

MAKING EFFECTIVE IRRIGATION DECISIONS

July 2019 Irrigation Report: April to June period



Visit the Project Google Map [HERE](#) and the Website [HERE](#) for an abundance of practical irrigation resources and the latest seasonal video from the Gloucester soil moisture monitoring sites.

Key points of the April to June period

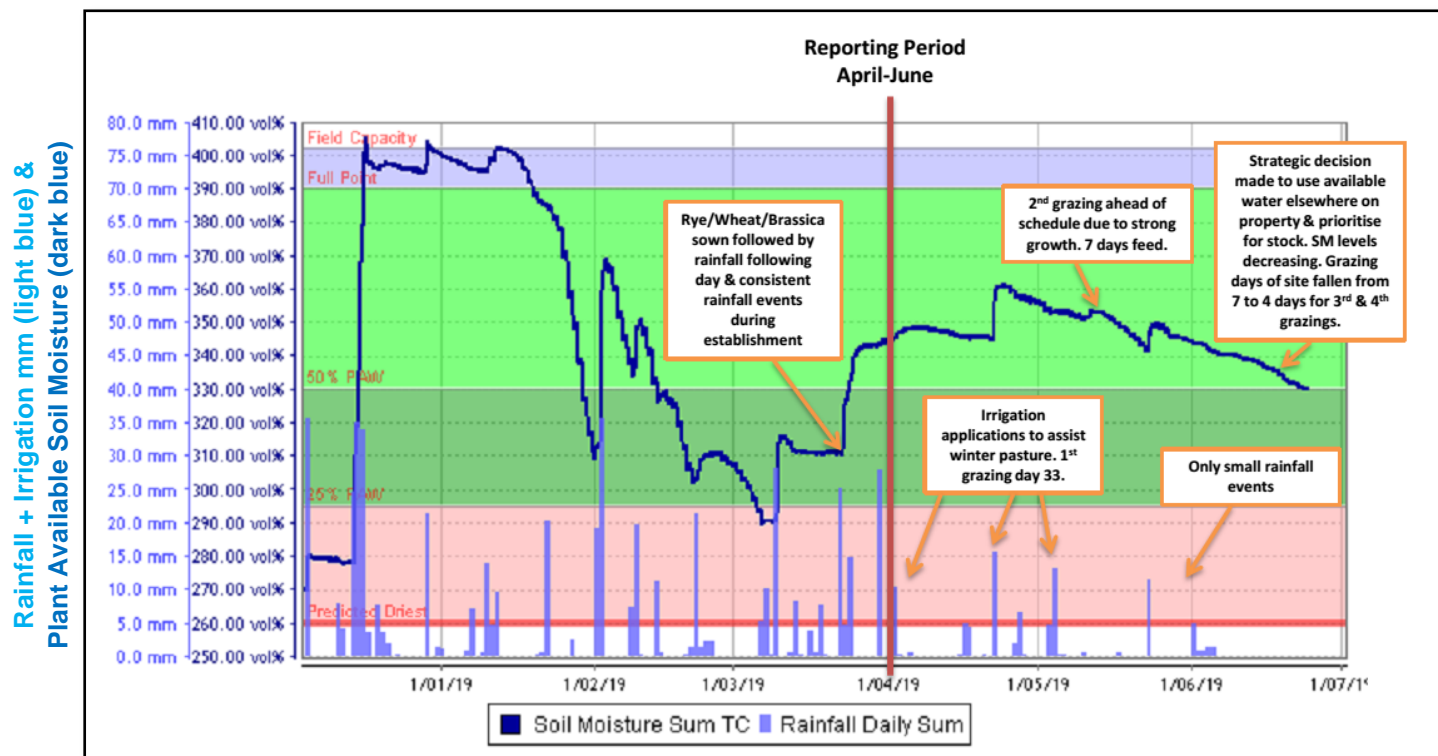
- Soil Moisture Monitoring (SMM) was used to gauge the effectiveness of rainfall events in mid-April, early to mid-May and early June (totalling 100mm) during the period.
- Kywong Flat used strategic irrigations of 8mm-13mm to supplement rainfall across both F3 and F6 to successfully keep both sites in the optimal soil moisture range. Importantly, F3 has not suffered from the saturated soils of previous years.
- Bowman Farm has struggled to raise soil moisture levels within the optimal range but maintained levels above 50% Plant Available Water- not ideal but enough to justify N applications which help to drive establishment.
- Again, Bowman Farm has been restricted by limited water availability from the Bowman River which has seen soil moisture decline throughout June.
- The July to September rainfall outlook is tough with a 75% chance of 50-100mm. Eto should remain low over this period with daylight hours increasing.

