AquaCheckWEB

Dealer User Guide

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Revised August 2024

DEALER USER GUIDE

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Introduction:

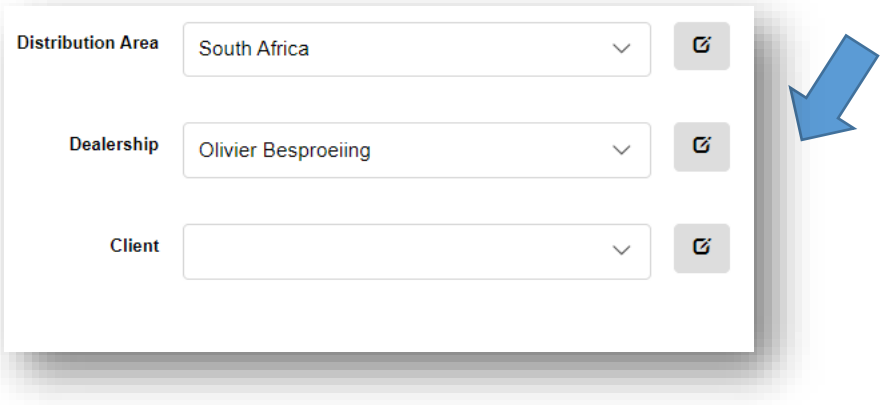
AquaCheckWeb is a user-friendly on-line based software tool designed to cater for both the dealer as well as end user needs. The on-line software provides access to client and probe data (http://www.aquacheckweb.com) by means of a unique username and password. The Aquacheck mobile App (downloadable from Google/ Apple store) is available for viewing data only.

This user guide is intended for dealers and focuses on basic aspects such as the initial setup (adding new clients, farms, fields etc.), creating new profiles, configuring profiles (root zones, setting management lines, cultivar lines, precipitation data) and adding a new account.

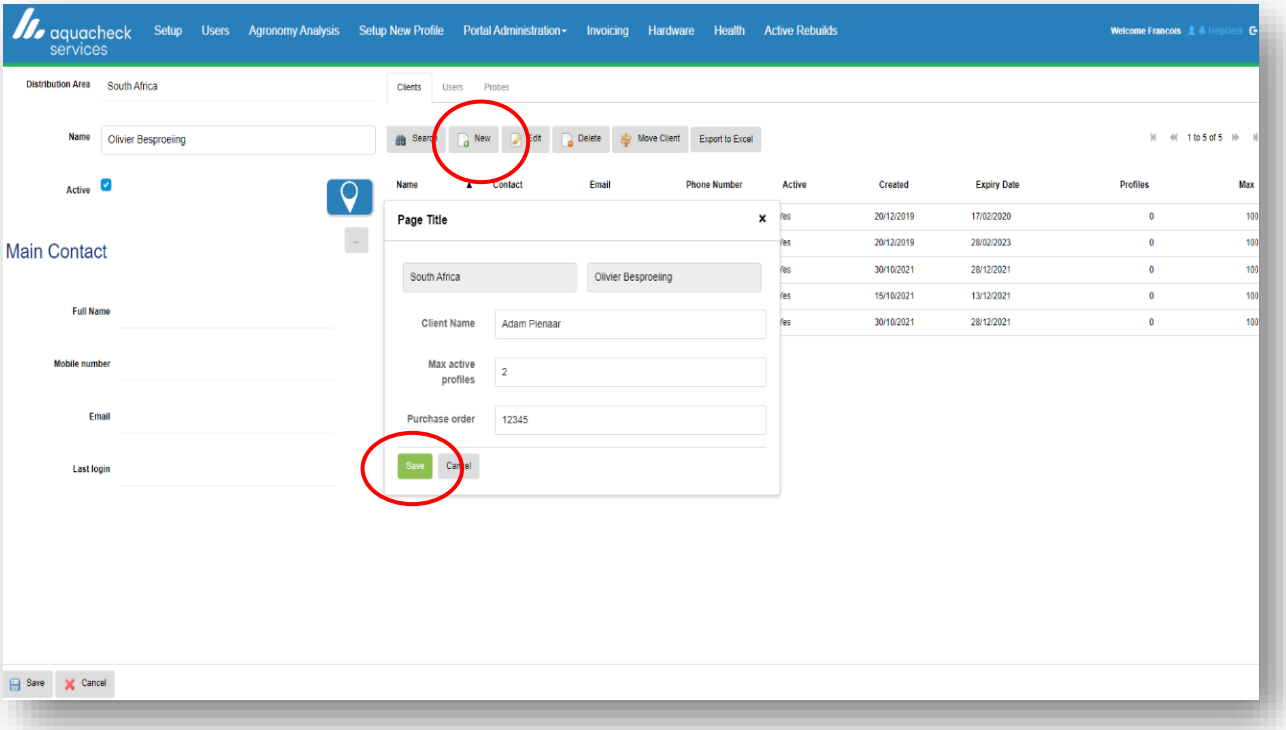
An ***End User Guide*** is also available that covers basic aspects such as how and where to log into the programme, general layout of the programme, different means of viewing the data and understanding what the different graphs, maps and tables are saying about the current profile water content status.

How to add a new client:

On the ‘’Home Page’’, click on the ‘’pen and pencil’’ icon on the ‘’Dealership’’ level.

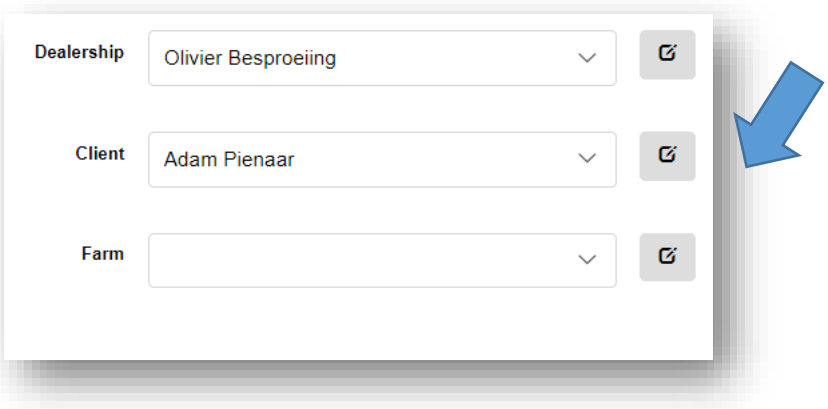


This will open the ‘’Dealership’’ page which contains information of the main contact person (left hand side of the page) as well as list of clients (right hand side of the page). Click on the ‘’Clients/ New’’ button, which will open an empty template page. Type in the Client Name, Maximum number of active profiles and Purchase order number. Pres the ‘’Save’’ button. The new clients name should now be visible on the ‘’Client’’ drop-down list.

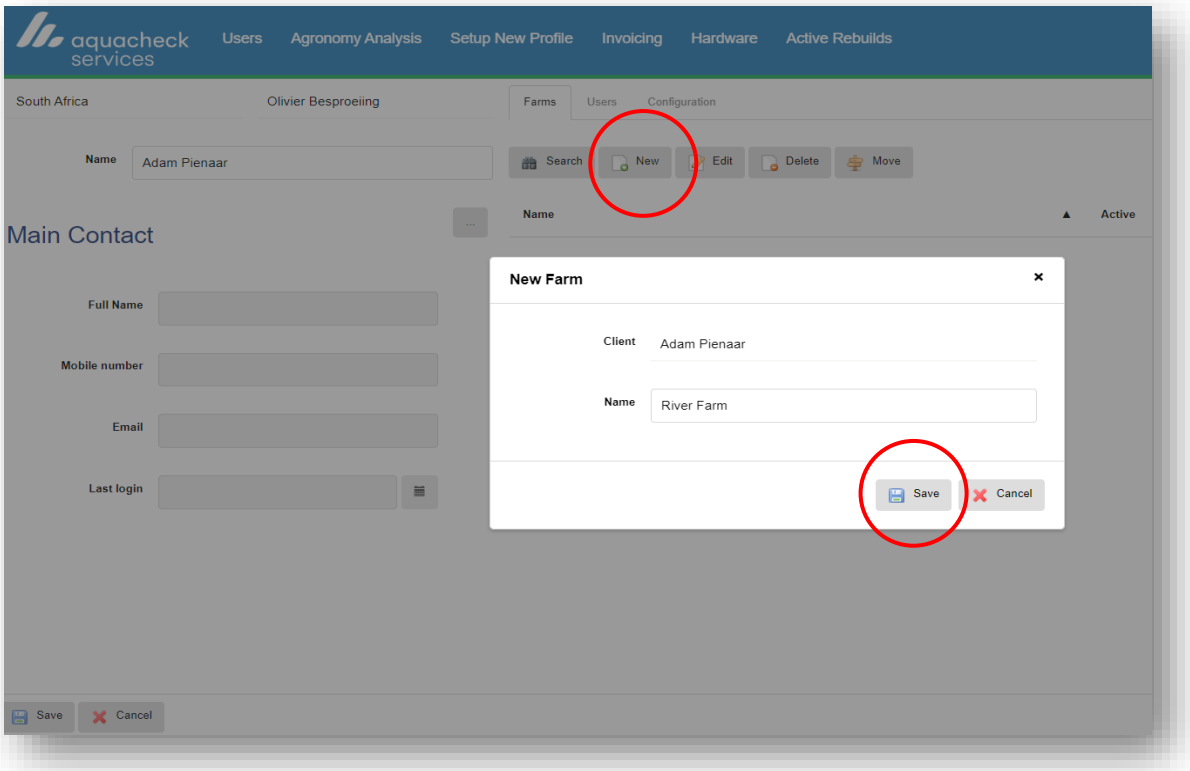


How to add a new Farm:

On the ‘’Home Page’’, click on the ‘’pen and pencil’’ icon on the ‘’Client’’ level which will open the ‘’Farm’’ page.

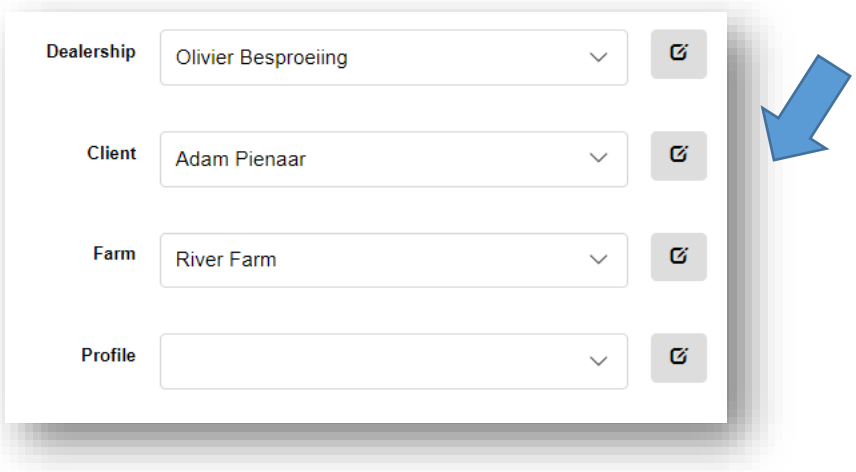


Under the ‘’Farm’’ tab (on the right-hand side of the page), select the ‘’New’’ button, which will open an empty ‘’New Farm’’ template. Type in the new farm name and press the ‘’Save’’ button. To exit the page and go back to the ‘’Home’’ page, press the ‘’Save’’ button (bottom left corner) again. The new farm name should now be visible on the ‘’Farm’’ drop down list.

