

PPS soil probe cross-region partnership project September 2018

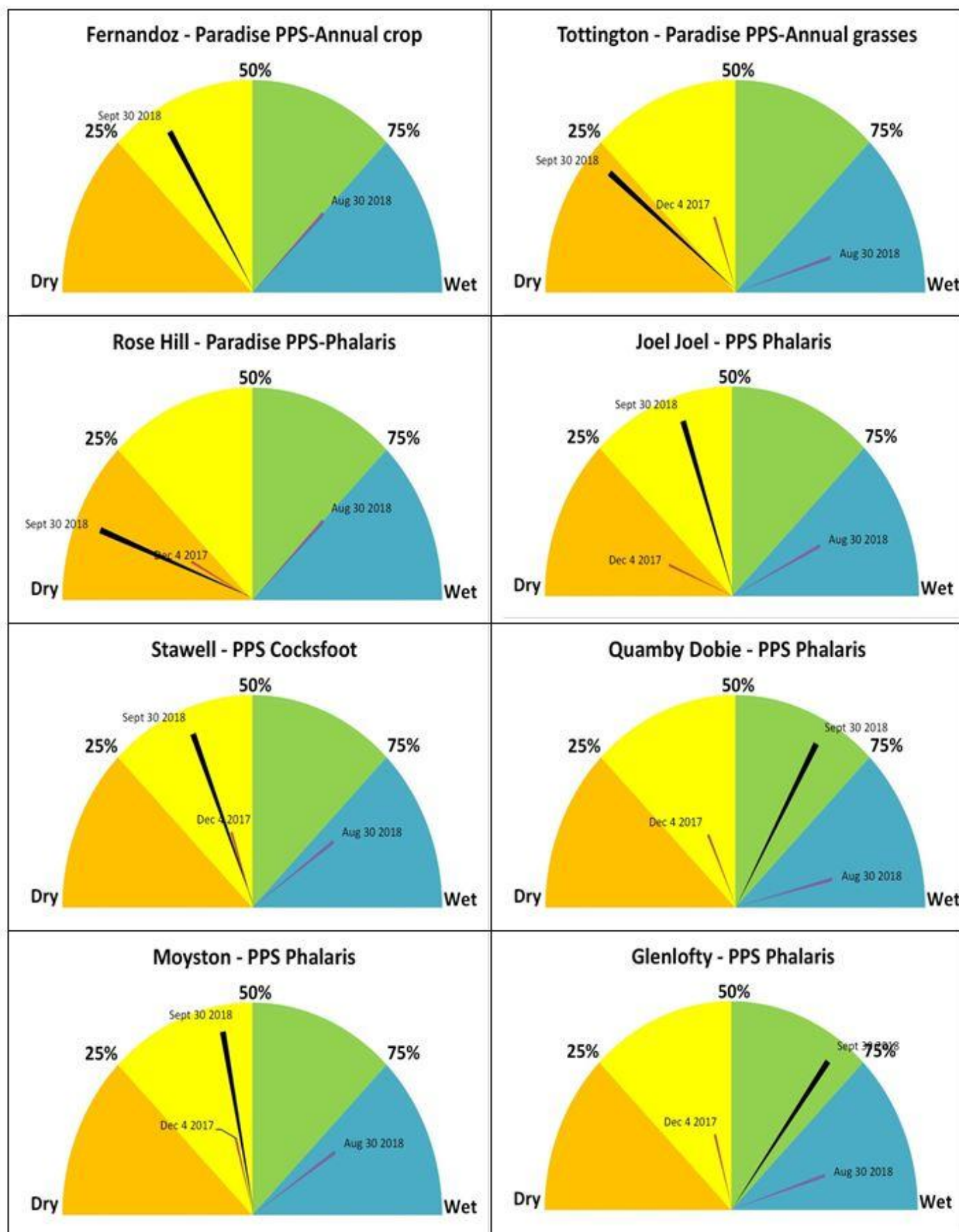


**Crowlands Warrak
Landcare Group**



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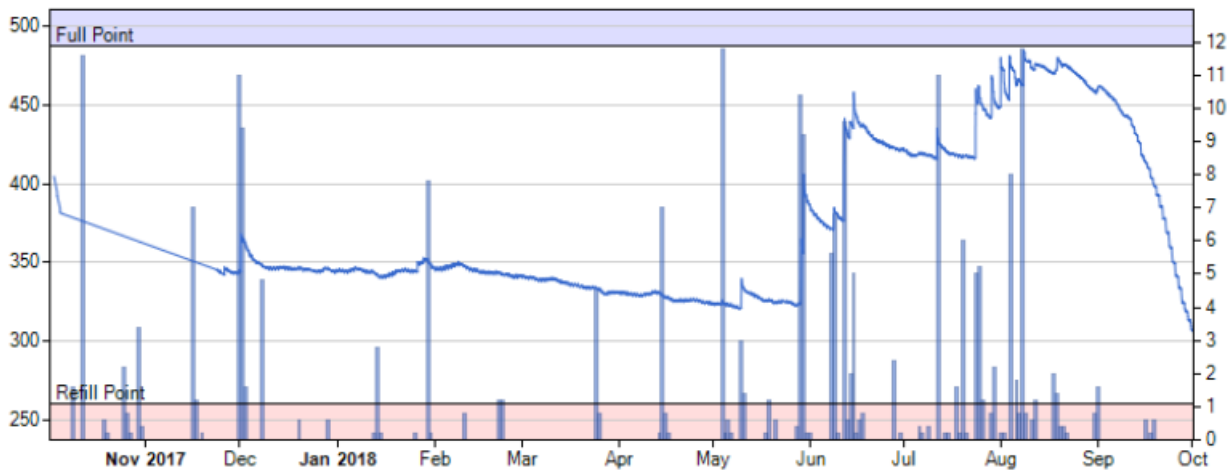
PPS SMM Speedos September 30 **2018.**



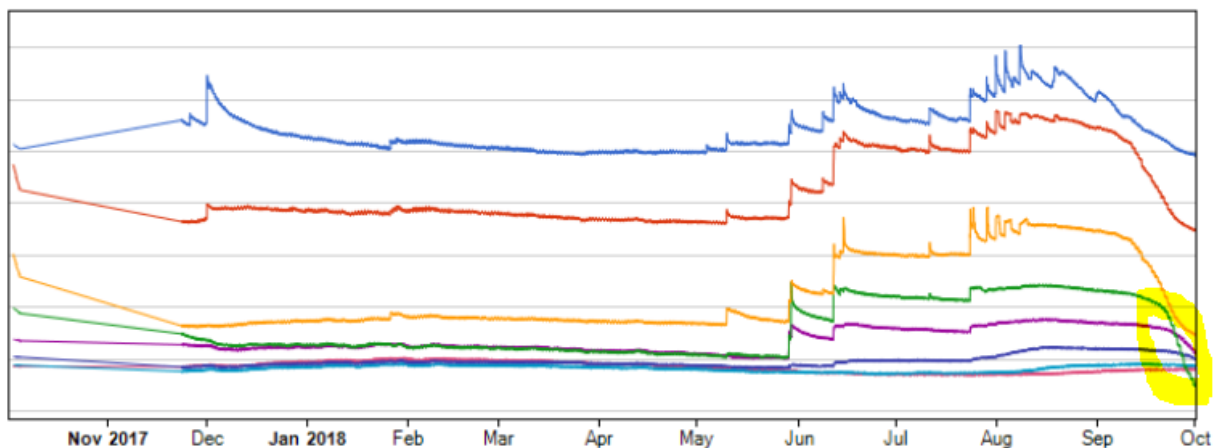
Site of the month

Tottington

■ Soil Moisture Summed ■ Rain mm - Charlton BOM

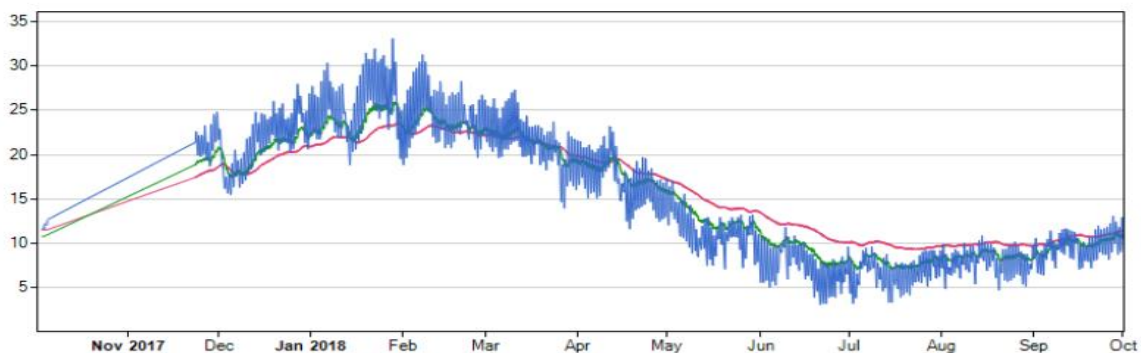


■ Soil Moisture 10cm ■ Soil Moisture 20cm ■ Soil Moisture 30cm ■ Soil Moisture 40cm ■ Soil Moisture 50cm ■ Soil Moisture 60cm
■ Soil Moisture 70cm ■ Soil Moisture 80cm



The past month has seen significant soil moisture depletion with limited rain to meet pasture water requirements and total soil moisture is now drier than any point in the past 12 months. Moisture uptake has been quite evident at the shallow soil moisture sensors particularly at 30-40 centimetres. Any moisture that built up this winter has now been used in one month of spring and it appears residual moisture (although limited) will now be relied upon to carry growth into spring without further rain but it appears that the season will be short.

