TURNING DATA INTO KNOWLEDGE

Weather Station & Soil Moisture Probe Network Wonwondah, Vic

Dryland farmers, agronomists, plant breeders and emergency services are among those benefitting from a network of weather stations and soil moisture probes in the Wimmera's Wonwondah district. The broad range of data, presented in real time, is helping farmers manage risks and increase profitability.

Wonwondah Landcare Group has four stations collecting readings for soil moisture, air temperature, soil temperate, dew point, DELTA T, humidity, wind direction, rainfall and detailed frost information. This data is collated into specific information which can be easily accessed from a smartphone or computer. Group secretary and farmer Chris Guest said collecting this data across a large geographical area was creating a well- informed network of farmers, as well as benefitting others such as agronomists and emergency services. The project has also led to an increase in membership for the group, which initially formed in 1975.

Horsham

Wonwondah

"The existing weather station network, spread 8-10km apart is delivering huge benefits not only for the farmers whose paddocks are housing them, but right across the Wonwondah district and beyond."

Partnership approach

After tracking results from a weather station and soil probe installed on one Wonwondah farmer's property, the Landcare group put together a plan for a network of eight to be installed throughout the district and they:

Developed a desired network of weather stations and soil moisture probes

- Focussed on achieving maximum benefit by selecting sites in boundary paddocks (ie a soil moisture probe in adjoining paddocks connected to the same weather station)
- Did the sums then invited merchandise stores, agronomists and others to contribute to ongoing costs in return for access to the data
- Applied for funding through Wimmera CMA for stage 1
- Invited landholders to invest private funds
- Installed three new stations
- Organised in-paddock training days



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Turning data into information Information into knowledge

Soil moisture	cropping decisions such as rotations and crop type, guide to apply urea and other crop inputs
Rainfall	track rainfall in specific paddocks
Fire danger index	when to harvest
Frost	track potential for frost damage
DELTA T index	select ideal spraying time
Temperature	select ideal time to fertilise
Flood risk	tracks rainfall and links to flood maps
Historical data	compare to previous years to make informed decisions, track soil moisture changes over time

Courtesy of Dale Boyd

Project leader of 'Risk Management through

Soil Monitoring Project' Agriculture Victoria

Risk Assessment

For low to medium rainfall zones (less than 450mm annual rainfall)

Production stage **Moisture** Level Management action All crop rotations possible, including higher risk crops. Examine earlier sowing of longer season varieties if the break allows. Adjust sowing rates for canopy management if the break allows. Early plans for pest monitoring and management. High Crop program as per paddock plans in Summer, rethink riskier crops in low SOWING Moderate rainfall environments and or a late break. Examine exposure and risk to upfront costs. In low rainfall regions, reconsider cropping area, target lower risk crops and more productive paddocks and also in moderate rainfall districts if the break is late. Low High High confidence in N application, weed and disease management. EARLY/LATE Moderate Revisit yield potential and crop inputs. TILLERING Low confidence level. Reduce exposure to costs/risks, consider grazing or hay later in the Low season if no turn around in the season. N on fodder crops or low N status crops only. High confidence. Apply appropriate inputs to yield potential and preventative pest and High disease strategies, (N, fungicides and pesticides). **STEM** Moderate confidence. Conservative plan. N on fodder crops or low N status crops only. Moderate **ELONGATION** Low confidence. No N. No forward selling. Consider planning for grazing and Low hay production. High confidence. Consider marketing/forward selling options if favourable price and High confident of production. Moderate soil moisture at flowering, particularly at depth can still produce average to **FLOWERING** Moderate above average yields with cool finish and some rain. Low confidence. Consider final use of crop based on yield potential and short term Low weather forecast. PRE High Determine potential yields. Adjust insurance estimates. Moderate HARVEST Low