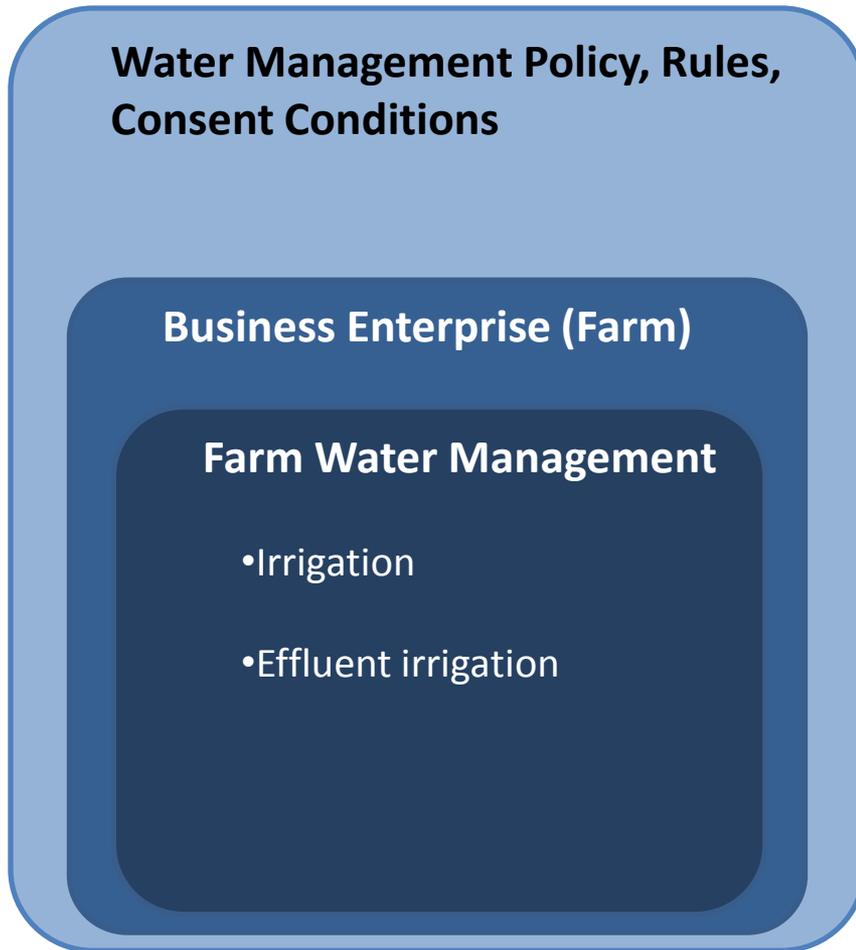


Water Management for Precision Agriculture

John Bright



PA Current Situation: Context



Dual Focus for Water Management:

- Gaining and retaining a right to operate (use water and nutrients)
- Profitability

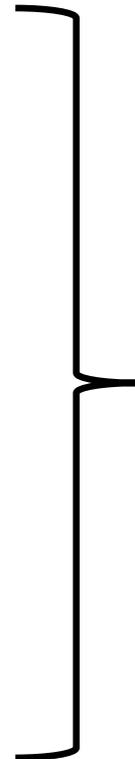
PA Technology for Water Management:

- If you build it, will they come?
- Not if it doesn't add real value to one or both of the above

PA Current Situation: Technology

Irrigation Design

- Irrigation Design Standards and Key Performance Indicators
- Irrigation Design Guidelines, Code of Practice, Designer Training
- Design Software
 - IRRICAD
 - Overlap
 - Space
 - Pivot sprinkler selection package
 - SRF2



World-Leading Tools
Very high NZ content

PA Current Situation: Technology

Irrigation Hardware

- Pivots, lateral-moves
- Variable depth (RE: time)
(imported)
- Pivots, lateral-moves with independent control of each Sprinkler Head
- Variable depth (RE: time and position)
(imported + NZ control system)
- Travelling Boom, various types (*1000's installed*)
- Limited ability to vary the application depth
(NZ product)

PA Current Situation: Technology

Irrigation Management

- Soil moisture sensors

- Aquaflex
- Enviroscan
- Decagon
- WaterMark

- Soil water balance models

- Soil moisture & Water-take monitoring services

- More than a dozen agencies in NZ
- Data typically stored 'in the Cloud'

- A small selection of state-of-the-art SM sensors now readily available

- A number are available

- Real-time access to the data required for precise irrigation management is now readily available, and is cheap.

Current Situation: Key Messages

- There are a lot of robust, low-cost technologies on the market for helping farmers manage irrigation. Low uptake.
- Design is the foundation of precision irrigation; design is currently the big limitation.

What is being done to increase water management precision?

- Limits are being set on seasonal irrigation water use and meters installed for compliance monitoring
- The irrigation industry, through INZ, is promoting use of the Codes of Practice (Design; System Evaluation)
- On-farm storage is being built to enable a switch from surface irrigation to sprinkler irrigation methods

What is being done to increase water management precision?

- Irrigation schemes are beginning to switch to pipe distribution systems.
- SCADA systems are being deployed to more precisely match water takes to water orders.

Key Needs and Opportunities



**Improving the performance of boom-type irrigators
(and other machines that have similar operating characteristics)**

Need to raise application efficiency to greater than 80% to reduce the risk of using up your water allocation by early in the new year

Key Needs and Opportunities



Photo: BMW Contracting Ltd.

Increase the affordability of piped distribution systems

The value proposition is multi-faceted: energy savings, reduced storage costs, higher on-farm efficiency.

Key Needs and Opportunities



Increase water delivery reliability

- Water supply reliability
- Reliability of the irrigation system

The more precise irrigation becomes, the more irrigation is “on the edge” and the greater the financial impact of not being able to irrigate when you need to.

Thank you