

Soil sensor data for profitable agriculture

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In collaboration with Southern Farming Systems (SFS), the Centre for eResearch and Digital Innovation at Federation University Australia have embarked on a research project that will enable farmers and their advisors to make more informed decision based on easy access to around 60 soil moisture and temperature probes throughout southern Victoria and Tasmania.

Initially installed by SFS, the on-going maintenance of the sensor network is funded by the host farmers (because they see individual value), so the data collection is self-sustaining. In agreement with the host farmers, some information from the probes is available to other users free of charge, hence the public can access the basic soil moisture information, including: the percentage of soil moisture left in the profile (compared to field capacity) and information on soil moisture over the recent past. By comparison, the host farmer can login to see extended sensor information including the current temperatures and soil moisture readings down the profile, the weekly values, graphs of past values, field capacity and percentage of soil moisture left, water use for a period, and other information as determined by the collaborative research. The time series rainfall and temperature data from the co-located weather station or nearest Bureau of Meteorology weather station can also be shown. An easy to use tick-list allows the farmer to set alerts to any specified soil moisture and/or temperature condition, delivered via either SMS or email. Soil management and productivity are the focus of the research, such as critical moisture contents to avoid pugging and machinery compaction, nitrogen application to avoid nitrous oxide losses when soils are wet and temperatures are rising, and moisture at various times of year to sow summer cover crops, or estimate yield potential to decide to cut for hay, harvest or graze.