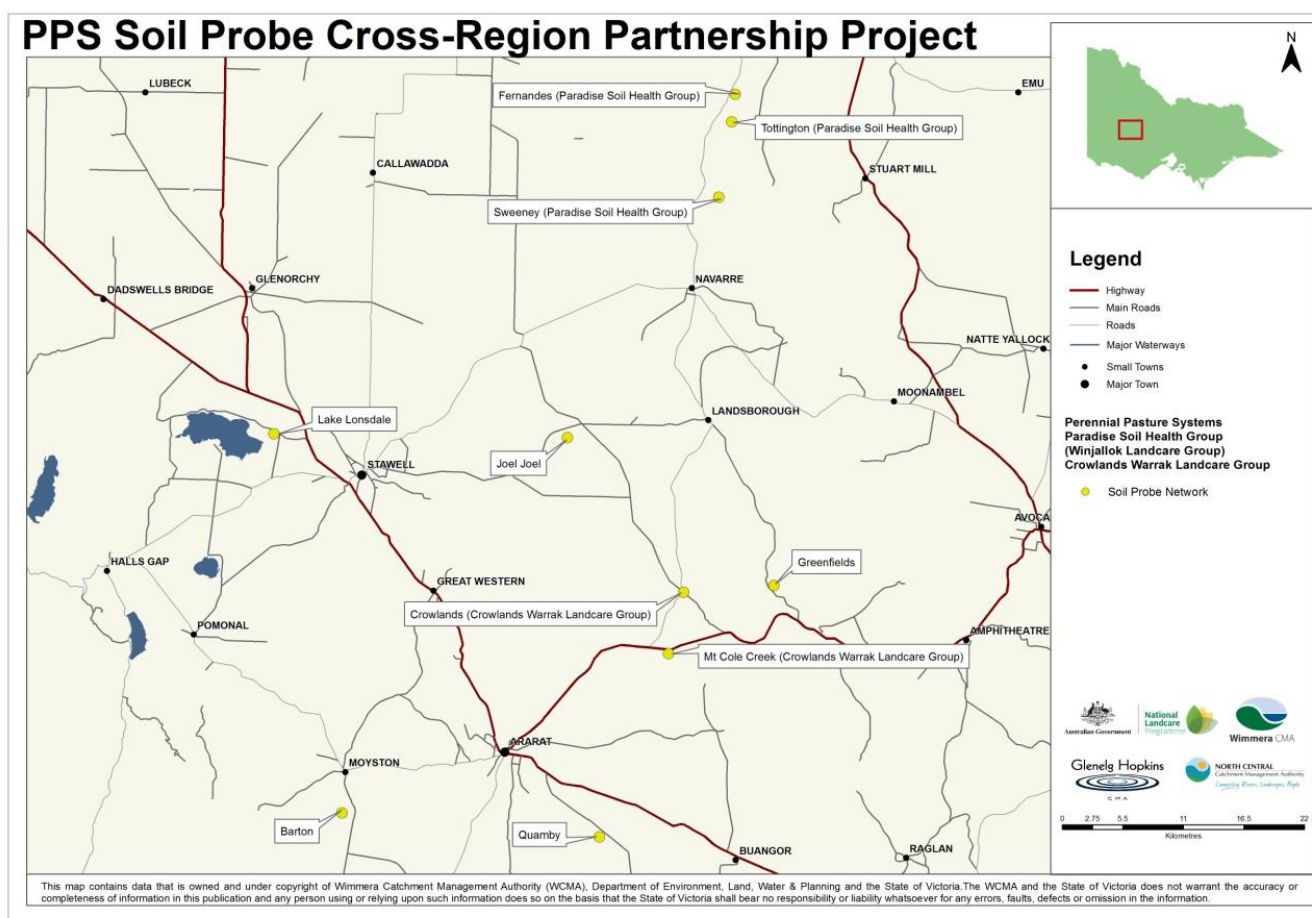
■ Temperature 10cm ■ Temperature 40cm ■ Temperature 80cm



