



# AGRI PLOT WATCH

## Newly developed data collection device user guide

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Codes sources de la plateformes disponibles sur : <https://github.com/khameos/wat4cam>

*This document has been produced with the financial assistance of the French Development Agency (AFD), the European Union (EU) and the French Facility for Global Environment (FFEM).*

## Summary :

### 1. AgriPlotWatch (APW) general presentation

### 2. Mobile app and online portal user guide

#### 2. 1- Mobile app

- a) App structure
- b) Downloading the app
- c) Synchronize the app
- d) Data collection - Farm list menu
- e) Data collection - Add a picture to a plot
- f) Data collection - New plot menu
- g) Data collection - Orphan plot menu
- h) Cartography menu
- i) Gallery

#### 2. 2- Web Portal

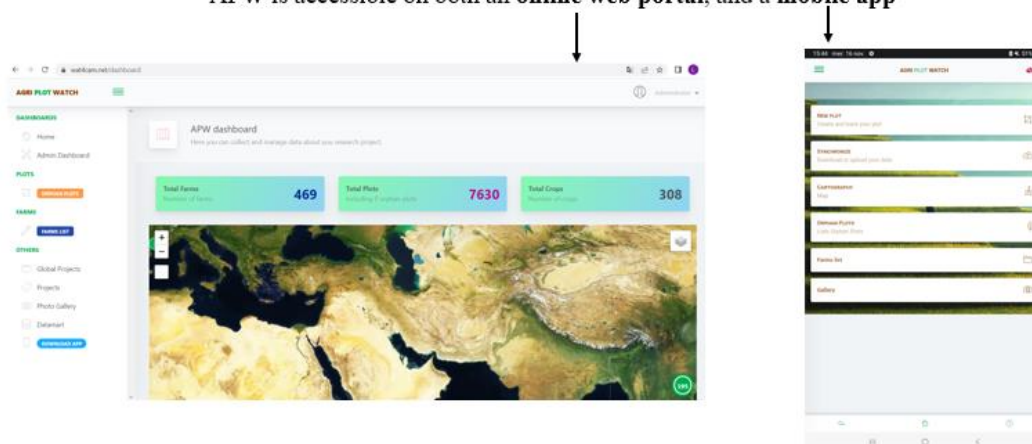
- a) Accessing the portal
- b) General presentation
- c) Extract to phone
- d) Projects menu
- e) Data extraction

## 2.1 – a) App structure

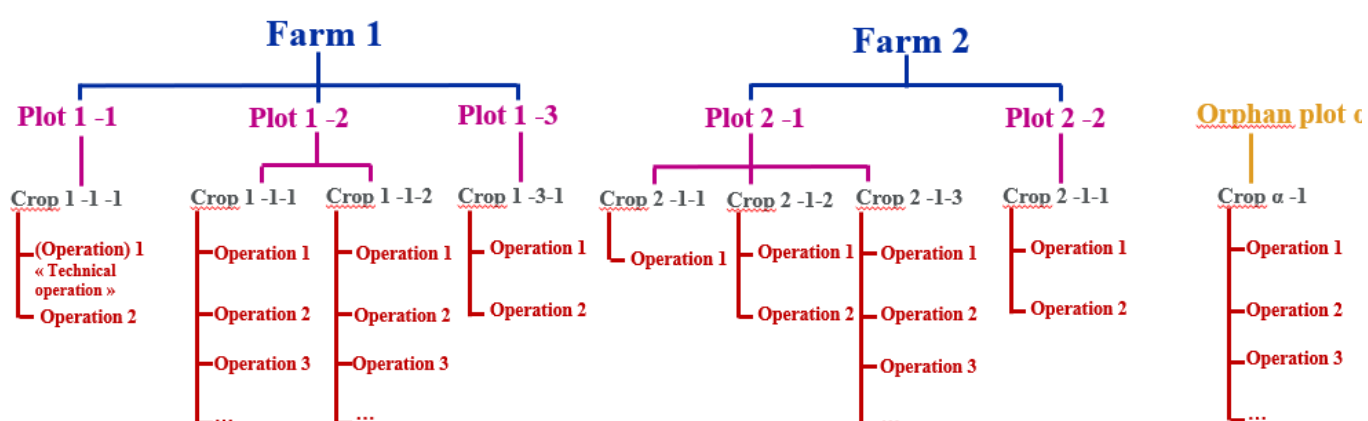
**AGRI PLOT WATCH** A data monitoring platform, developed by the CIRAD for several use:

- Farm and plot data collection (mobile app)
- Data monitoring and storage in a single common database

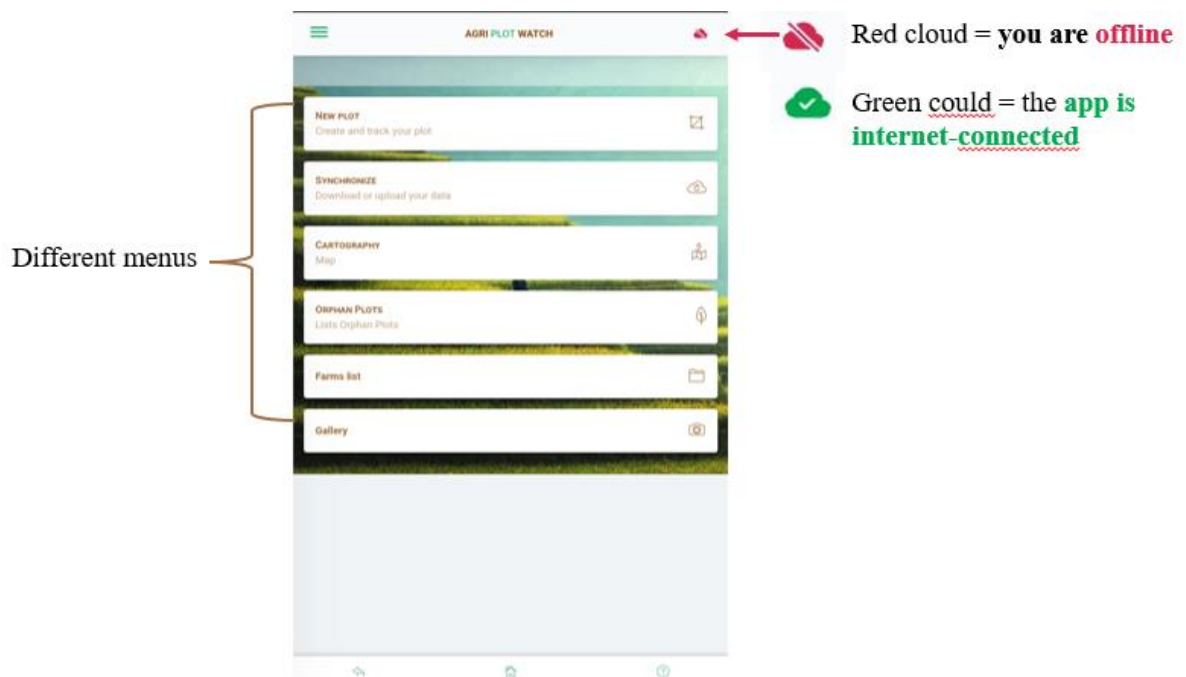
APW is accessible on both an **online web portal**, and a **mobile app**



3 layers of information can be collected and stored in the database:



*(Lower layers cannot be created without being attached to an upper layer. An upper layer can be created with no lower layer in it.)*

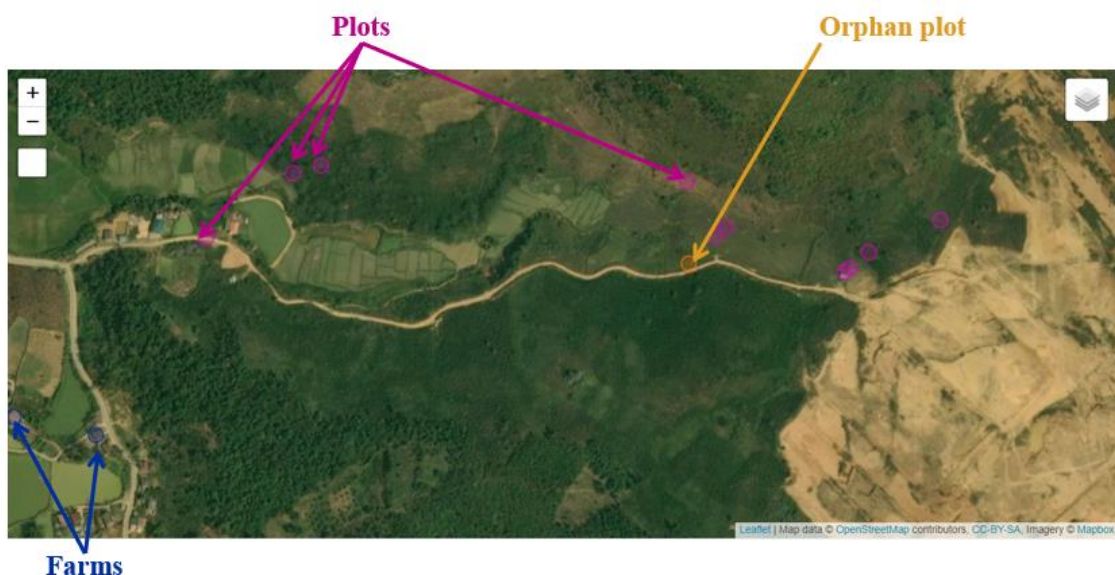


A breadcrumb will appear on the top-left of the page after opening each menu:



