

## How to use the Soil Water Budget Spreadsheet

Setting up your Soil Water Budget.

1. Open the soil water budget Excel spreadsheet and save it with a name that you recognise.  
For example: **Soil water budget - Long Farm 2019-2020.**
2. The spreadsheet has two pages. The example page gives you an idea of a soil moisture budget which is tracking rainfall, irrigation and daily PET values. Your budget is ready for you to set up your values.
3. Begin the budget when your soil is at field capacity.
4. Insert your start date in the yellow square (J-K1) on the spreadsheet.
5. In the next yellow square (J-K3) insert the **profile available water (PAW)** value for your soil.

### To find this:

S-Map ([smap.landcareresearch.co.nz/](http://smap.landcareresearch.co.nz/)) is the best place to start. The value depends on the crop rooting depth, either the PAW30 value for shallow rooting crops or the PAW60 value for deeper rooting crops.

or use a consultant to help you with this e.g. Hydroservices or Water Strategies.

or to work it out for yourself. Link to the Waterforce procedure: [www.waterforce.co.nz/ydb/document/21](http://www.waterforce.co.nz/ydb/document/21)

\*If there is more than one soil type under the irrigator, choose the one that covers at least 25% of the area.

\*If there are different crops under the same irrigator, run budgets for each of the crops.

### Developing the trigger point.

Develop the trigger point for your irrigation by deciding on what % of the PAW you wish to keep your soil moisture levels above. This is the “trigger point”. Enter this percentage in the yellow box (J-K4). As a default, it is set at 50%.

**Note:** you can change the trigger point during the crop’s growth, possibly running a higher trigger point during periods of rapid growth and lowering when crops are drying off. The trigger point line on the graph will change when you do this.

### Entering the daily weather data

You need to be disciplined to fill in the weather and irrigation details regularly.

### Inputs - water going into the soil

In the pale blue spreadsheet columns enter rainfall and irrigation volumes (columns E and F). Rainfall figures might come from your rain gauge or from a nearby weather station.

### Outputs – water coming out of the soil

Enter PET values into the pale green column on the spreadsheet (column H).

In the short term, NIWA offer a free service here: <https://cliflo.niwa.co.nz/>

It may pay to ask around to see if the irrigation companies may provide this information to their shareholders. Otherwise it is worth looking at on-farm weather stations or seeking out consultants that provide this information as a service.

**Crop factor** is a measure of the crop’s demand for water. Use a value of 1 for most crops at full canopy. Decrease the value to 0.8 if you are irrigating crops before they reach full canopy and increase it to more than 1 for crops with large canopies.

Add more rows to the spreadsheet by copying and pasting.

For more information or if you have any questions please contact:

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