BIGG soil moisture monitoring workshop 2014

Soil moisture monitoring in vineyards

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Common methods of soil moisture monitoring in Barossa vineyards

• Vines
• Shovel/digstick
• Gypsum blocks
• Neutron probe
• Intermittent capacitance probe
  • E.g. Sentek Diviner
• Continuous capacitance probe
  • E.g. EnviroPro, Sentek Enviroscan
What information can we get from soil moisture monitoring

- How ‘full’ is the profile? And how much moisture is in reserve?
- Where is moisture being used from?
- How fast is moisture being used?
- Where are irrigations going?
Goals of soil moisture monitoring in Barossa vineyards

A tool to assist in **irrigation decision making** for the management of:

- Quality
- Production/yield/vigour
- Heatwaves
- Salinity?

With limited/expensive water supplies
Irrigation strategy: REGULATED DEFICIT IRRIGATION

The theory behind quality improvement

SENTEK DIVINER 2000

- Portable probe & logger
- Access tube in the vineyard
- Readings taken every 10cm by ‘swiping’ the probe down & up the access tube
- Max. depth 160cm
Example 2

Total moisture from the 10 to 100cm readings

OCTOBER 1st

2011

2012

2013
Silty loam soil, near Greenock, bottom of hillside near a creek
Black Biscay soil near Tanunda
ENVIROPRO probe and ADCON telemetry

Continuous logging of readings
- e.g. every 15 minutes
- Sensor every 10cm
- Max. depth of 160cm
- Soil moisture and temperature, option of EC (salinity)

Remote telemetry of the collected data
- Near ‘real-time’ soil moisture readings
- Information is viewed online anywhere and anytime
ENVIROPRO PROBE
ADCON TELEMETRY

View data on the internet near real time
ENVIROPRO PROBE

Jan - Mar
ENVIROPRO PROBE

11-17 Jan 2014
• Daily Max temps of 34-43°C
• Average Max 39°C

13-19 Feb 2014
• Daily Max temps of 19-26°C
• Average Max 23°C
• >100mm rain
ENVIROPRO PROBE

Soil temperatures – Mid Jan

- Blue 10cm
- Purple 20cm
- Green 40cm
Soil moisture monitoring is a valuable tool to assist in irrigation management decisions in vineyards:

**When** and how much irrigation

Affect canopy growth and yield

Quality to meet customers needs

Yield for consistency of supply

Critical through dry seasons, heatwaves and when considering limited amount and the expense of water supplies
Services:


Suppliers of:

Crop and animal health products – Fertiliser – Winemaking supplies - Pasture and crop seed – Fencing and trellising – Water equipment – Personal safety – Pruning equipment – Hardware – Stockfeed