Bowman Farm Soil Moisture Commentary

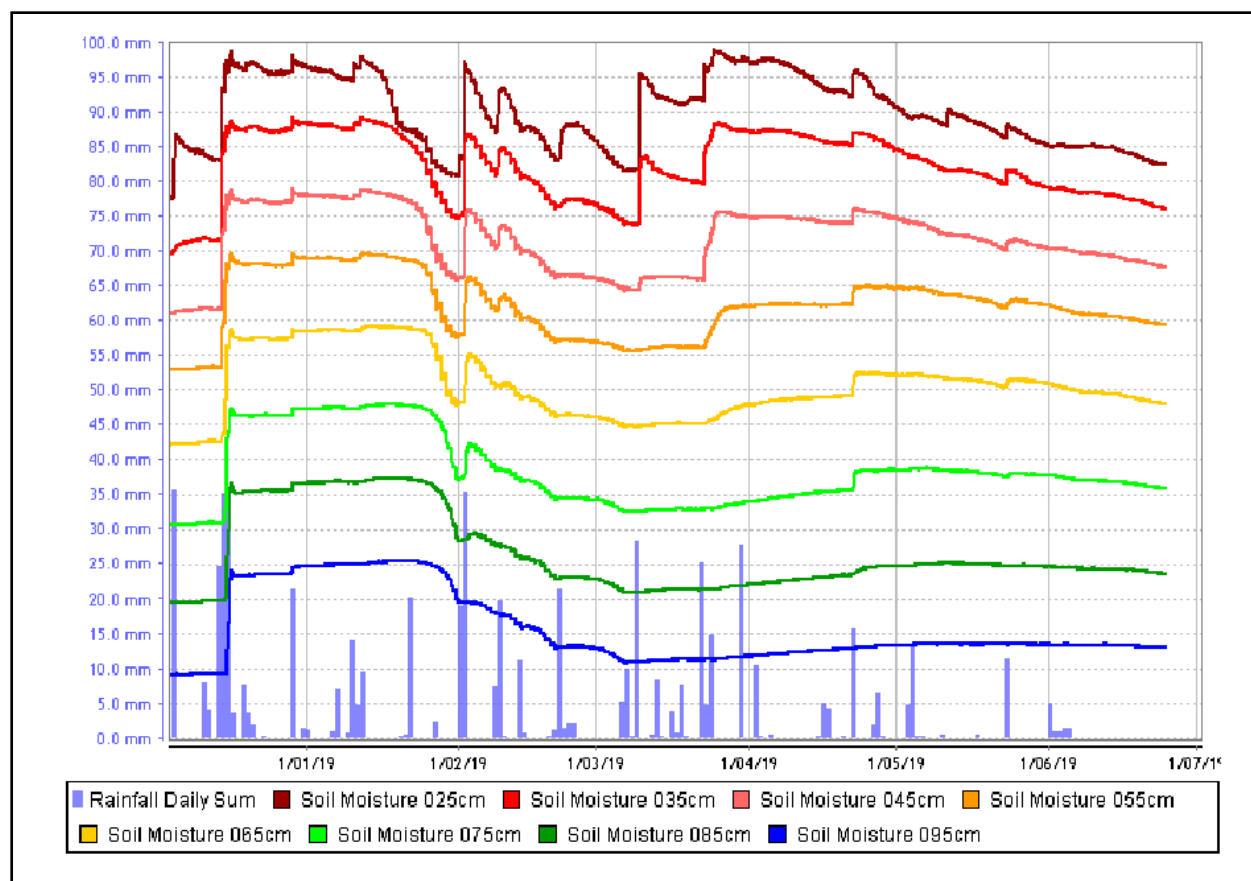
- The winter mixed pasture was sown on the 28th of April and grazed 33 days later. A good establishment was driven by a mix of 5mm rainfall events and 3 irrigation events of 12-15mm although optimal soil moisture was not achieved.
- Tom considered both the 1st and 2nd grazings to be strong with 7 days feed on both occasions. N was applied after the 2nd grazing resulting in some initial stimulated growth.
- After the 2nd grazing, Bowman Farm was restricted by water limitations and was forced to rely upon rainfall. This saw soil moisture decline throughout June resulting in the 3rd and 4th grazings yielding only 4 days feed.
- Through the use of SMM, Tom considers 15mm to be the most effective application rate per event for the site. The stacked graph demonstrates that these applications result in a strong soil moisture response to 65cm (yellow line). This is more than adequate for the rye grass but may be inadequate for the wheat which can have a rooting depth of up to 150mm. With this in mind, and the potential for water limitations to be an issue at the same time next year, a review of the winter species mix may be worth considering next year.
- July to September will be tough for the site. Forecast rain will unlikely result in substantial river flows. Available water will be prioritised for stock water.
- Tom will use SMM to gauge the effectiveness of rainfall events and use N applications to drive production whenever soil moisture is above 50% PAW.