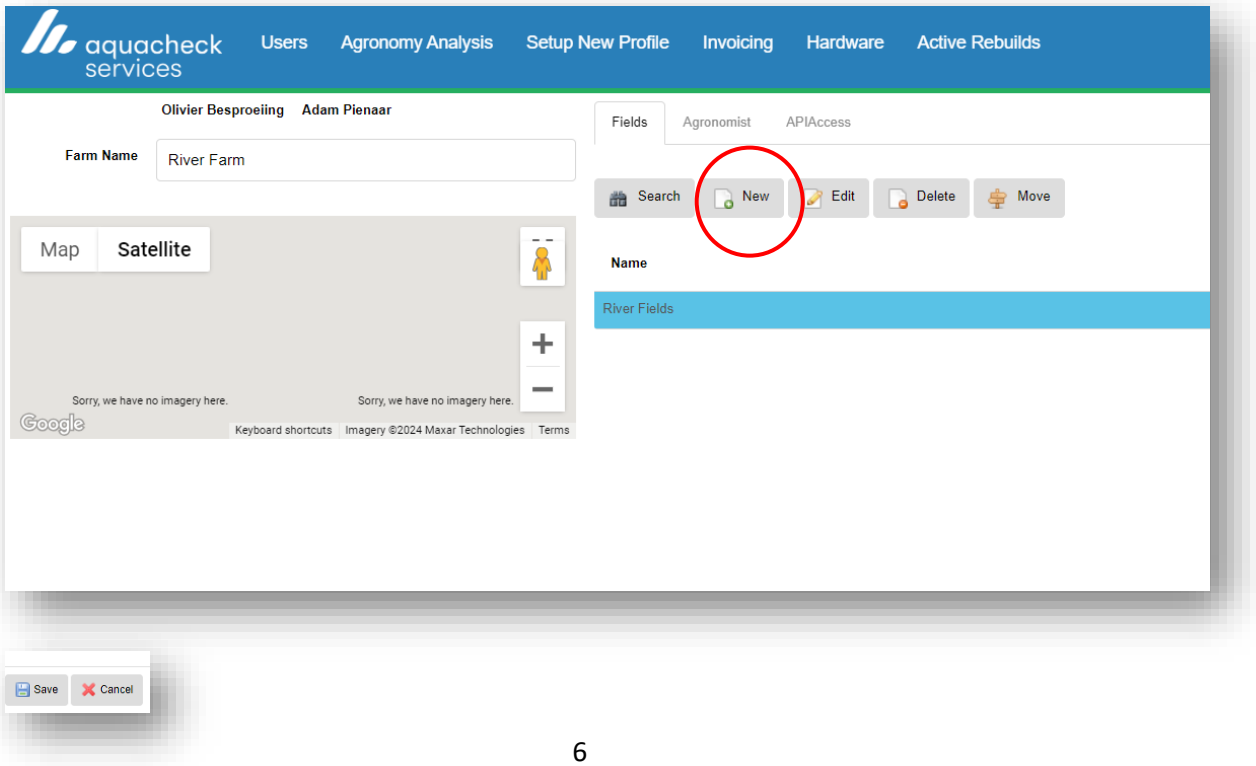


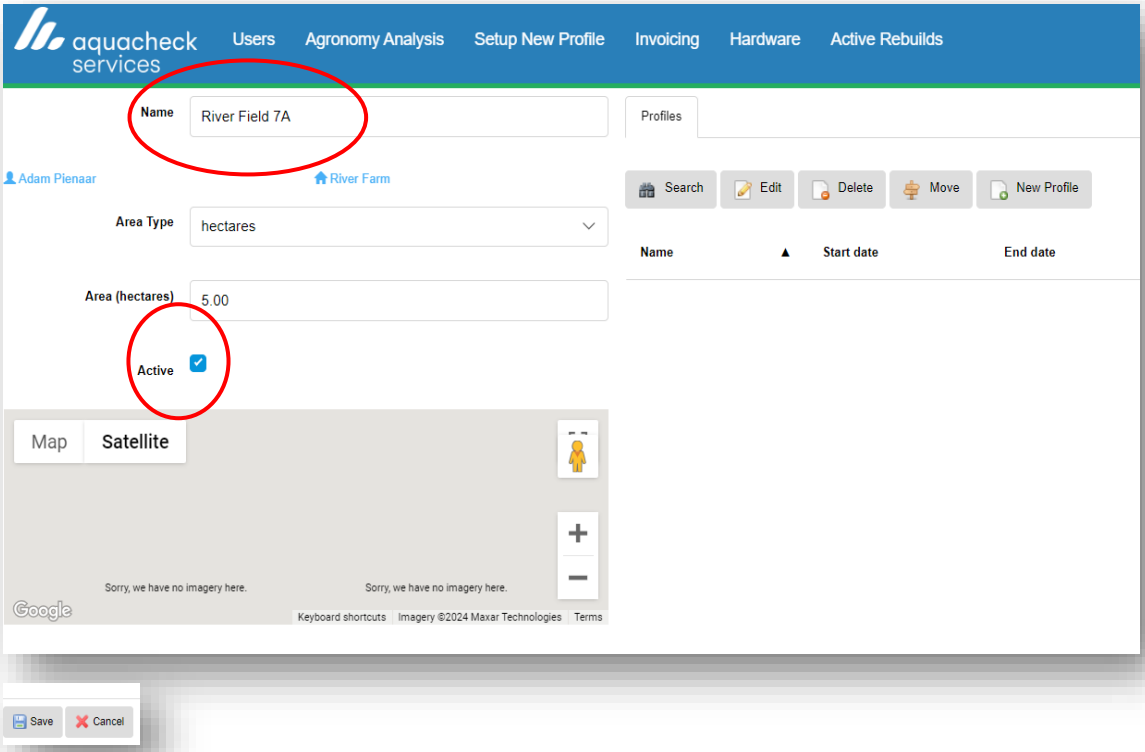
How to create a new profile:

A profile has to be allocated to a specific field and there for a new field has to be created first. On the ‘’Home Page’’, click on the ‘’pen and pencil’’ icon on the ‘’Farm’’ level which will open the ‘’Farm’’ page.

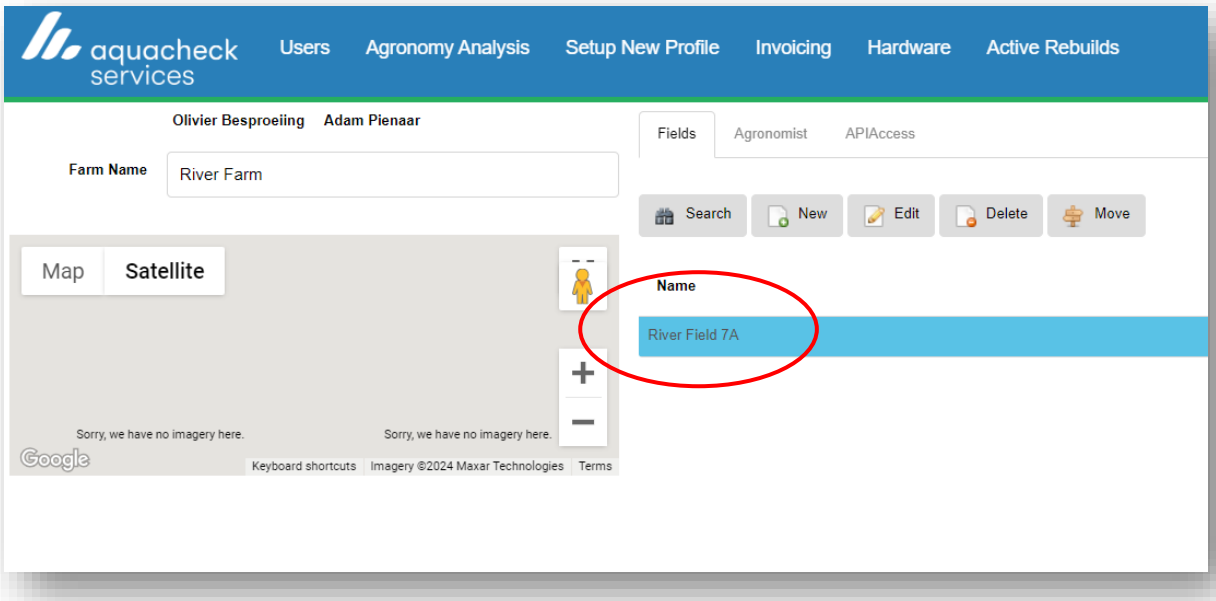


Click on the ‘’New’’ button which will open an empty ‘’New Field’’ template. Type in the new field ‘’Name’’, ‘’Area Type’’, ‘’Area’’ and tick the ‘’Active’’ box.



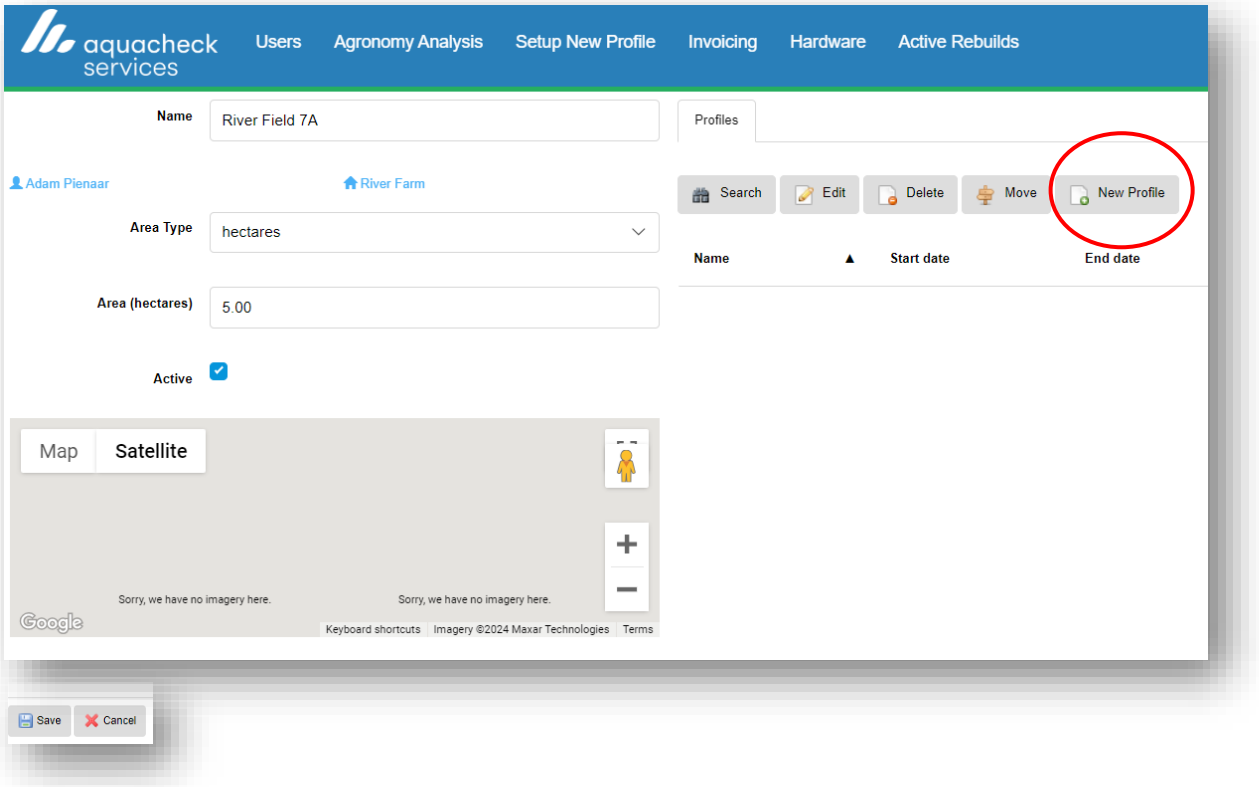


Press the ‘’Save’’ button. The newly created field will now be listed under the ‘’Fields’’ tab in die ‘’Fields’’ window.