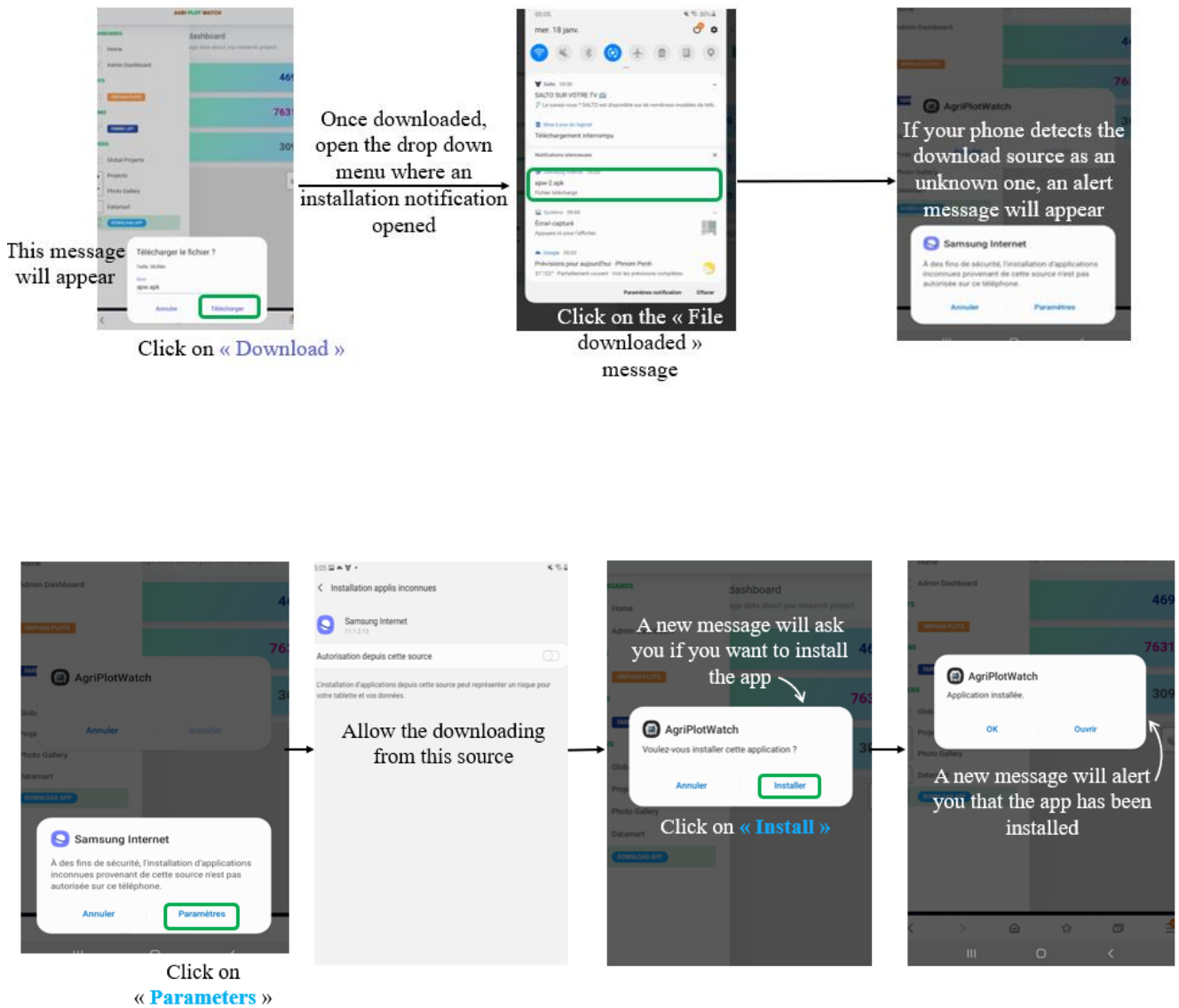
It will help you see **at what point of the tree structure you are** (Farm/ Plot/ Crop / Operation), and **navigate between the different pages (just click on it)**.

Farms and plots are on display on the map :



## 2.1 – b) Downloading the app

Copy and paste this link in the web browser of you phone/tablet **OR** Click on **“Download app”** on the online portal  
<https://agriplotwatch.net/download/apw.apk>



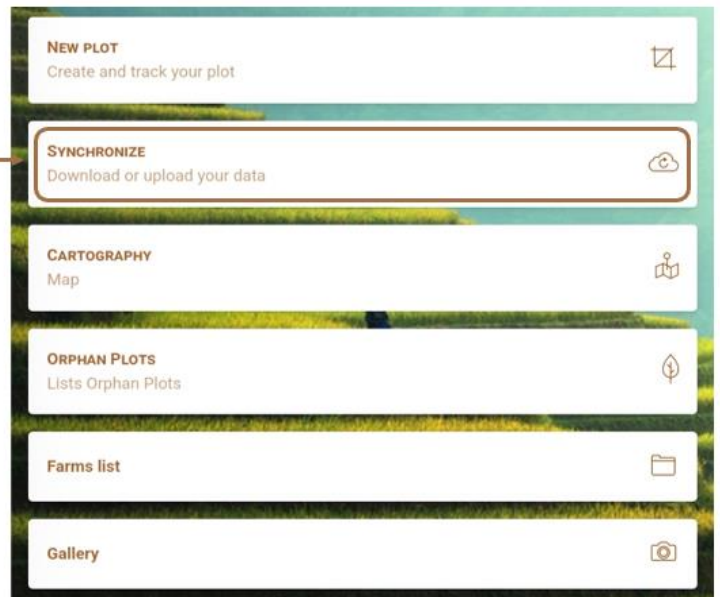
## 2.1 – C) Synchronize the app

**First thing** to do on the app before starting to collect data : **Click on the Synchronize menu**



You Login and password are requested to access this menu.

**!! Do not start any data collection without any synchronization !!**



« **Download** » to download the data from the website to the mobile application. **To download data, the app MUST connected to the internet (green cloud).** Once downloaded, **you can use of the app offline**

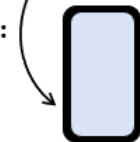
**Beware : Downloading will overwrite the data that was not uploaded to the database before.**

« **Upload** » is the button that must be used to send the collected data on the online database.

To prevent from any uploading bug and loss of information, **make sure you turned the app on the online mode**



Before any data collection : **Download**



Smartphone/tablet

At the end of the data collection : **Upload**



**To avoid any loss of information, make sure you connexion is stable before uploading (no interruption of the internet)**

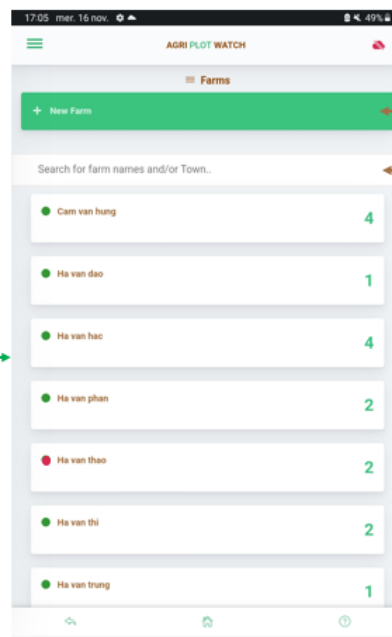
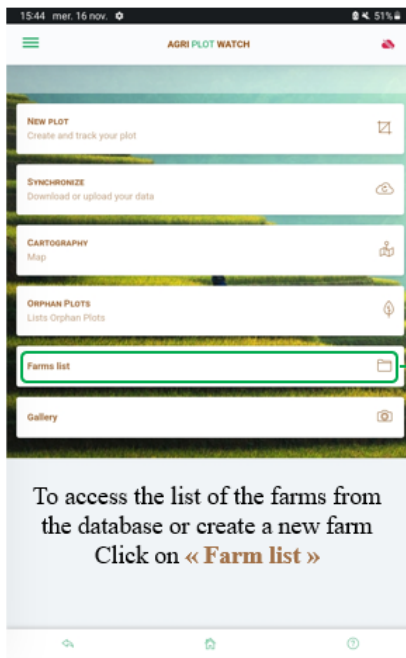
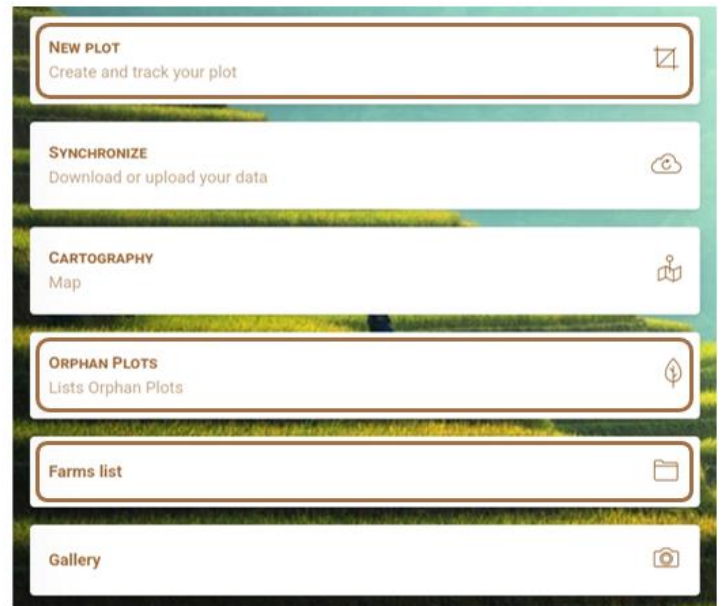


## 2.1 – d) Data collection - Farm list menu

To collect data, you have 3 options :

1. With « **New plot** » you create a new plot if **information about the farm have already been registered**. (A new plot can also be created within an existing farm with the « farm list » menu)
2. To create an independant plot which doesn't belong to any farm, click on « **orphan plot** ».
3. Clic on « **farm list** », to
  - **Create a new farm**, and then new plots/creps/technical operations that belong to this farm.
  - **Complete already existing information**.

You can **use the app on the offline mode** after uploading the data. 📶



Click on « **New Farm** » to create a farm if it doesn't exist yet

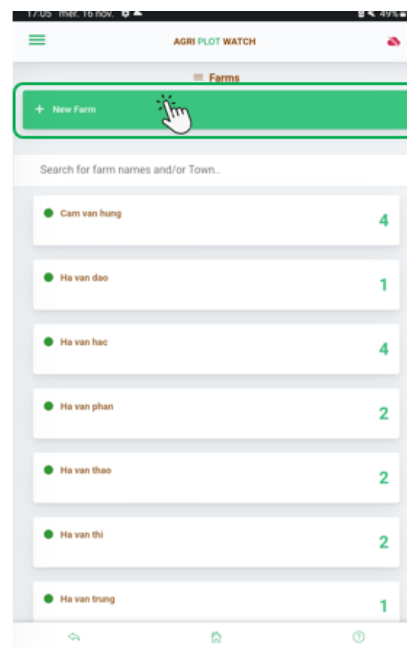
Type here to search an existing farm in the farm list

The list of the farms you downloaded

● **Green spot** = the data has already been uploded to the database.