Seasonal Summaries for Bowman Farm- Winter Rye-Wheat-Brassica pasture

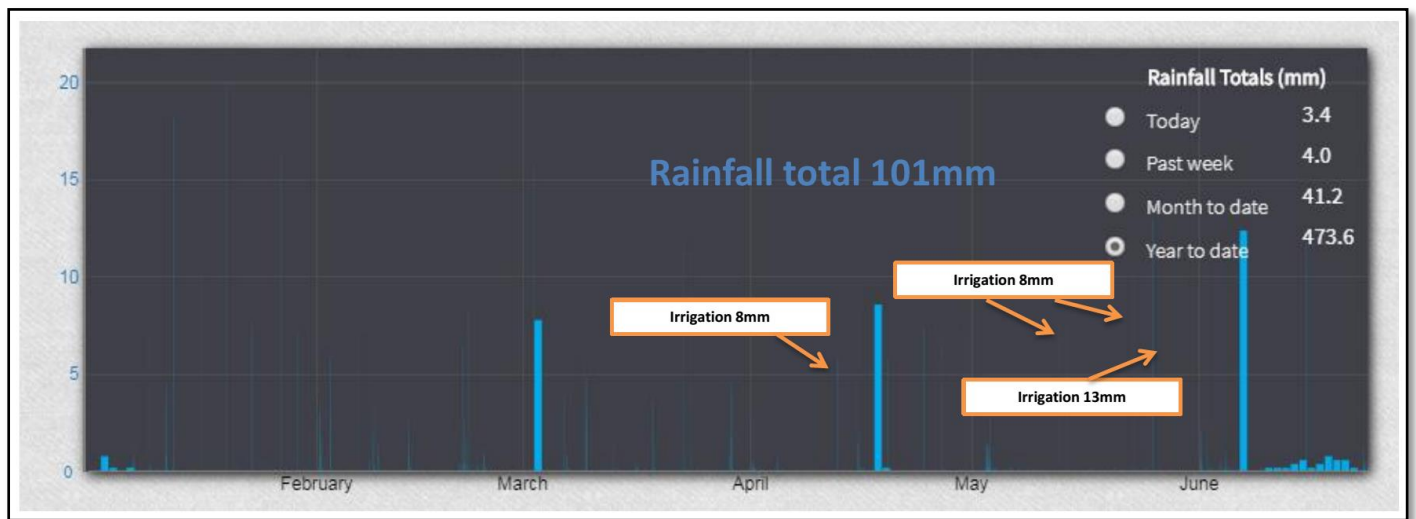
Soil Moisture Graph



Stacked Graph

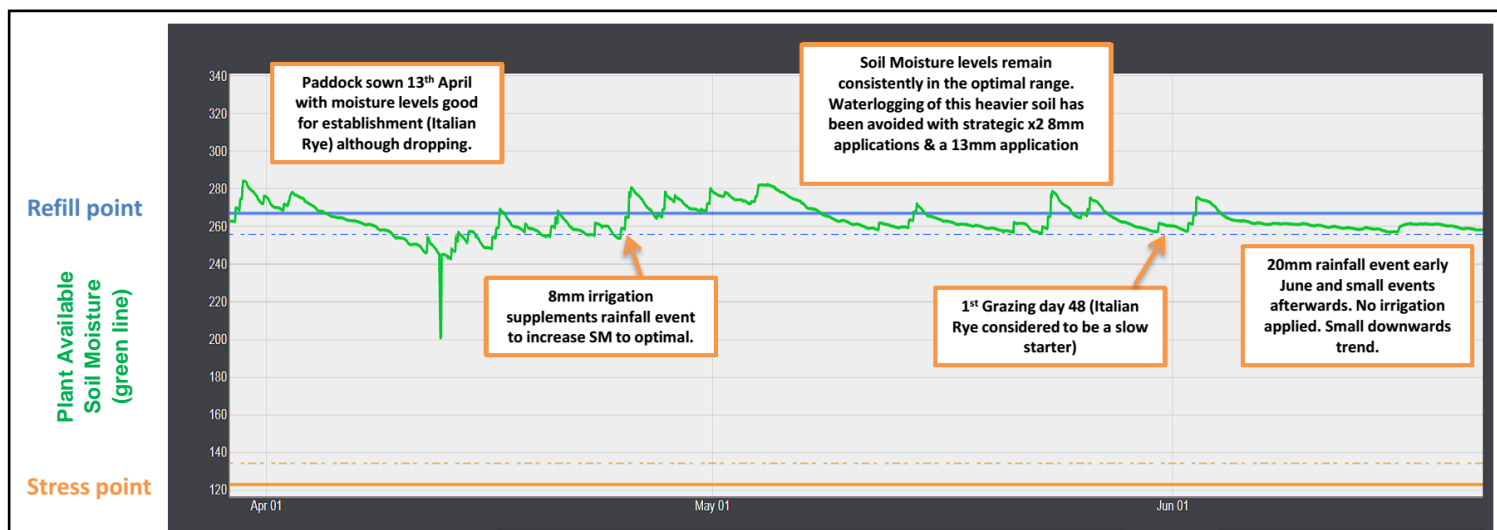


Kywong Flat Rainfall & Irrigation

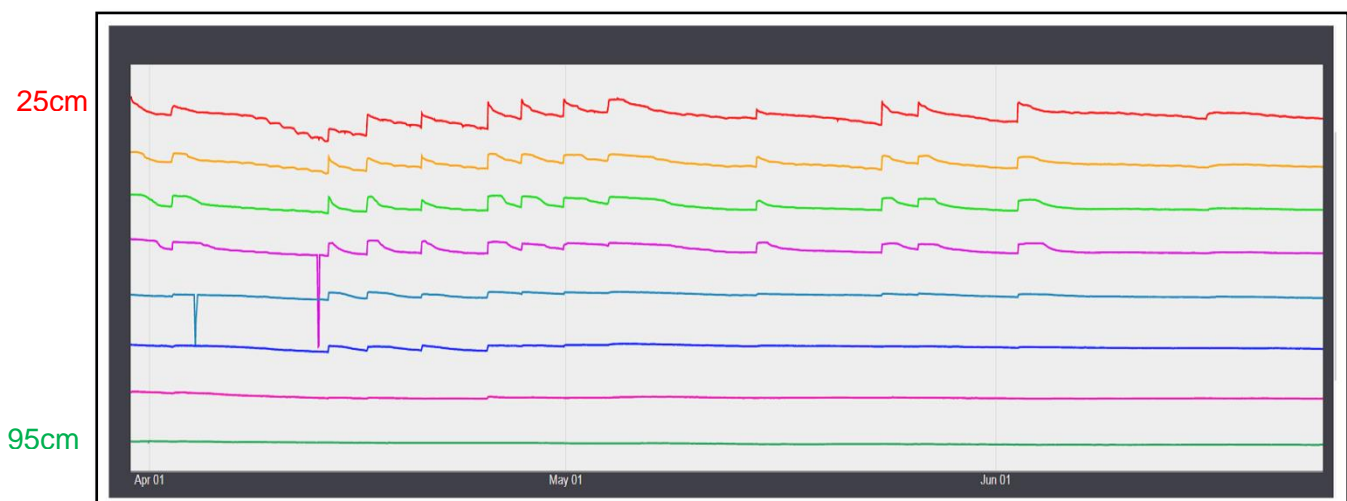


Seasonal Summaries for Kywong Flat- Paddock F3 Italian Rye Grass

Soil Moisture Graph

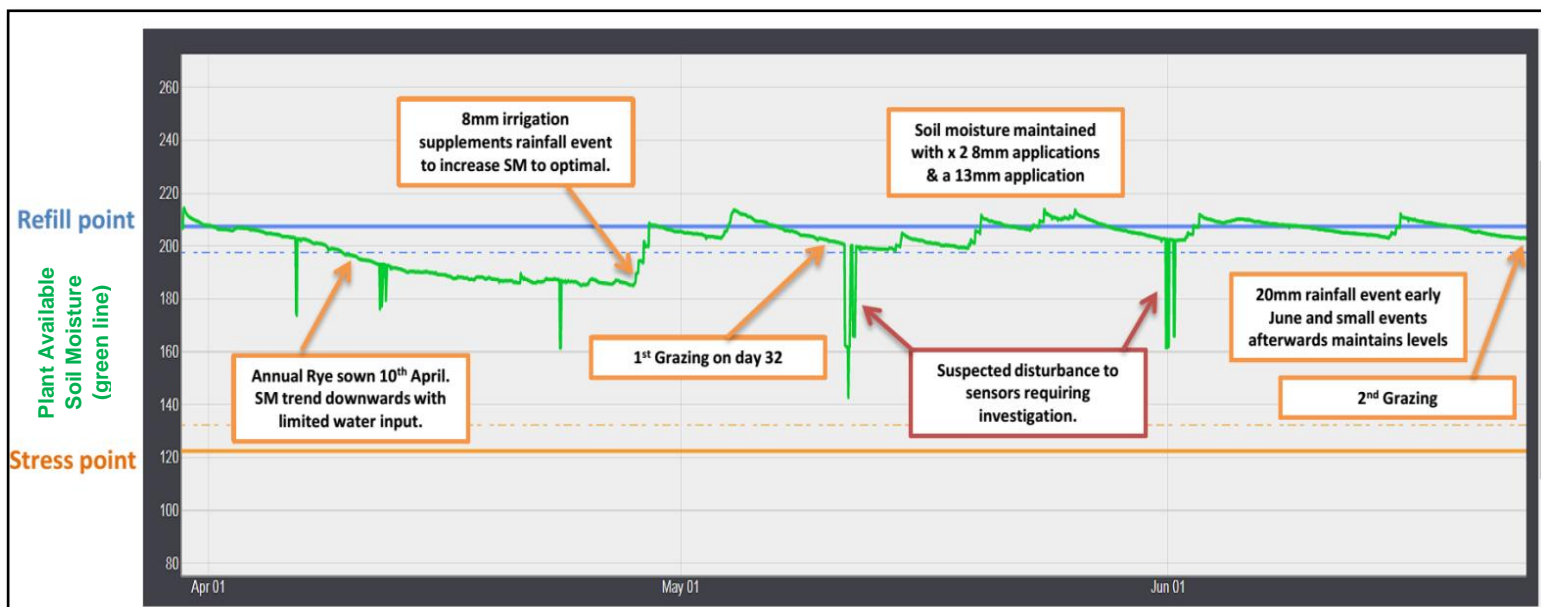


Stacked Graph

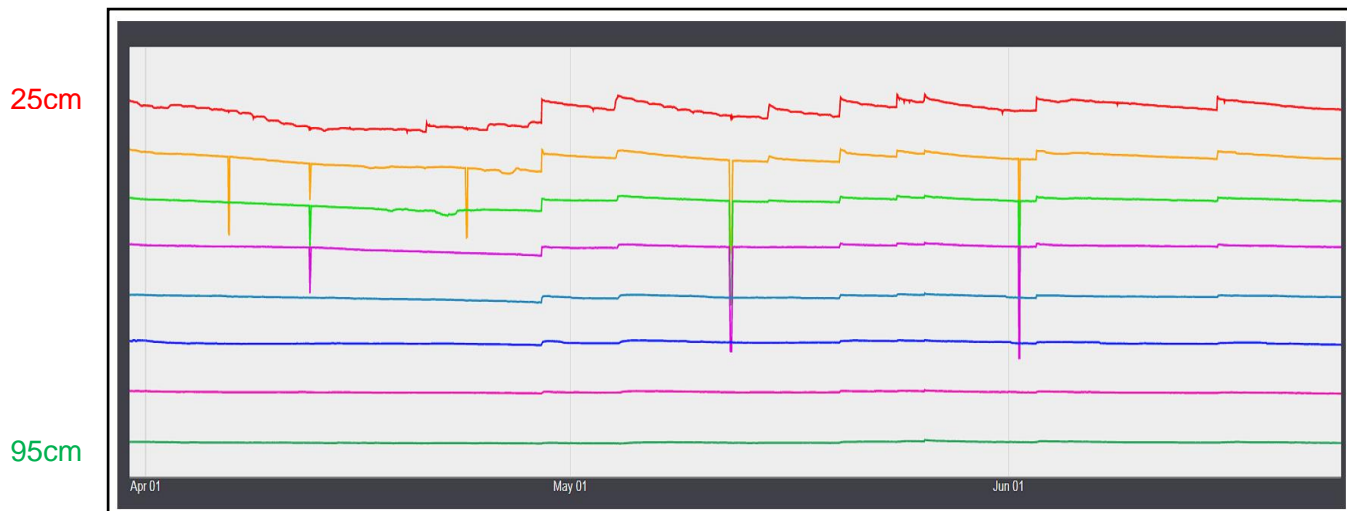


Seasonal Summaries for Kywong Flat- Paddock F6 Annual Rye Grass

Soil Moisture Graph



Stacked Graph



Kywong Flat Soil Moisture Commentary

- An irrigation schedule of supplementing rainfall events with irrigation has worked well for both F3 and F6 over the period.