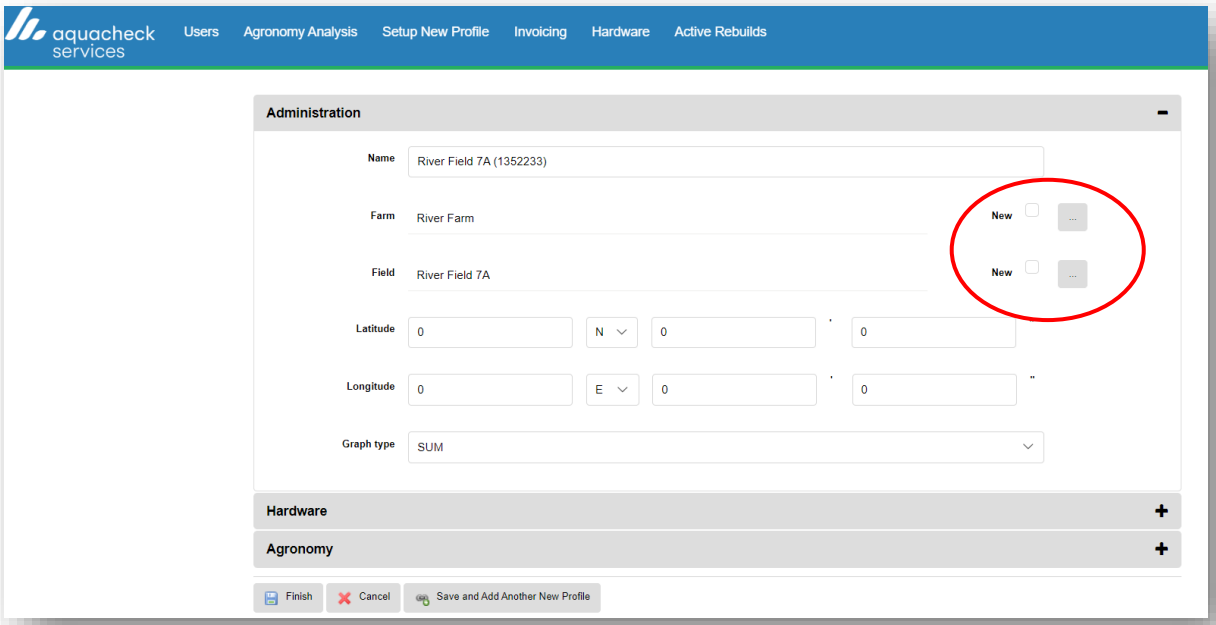
To add a new ‘’Profile’’, first select the appropriate ‘’Farm’’ form the drop-down list. Then select a ‘’Field’’ (either just created or from the existing ‘’Field’’ list). The ‘’Profiles’’ page will open, which either will be empty (no profiles allocated to this specific ‘’Field’’, or will list a number of existing profiles already allocated to this ‘’Field’’.

From the top menu bar, select “New Profile’’ which will open a new profile template consisting of an ‘’Administration, Hardware and Agronomy’’ section that has to be completed in order to create a new profile.



Administration:

Start by filling in an appropriate ‘’Name’’. If there is only one profile per field, the same name as the field can be used for example River Field 7A (135223). It is good practice to also include the unique Link ID number somewhere in the name for easy reference.



Next to ‘’Farm’’, select square with three dots which will open a window listing the existing ‘’Farm’’ name. Highlight the name and press “Select’’. The next window will show the ‘’Field’’ name. Highlight the name and press “Select’’. The template should now list a ‘’Profile’’, ‘’Farm’’ and ‘’Field’’ name.

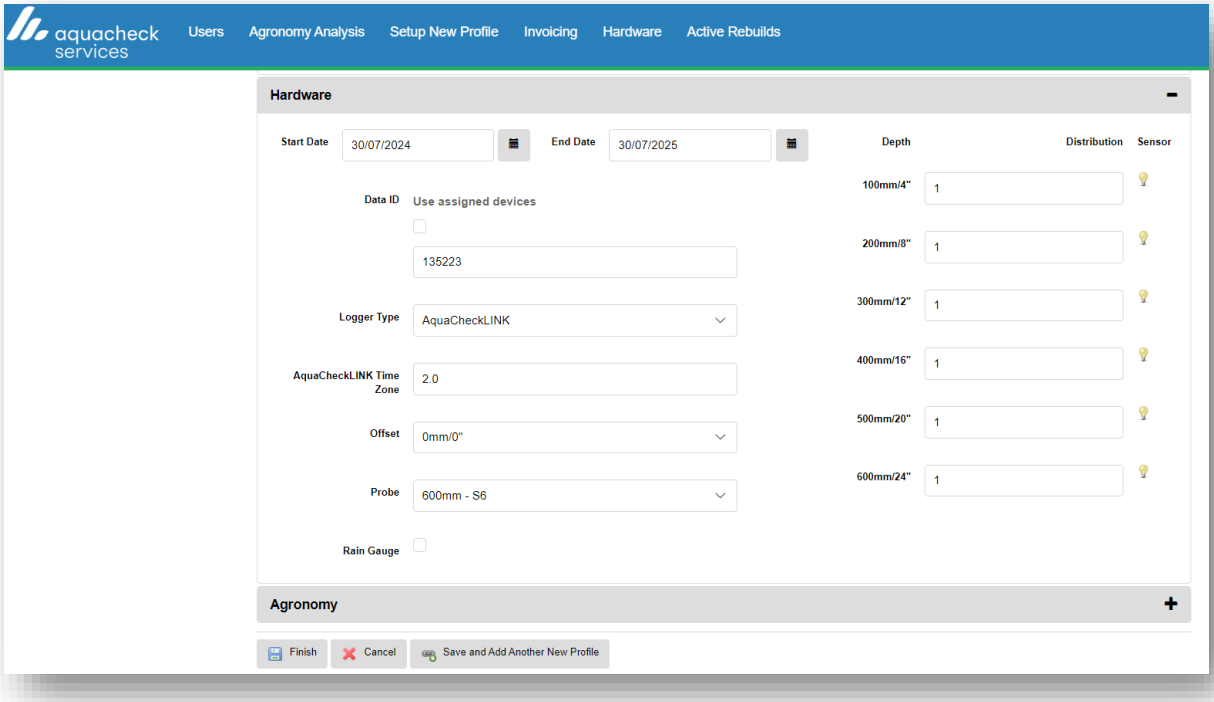
If the installed hardware is connected to a Link logger, the ‘’Latitude and Longitude’’ coordinates will automatically be imported when data is uploaded the first time. Alternatively, the coordinates can be entered manually.

Choose between Sum (sum value of all individual sensor values) or Average (average value of all individual sensor values) for the ‘’Graph type’’.

Hardware

Each profile should have a defined ‘’Start and End date’’ which normally corresponds to the specific crop start and end dates. This does not only apply to annual crops, but should also be used for perennial crops. In this way, archiving is managed much more efficiently.

The ‘’Data ID’’ refers to either the six-digit number on the back of the Link logger (automatic download) or the five-digit number on the Basic II Wireless probe (manual download). ‘’Logger type’’ for the former will be Aquacheck Link and the latter Aqucheck BIIW.



Select an appropriate ‘’AquacheckLink Time Zone” from the drop-down list (South Africa is +2.0).

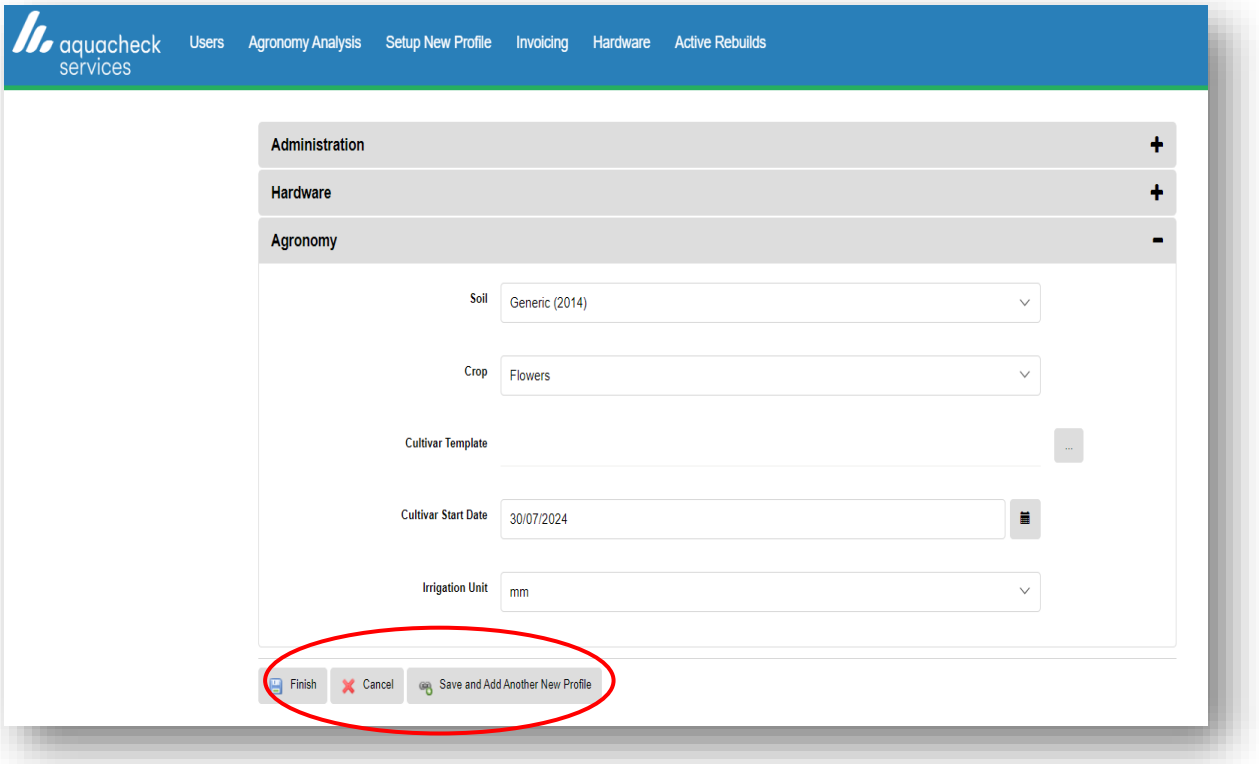
Where an access whole is to shallow for a specific probe length (shallow and/or stony soils), an ‘’Offset value’’ can be selected depending on how far the probe head is sticking out above the soil surface. This is only a temporary solution and should be corrected in due time.