● **Red spot** = Data has been modified/added and have not been uploded online yet. **Beware! Don't download data from the website before uploding it, or the information will be lost.**

To create a new farm click on « **New farm** »



Mandatory fields

Facultative fields

« Name » : Choose the name you want to give the farm (usually the full name of the owner)

« Country » : It corresponds to the country where the farm is located

« Province » : It corresponds to the province of the farm

« Projet » : If a farm is assigned to a specific project you can inform it here

« Code » : An additional name you can give

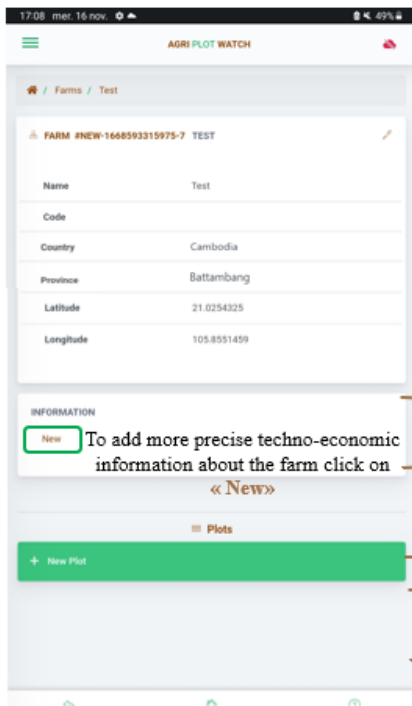
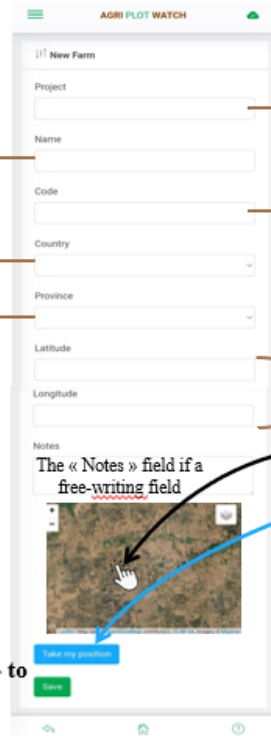
« Latitude » and « Longitude » : To localize the farm you can:

Localize the farm clicking on the map. The field will be automatically filled.

Ask the app to take your own GPS position as the position of the farm.

The field will be automatically filled

Don't forget to click on « Save » to confirm the data entry!



Now your farm is created. Here is what you have :

The information you just filled about the farm

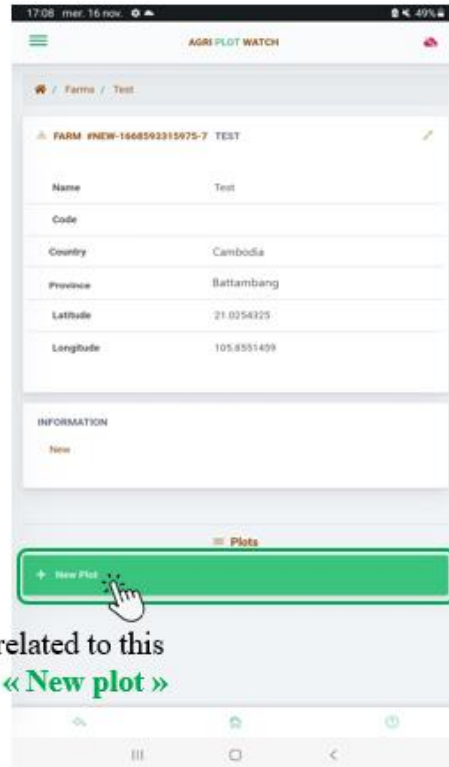
The « **Information** » category » : to complete more precise techno-economic information about the farm for the current year, for a further description of the farm. (income, engines, livestock, ect...)

New information can be created each year.

« **New plot** » to create a new plot belonging to this farm, and complete information about it.

All the plots created for this farm will appear right here. You can click on the to see or modify any information.





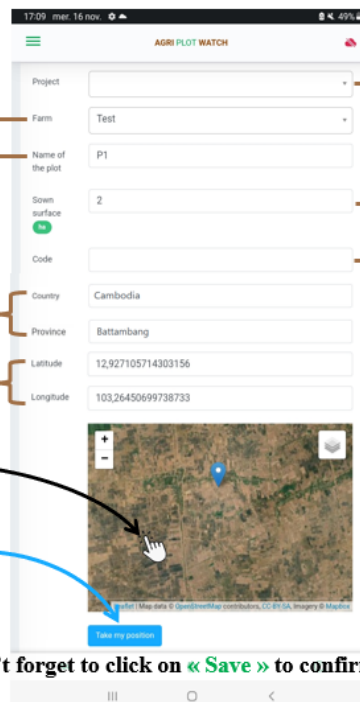
To add a plot related to this farm, click on « **New plot** »

### Mandatory fields

- « Farm » Automatically completed
- « Name of the plot »: Give the plot a name.  
**Don't give the plot the name of the current growing crop : it might not be the same crop in a few months/years.**
- « Country » and « Province » Automatically completed
- « Latitude » and « Longitude » : To localize the plot you can :
  - Localize the plot clicking on the map. The field will be automatically filled.
  - Ask the app to take your own GPS position as the position of the plot.
- The field will be automatically filled

### Facultative fields

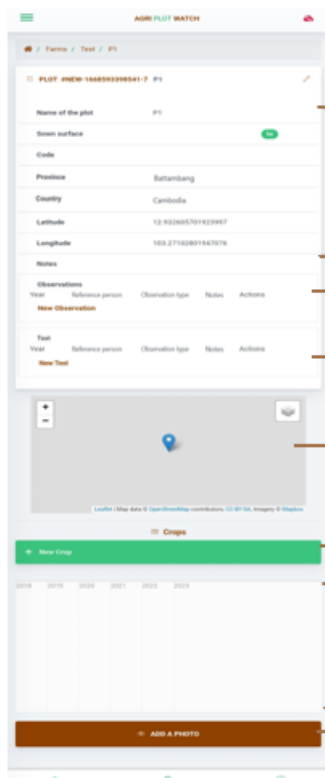
- « Project » : if a plot is specifically assigned to a project you can inform it here.  
The project assigned to a plot can be different from the one assigned for the farm.
- « Sown surface » : enter the surface of the plot
- « Code » : An additional name you can give



Don't forget to click on « **Save** » to confirm the data entry!




Now you now plot was created. Here is what you have :



The information you just filled about the plot

The « **Observations** » category allows you to notify the use of any plot monitoring tool. Ex : Plant mineral analysis, soil analysis, pest and disease sampling, ect... Click on « **New observation** » to create a new one.

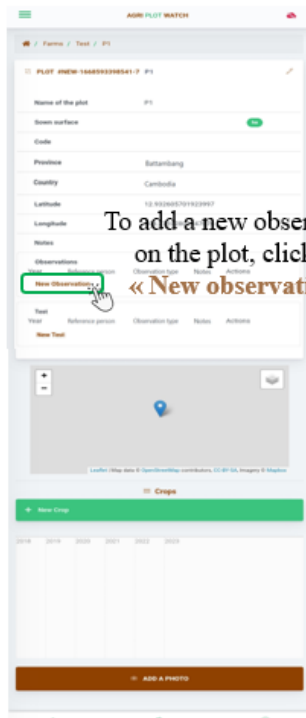
The « **Test** » category allows you to notify any new product/practice testing. Ex : Use of silicon testing, collection of cover crops, ect... Click on « **New Test** » to create a new one.

A map showing the localization of the plot. When the app is offline , the background map appears grey.

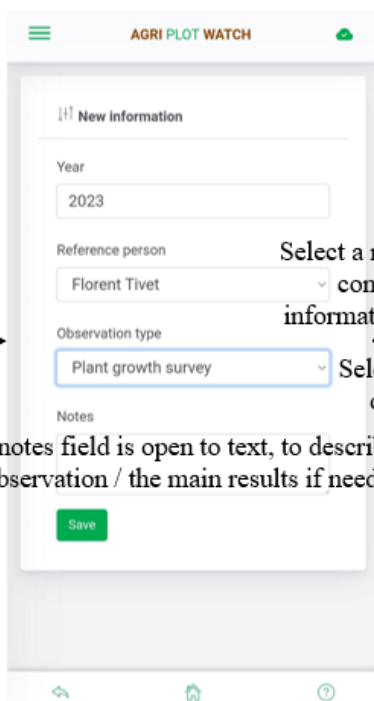
« **New crop** » to create a crop belonging to this plot, and complete information about it. All the crops created on this plot will appear below this button.

The succession of all the crops on this plot will appear here as a timeline, as soon as the crops will be created.

« **Add a photo** » to add any picture of this plot.



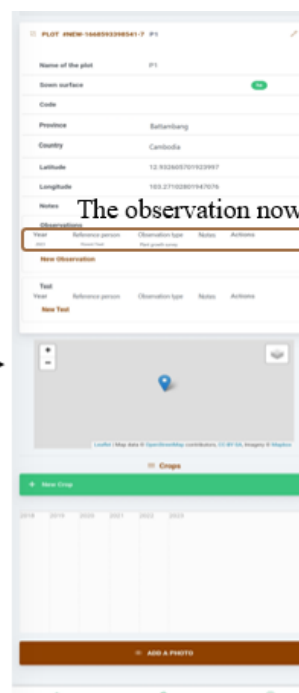
To add a new observation on the plot, click on « **New observation** »



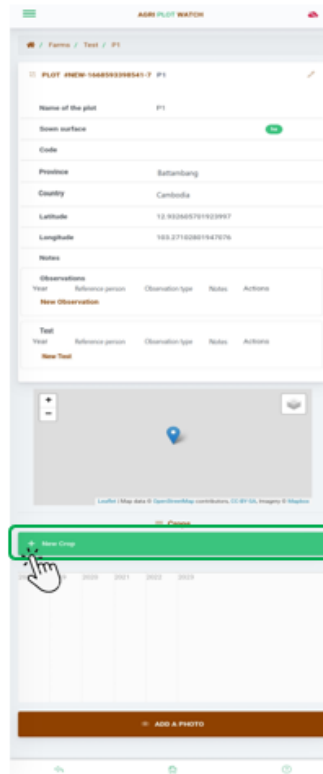
Select a reference person to contact if further information is needed later

Select the type of observation

The notes field is open to text, to describe the observation / the main results if needed



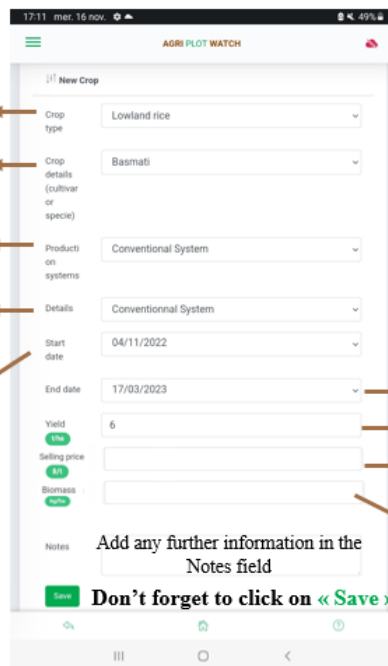
The observation now appears here



To create a crop click on  
« New crop »

### Mandatory fields

- « Crop type » : Choose the type of crop within the proposed list.
- « Crop details » : Choose the cultivar/variety within the proposed list.
- « Production system » : Precise if it is a conventional or innovative system
- « Details » : If innovative, choose from the proposed list the type of innovative system. If conventional, the field is filled automatically.
- « Start date » : enter the sowing date



### Facultative fields

- End date » : harvesting date for the annual crops, 31/12 of the current year for the perennial ones
- « Yield » : Enter the yields for this year harvest
- « Selling price » : price at which the production is sold this year
- « Biomass » : similar to the yield, but for the forage

Don't forget to click on « Save » to confirm the data entry!

