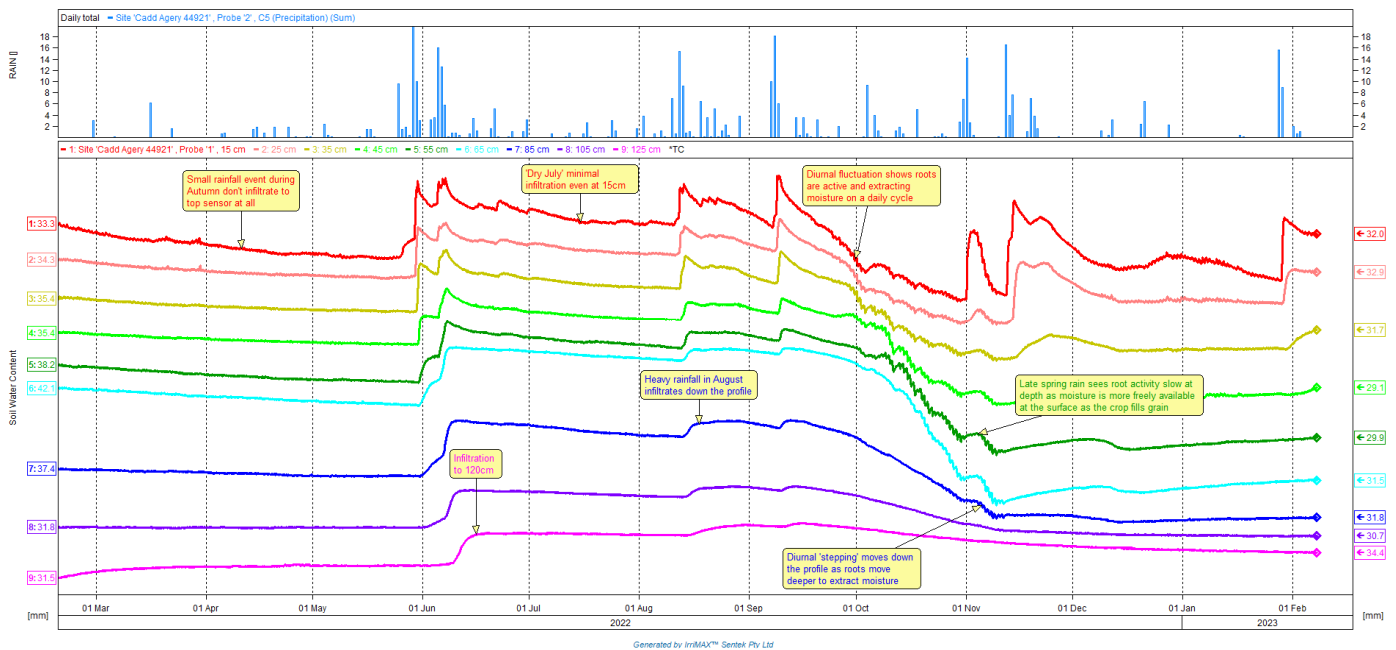# Soil moisture probe graph interpretation

Stacked graph, 365 day view

The first display is the stacked sensor graph showing the individual sensors and their readings. This is a 365 day view and has figures on the LHS and RHS of the graph. These figures are mm of soil moisture and the ones on the left show the figure at the start of the line (365 days ago) and the figures on the right show the current readings. This gives you a good idea of what soil moisture was at depth last year and what is it this year.