The probe length and number of sensors combination can be selected from the ‘’Probe’’ drop down list.

Where a rain gauge is part of the installation, select the ‘’Rain Gaige’’ option and supply the ‘’Multiplier’’ and “Units” of measurements.

Agronomy:

Where soil type is known, the appropriate selection can be made from the ‘’Soil’’ list. Where no information is available, select the Generic (2014) option. Select the ‘’Crop’’ from the drop-down list. Contact Aquacheck Head Office to add any new crops not already listed. Inputs from specialist agronomists can be used to set up ‘’Cultivar Templates’’ for more precise irrigation management. Each cultivar template requires a ‘’Culivar Start Date’’. Irrigation recommendations can be provided in several different units depending on the selection made under ‘’Irrigation Unit’’.



On completion of all three sections, press the ‘’Finish” button. If essential data was omitted, the programme will not allow you to proceed until the highlight sections have been filled in.

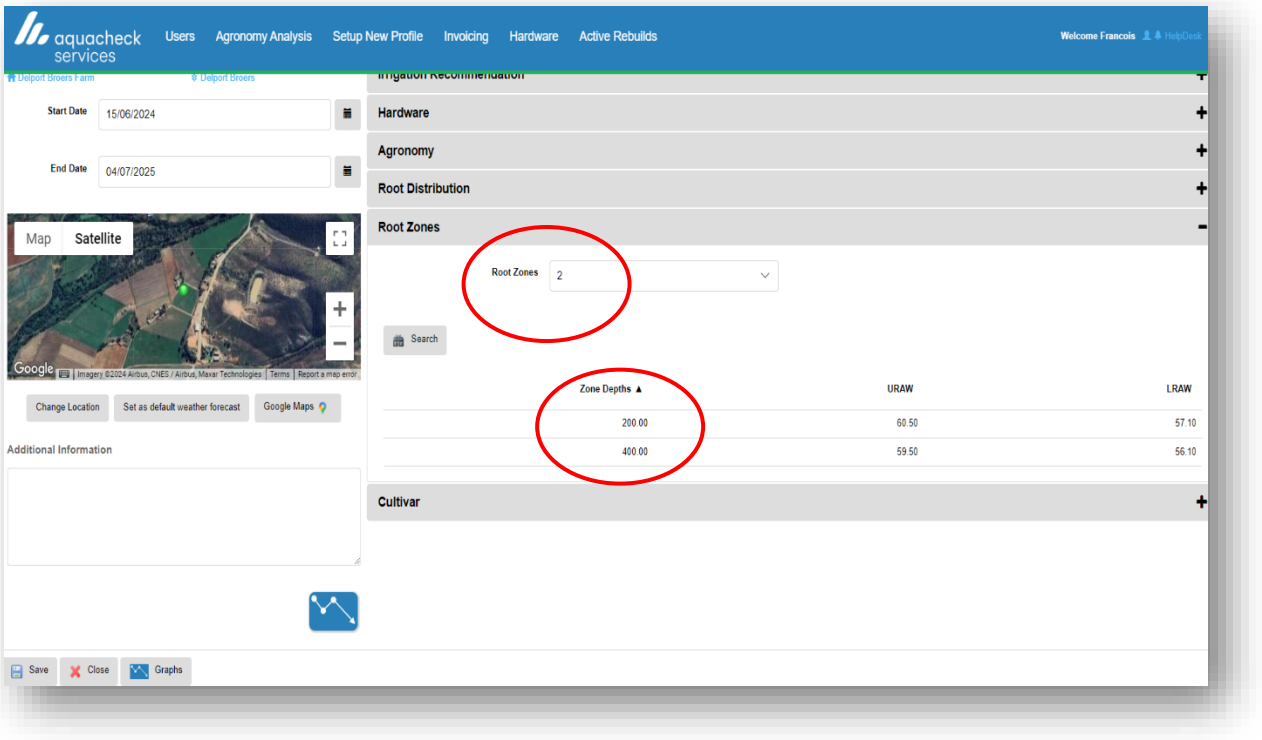
Press ‘’Save’’ to return to the home page. The new profile should now be listed under the ‘’Profile’’ drop down list.

How to set up root zones:

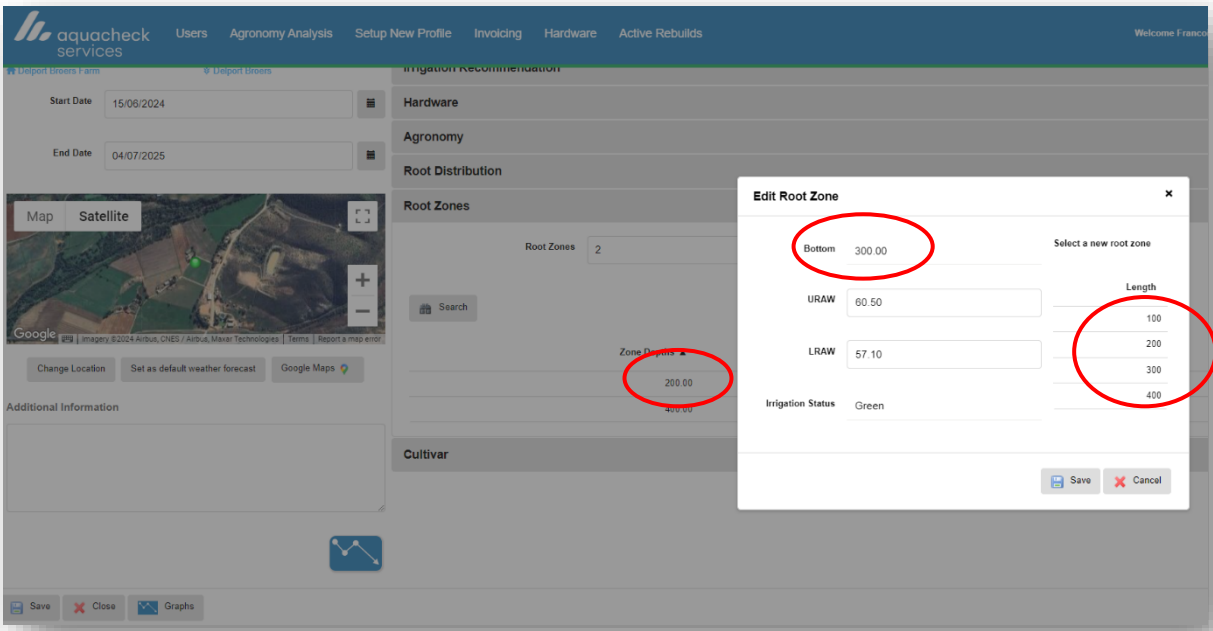
The profile can be divided into a maximum of 6 different root zones if needed. It is recommended that at least two root zones be uses that can act as Topsoil and Bottom soil layers.

In the ‘’Profile configuration’’ page, click on the ‘’Root Zones’’ tab to open the workspace. By default, the ‘’Root Zones’’ will be equal to one and the ‘’Zone Depths’’ will be equal to the maximum probe length (for example 400 mm for a 400 mm length probe or 600 mm for a 600 mm length probe).

To add root zones (two root zones for this example using a 400 mm two sensor probe), click on the ‘’Root Zones’’ down arrow and select the number of root zones required, namely two. An additional root zone will now appear in the ‘’Zone Depths’’ column.



To change the depth intervals, click on the first root zone depth (200 mm in this example) which will open an ‘’Edit Root Zone’’ table. On the right-hand side of this form, select the appropriate depth (300 mm) in the “Select a new root zone” column and press “Save”.

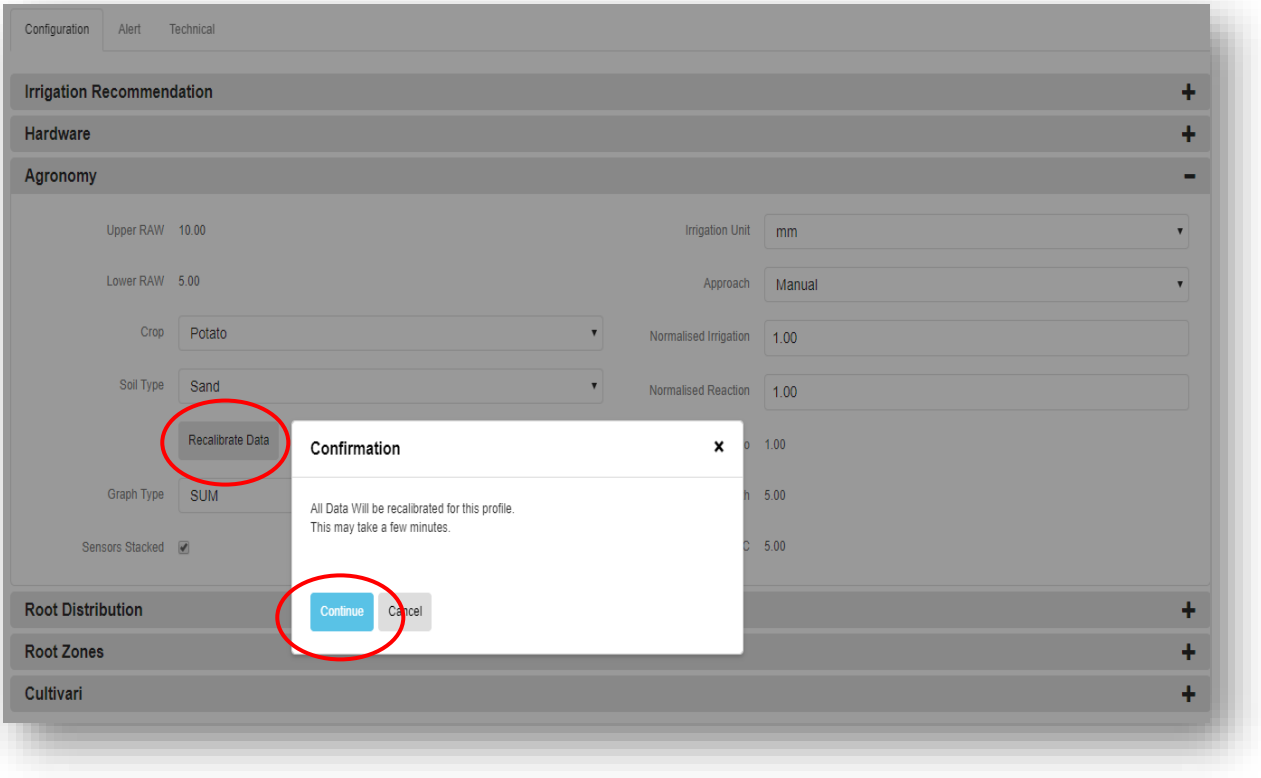


Data from the 100 to 300 mm sensors will now be grouped together and displayed in the “Root Zone: 100 to 300 mm” graph and the 400 mm sensor data will be grouped together and displayed in a second graph namely the “Root Zone: 400 mm” graph.

