

# Water Matters...

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## Update on IrriSAT app functionality

■ By Janelle Montgomery, CottonInfo

### AT A GLANCE...

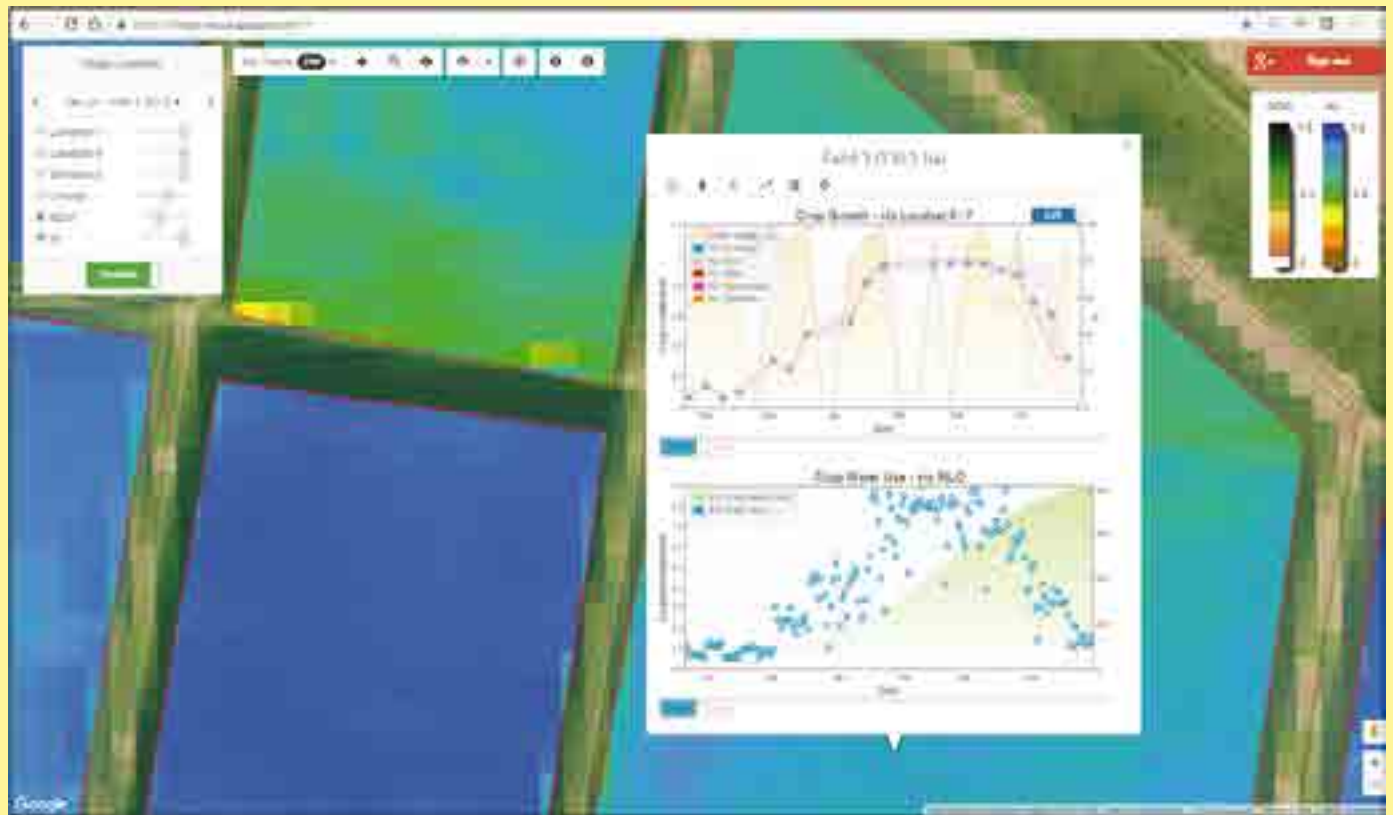
IrriSAT uses satellite images to determine the Normalized Difference Vegetation Index (NDVI) for each field, from which the plant canopy size can be determined and a specific crop coefficient (Kc) can be estimated (Hornbuckle et al, 2009). By combining Kc with daily reference Evapotranspiration (ET<sub>o</sub>) and rainfall observations from a nearby weather station or gridded BOM data (SILO), the crop water use is determined and enables you to track the soil moisture deficit.

**L**OOKING for a low cost irrigation scheduling tool? IrriSAT is a weather based irrigation scheduling and benchmarking tool that provides water management information.

A cloud based app (<https://irrisat-cloud.appspot.com>) has been developed to deliver this information. Without any data input, you can click on a field, see your crop's daily water use and track crop water use across the growing season (Figure 1). This app is freely available, only requiring a google account to sign in.

The app also provides a seven day weather forecast and associated Etc, (crop water use) to assist with irrigation scheduling decisions (Figure 2).