Stacked graph, 60 day view
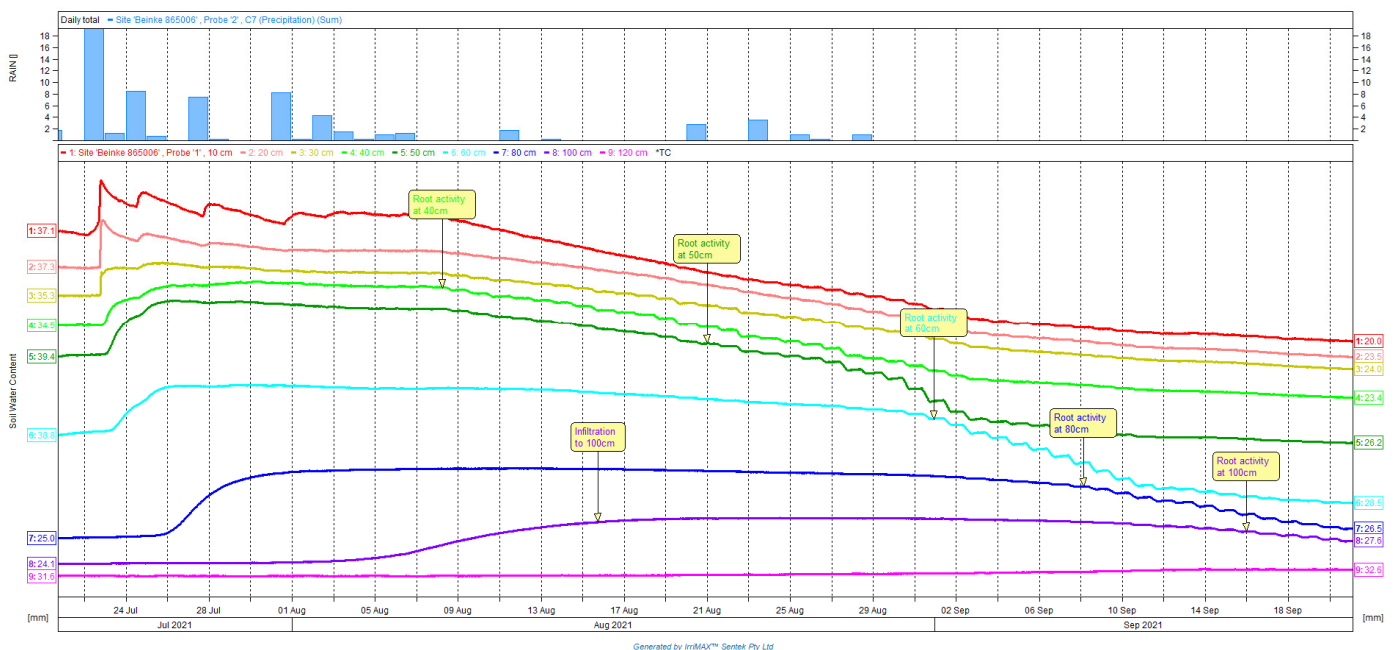
The second display also shows a stacked sensor graph, but this is zoomed in more to a 60 day view. This allows for better interrogation of rainfall infiltration to see where recent rain has soaked to. Also, during the Spring time, it shows where roots are active with *diurnal fluctuation* occurring as the daily 'steps' that occur when plants are photosynthesising and extracting moisture via their roots.

Summed comparison graph, 365 day view
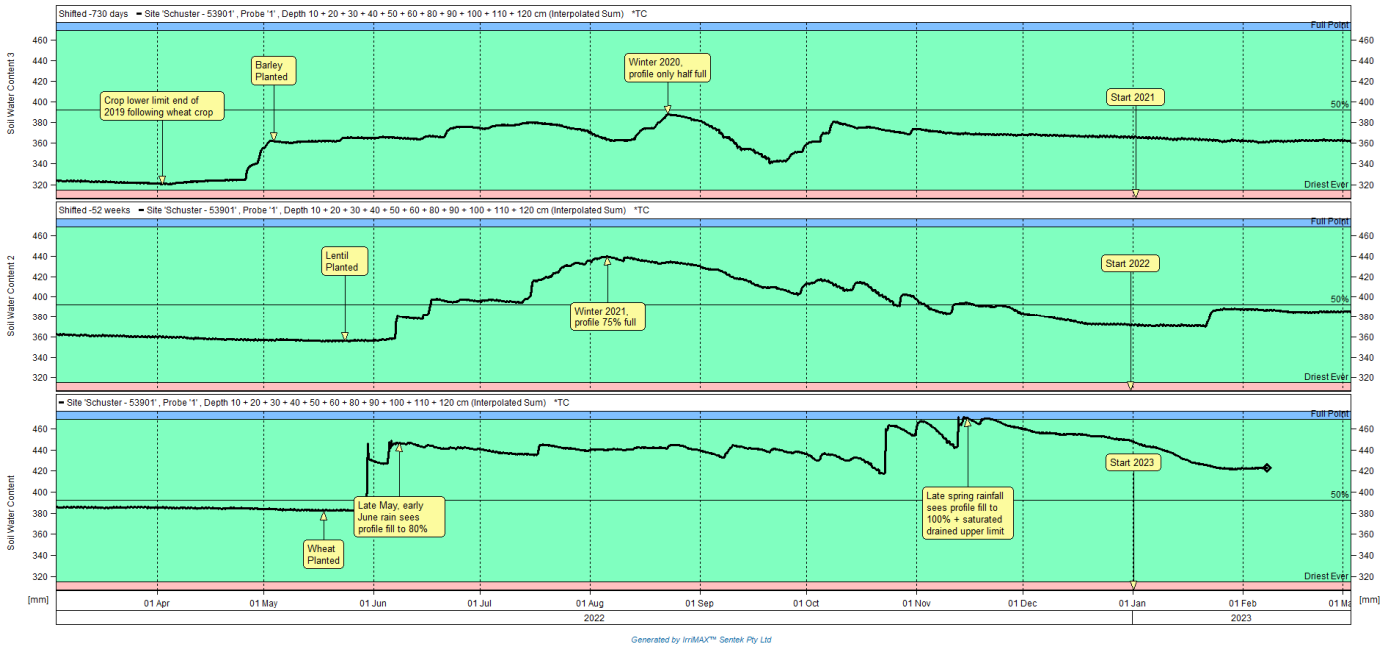
The third display is a year on year summed graph comparison which shows the 'fuel gauge' view. With this one you will see the most current year in the bottom panel and the mid panel above it is essentially shifted back a year. The top panel is shifted back two years. This enables one to draw a line vertically to intersect the graph and see how much moisture there was at the same time last year. Once a number of seasons have passed and we have observed the *Full Point* (drained upper limit) and *Driest Ever* (crop lower limit), we can then insert a 50% horizontal line that gives a clearer indication of moisture left in the profile.