How to update data (Recalibrate Data):

The “Recalibrate data” option is used whenever the soil calibration (“Soil Type”) is changed, for example from Generic (2014) to Clay-Loam. This function can also be used whenever a profile or account has expired and the data has to be updated.

In the profile configuration page, click on the “Agronomy” tab to open the workspace. Click on the “Recalibrate data” tab which will open a “Confirmation” window. Press “Continue” to proceed or “Cancel” to exit.



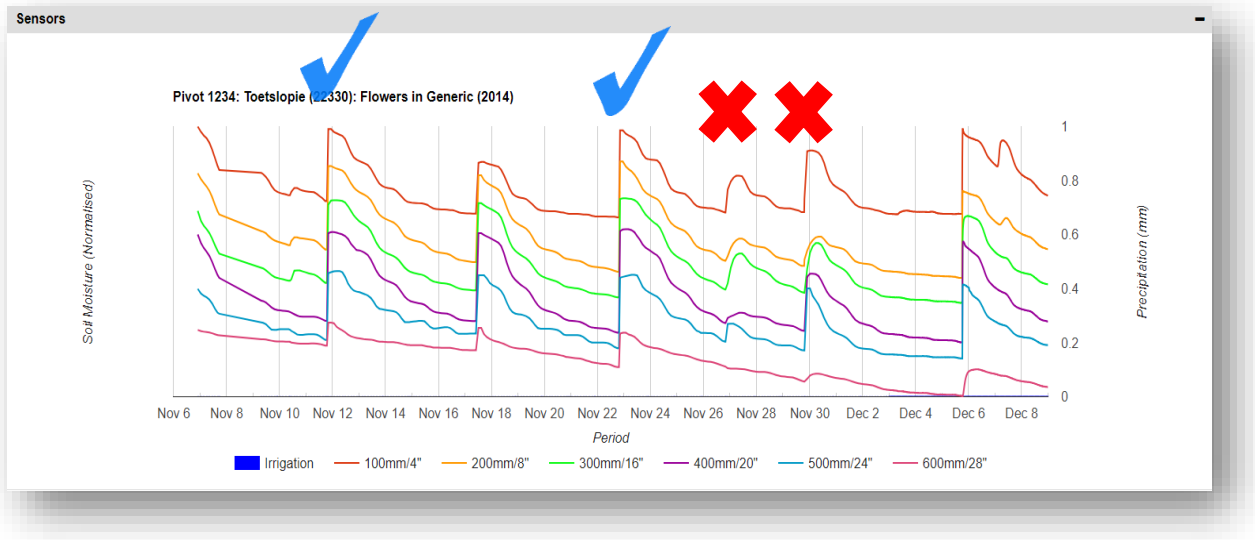
Specify the period for which the recalibration is required. By default, the “Start and End Dates” will correspond to that of the start and end dates of the specific profile. A shorter period can be specified if so required. Press either “Rebuild Data” for immediate on-screen rebuilding or “Run in Background” if the process has to be repeated for several profiles.

How to set up management lines (URAW and LRAW):

In order to make full use of the program functionality, such as specific irrigation recommendations, etc., the upper and lower management lines namely ‘’Upper Readily Available Water (URAW)” and ‘’Lower Readily Available Water (LRAW)’’ needs to be set. It is highly recommended that an agronomist and/ or soil scientist with experience in irrigation, be consulted to assist with this specialised task.

The management lines need to be set for each of the “Root Zones” graph (ideal to set up at least two root zones) which will then automatically be pulled through to the “Summary Graph”. The best time to determine the position of the full lines is just after a large irrigation or rainfall event. Keep in mind that the soil can take up to 6 weeks to settle properly around a newly installed probe and therefor it is good practice to re-evaluate the position of the management lines once or twice after the initial adjustment.

View the “Sensors” graph and select a date where irrigation/ rainfall was just enough (no excessive drainage) to wet the whole profile. In the example graph below, 12 and 22 November would be a good choice, while 28 or 30 November will be less suited.



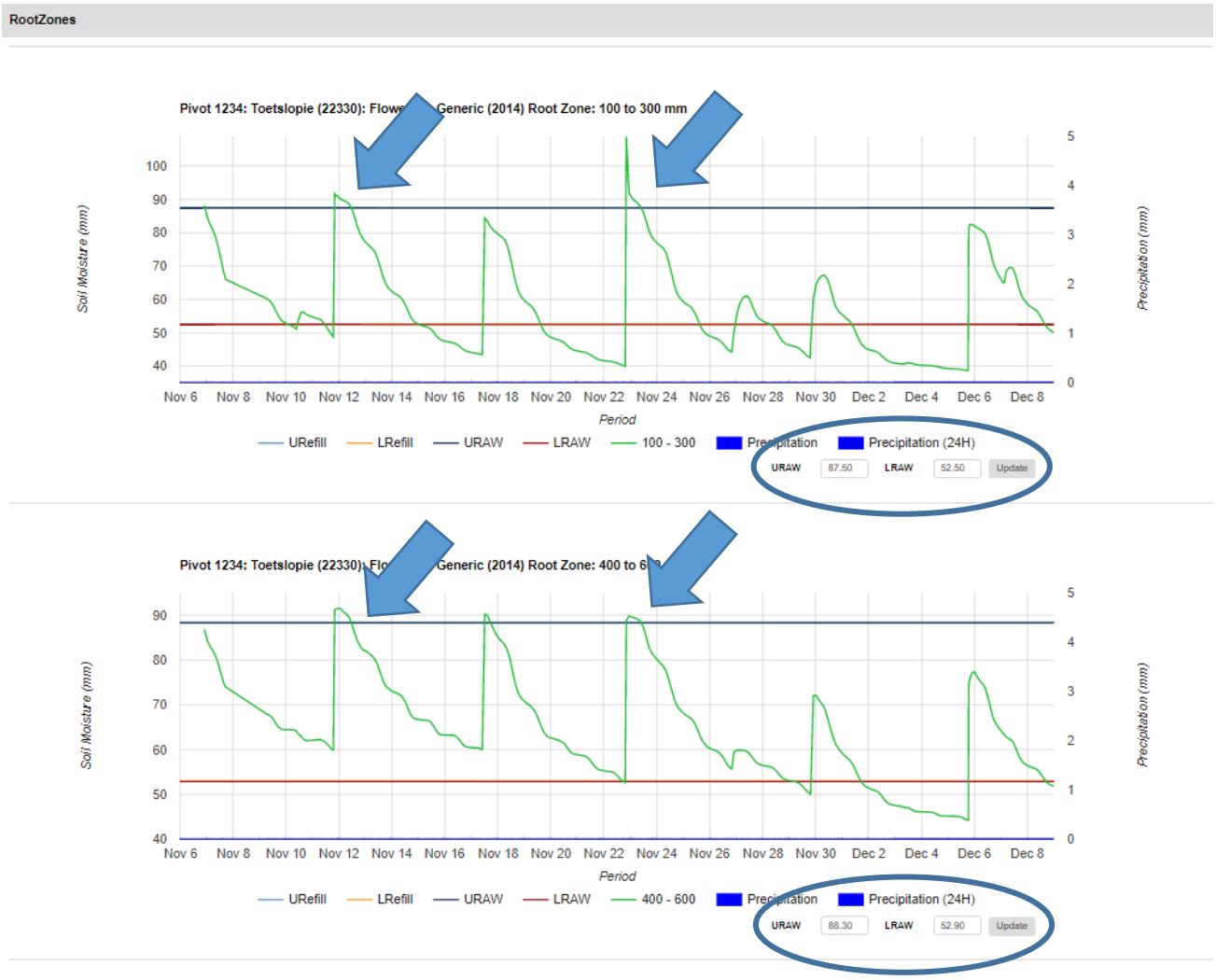
Upper Readily Available Water (URAW):

The example used here, is for a 600 mm probe with 6 sensors set up with two root zones. Scroll down to the “Root Zone 100 to 300 mm” graph and view the data on 12 and 22 November.

In the soil water content graph, an irrigation and/or rainfall event, is usually visible as a steep vertical jump in the data. Typically soil water content will peak during or shortly after an irrigation or rainfall event. At this point the soil is saturated and drainage of free water from the profile will likely take place. As the soil water content decreases further, an equilibrium point is eventually reached where water is held back against the force of gravity. This point is defined as the Upper Readily Available Water (URAW) value, otherwise also known as the field capacity value.

The ‘’URAW’’ value can now be determined for each of the two root zones. In the “RootZones” examples below, the ‘’URAW’’ value corresponds to the point in the measured soil water content curve where there is a change in the slope of the line shortly after the irrigation and/ or rainfall event - indicated by the blue arrows in the “RootZones” graphs below.

The ‘’URAW’’ value for the “Root Zone 100 to 300 mm” corresponds to 87.5 mm and that of the “Root Zone 400 to 600 mm” to 88.3 mm. For ease of use and quick reference the ‘’URAW’’ (and ‘’LRAW’’) values are shown below the legend of each of the two root zone graphs. Type the value in the appropriate block provided and click on “Update’’ to implement these settings.



After setting the individual root zone ‘’URAW’’ lines, always check the correctness by evaluating the nett effect in the “Summary Graph”. If all sensors reacted to irrigation, the daily measured soil water content line in the “Summary Graph” should either have crossed the ‘’URAW’’ line or be very close to this line. If not, revisit the individual root zones and make fine adjustments to the ‘’URAW’’ values if necessary. Also compare irrigation events on days other than the day used for the calibration to fine tune the management lines for example the data on 22 November.

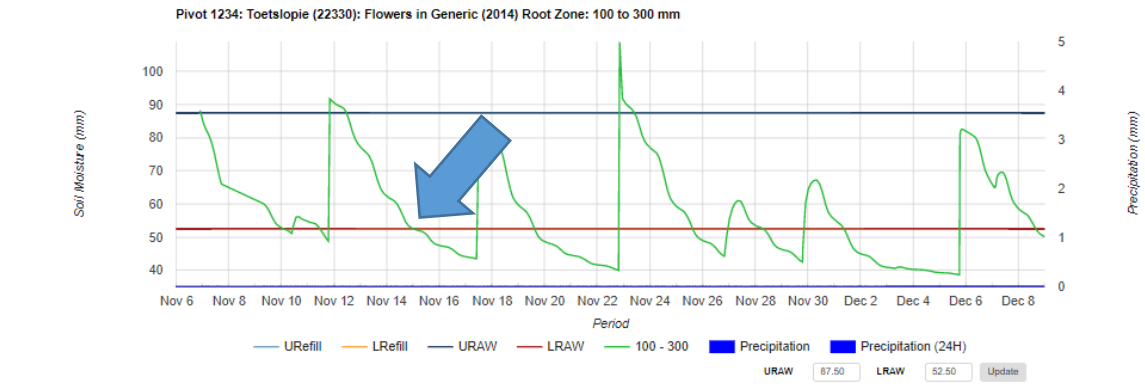
Lower Readily Available Water (LRAW)

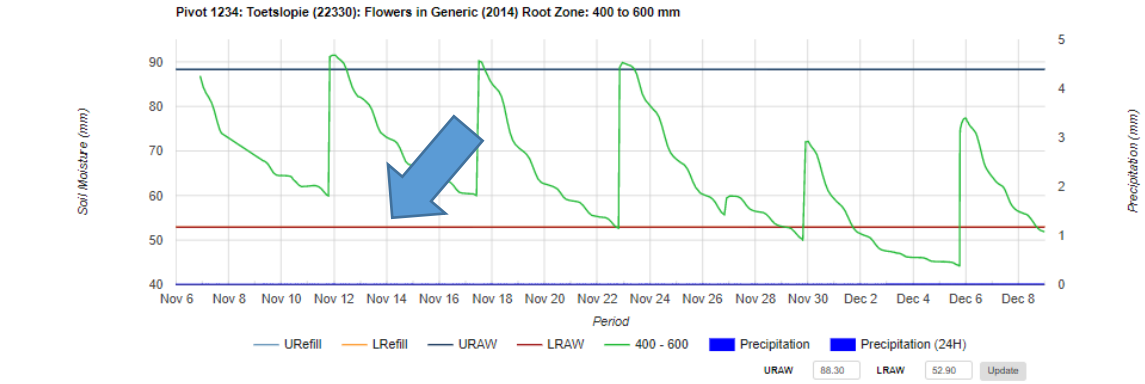
The bottom management line or ‘’Lower Readily Available Water (LRAW)’’ line represents the lower limit to where soil water content needs to be depleted before an irrigation is required, to fill up the profile again. In contrast to the ‘’URAW’’ value, which is determined mostly by the soil type, a number of other factors including irrigation system type, delivery rate, soil type and crop type and age will influence the position of the ‘’LRAW’’ line.