Focus on the « crop » level : how many crop types to create on a single plot?

On the plot there is :

I must create :

A monocrop → A single « New crop » and select your crop type

A mix of cover crops → A single « New crop »:  
 • Crop type : cover crop mix  
 • Crop detail : Select the mix within the list

A perennial crop → A single « New crop »:  
 • As a « Start date » put the 1st January of the year  
 • As an « End date » put the 31st of December of the same year

Two independent crops → Two different « New crop »:  
 (ex : cover crop and fruit tree)  
 • One for the cover crop  
 • One for the tree

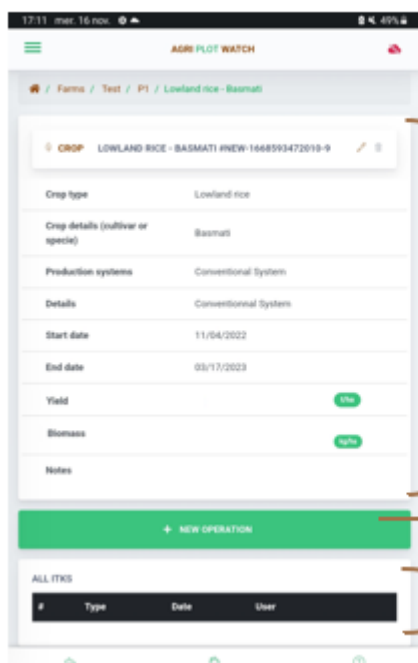
Focus on the « crop » level : how many crop types to create on a single plot?

My crop type / Crop detail is not in the list

↓  
**Ask the person in charge of updating the list to add the missing values (You will need to upload and then download the data to see the modifications in the list of values)**

**If the list of values cannot be modified in the minute, select « other » in the crop type and detail, and write the missing information in the note field. When the list of values will be updated, open you crop back and modify the information.**

Here is the new crop page you just created :

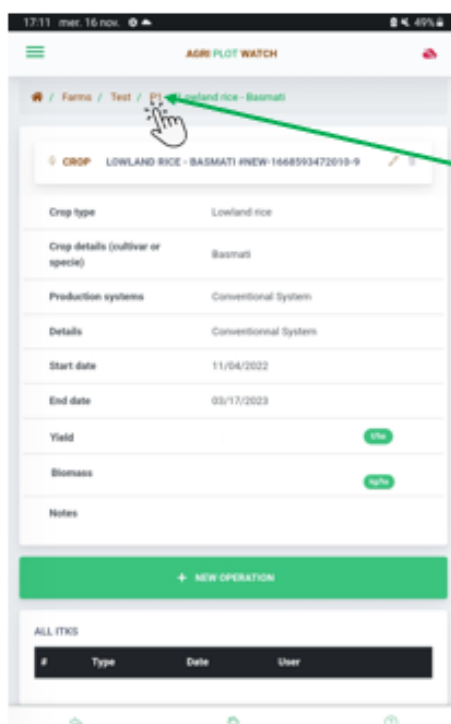


All the information you just filled about the crop

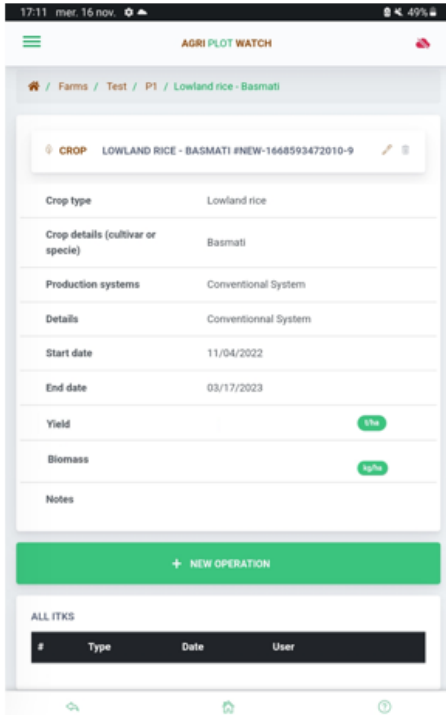
« **New Operation** » : click here to add any technical operations that happened to this crop (from the land preparation to the post-harvest operations)

All the technical operations you create for this crop will be listed here

Here is the new crop page you just created :

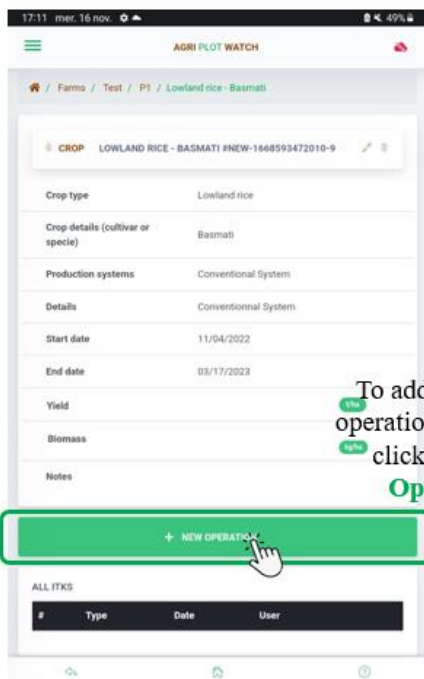
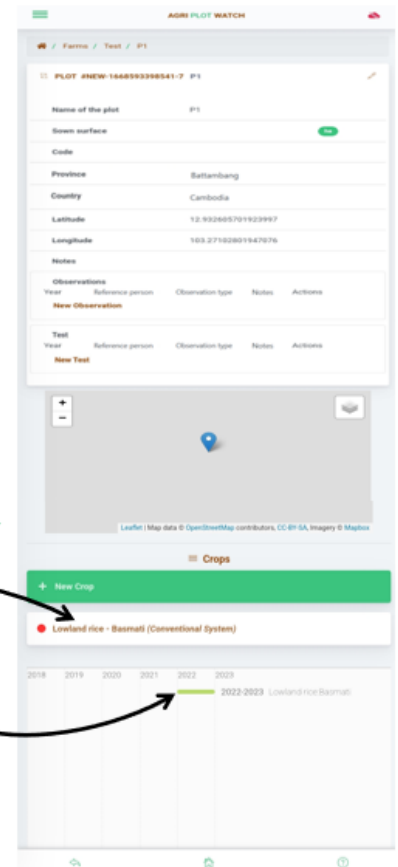


When you go to check the plot page (Click on the name of the plot, « **PI** » here)



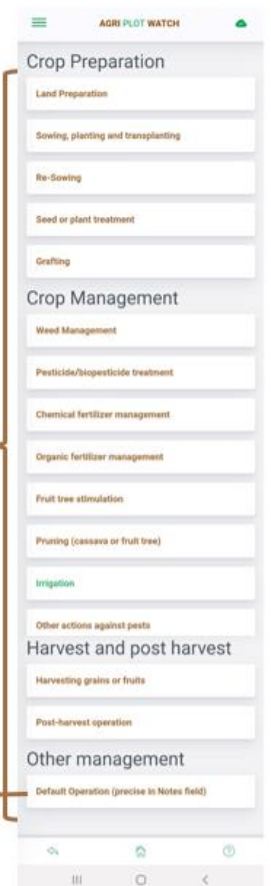
The crop that you just created now appears here

The duration of the presence of the crop on this plot is now materialized with this green line on the timeline



Here is the list of all the technical operations you can add for this crop, classified from the crop preparation to the post-harvest operations

« Default operation »: Additional blank operation if a specific operation you want to add is not part of the above list





AGRI PLOT WATCH

Crop Preparation

Land Preparation

**Sowing, planting and transplanting**

Re-Sowing

Seed or plant treatment

Grafting

Crop Management

Weed Management

Pesticide/biopesticide treatment

Chemical fertilizer management

Organic fertilizer management

Fruit tree stimulation

Pruning (cassava or fruit tree)

Irrigation

Other actions against pests

To add information about the sowing (for instance), click on « Sowing, planting and transplanting »

NEW OPERATION : SOWING, PLANTING AND TRANSPLANTING

Date: 07/02/2023

Variety or cultivar name:

Planting material:

Sowing/planting Modality:

Total Labor:

Hired Labor:

Family labor (incl. work exchange):

Labor cost if service of hired labor:

Seed/Stem/seedlings unit price:

Seeds/stems/seedlings unit price unit:

Sowing density:

Sowing/planting density unit:

Seeds/stems/seedlings sourcing:

Seeds/stems/seedlings production labor (transplanting):

Seeds/stems/seedlings production cost (transplanting):

Diesel cost:

Other cost:

Notes:

Save

The date is the only mandatory field

NEW OPERATION : SOWING, PLANTING AND TRANSPLANTING

Date: 07/02/2023

Variety or cultivar name:

Planting material:

Sowing/planting Modality:

Total Labor:

Hired Labor:

Family labor (incl. work exchange):

Labor cost if service of hired labor:

Seed/Stem/seedlings unit price:

Seeds/stems/seedlings unit price unit:

Sowing density:

Sowing/planting density unit:

Seeds/stems/seedlings sourcing:

Seeds/stems/seedlings production labor (transplanting):

Seeds/stems/seedlings production cost (transplanting):

Diesel cost:

Other cost:

Notes:

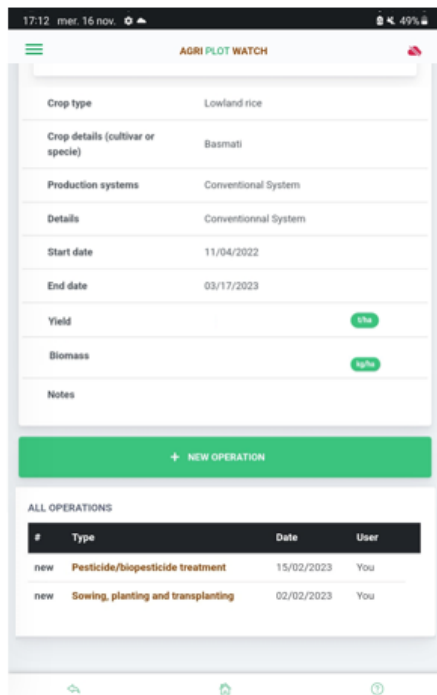
Save

*Fields dealing with the labor for this operation*

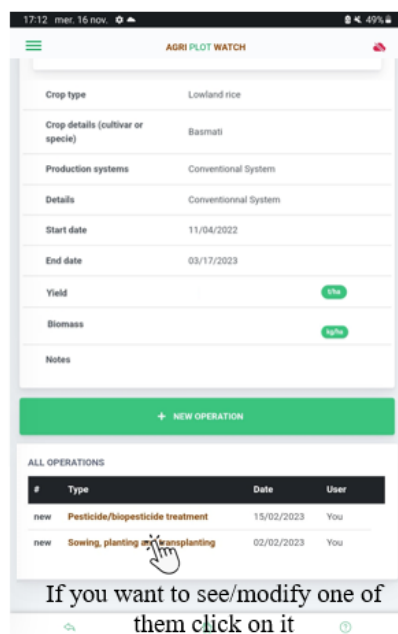
*Fields dealing with the different costs for this operation*

Every operation has a free-writing « Notes » field to add any precision about the operation

Don't forget to click on « Save » to confirm the data entry!