Data can be given a calibration in this view in order to give a close approximation to *plant available water* in mm for the depth of the soil probe (keep in mind that roots may go deeper than the bottom of the soil probe)

The steepness of the graph during the critical September/October grain fill period is the most interesting observation on this graph. Comments can be inserted on this view such as planting date, crop type, crop stage and yield.

Summed Profile Breakdown
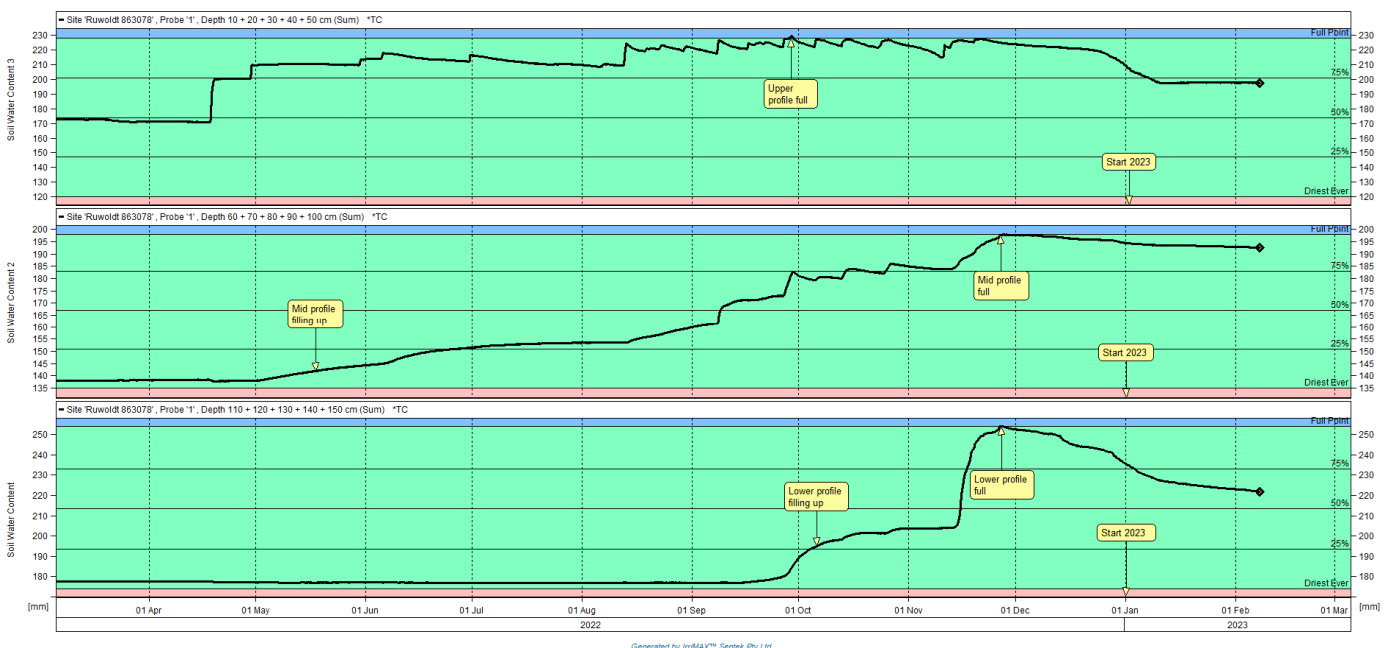
The fourth type of graph shows the sum of the various sensors going down the profile to give an indication of where moisture sits within the profile. In this graph, the 3 panels show 40cm 'blocks' of sensors with the sum of 10-40cm in the top panel, 50-80cm in the middle panel and 90-120cm in the bottom panel.

