Informed decisions for managing climate variability in grazing systems

Background; PPS were successful in the Federal Govt "Smart Farms Small Grants Round 3" funding program, allowing it to commence a pasture growth estimate project which will report throughout spring.

Project:

Perennial Pasture System (PPS) has an existing soil moisture and temperature probe network providing daily readings of soil conditions. These are currently presented as weekly graphs and in seasonal summaries of soil moisture availability. Agriculture Victoria has access to the CSIRO "Grass Gro" computer simulation program which can predict pasture growth by combining various sources of information including soil moisture availability.

The project proposes to have analysis of predicted pasture growth conducted for the region using the above tools and getting it formatted into a easily understood visual format to assist farmer decision making in grazing systems in the variable climate conditions that are now part of the region's farming systems.

Three regions are being used in the predictions & it is hoped that they will assist in providing trigger points for action in dry years and help with planning pasture management in average and above average spring rainfall seasons.

The project estimates are being collated by Jane Court; Agriculture Victoria & Dr Nathan Robinson; CeRDI, Federation University. PPS thanks them for their assistance with this project.

Note: The soil moisture summed graphs used for these reports are not comparable between sites as they use a different scale on the y axis due to local conditions.

PPS Report - September 2022

This year is very similar (or better) in the set up for spring. All sites are full (or close to full) capacity and the spring forecast is at a higher probability than last year for a wetter than average spring.
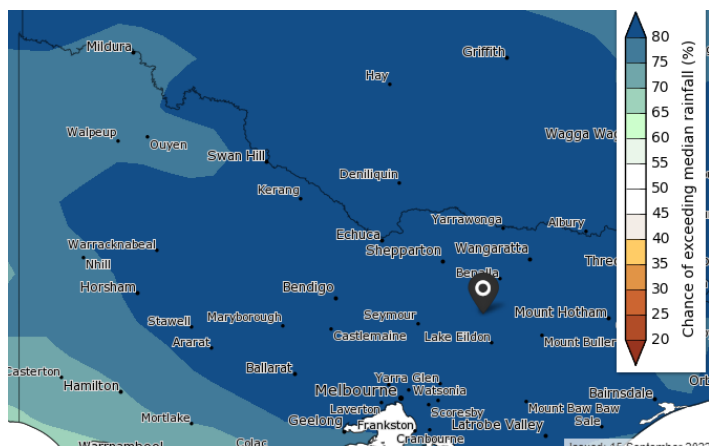

BoM three month rainfall outlook (October to December 2022)

A full moisture profile at the beginning of spring is an indicator that we would have at least an 'average' spring across all sites. Couple this with a wet spring forecast, means we would expect – as we did last year – to see a bigger but also extended spring.   Sites appear to be getting good pasture growth (see the pictures), albeit pretty wet!

Moyston

The Moyston site is wetter than at this time last year and most moisture is being utilised to 30 cm. Predictions for spring using a 70 per cent is for a bigger spring than last year as peak growth rates are predicted at about 10 kgDM/ha/day higher than last year.
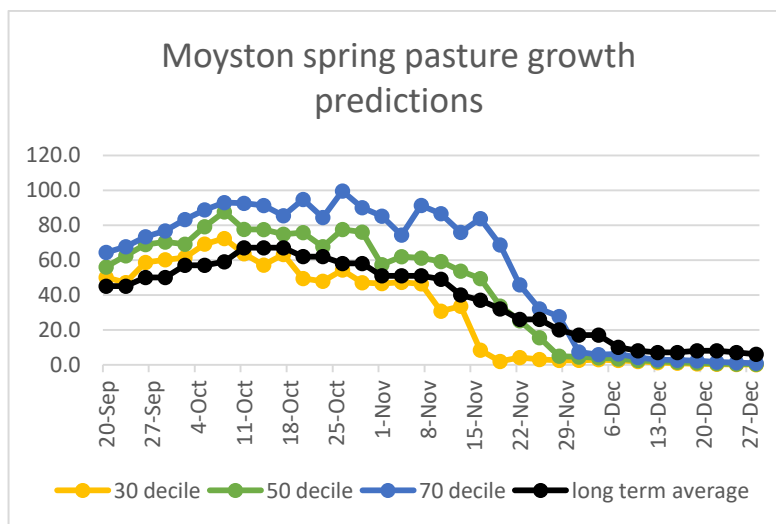
Don't need a moisture probe here to show the soil is fully wet!

Comments from Robert Cooper:

- Anecdotally it has remained a lot wetter for longer than last year in the last month – backed up by the probe
- Weather pattern changed in mid-July and it finally started raining giving us the wet winter (late) that was being predicted all year.

- Growth has been a lot slower than last year. Not a lot of difference in growth rates vs soil type observed.

- Grazing management will play a big part in keeping quality in pastures this year with the increased chance of more rain than last year.

