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IMPORTANT

If you are using Internet Explorer you may need to use the tool in “compatibility mode”. This is done by clicking the icon near the address bar that looks like a broken sheet of paper. Without doing this – some data may not be displayed.

Note this is only an issue in some versions of Internet Explorer
1. Introduction

Scheduling Irrigation Diary is a tactical decision support tool with simple irrigation recording and scheduling features based on evapotranspiration (ET). The Scheduling Irrigation Diary allows irrigators to record irrigation and rainfall while also calculating daily crop water use.

The Scheduling Irrigation Diary assesses crop water needs (i.e. supply vs. demand) based on the irrigation amount, irrigation frequency, rainfall and crop water use. The tool provides a useful reporting mechanism for irrigators while allowing this data to be collated for benchmarking purposes.

2. Access, registration and security

The Scheduling Irrigation Diary is Part of the Knowledge Management System for Irrigation (KMSI) suite of web-based software tools.

Access to Scheduling Irrigation Diary is via sid.usq.edu.au

Be sure to change your password from the default to ensure protection of your data.
3. Navigating the system

There are only 3 steps to using the Scheduling Irrigation Diary

1. Setup
2. Enter Data
3. Reports

The side bar provided navigation between these 3 sections of the software

3.1 Setup

Step 1a – Enter farm details
- Click the “add” button to add a new farm
- Type the name of the farm in the box under “Farm”
- Type address of the farm into the box under “Address”
  
  Check that the map corresponds with the address

- Select the closest Bureau of Meteorology weather station from the drop down menu, or click on the closest blue pin on the map (the selected weather station is shown as a yellow pin)
- Type the number of rain gauges that are used at the farm. This is used to divide the farm into regions that may have varying rainfall.
- Click the “Save” button to save the farm or the “Cancel” button to cancel and start again.

### a. Farm Details

Completing this section enables Scheduling Irrigation Diary (SID) to identify a BOM weather station nearest to your farm. This is needed for weather data to determine crop and soil moisture requirements.

<table>
<thead>
<tr>
<th>Farm Name</th>
<th>Address</th>
<th>Weather Station</th>
<th>No. of your Rain Gauges</th>
</tr>
</thead>
<tbody>
<tr>
<td>home</td>
<td>Dalby Cecil Plains Road</td>
<td>DALBY AIRPORT</td>
<td>2</td>
</tr>
</tbody>
</table>

Click on the farm name so that the row turns blue.
Click on the “edit” button and make changes as necessary.
Click the “save” button to save or the “delete” button to delete.

### Step 1b – Enter the rain gauge details

- Make sure that the relevant farm is highlighted blue in the “Farm Details” section. If not, click on the farm name in the “Farm Details” section.
- Click the “Add” button to add a new rain gauge.
- Use the drop down menu to select a rain gauge number.
- Type the name of the rain gauge in the box under “Rain Gauge Name”.
- Type a name for the closest irrigate blocks “Irrigate Block”.

### b. Rain Gauge Details

This section identifies and assigns a specific rain gauge to each irrigation block.

<table>
<thead>
<tr>
<th>Rain Gauge No.</th>
<th>Rain Gauge Name</th>
<th>Irrigated Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Creek</td>
<td>Pivot A</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Lateral move 3</td>
</tr>
</tbody>
</table>

Click on the raingauge no. so that the row turns blue.
Click on the “edit” button and make changes as necessary.
Click the “save” button to save or the “delete” button to delete.
Add additional irrigated blocks by clicking the “Add” button to add a new irrigated block and following the steps again.
Step 1c – Enter the field and crop details

- Make sure that the relevant farm is highlighted blue in the “Farm Details” section. If not, click on the farm name in the “Farm Details” section.
- Click the “Add” button to add a new crop.
- Select the irrigated block that the new crop belongs to from the dropdown menu under “Irrigated Block”.
- Enter a field name if different to the irrigated block.
- Select the crop type from the drop down menu under “crop”.
- Select the soil type from the dropdown menu under “soil”.
- Type a depth of water (mm) that you allocate to grow the crop (i.e. a seasonal target - if you allocate 3ML/ha then enter 300 mm). If this is not applicable, enter “0”.
- Enter the irrigation refill point in mm. This is a nominal percentage of soil saturation at which you decide to irrigate. i.e. for a water stress sensitive crop this values can be set to say 80%. This will mean when the soil moisture is depleted by 20%, an irrigation is required. For a water stress tolerant plant this may be set to say 40% and an irrigation will be scheduled when the plant available water in the soil falls to 60%.
- Enter the date that the crop was planted. For perennial crops you may enter the end of the previous season. This is the start date for all cumulative tallies including in season rainfall and total irrigation applied.
- Enter the date that you expect the crop to be harvested.

If you need to change any of the above field and crop details

- Click on the irrigated block name so that the row turns blue.
- Click on the “edit” button and make changes as necessary.
- Click the “save” button to save or the “delete” button to delete.
- Add additional irrigated blocks by clicking the “Add” button to add a new irrigated block and following the steps again.

Click next to proceed to the data entry page.
3.2 Enter Data

Use the drop down menu in the top left to select the farm required.