Soil Temperatures

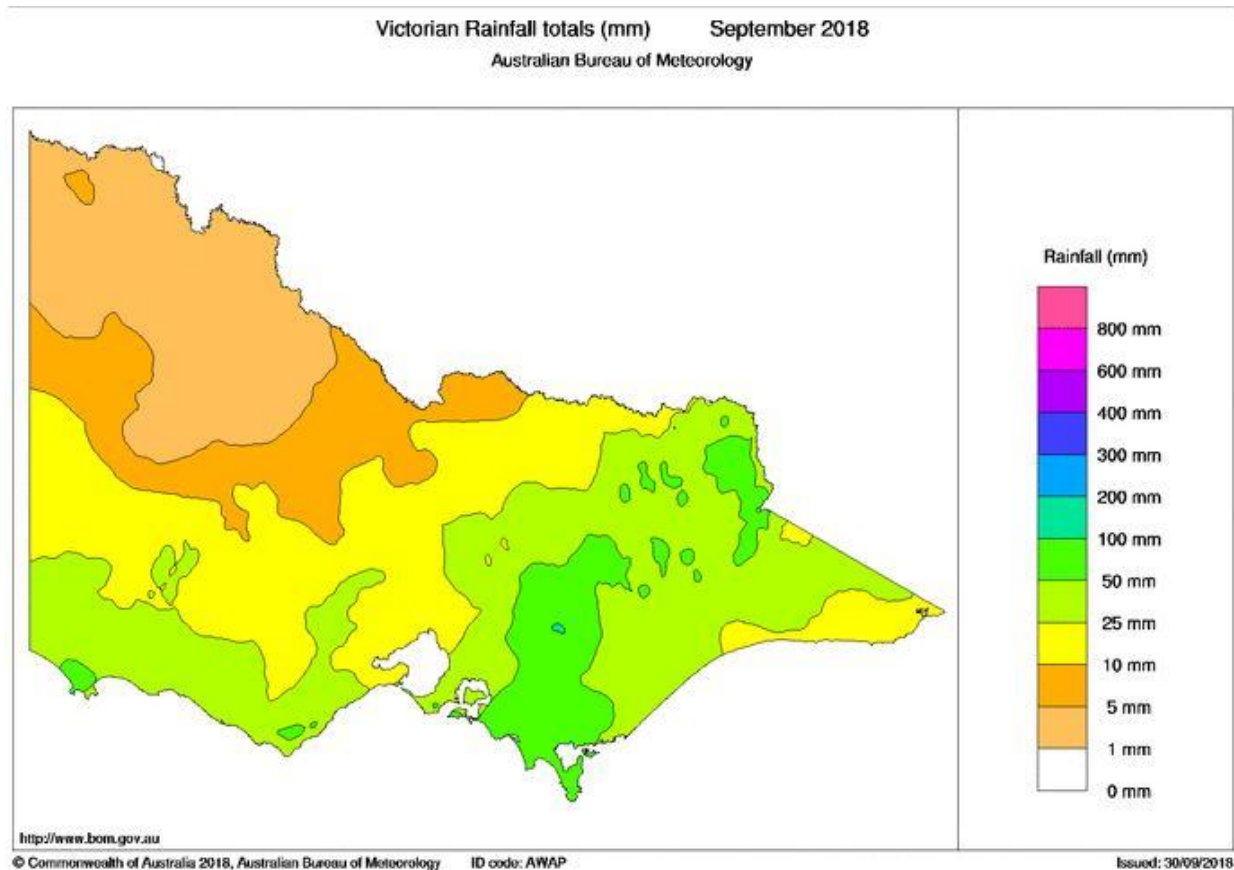
Location	10cm Temperature at Sept 30
Rose Hill - Paradise PPS-Phalaris	11
Tottington - Paradise PPS-Annual grasses	10.5
Fernandoz - Paradise PPS-Annual crop	11.5
Quamby Dobie - PPS Phalaris	8.5
Moyston - PPS Phalaris	10
Glenlofty - PPS Phalaris	12
Joel Joel - PPS Phalaris	10.5
Stawell - PPS Cocksfoot	11