Stawell

Stawell also is fully wet as it was this time last year (even wetter). The predictions for spring, are all higher than the long term average and better than last year. This may be a reflection of slightly higher soil temperatures earlier than this time last year.
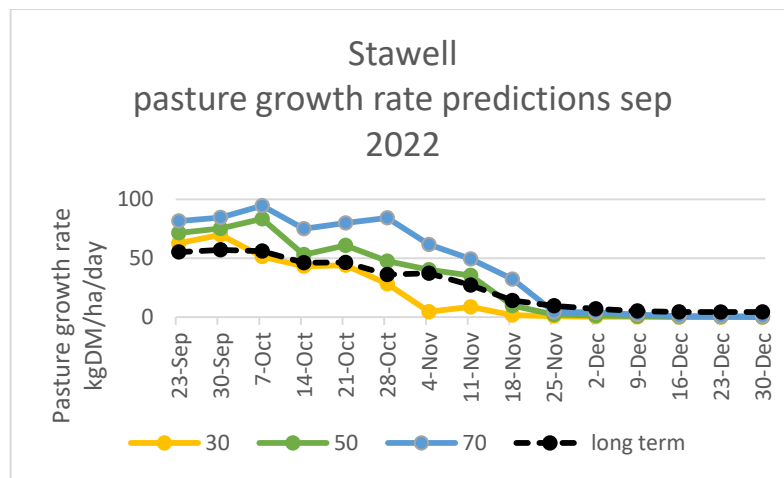

Comments from Matt Kindred:

- Great Spring at Stawell, although rainfall is only slightly ahead of average - majority of rain has been during the growing season.

- Short dry spell during winter - meant it didn't get too wet.

- Things are just right -   unless you are trying to get sheep dry for shearing (quite stressful)

Tottington

Whilst the probes are indicating that this site is not wet at depth (60-70 cm) this seems odd given the rain (above average rain for the last 2-3 months), past experience, comparison with last year. There is a chance that the sensors are not working at this depth (similar seen elsewhere) so, without digging or taking a core, it is probable that this site is full also.
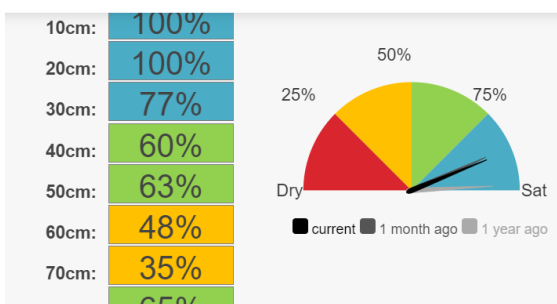
You can see in the summed soil moisture graph below, that the lower levels have plateaued or even dropped, which may be an indication that they are not working.
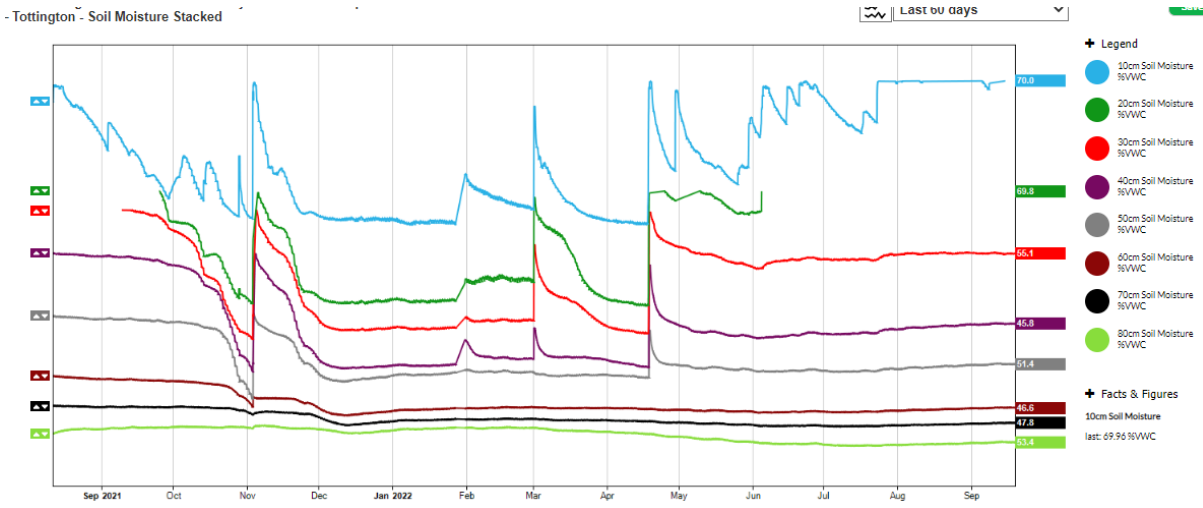
Comments from Tom Small:

• I can confidently say the profile is full and has been since about July/August.

• Ground is not trafficable and hasn't been for long time. By far the wettest soil conditions I've seen in my 20yrs (including 2010/11). That being said pasture growth is still very good. The phalaris stand is 4yo and roots should've reached 800mm by now I would have thought.