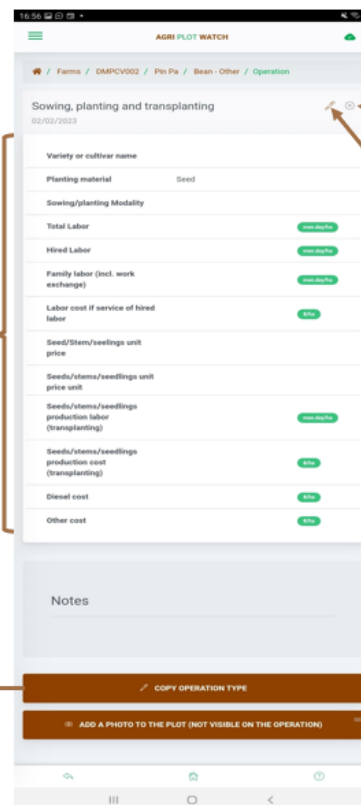


All the technical operations you created now appear here on the crop page



All the information about this technical operation appear here:

If you have a similar operation and want to create it (same product, same price for instance), you can copy this operation and complete/modify the copied information.



To delete this operation click on the cross  
If you want to see/modify one of them click on the pencil

You can add a picture related to this operation clicking here

## 2.1 – e) Data collection – Add a picture to a plot

**Go on the plot page (Click on the name of the plot, « P1 » here)**

**Click on « Add a photo », on the plot page**

**You can directly take a picture Or import a photo from the gallery**

**Click on « import a photo » for instance**

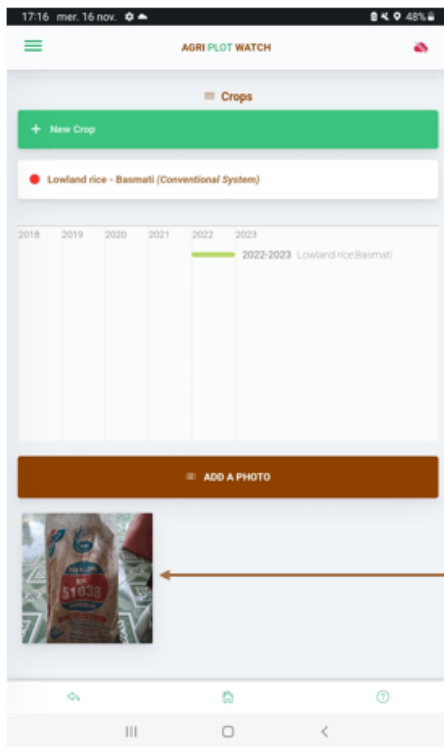
**Select a picture in the gallery**

**You can add a title or a brief description**

**Click on « save » to upload the picture**

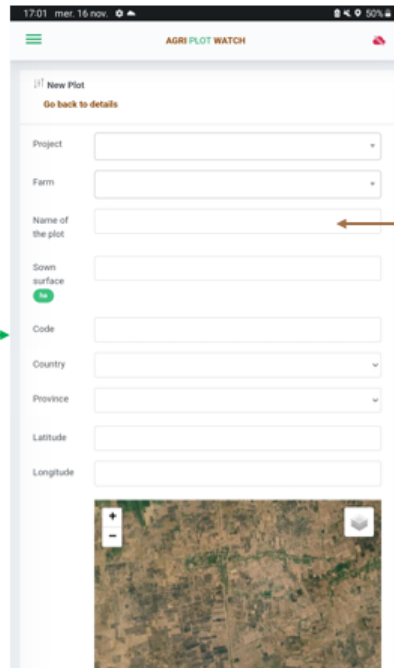
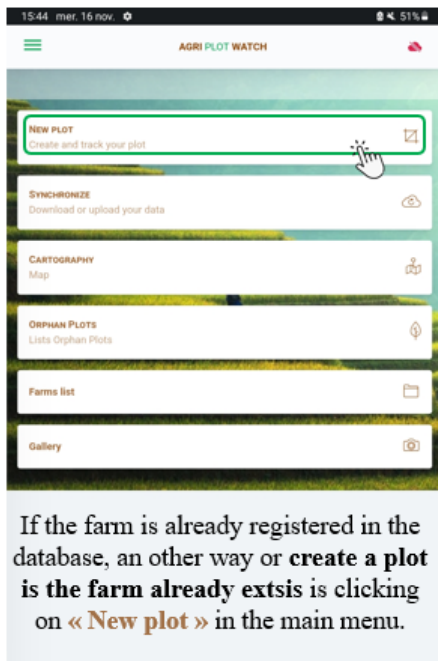
The screenshots show the following data and interface elements:

- Plot Page (Screenshot 1):** Shows details for 'Lowland rice - Basmati' with fields for Crop type, Crop details (Basmati), Production systems (Conventional System), Start date (11/04/2022), End date (03/17/2023), Yield (0t/ha), and Biomass (19t/ha).
- Photo Selection (Screenshot 2):** Shows a grid of photos in the gallery with a hand cursor selecting one.
- Photo Preview (Screenshot 3):** Shows a preview of a fertilizer bag with the text 'PHAN VI LOUKE KM-51038' and a 'save' button.



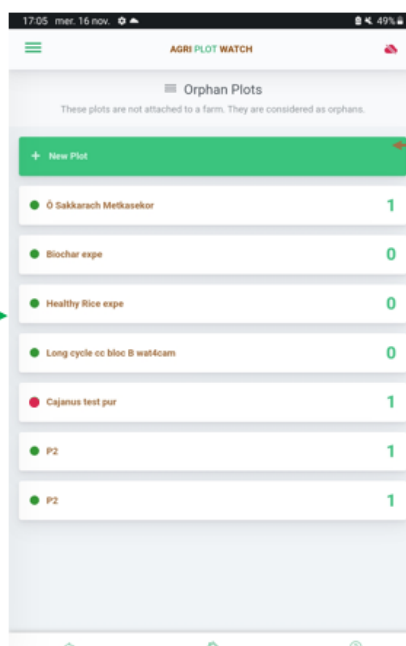
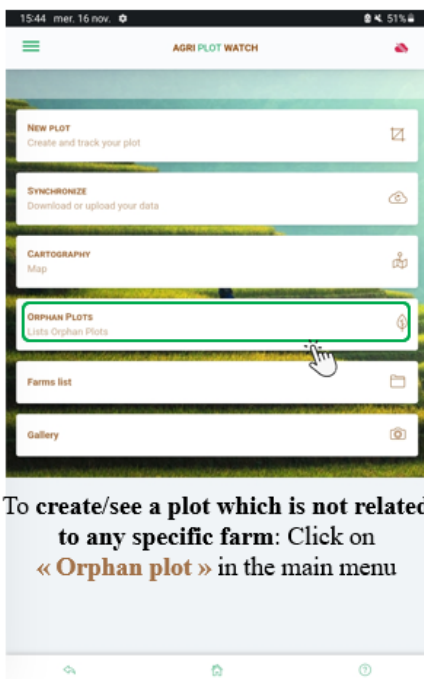
You can now see the uploaded picture on the plot page under the timeline

## 2.1 – f) Data collection – New plot menu



All the information to complete is the same except that you need to select a farm name in list from the existing database

## 2.1 – g) Data collection – Orphan plot menu



Click here to create a New Orphan Plot if it doesn't exist yet.

The next steps to create the plot/crops/Operations are strictly the same as described before.

The list of all the existing orphan plots in the database

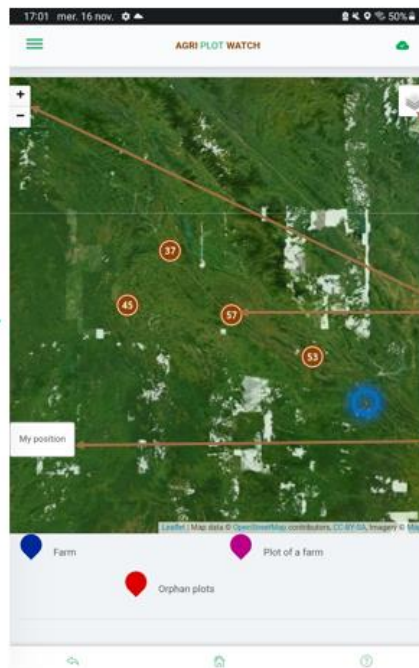
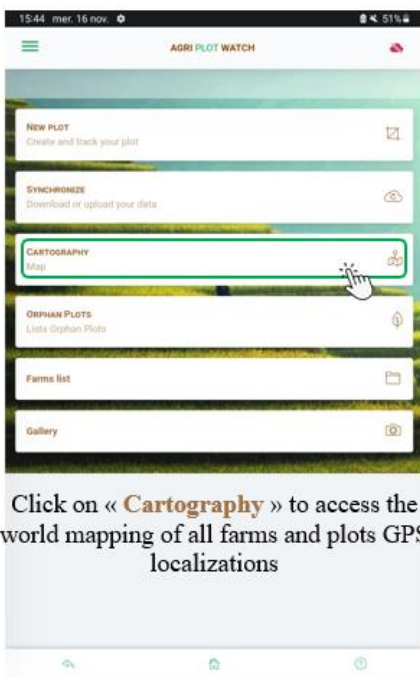
● **Green spot** = the data has been successfully uploded to the database.