SMM Locations



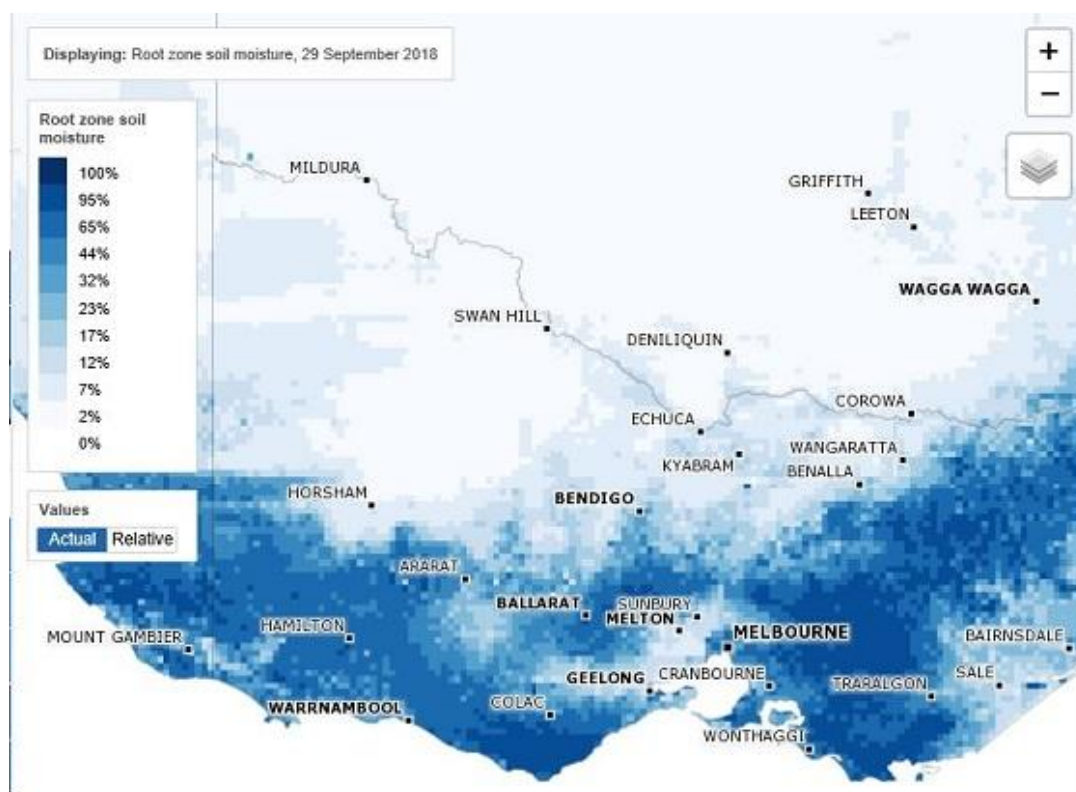
Graph 1. PPS Soil moisture probe locations

BoM rainfall



Graph 2. Victoria September rainfall totals

BoM Water balance



Graph 3. BoM water and landscape model. <http://www.bom.gov.au/water/landscape>

Background Information

PAWC

The Plant Available Water Capacity (PAWC) is the total amount of water that a soil can store and release to different crops and is defined by its Drained Upper Limit (DUL) and its crop specific Crop Lower Limit (CLL). The PAWC, or 'bucket size', depends on the soil's physical and chemical characteristics as well as the crop/pasture being grown.

An important determinant of the PAWC is the soil's texture. The particle size distribution of sand, silt and clay determines how much water and how tightly it is held. As water is held on the surface of soil particles and clay particles have collectively have a larger surface area than sand particles, a clay soil can hold more water than a sand.

The CLL may differ for different crops and pasture types due to differences in root density, root depth, crop demand and duration of plant growth. The PAWC is generally higher for deeper rooting crops/plants like wheat, barley, Lucerne and Phalaris and lower for crops like pulses and perennial ryegrass, but different tolerances for soil types and subsoil constraints (e.g. salinity, sodicity, boron and aluminium) cause variation between crops and plants.

Plant Available Water (PAW) is the difference between current soil water and crop lower limit (CLL). It represents the percentage of water stored within the soil available to the plant at a point in time.

The Perennial Pasture Systems (PPS) group has combined with other groups to have a soil moisture and temperature probe network on farms in the Avon, Upper Hopkins and Upper Wimmera River catchments. In 2018 PPS with the support of local catchment authorities partnered with Agriculture Victoria to combine the data from the probes into a monthly report which gives an indication of soil moisture and temperature levels in the region.

The report details the current soil moisture levels and shows comparisons to the previous months and moisture levels recorded in early December 2017 as a useful comparison to observe soil moisture changes.

The soil probe network has been established by PPS and the Paradise Soil Health Group through the Winjallock Landcare Group.

The Crowlands Warrak Landcare group has recently installed two new probes which will be added to the reports when the calibration period is complete.

The soil probe cross-region partnership project is supported by the Glenelg Hopkins, North Central and Wimmera CMA's through the National Landcare Program.



PPS thanks Dale Boyd and Jane Court; Agriculture Victoria for their assistance with the project, developing SMM Speedos and interpretation of soil moisture data.