

Agro *Strategies*

CULTIVATION MANAGEMENT SOFTWARE
USER MANUAL



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1. PROJECT DESCRIPTION

The project LIFE11 ENV/GR/951 “Sustainable strategies for the improvement of seriously degraded agricultural areas: The example of Pistachia vera L” with acronym AgroStrat, is an ambitious project which foresees the development of an integrated scenario for the sustainable management of intensively cultivated Mediterranean areas using as example the cultivation of Pistachia vera L. trees, which are intensively cultivated in Aegina Island, Greece for the last 150 years.

One of the innovative project actions is the development of a soil monitoring system, which is expected to contribute to the sustainable management of intensively cultivated Mediterranean areas. The system consists of two parts based on a client/server approach:

- Cultivation Management Software (Client/desktop application for farmer users)
- Central Management Monitoring Tool (Server/ web application for Local and Regional Authorities and agricultural associations)

The first part, **the Cultivation Management Software**, is a software which provides to farmers, specific consultancy for managing their cultivation fields based on the analysis data of soil, irrigation water and/or organic materials. The users are provided with an extensive evaluation report on the soil quality as also personalized consultancy and guidelines for fertilization, irrigation and reuse of waste or composts on their fields.

To assist users on monitoring soil quality, a portable field tool with integrated sensors has been constructed, which enables farmers to measure soil pH, electrical conductivity and moisture. These values can be also inserted into the software (information given on the project’s website www.agrostrat.gr/en/fieldEquipment, the Project-Field instruments) so as to ensure continuous monitoring of the cultivated areas.

It should be particularly noted that this advisory software does not intend to replace the role of agronomists to the provision of farming advices. Instead, the software is anticipated to assist the agronomists and simplify the way in which farmers are informed on their cultivation status and are notified in case of soil degradation.

2. SYSTEM REQUIREMENTS

2.1. SUPPORTED OPERATION SYSTEMS

The 32-bit and 64-bit versions of the following operating systems are supported by the **Cultivation Management Software**:

- **Windows 7**
- **Windows 8, 8.1**
- **Windows 10**

2.2. SCREEN RESOLUTION

Minimum screen resolution supported by the **Cultivation Management Software** is 1024x768. For optimal user experience screen resolution of 1920x1080 is recommended. If the screen resolution settings are within the recommended range, but the software's user interface doesn't appear properly, please advise section 6.3. Screen resolution troubleshooting.

3. INSTALLATION

3.1. INSTALLATION FILE

Cultivation Management Software is available through the project's official web page:

<http://www.agrostrat.gr/?q=en/CultivationManagementSoftware>

Cultivation Management Software

Current available version for download is: **v1.1**.

Software prerequisites: Windows operating systems: 7, 8, 8.1, 10 (x86/x64).

You may download the user manual here: [User Manual](#) (pdf 3.7MB).

We would highly appreciate your feedback by filling out the [software evaluation questionnaire](#), to help us improve future versions.

For any support inquiries or feedback you may contact the development team at info[[@](mailto:info@agrostrat.gr)] agrostrat.gr using "SUPPORT" as subject title.

Download

Figure 1. Download link of installation file

By clicking on the Download button, an installation executable (Agrostrat_Setup.exe) is downloaded and stored to your PC.

3.2. INSTALLATION WIZARD

By running the Agrostrat_Setup.exe (double-click on the relative icon) the installation wizard is initiated. Specific screens of the installation wizard may defer slightly between the different versions of Windows by the installation process steps are always the same. The installation process in Windows 8 operating system is presented below.

3.2.1. INSTALLING APPLICATION ON WINDOWS 8

The first screen of installation wizard is shown in **Error! Reference source not found.**