**FIGURE 1: Without any data input, IrriSAT provides daily crop water use information**



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## Working to further develop the app's functionality

The IrriSAT project team continues to work with consultants and irrigators to further develop the app's functionality. To run a daily water balance you can input irrigation and rainfall quantities (Figure 3). You can add actual irrigation amount in mm, or if this is unknown, the app can just fill the profile based on the latest soil moisture deficit. Some irrigators may not keep regular rainfall records, so you can choose rainfall from the nearest IrriSAT weather station or choose gridded SILO rainfall data.

You can also define the refill point through the season and track the soil moisture deficit to assist with the timing of your next irrigation. The new Irrigation Scheduler tab (Figure 4) within the IrriSAT app displays a fuel gauge which shows where you are sitting between the full point and refill points. It also combines your actual forecasted crop water use (ETc) to estimate the number of days until an irrigation is required. The graph below the fuel gauge shows the previous seven days and forecast seven days soil water deficit. The green shaded area is the boundary between refill and full point, where you want your soil moisture to be sitting.

Another important change to app functionality is the ability to edit Kc values. In times when there is cloud cover and the Kc is underestimated, you can override the anomaly to a more accurate Kc.

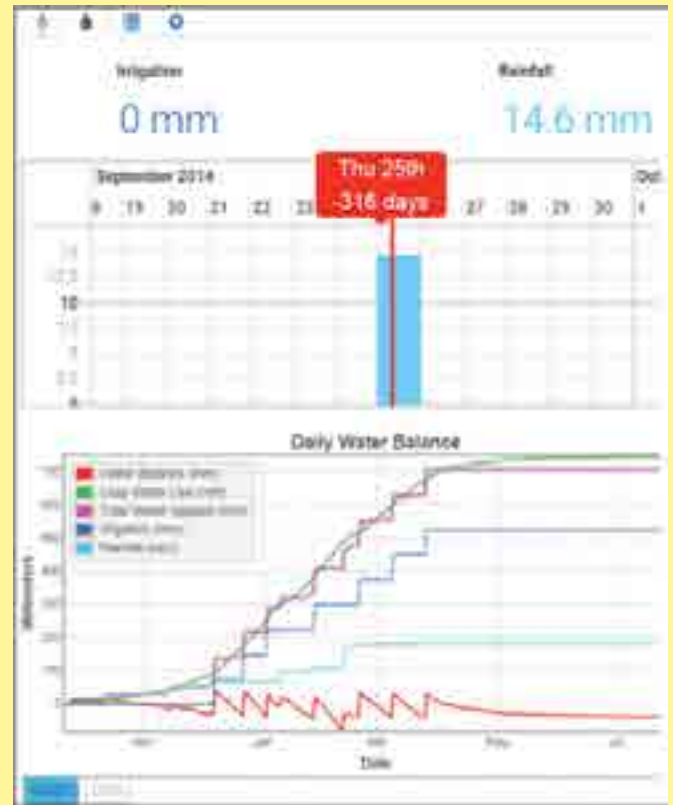
Importantly, fields can be shared between users, enabling growers and consultants to look at field data together to discuss water management.

This project is co-funded between CRDC, NSW DPI, Deakin University and CSIRO.

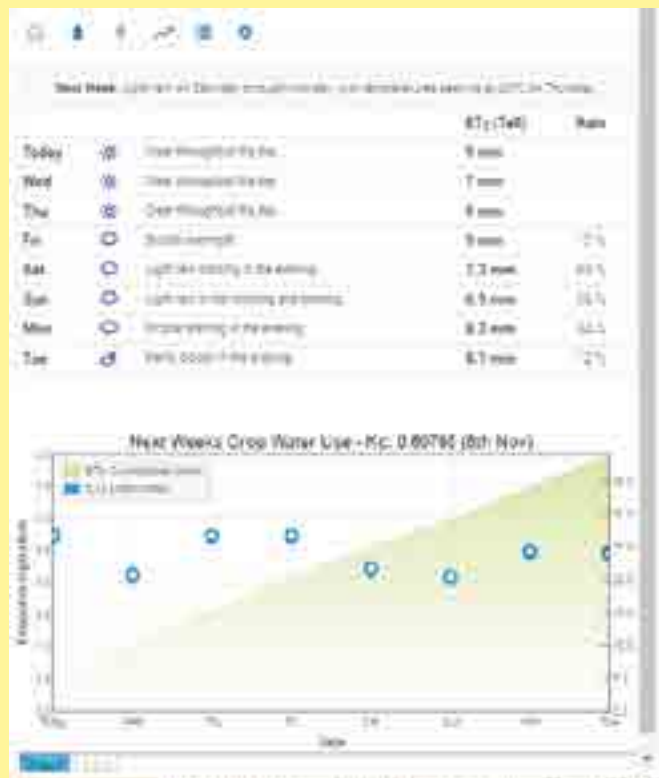
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**FIGURE 3: IrriSAT daily water balance**



**FIGURE 2: IrriSAT provides a seven day forecast of crop water use (ETc)**



**FIGURE 4: IrriSAT scheduler tab**