- Adam believes that SMM has helped him not overwater the heavier soils of F3 at this time of year. Past management has seen waterlogging occurring as irrigation was applied as an “insurance” to developing seedlings. This year Adam monitored whether water was available to 30cm and this gave him confidence to apply less.
- ProGib was applied to F3 after the first grazing on June 1st and Adam reports that the recent second feed has been “great”.
- F6, as a lighter soil, experienced early drying in April but was boosted by a late April rain event and an 8mm “top-up” which saw soil moisture rise to an ideal level.
- F6, sown to an Annual Rye, established well and was first grazed at 32 days with 2 further grazings by the end of June.
- Adam expects that the coming three months will see ideal growing conditions with Eto minimal and the option to increase irrigation application events should the forecasted low rainfall eventuate.

- Kywong Flat will not be restricted by water limitations as snowfalls in the upper ranges provide good flows to the Barrington River.

July to September tips

- Monitor soil moisture and active plant growth to apply N at the right times.
- Kywong Flat has an opportunity to maintain soil moisture with irrigation applied during off-peak energy periods during this low evapotranspiration period but should continue to ensure waterlogging is avoided on F3.
- Bowman Farm will investigate options to address pump efficiency issues, highlighted in the irrigation evaluation report, and other recommendations to ensure the system is start-up ready as soon as water is available and/or the summer maize crop is planted.
- The rainfall outlook for June to September is 75% chance of 50-100mm Irrigation forecasting should be determined using the Scheduling Irrigation Diary tool (water balance calculation using forecasted temperature, Eto & rainfall) along-side the in-situ SMM equipment.
- Both farms will have an irrigation system evaluation report meeting with consultant Peter Smith to go through the recommendations of the reports.
- Energy usage and costs are being monitored on both farms and will be used to assess whether the implementation of recommendations reduces energy costs over the 2019/2020 year.

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