This gives an intuitive way of understanding how deep soil moisture is often left residual after pulse crops or oaten hay or sometimes a Summer rainfall event may soak to 50-60cm and shows as a movement upwards in the graph. Being a 365 day view, this graph shows where moisture existed at the same time last year on the righ hand side of the graph.

This graph can only be set with confidence after seasons where saturation 'full point' and a dry spring finish with a cereal/canola crop sees 'driest ever' occur

Soil temperature graph, 365 day view

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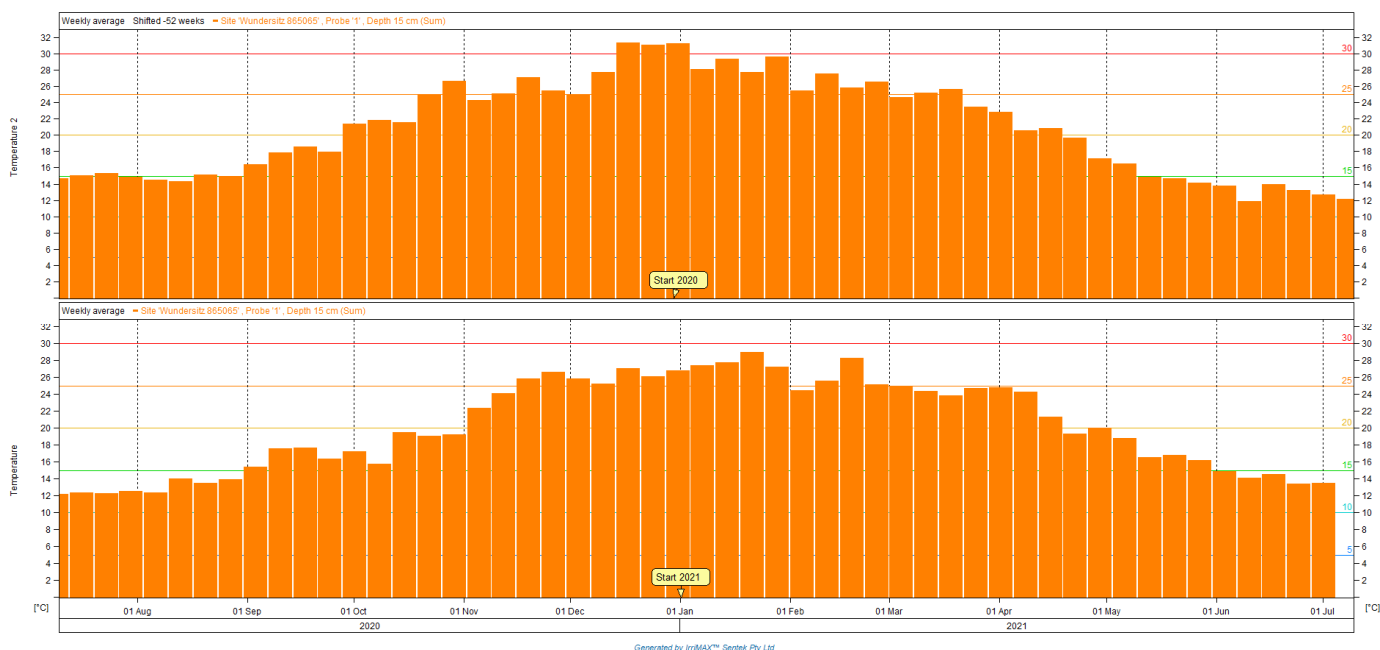
The fifth graph shows average weekly soil temperature at the top sensor (10-15cm below the surface) with the date shown at the base which relates to the bottom panel. This data can give an interesting comparison of the variation of soil temperature not only over the course of a season, but also giving a comparison of temperature change from season to season. Previous seasons are shown in the middle and top panels.

Stubble load as well and air temperature conditions are the main drivers of soil temperature variation which has an impact on soil biota levels and nitrogen mineralisation. It is also interesting to track soil temperature levels after large rainfall events