There are only two types of data that need to be entered; Rainfall and Irrigations.

**Rainfall** – Enter the daily rainfall (mm) from each rain gauge on the farm in the green (?) cells. The default value is the rainfall collected at the BoM weather station nominated in Step 1.

**Irrigation** – Enter the daily irrigation applied to each block (mm) in the yellow (?) cells. If no irrigation was applied, then the software will default to zero.

You do not need to enter any data if there was no rainfall and no irrigation on any given day.

- To move between weeks, use the small left and right arrows or use the dropdown calendar to skip between months.

- The “Total in-crop rainfall” is a cumulative total of the rainfall between the plant date and the harvest date.

- The “Total Irrigation” column is a cumulative total of the irrigation applied between the plant date and the harvest date.

- The “Irrigation due in” column indicates how many days are left before the soil moisture is depleted to the nominated refill point nominated in Step 1c.

- When the crop is harvested, click on the “Actual Harvest Date” cell for the harvested crop and enter the date and the yield.
Graph 1 - shows the soil moisture overtime. As the plant uses water from the soil, the volume decreases. With rainfall or irrigation the soil moisture is refilled. The red line is the user nominated refill point.

Graph 2 - shows the daily crop water use from the plant date.
Graph 3 - Shows a cumulative total for the crop water use (green line), how much irrigation water the crop needed (blue line) and how much irrigation water was actually applied (red line).
3.3 Reports
There are 2 types of reports generated from the Scheduling Irrigation Dairy

1. Scheduling Report
2. Detailed Report

Scheduling report
The scheduling report is available by clicking the “Scheduling Report” button from the Step 3 Reports page.

The scheduling report gives a print out of which fields need irrigation and how much needs to be applied to bring the soil moisture back up to field capacity.

This report can be given to an irrigation manager as a work list of which fields need to be irrigated.
Detailed report

The detailed report gives a summary of the water applied, total in-season rainfall, yield, etc. This report allows comparisons of crops between fields as well as comparison over years. To generate the detailed report you must tick the crops of interest in the column on the right hand side of the page and then click the “detailed report” button below.

<table>
<thead>
<tr>
<th>Field</th>
<th>Crop</th>
<th>Last Irrigation</th>
<th>Days to next irrigation</th>
<th>Amount to apply</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>lucem</td>
<td>Lucerne (1st cutting cycle)</td>
<td>13 Apr 2012</td>
<td>7 day(s) (~30 Apr 2012)</td>
<td>26 mm</td>
<td></td>
</tr>
<tr>
<td>ginnm</td>
<td>Cotton</td>
<td>18 Apr 2012</td>
<td>2 day(s) (~25 Apr 2012)</td>
<td>9 mm</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Field</th>
<th>Crop</th>
<th>Last Irrigation</th>
<th>Days to next irrigation</th>
<th>Amount to apply</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>FS</td>
<td>Cotton</td>
<td>17 Apr 2012</td>
<td>7 day(s) (~30 Apr 2012)</td>
<td>55 mm</td>
<td></td>
</tr>
</tbody>
</table>
Scheduling Irrigation Diary

St Ruth

This report provides a summary of data inputs and results for fields P6 and P5 at St Ruth located near 2055 Dalby Cecil Plains, QLD. The user manual for the Scheduling Irrigation Diary is available for further information.

Yield and Irrigation Summary

<table>
<thead>
<tr>
<th>Field</th>
<th>Crop</th>
<th>Rate (mm)</th>
<th>Soil</th>
<th>Plant Available Water (mm)</th>
<th>Effluent (kL/ha)</th>
<th>Plant Date</th>
<th>Harvest Date</th>
<th>Yield (kg)</th>
<th>Yield Efficiency (MMN)</th>
<th>Total In-Season Rain (mm)</th>
<th>Effective Rain (mm)</th>
<th>Total Irrig. Applied (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6</td>
<td>Cotton</td>
<td>P02</td>
<td>Sandy Loam</td>
<td>90</td>
<td>50 (65mm)</td>
<td>10/02/2010</td>
<td>05/07/2011</td>
<td>539</td>
<td>4.91</td>
<td>329</td>
<td>549</td>
<td>2</td>
</tr>
<tr>
<td>P5</td>
<td>Cotton</td>
<td>P02</td>
<td>Clay</td>
<td>155</td>
<td>90 (78mm)</td>
<td>10/10/2011</td>
<td>20/04/2012</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>311</td>
<td>224</td>
</tr>
</tbody>
</table>

Notes

- Plant Available Water: the amount of water (mm) that is available in the plant root zone.
- Refill point: user-defined point at which irrigation should be applied (e.g., 20% means that the user is willing to allow 20% of the soil moisture to be removed before applying irrigation.
- Yield Efficiency: units of production per ML of water applied (irrigation + effective rainfall).
- Total In-Season Rainfall: cumulative total of all rainfall between plant and harvest dates.
- Effective Rainfall: the amount of rainfall that enters the root zone and is available for the plant to use.
Further Assistance

Your input and suggestions for improving this tool are welcome as the NCEA is constantly looking for ways to improve our products. If you have suggestions for additional features or are experiencing difficulties accessing or operating this tool, please contact:

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