MGI FIELD DAY SUMMARY – 2012

Save Water! Save Nutrients! Save Energy! Save Money! Increase Productivity!

A. Border dyke Irrigation - Good Practice

Two key aspects of border dyke irrigation good practice are:

- A good repairs and maintenance programme that includes:
  - Checking gate seals and replacing as required
  - Keeping sills clean and well maintained
  - Keeping headrace vegetation short by hard-grazing, spraying, mowing and/or weed-eating
  - Finding and repairing holes in borders and leaks in dams
  - Checking each clock before putting on the gate
- Managing the water effectively by:
  - Monitoring paddocks soil moisture, rainfall, ET and length of grass and setting clocks accordingly
  - Actively monitoring the first borders watered and adjusting clock times to suit
  - Measuring water flow – metres to the minute e.g. 3m/minute is medium, 4m/minute is fast
  - Minimising runoff by setting clocks to trip when the water is about $^{2}/_{3}$ down the border
  - Using a lower time and volume of water per irrigation so you can achieve more waterings within your seasonal allocation
  - Preventing drainage into creeks and onto roads even if this creates paddock ponding, which is preferable to drainage off farmland

"The most important tool for border dykes is a shovel" Robin Murphy (2011)

B. Spray Irrigation - Application Depth and Distribution Uniformity - "The Bucket Test"

By using a set of buckets, measuring jug, calculator and your DIY Irrigation Evaluation (pages 18 – 23) you can check how well your spray irrigation system is performing and where the opportunities to improve are.

C. Soil Physical Characteristics and Properties – S-map online

Knowing and understanding your soil will help you optimise your irrigation water use and crop productivity.

- Soil information for your property can be found at **http://smap.landcareresearch.co.nz/home**. Once on this page left click the Map tab and then the 'I accept' button. Close the help screen and then zoom into the location of your property. It is possible to view the soil types by left clicking the 'soils' box and the 's-map Polygons & Labels' on the left hand side of your screen. Note: The soil contours will only become visible once the map scale is 1:100,000 or less.
- Left clicking 'Feature information' (above the map) and then left clicking on the soil type word will give you a list of fact sheets to select from. Note: You may need to get the scale down to at least 1:50,000 for the soil labels to appear. Opening the selected pdf file will give you access to 2 pages of information regarding the physical soil properties of the selected soil type.
- This report includes a number of descriptors relevant to nutrient budgeting:
  - Depth Class (diggability)
  - Potential rooting depth
  - Topsoil stoniness
  - Drainage class
  - Profile total available water (PAW)
  - Topsoil P retention
  - N leaching vulnerability
  - Runoff potential
  - Dairy Effluent (FDE) risk category
  - Soil classification

A glossary of these soil descriptors can be found behind the 'Glossary' tab on the s-map online web page.

D. Soil Moisture – measurement, monitoring and options of instruments

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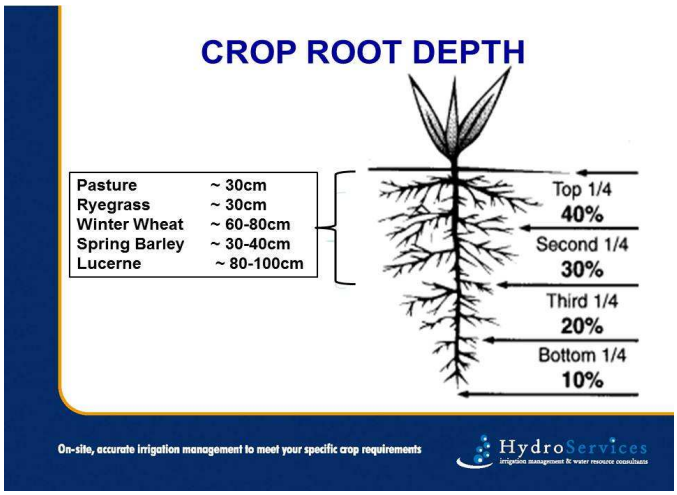
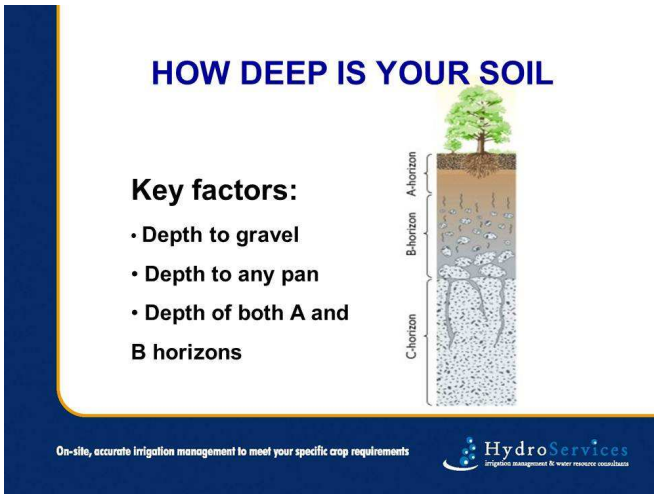
Jeremy Dyson and Jim Stevenson save $7,500 - $15,000 every year at Strathburn Farm by only irrigating when the soil needs it. It costs them $500/day to run their 3 pumps so every day not irrigating is a day of savings. Soil moisture monitoring information gives them confidence of when to turn on and when to turn off.

Investing in the right soil moisture sensor is imperative to making good irrigation decisions. The instrument you choose will need to measure volumetric content (% or mm). Key points to consider include:

- What you are growing – pasture or crops or trees/vines
- How deep the roots are
- Soil depth (A and B horizons)
- Whether the soils are stony
- What you need the sensor to measure
- Having the sensor installed and calibrated correctly





E. Nutrient Budgets, Nutrient Limits and Mitigation Options

- A nutrient budget is:
  - a statement of the total nutrient balance for a specific area or farm system
  - based on soil type, topography, rainfall, irrigation type, irrigation quantity and farming system inputs and outputs
  - used to help identify potential production or environmental issues arising from nutrient excesses or deficits
- Overseer is the name of the model that is currently used to inform a nutrient budget and:
  - is used for pastoral and cropping farms
  - **is only as accurate as the information that is entered**
- A nutrient management plan describes how the major plant nutrients will be managed annually on a particular area or property. It:
  - aims to optimise productivity AND to reduce nutrient losses
  - considers the land manager's personal and business objectives

For more information see the spring 2012 field day notes on the MGI website http://www.mgiirrigation.co.nz/category/events/ or contact:

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