● **Red spot** = Data has been modified/added and have not been uploded online yet. **Beware!** **Don't download data from the website before uploding it, or the information will be lost.**

## 2.1 – d) Cartography menu



If you use the app **Offline**, the map background will be all grey



If you use the app **connected to the internet**, the map background will appear



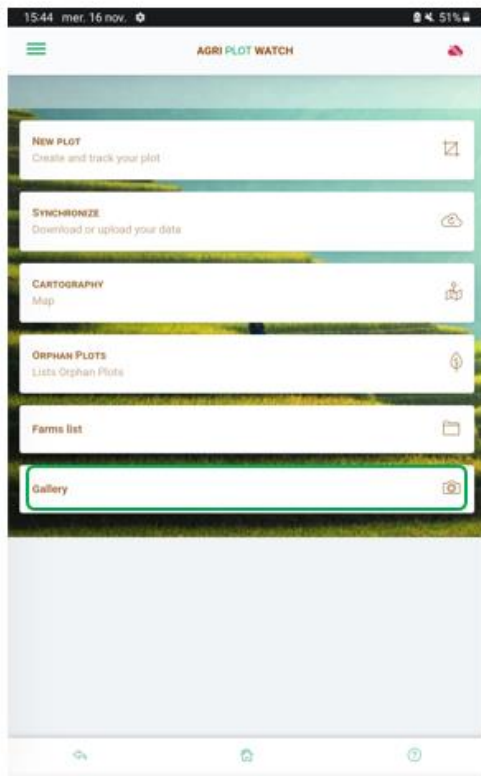
Click here to change map background

Click on the + or on the circles to zoom (The number inside indicate the number of farms and plots in the zone).

Click on « My position » to make your GPS position appear on the map (Blue circle)



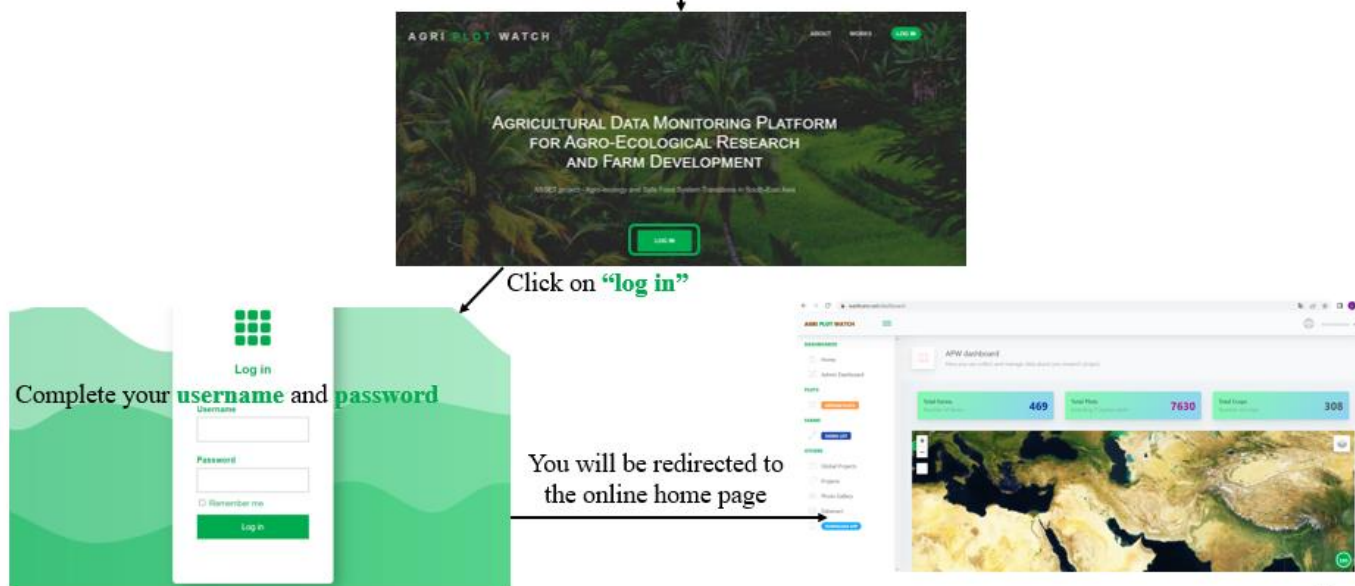
## 2.1 – d) Gallery



The « **Gallery** » button give you access to all the pictures from the database

## 2.2 – A) Accessing the portal

To access to the web portal, copy and paste the following link in you laptop web browser: <https://www.agriplotwatch.net/>



## 2.2 – b) General presentation

« **Home** » button takes you back to the homepage

« **Admin Dashboard** » to modify the list of values proposed in several information fields. (Only admins will be able to access it)

« **Download app** » : To send a precise farms/plots selection on your mobile app  
Same « **Orphan plot** » and « **Farm list** » menus as the mobile app.

« **Projects** » menu gives access to the projects listing and all farms/plots in each of them

Same « **Photo gallery** » as the mobile app.

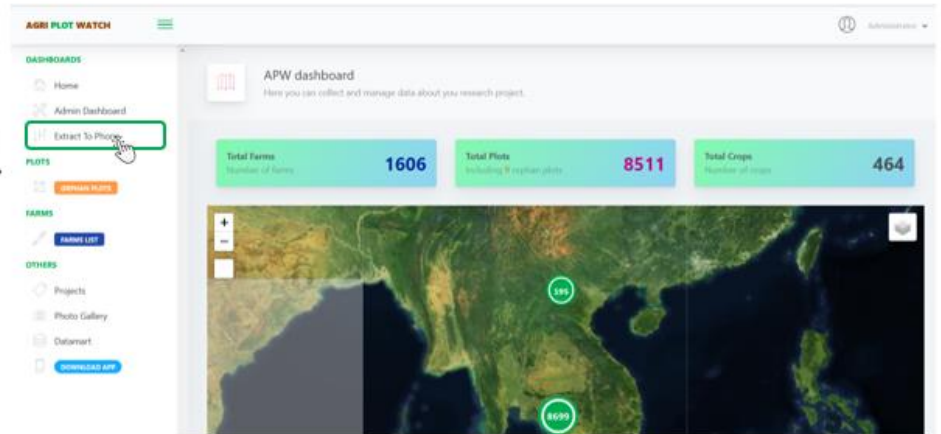
« **Datamart** »: to extract data from the database

« **Download app** » : An access to download the mobile version of the app

The **mapping** of all the farms and plots you can access in the database

## 2.2 – c) Extract to phone

If you want to select precise farms/plots and send them to you mobile app instead of having all the data on it, click on « **Extract to phone** »



You can select the farms depending on their project or their localization, or both of them

The result of your research appears here

Click on « **Research** » to apply the research filters

Click on a farm to select it (it will go down in the « result » section)

The selected farms appear here

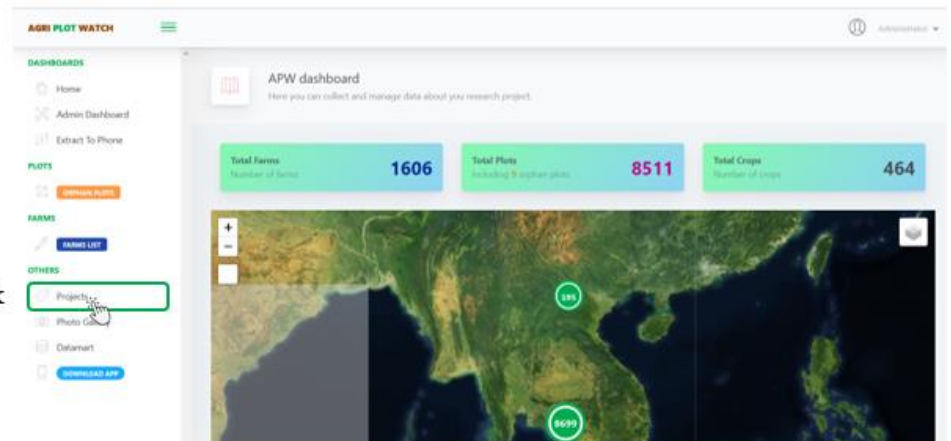
Click on a farm to unselect it (it will be sent back to the « select Fram(s) » section)

The « **Save** » button will send this data to you mobile app. Think to download the data again in the synchronize menu to see the selection on you phone.

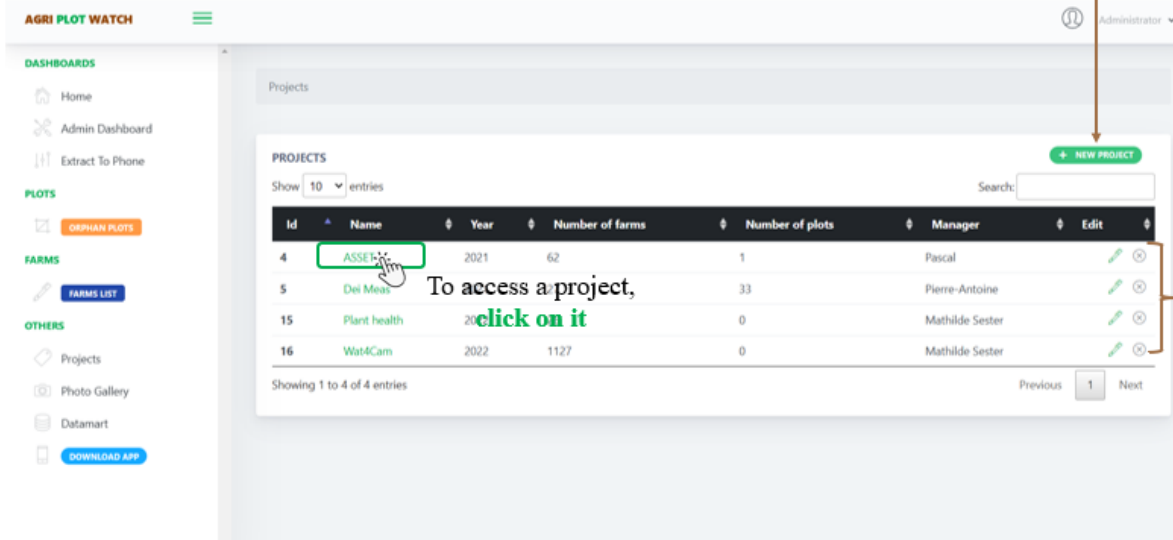
You can combine different resarch, the farms stored in the « result section » will be kept there → **Farms from different projects and provinces can be selected at the same time.**