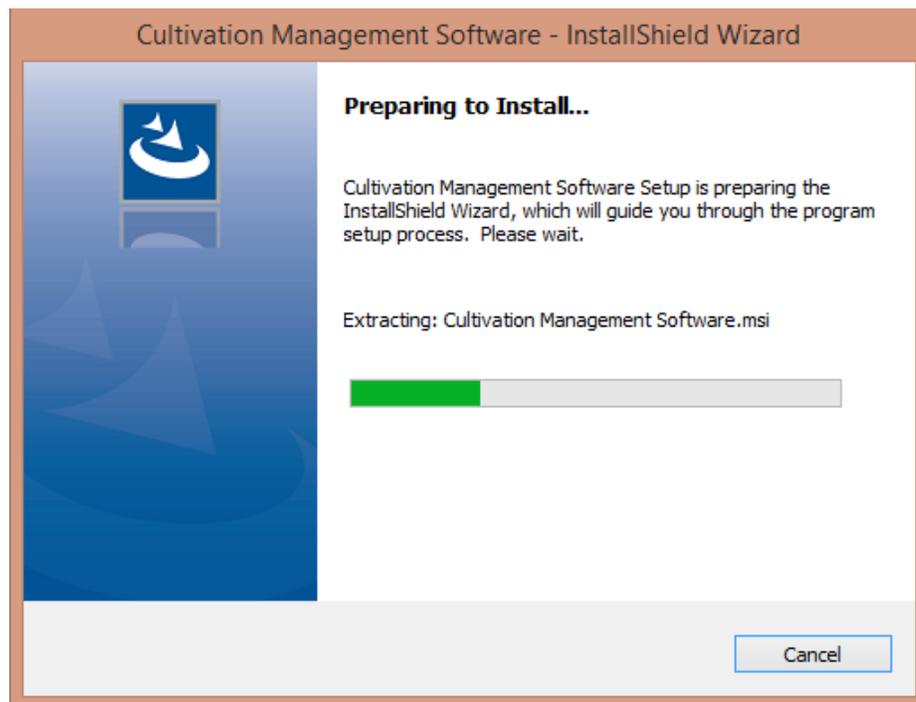


Figure 2. Initial screen of installation wizard

At the following two screens, shown in **Error! Reference source not found.** and **Error! Reference source not found.**, press the “Next” button in order to proceed.



Figure 3. Press Next button in order to proceed with the installation

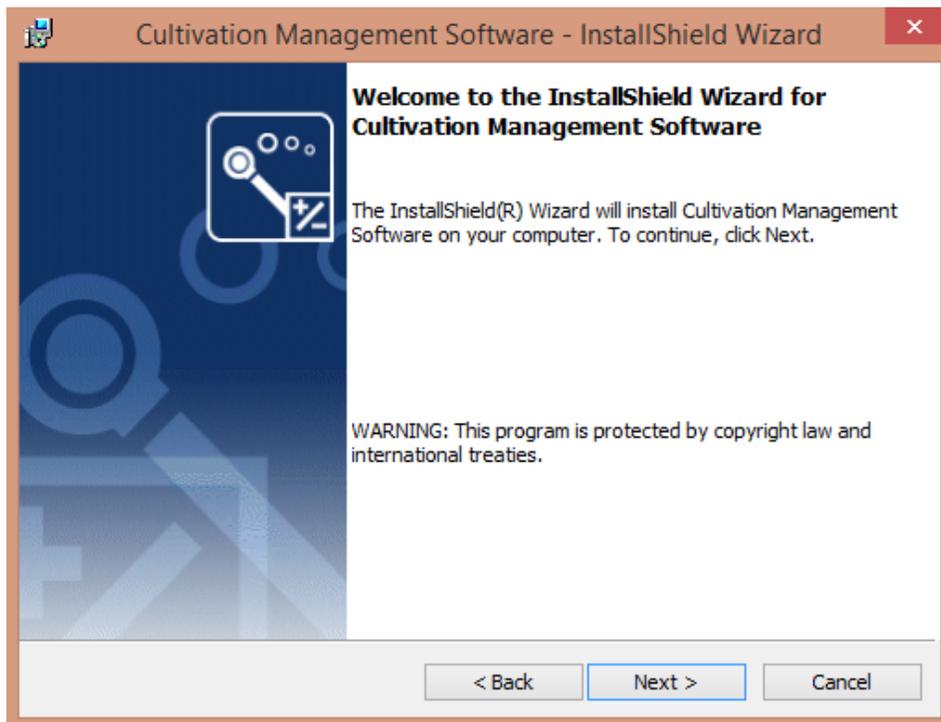


Figure 4. Press Next button in order to proceed with the installation

At the next screen as shown in, **Error! Reference source not found.**, press the "Install" button in order to complete the installation process.

