



**Australian Government**  
Department of Agriculture  
and Water Resources



**Dairy Australia**



**Research**  
National Centre for  
Engineering in Agriculture

## National Smarter Irrigation for Profit Project Scheduling Irrigation Diary for Dairy Pilot

Scheduling Irrigation Diary (SID) is a tool developed by the University of Southern Queensland's National Centre for Engineering in Agriculture (NCEA), primarily for cropping industries. In partnership, Dairy Australia and NCEA are conducting a small project to investigate if SID has potential as an irrigation scheduling tool in dairy systems and identify the necessary adaptations required for optimal farmer adoption.

### The current technology

SID is a software model that can be used on any web connected device from PCs to tablets or the synchronised version App on a smartphone.

The benefit of SID is that it can generate an irrigation schedule to show which areas of the farm require irrigation, how much, and when. It can generate summary data at any time throughout the irrigation season, including total crop water requirement, total in season rainfall and total irrigation applied, at the push of a button. The scheduling report shows which areas of the farm need irrigation and how much water (mm) is needed to refill the applicable soil profile.

The irrigator establishes their farm in the diary using irrigation "Blocks" and links the farm to the nearest Bureau of Meteorology (BoM) weather station to automatically collect default rainfall and evapotranspiration data. Each "Block" requires information to be selected on soil type, plant type, sowing date, estimated harvest date and expected irrigation refill point (%).

Rain gauges at the farm give a better representation of site specific rainfall and this data can also be entered to override the BoM rainfall data. As irrigation is applied to a "Block", the farmer enters this into the App. SID uses the ingested information from all sources to indicate how many days until irrigation is needed again.

### SID for Dairy?

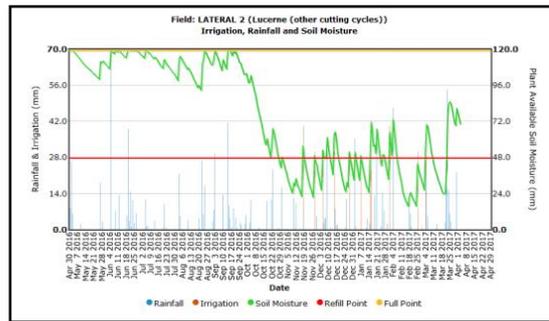
The project is working with 5 Hunter Valley (NSW) based dairy irrigation farmers to explore the potential of SID. Between August 2017 and March 2018, the farmers will:

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The screenshot shows the 'Step 1a Setup Farm' screen. It displays the following information:
 

- IRRIGATED BLOCK: beadesert drumley street (with EDIT and DELETE buttons)
- FIELD NAME: CP North
- CROP: Ryegrass
- SEASON TARGET: 300 mm
- PLANT DATE: 15/04/2015
- (LAT, LONG, ALT): -28.22463, 153.00121, 122 m
- SOIL TYPE: Loam
- REFILL POINT: 50% (0 mm)
- EXPECTED HARVEST: 30/09/2015
- Additional fields for IRRIGATED BLOCK and FIELD NAME with EDIT and DELETE buttons.

SID allows the farmer to set-up the farm in irrigation "Blocks"



"Block" Scheduling or Summary reports can be produced



Hunter Valley (NSW) dairy irrigator SID pilot group gathered for the first time in August.

- Have EM38 mapping of their trial irrigation site undertaken to locate an appropriate site to install a soil moisture probe, with a logger linked to an App based reporting platform.
- Provide initial feedback on the existing SID at a group workshop (PC & App).
- Set-up their farms on SID using a single irrigator (Centre pivot) as the farm SID trial site.
- Feed ideas into the project on improved capability and functionality for dairy scenarios.
- Trial SID adaptations as they are undertaken by NCEA, including upgrades to ingest site specific soil moisture logger data from a web based platform (TainData Tierra) & provide feedback.
- Capability to record grazing dates of each "Sub-Block" and consideration of both grazing and harvest in the water balance calculations used by SID.
- Potential to use a map based platform to identify "Sub-block" areas.

### Introduction Workshop

Initial feedback from the pilot group of farmers suggests that SID is a simple tool which has potential to improve irrigation scheduling practices in dairy. They believe the tool may assist farmers to collate key data into a format that is easily understood to inform decisions.

Their initial suggestions include:

- Additional pasture and crop species used by the dairy industry.
- Ability to set-up "Sub-Blocks" to reflect dairy multi-paddock systems.

The project is using Tain Electronics equipment & services  
([www.tain.com.au](http://www.tain.com.au))



For further information go to:  
[www.dairyingfortomorrow.com.au/tackling-specific-issues/water](http://www.dairyingfortomorrow.com.au/tackling-specific-issues/water) or search "Smarter Irrigation for Profit" on Facebook.  
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