## 2.2 – d) Projects menu

To access to the listing of all the projects click on « **Projects** »



To create a new project on which to assign farms, [click here](#)



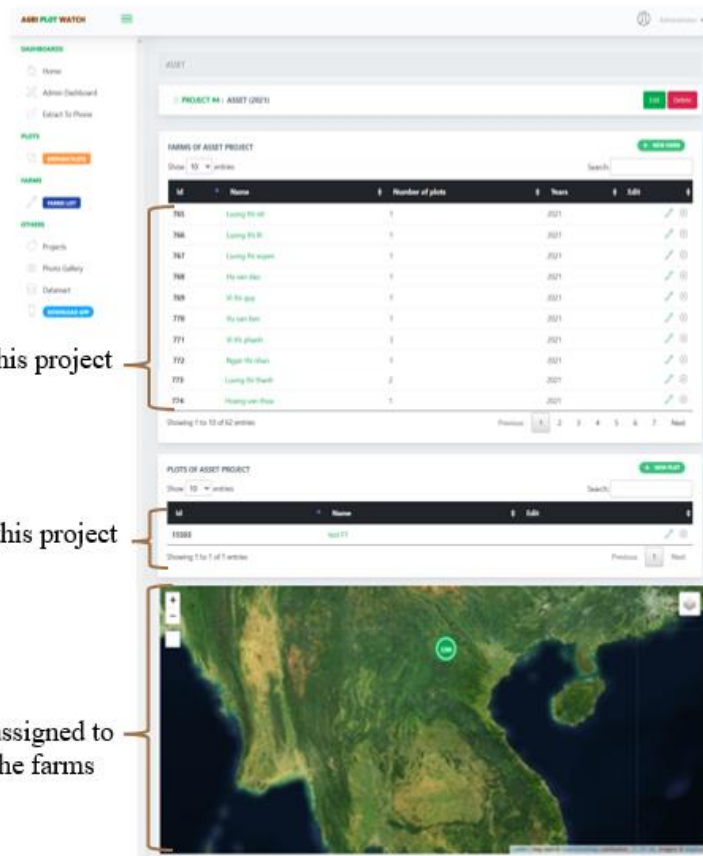
To access a project, [click on it](#)

Listing of all the projects

Listing of all the farms assigned to this project

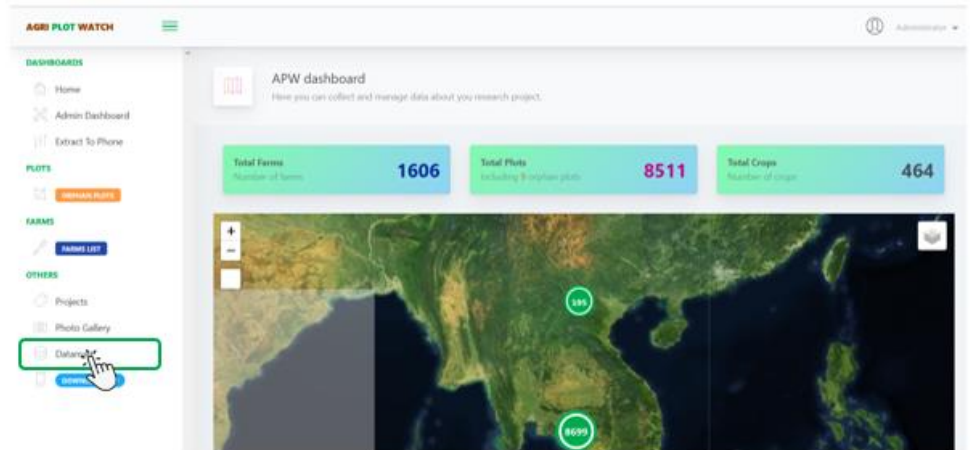
Listing of all the orphan plots assigned to this project

A mapping where only appear the farms/ plots assigned to this project (you can zoom on it and click on the farms directly on the map)



## 2.2 – e) Data extraction

To extract data from the database in order to process and analyse them, you need to access the « Datamart » menu!



To create a new one click on « New »

Here is a request that was already created to extract some data

Click on « **Apply the filters** » to generate the extraction once you selected the fields you wanted to extract.

« **Add logic operation** » will help you precise your request. **You can add as many as needed !**

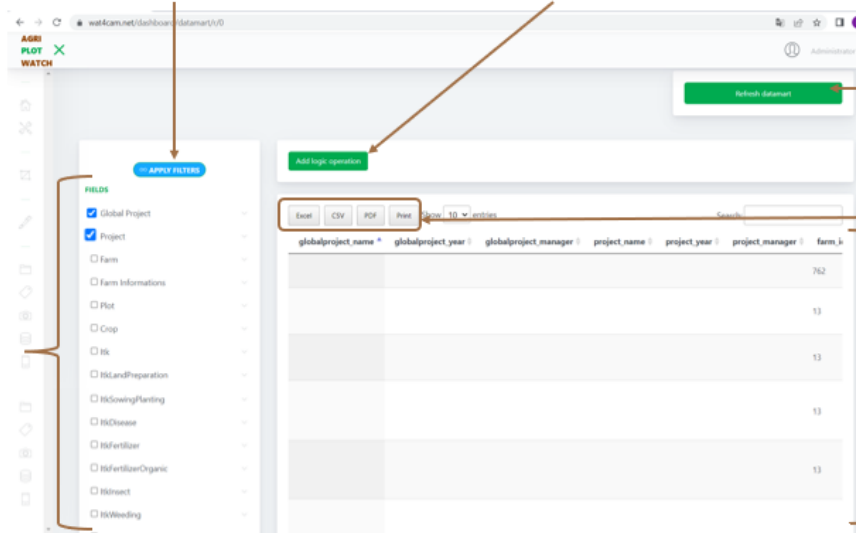
The list of all the type of information you can ask the datamart to extract is here.

To chose one ore several fields for extraction they must be selected:

Click here before each use of the datamart. (Datamart must be refreshed to take into account any data modification)

You can choose the format of the file if you want to download it.

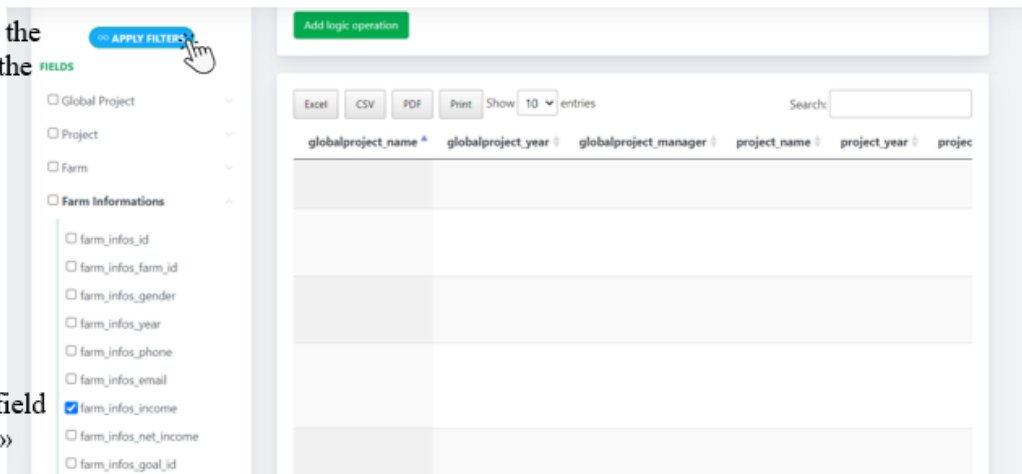
The output of you data extraction request will be posted here



Let's try to extract some specific information : The income of all the farms from the database.

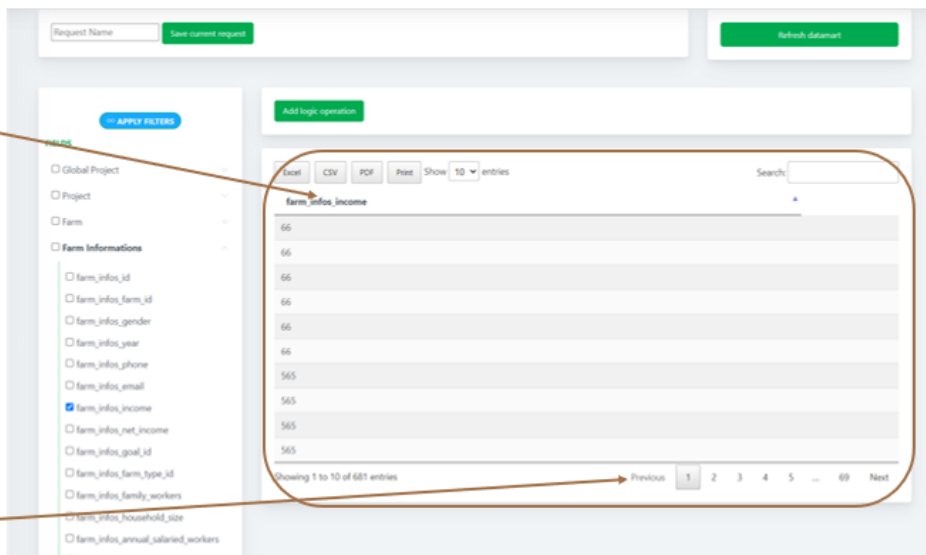
1 – Click on « apply the filters » to confirm the selection.

1 - Select the appropriate field : « farm infos income »



A single column because you asked for a single field in the list: « farm info income »

69 pages of farm income information, because you extracted the data of all the existing farms in the database.

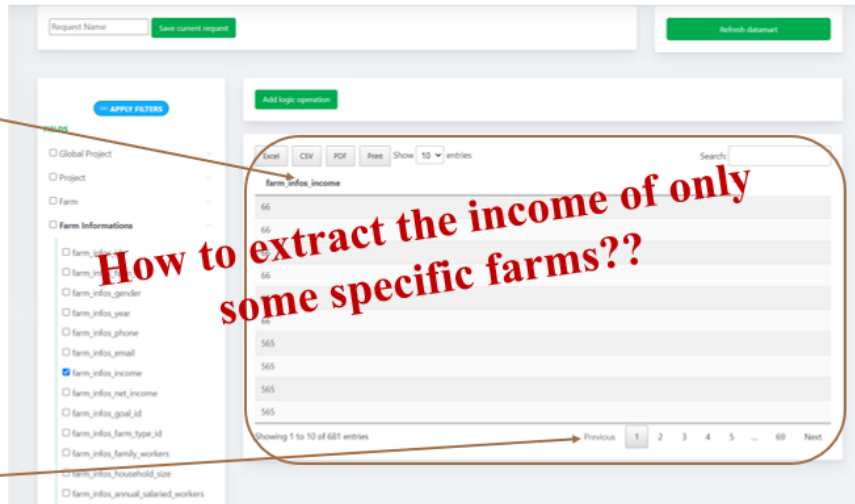


Here is the extraction!