To get an initial guestimate of the position of the ‘’LRAW’’ lines, a rough rule-of-thumb depletion value of 20% can be used in heavier soils and 40% in sandy soils. For this sandy soil example, corresponding values for ‘’LRAW’’ will thus be 52.5 mm (87.5 mm x 0.6) and 52.9 mm (88.3 mm x 0.6) for the 100 to 300 mm and 400 to 600 mm root zones respectively. Type the value in the appropriate block provided below the legend of each root zone graph and click on “Update’’ to implement these settings.

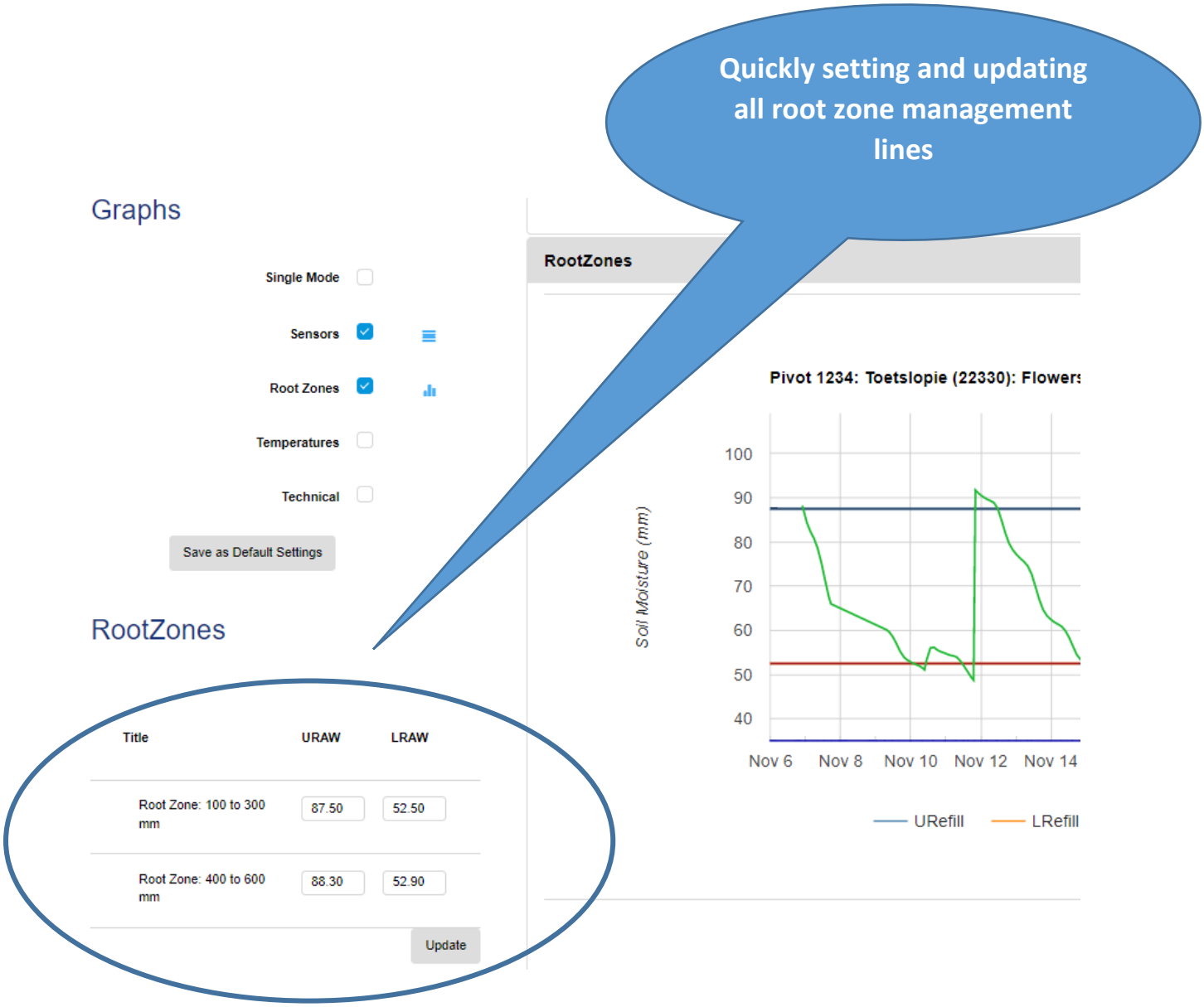
As mentioned above, the position of the ‘’LRAW’’ lines should not be so low causing stress to the plants (usually indicated by a horizontal flattening off of the sensor lines as well as a reduction in the size of the daily crop water use steps) as indicated by the red circles in the graphs below. Also, the position of the line should not be so low as to require huge amounts of irrigation to refill the profile again neither be too high, requiring regular irrigation and keeping the profile very wet all the time.

RootZones


Pivot 1234: Toetslopie (22330): Flowers in Generic (2014) Root Zone: 100 to 300 mm
Soil Moisture (mm)
Precipitation (mm)
100
90
80
70
60
50
40
5
4
3
2
1
0
Nov 6 Nov 8 Nov 10 Nov 12 Nov 14 Nov 16 Nov 18 Nov 20 Nov 22 Nov 24 Nov 26 Nov 28 Nov 30 Dec 2 Dec 4 Dec 6 Dec 8
Period
URefill
LRefill
URAW
LRAW
100 - 300
Precipitation
Precipitation (24H)
URAW 87.50 LRAW 52.50 Update


Pivot 1234: Toetslopie (22330): Flowers in Generic (2014) Root Zone: 400 to 600 mm
Soil Moisture (mm)
Precipitation (mm)
90
80
70
60
50
40
5
4
3
2
1
0
Nov 6 Nov 8 Nov 10 Nov 12 Nov 14 Nov 16 Nov 18 Nov 20 Nov 22 Nov 24 Nov 26 Nov 28 Nov 30 Dec 2 Dec 4 Dec 6 Dec 8
Period
URefill
LRefill
URAW
LRAW
400 - 600
Precipitation
Precipitation (24H)
URAW 88.30 LRAW 52.90 Update

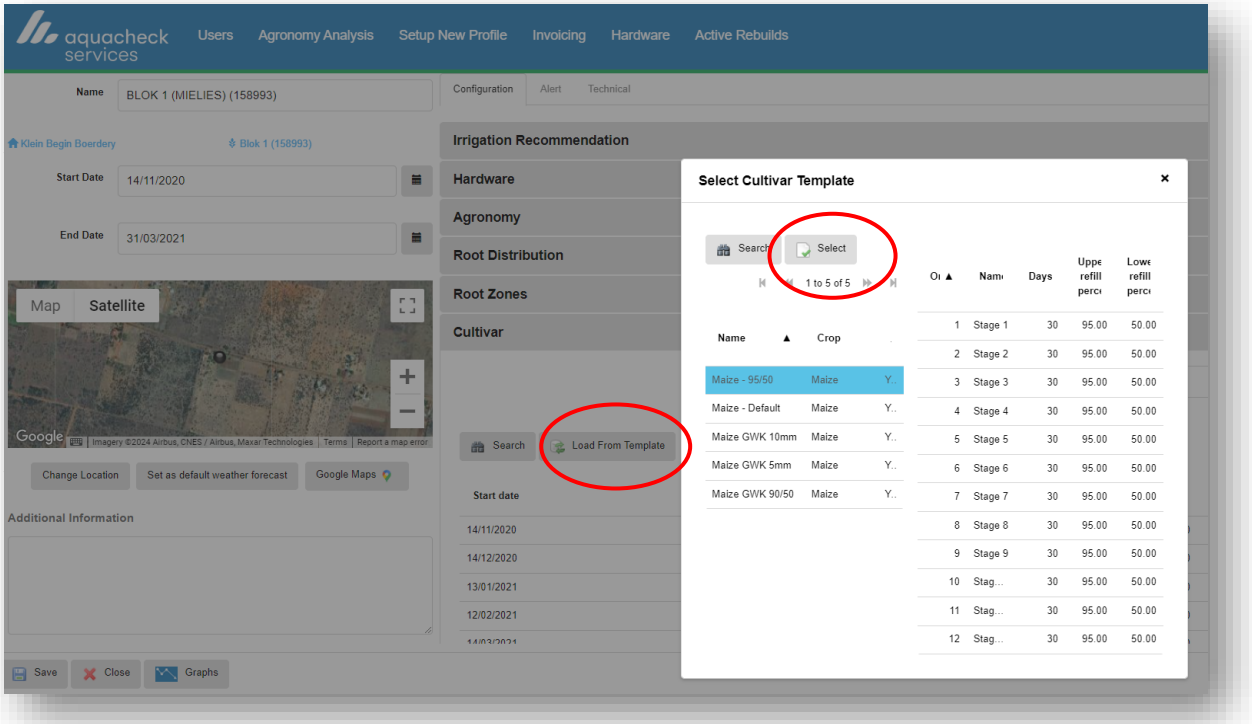
An alternative and quick way of setting the management lines for both (or more) rootzones simultaneously is to go to the RootZones table located in the panel to the left-hand-side of the RootZones graphs.



