comparatively little validation of cropping model

Project put forward to owners to test OVERSEER against modelled (and measured) data – 2014?
2. Usability issues

- Interface for cropping relatively undeveloped
- Guidelines (protocol?) needed for crops

Quick fix to cropping input screens underway
- July 2013

Guidelines project agreed with owners
- July 2013
3. Transparency in development

- Regional authorities and water policy
- Deployment in this way requires transparency
- Peer review and stakeholder engagement

Stakeholder and technical advisory groups beginning to be consulted – May 2013
4. Communication and training

- Relevance at regional, catchment, farm scale
- Greatly increased stakeholder base
- Different expectations and preconceptions

Workshops, owners’ Q&A prepared – on-going
5. Governance

- Evolution from DSS to regulatory tool
- Obligations on owners for direction and resourcing

Review:
- Governance
- Resourcing
- Risk management
Concluding remarks & next steps

- Well-developed nutrient management in crops
- Dynamic industry receptive to new ideas
- Integrated with horticulture and livestock
- FAR working with OVERSEER owners:
  - Protocols
  - User interface
  - Validation of crop model
Thank you