A single column because you asked for a single field in the list: « farm\_info\_income »

69 pages of farm income information, because you extracted the data of all the existing farms in the database.

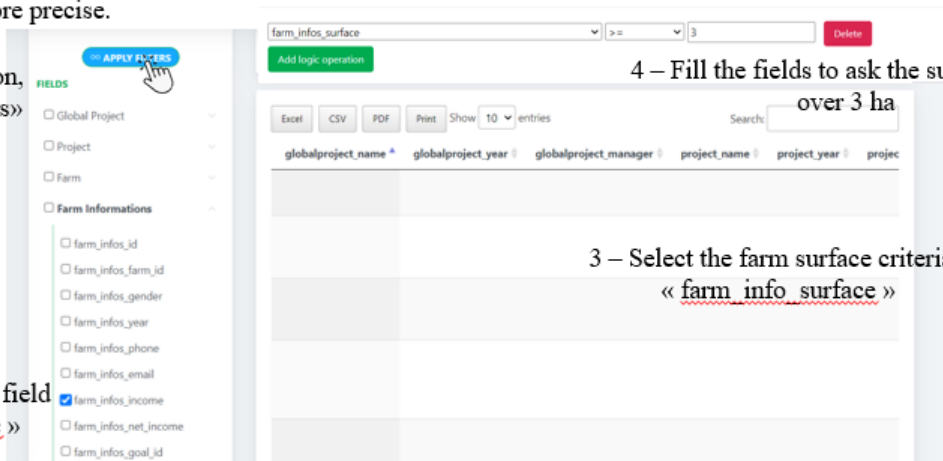


Here is the extraction!

Let's try to extract some specific information : The income of all the farms from the database, only the farms with a total surface above 3 ha.

2 – Click on « Add logic operation » to make your request more precise.

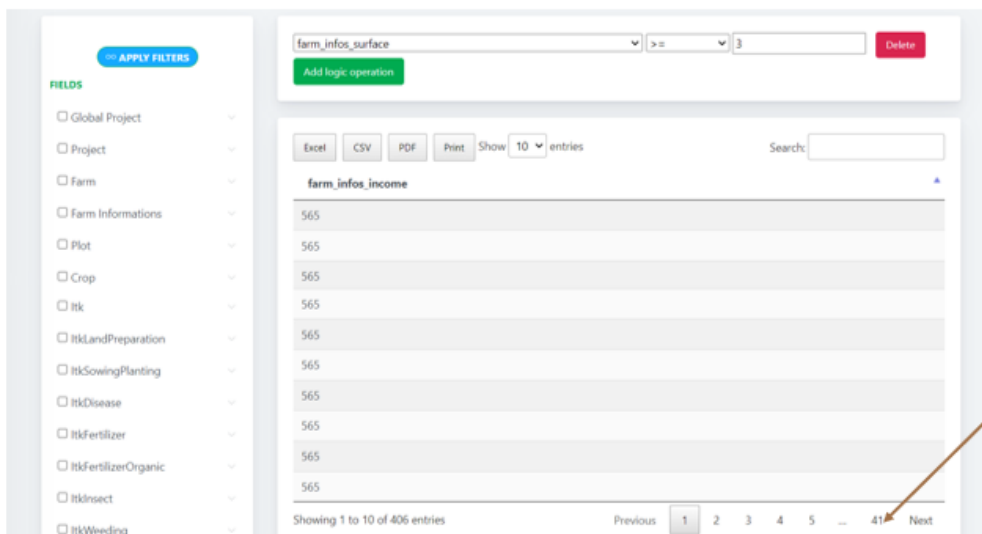
5 – Generate the extraction, clicking on « Apply filters »



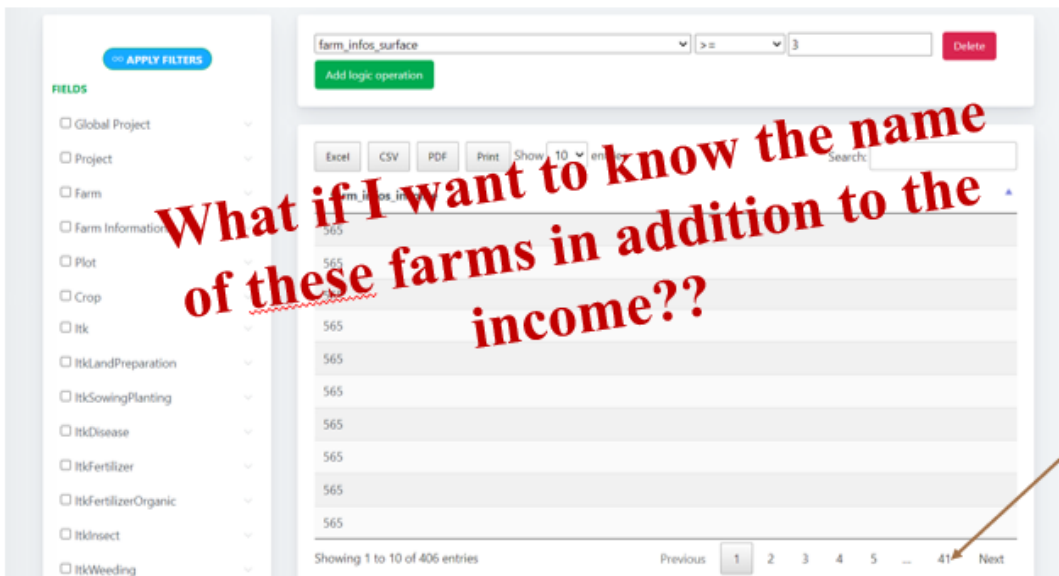
4 – Fill the fields to ask the surface to be over 3 ha

3 – Select the farm surface criteria : « farm\_info\_surface »

1 - Select the appropriate field : « farm\_infos\_income »



You now only have 41 pages, not 69. **You managed to select only the income of the farms with a total surface above 3ha.**

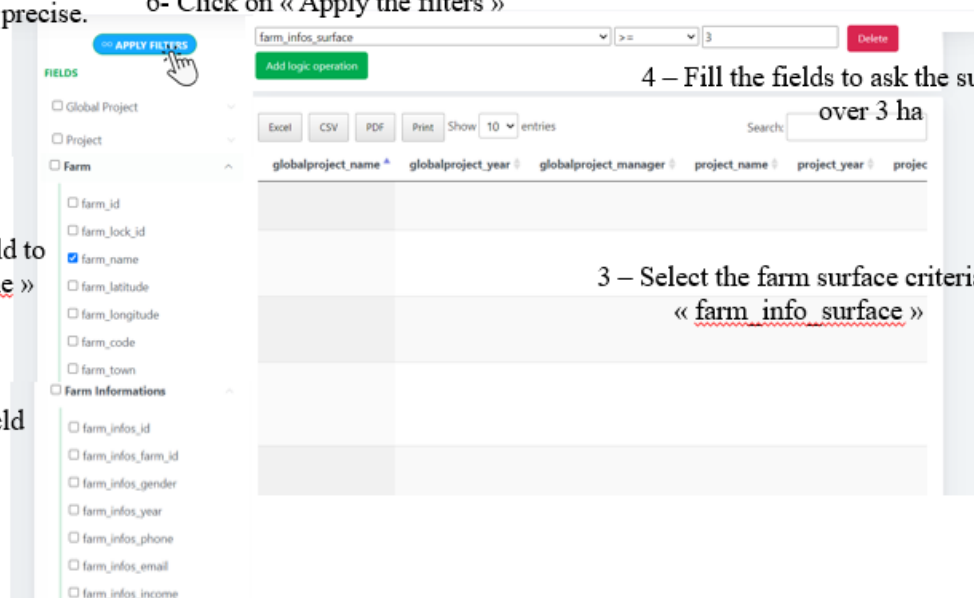


You now only have 41 pages, not 69. **You managed to select only the income of the farms with a total surface above 3ha.**

**Let's try to extract some specific information : The income and the name of the farm of all the farms from the database. only the farms with a total surface above 3 ha.**

2 – Click on « Add logic operation » to make your request more precise.

6- Click on « Apply the filters »



4 – Fill the fields to ask the surface to be over 3 ha

5- Select a second field to extract : « farm\_name »

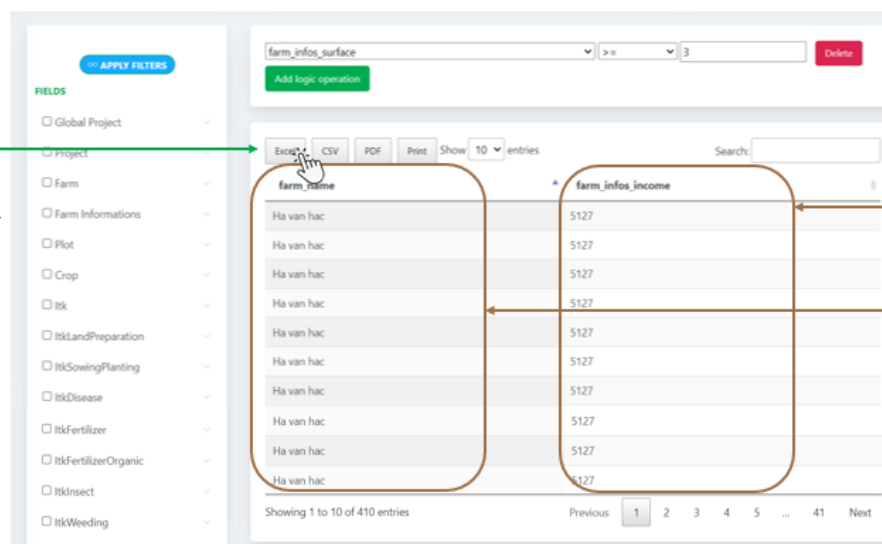
3 – Select the farm surface criteria : « farm info surface »

1 - Select the appropriate field : « farm\_infos\_income »

**Let's try to extract some specific information : The income and the name of the farm of all the farms from the database. only the farms with a total surface above 3 ha.**

To work on this data, click on « Excel ». It will export an excel file.

*NB: the same farm name/income appears many times. This is because of the way data is extracted in the database. To delete these repetition a simple excel data processing will allow you to remove the duplication.*



You have the income of the farms

And the corresponding farm names