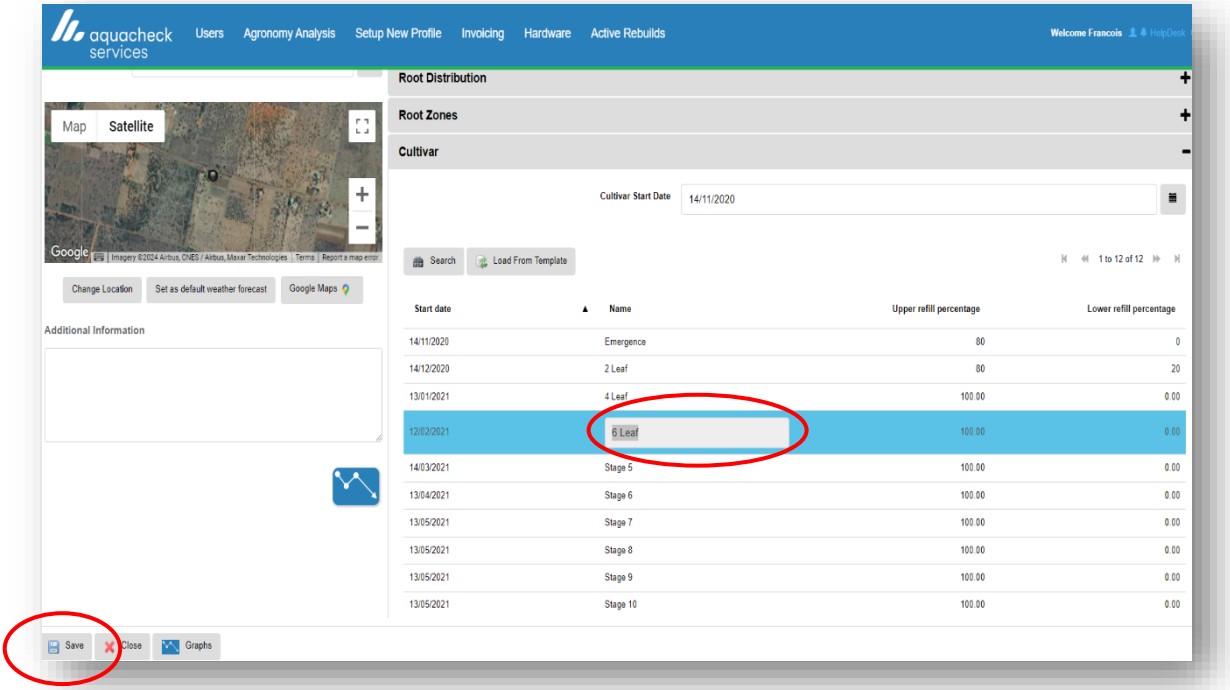
How to make use of Cultivar lines (URefill and LRefill):

The “Cultivar” tab, located in the ‘’Profile configuration’’ page, provides additional functionality to adjust the irrigation management according to crop growth stage. To achieve this, two additional management lines, namely the ‘’*Upper Refill (URefill)”* and ‘’*Lower Refill (LRefill)”* lines can be added to the graphs by making use of default cultivar/ crop templates. Up to 12 different growth stages can be specified, each with its own ‘’URefill’’ and ‘’LRefill’’ values. Consult an agronomist, who specialises in the specific crop/ cultivar in question, to provide relevant information required to customise the template.

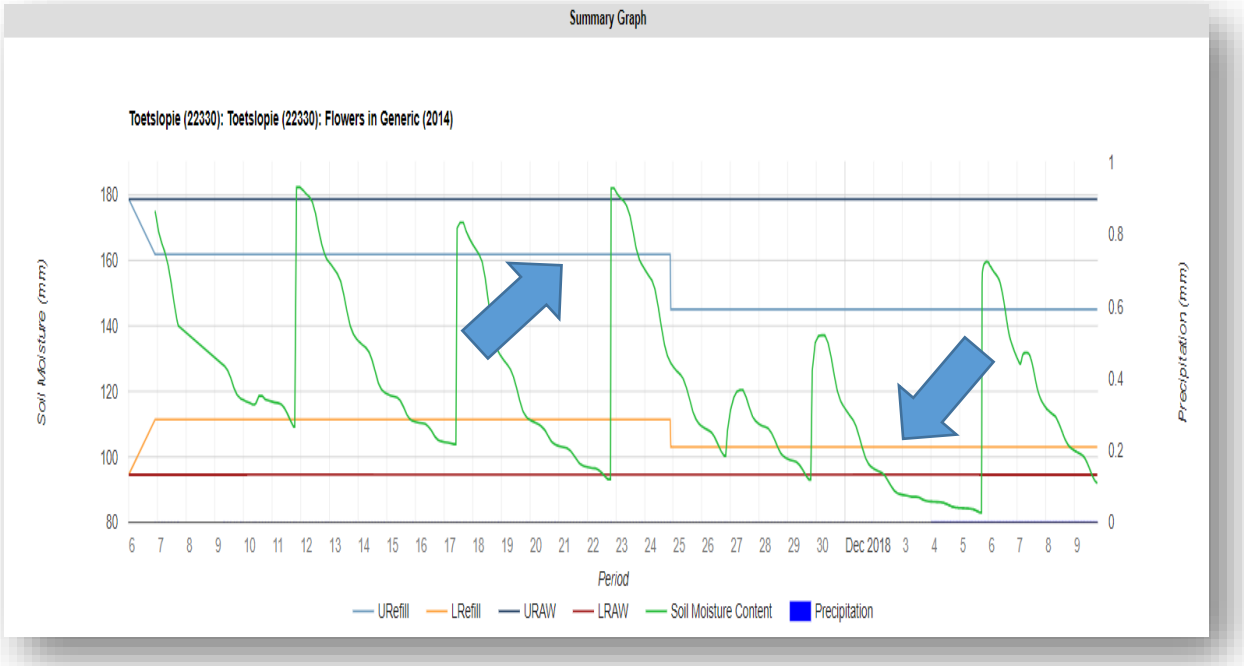
In the ‘’Profile configuration’’ page, click on the “Cultivar” tab to open the workspace. A default cultivar/ crop template will open depending on the crop specified in the “Agronomy” section. For some crops more than one template may be available for different cultivars. Click on the “Load from Template” tab to reveal the different templates, select a specific template name and click the “Select” button which will load the relevant template into the program.



In order to make changes to the table content, click on a specific cell entry under each of the column headings. The first date under the ‘’Start date’’will correspond to the specified ‘’Cultivar Start Date’’ (by default this date can not be earlier than the probe ‘’Start Date’’).



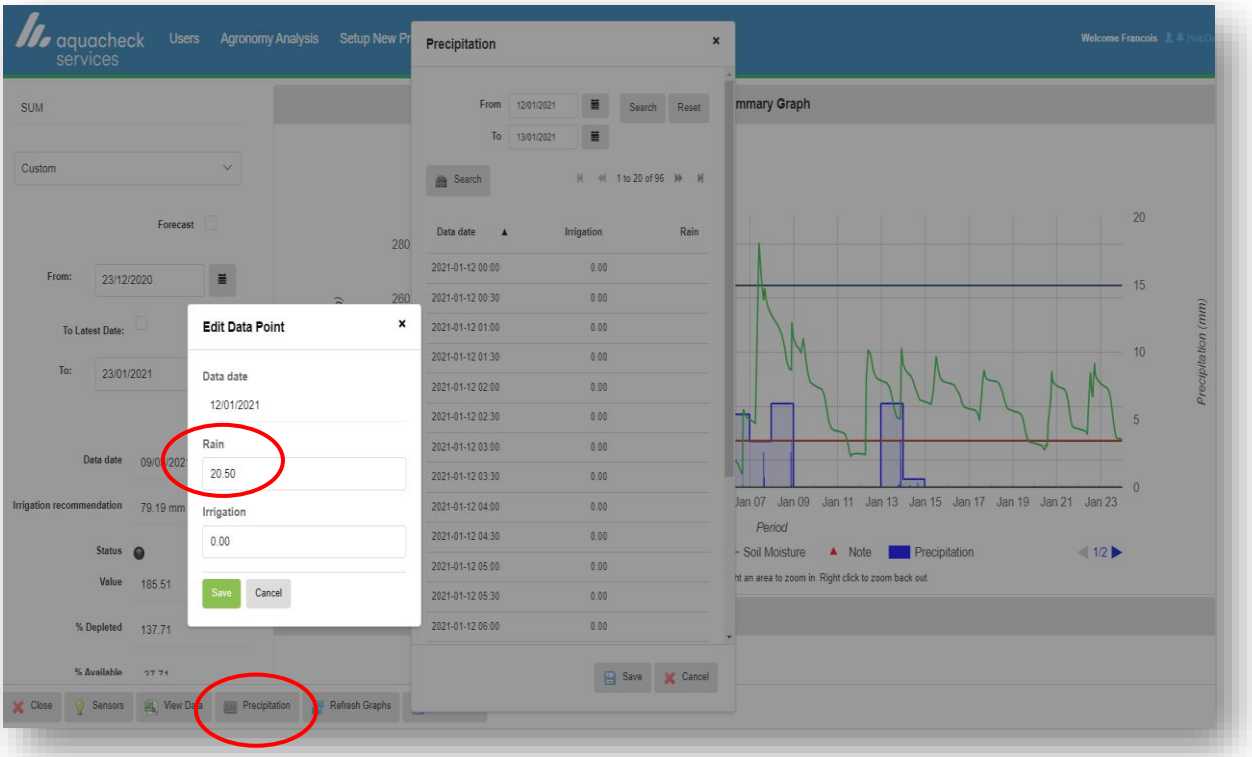
In the graphs, the *URefill* line will be located below the ‘’URAW’’ line and the *LRefill* line above the ‘’LRAW’’ line.



How to manually ad precipitation data

In the absence of an automatic rain gauge, manually recorded precipitation data (rainfall and/ or irrigation) can also be added to the software for recordkeeping purposes. Recorded precipitation data will be displayed visually as vertical bars in all the soil moisture (Summary, Sensors and Root zone) graphs. Cumulative precipitation data for the 24-hour period is also presented on the above-mentioned graphs by a much larger blue outlined bar which makes viewing precipitation data, especially when a viewing window longer than 21 days is used, much easier. To view the 24-hour totals, hover over the blue bar with the mouse cursor which will reveal a small window with the date and precipitation totals for the 24-hour period.

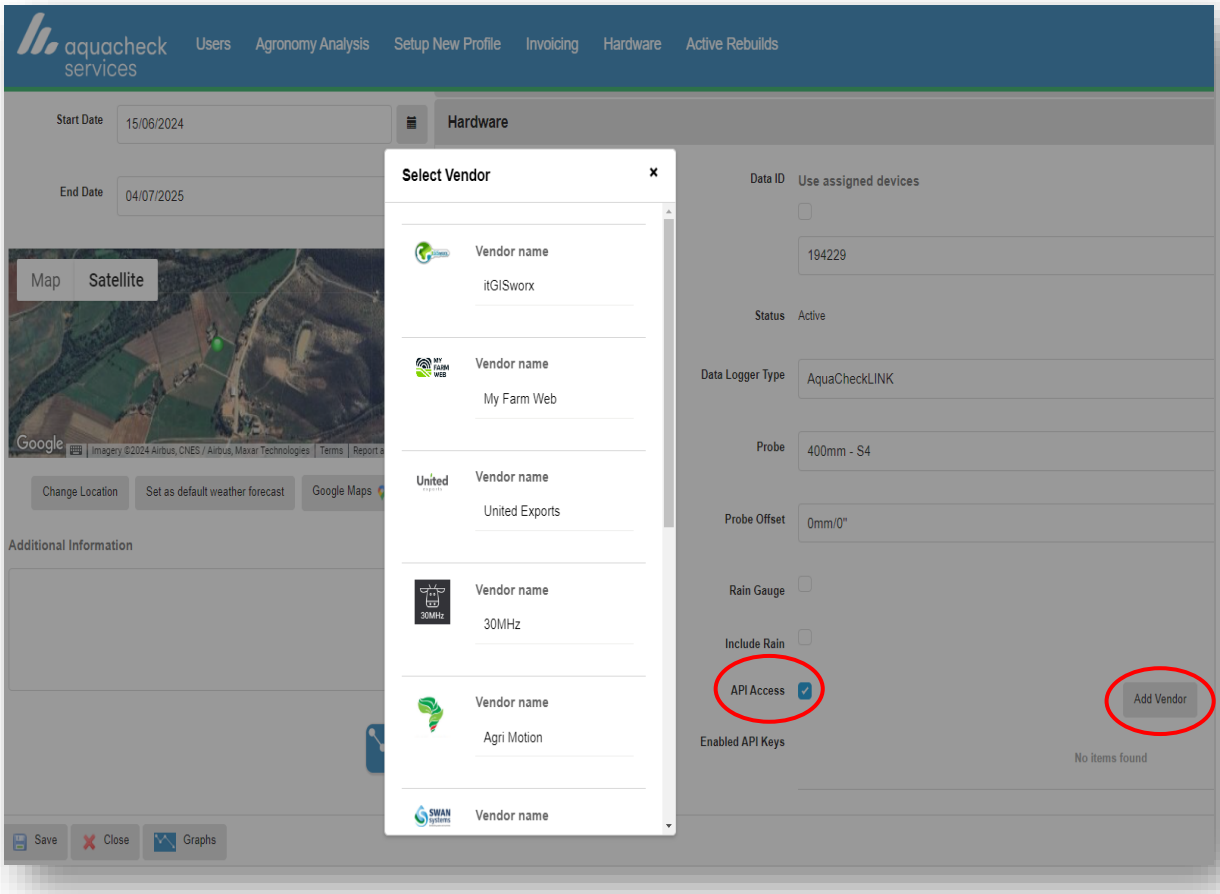
To enter data manually, navigate to the ‘’Graphs’’ page. On the bottom menu bar, select the ‘’Precipitation’’ tab. This will open a ‘’Precipitation’’ table with a Date, Irrigation and Rainfall column. Selecting an appropriate date will open an ‘’Edit data point’’ table where the measured rainfall or irrigation amount can be filled in. Press ‘’Save’’ to exit the table.



How to activate an API data export vendor

Growers may request that their AquaCheck probe data also be exported to the database of other service providers which they may be doing business with. The AquaCheckWEB software has the ability to do this by followings these steps:

Navigate to the specific probe and then view the Probe Profile page. Go to Hardware and tick the API Access box. This will enable an “Enable API Keys” block, press on the Add Vendor button, which will reveal a list of existing Vendors. Select the specific vendor and close the box. The Enable API Keys box will now be populated by the specific vendor that was selected. Press Save and exit the page. If a specific Vendor name does not appear on the Vendor list, please contact your Dealer for assistance.

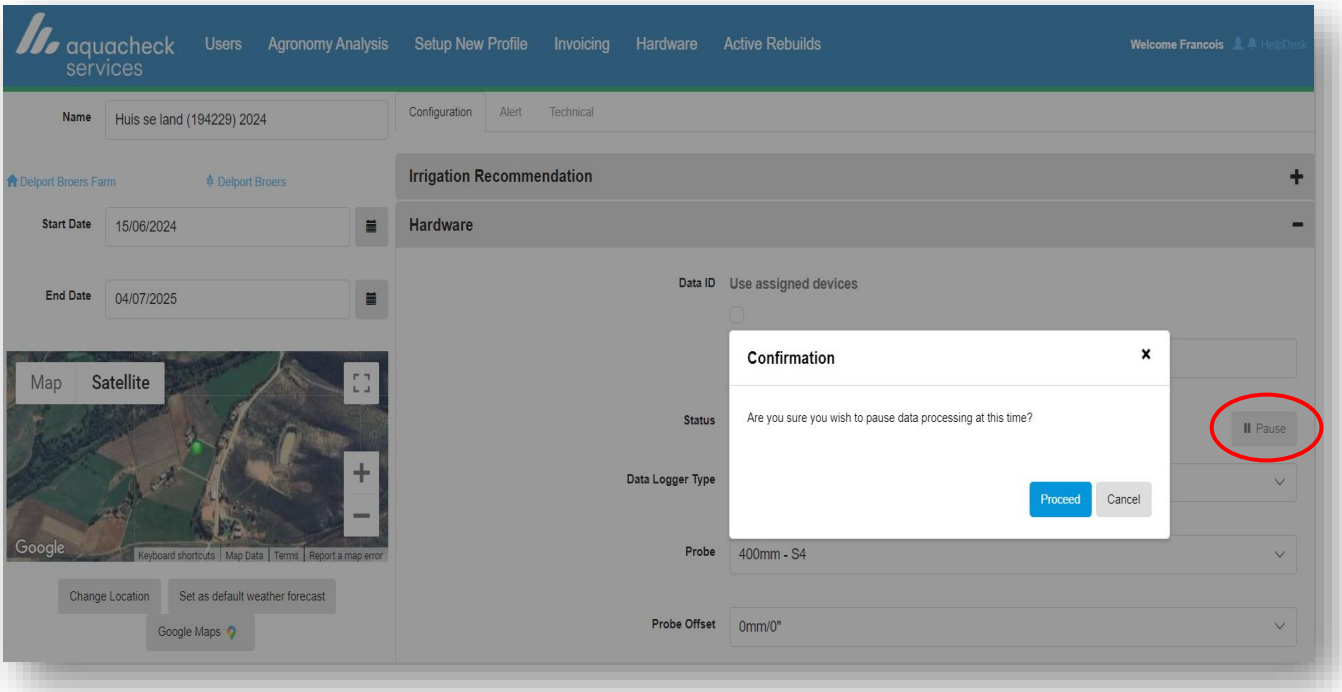


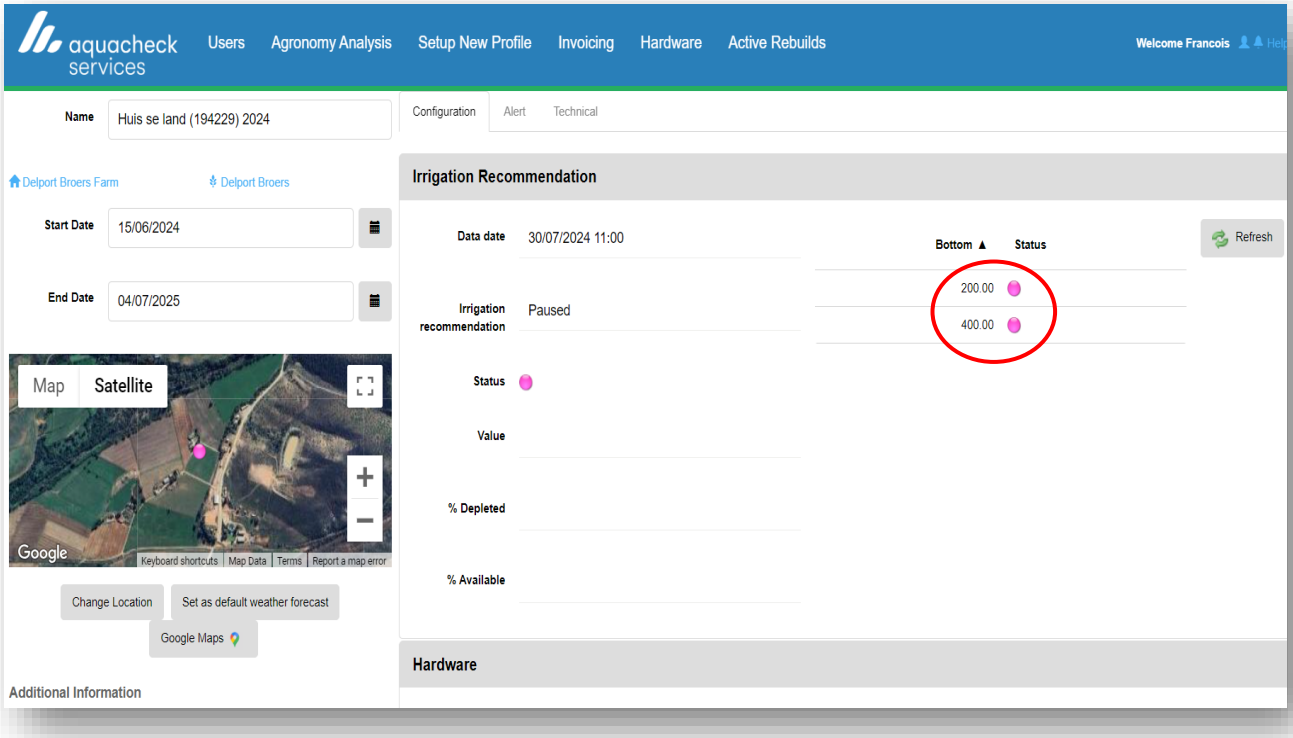
How to pause data processing

During the lifetime of a probe, some maintenance may be required. The actions of removing the probe, repairs and testing usually results in undesired data on the graphs (zero values, spikes etc.) that has to be removed manually. To avoid this happening, the processing of data received during the maintenance period can be paused. After probe installation, data processing can be un-paused again.

To make use of this function, navigate to the Profile page. Under Hardware click on the “Pause’’ button, located on the right-hand-side of the page under ‘’Data ID’’. The user will be asked to confirm this action, press ‘’Proceed’’ to continue. The ‘’Status’’ as well as the ‘’Irrigation Recommendation’’ will now show as ‘’Paused’’ and the colour of the profile dot on Google Maps will show up as pink. On completion of the repair work, un-pause the processing of data by selecting the ‘’Start’’ button. The ‘’Status’’ will change to ‘’Active’’.

In the event of a data rebuild during the pause period, for example to change the soil calibration, the user can choose to rebuild paused data or only rebuild valid operational data (the default is to keep paused data unprocessed).




aquacheck services
Users
Agronomy Analysis
Setup New Profile
Invoicing
Hardware
Active Rebuilds
Welcome Francois
Name
Huis se land (194229) 2024
Configuration
Alert
Technical
Delport Broers Farm
Delport Broers
Start Date
15/06/2024
End Date
04/07/2025
Irrigation Recommendation
Data date
30/07/2024 11:00
Irrigation recommendation
Paused
Status
Value
% Depleted
% Available
Bottom ▲
Status
200.00
400.00
Refresh
Map
Satellite
Google
Keyboard shortcuts
Map Data
Terms
Report a map error
Change Location
Set as default weather forecast
Google Maps
Additional Information
Hardware

How to print multiple graphs at once (PDF to email)

Navigate to the ‘’View irrigation Recommendation Table’’ on the home page. Either select all profiles (Use the ‘’Select Page’’ icon) or choose individual profiles from the list by using ‘’Ctrl’’ and click to make the selections. Then click on ‘’Graph Report via PDF’’ which will open a selection window where the Graph Period and Graph Type (Summary, Sensors, Root zones, Temperature and Technical) can be selected. To generate the report, press ‘’Execute’’.

The pdf file will be sent to your email where the attachment can be opened. Furthermore, a notification will also appear on the AquacheckWeb home page which contains a shortcut link from where the pdf file can be downloaded.