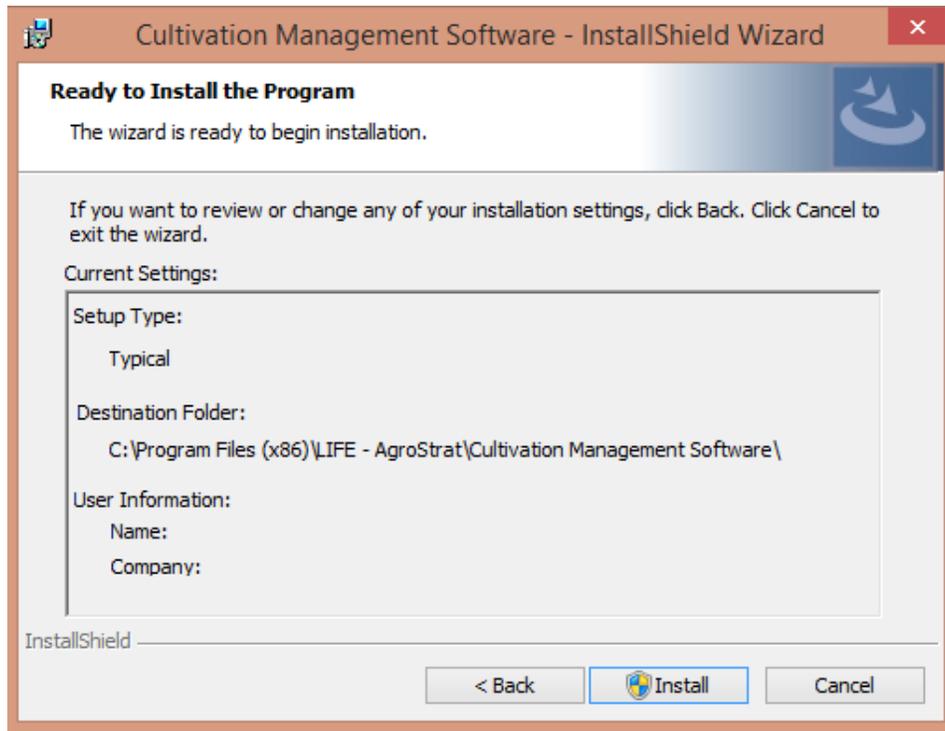


Figure 5. Press install to complete installation

On successful installation completion, press the “Finish” button to close the installation wizard window. You need to have the Windows .NET4.5 (or newer) framework library installed, in order for the software to be executed. In case that during the installation process, the framework .Net is not located, the wizard will install it automatically. You may be asked to accept the license’s agreement of the framework during the installation process. Check the accept option in order to complete the installation.

3.2.2. UNINSTALL APPLICATION

To uninstall the application from the Windows operating system, navigate to the “Settings” are and select “Add or remove programs”. Select the “Cultivation Management Software” from the programs’ list and double-click in order to uninstall it.

4. LAUNCHING APPLICATION

The installation wizard will automatically create a launch application shortcut icon at the startup menu and at the Desktop area.

4.1. INITIAL SCREEN

The first screen (**Error! Reference source not found.**) displays the main six buttons of the application, related to the key features for managing and monitoring the status of your cultivation. These are the following:

- **Field Data**
This functionality allows the user to record and categorize general information and measurement data coming from chemical analysis of soil, water and organic material for each of their field.
- **Advisory**
This feature provides rational fertilization guidelines based on the evaluation of the measurement data provided through the “Field Data” option taking also into account specific cultivation practices the users’ intent to apply.
- **Quick Rating**
The quick rating functionality provides the user a quick evaluation report on the soil, water and organic material status of its cultivation field. The evaluation is based on the analysis of the values provided for a list of required parameters.
- **Waste Disposal**
This feature allows the user to get advisory for safe solid or water waste disposal on their field.
- **Upload Data**
By using this feature, the user can send its recorded field measurement values to the regional authority of its preference in order to inform them on the status of its cultivation and request for a more detailed or personalized advisory.
- **Sensor Data**
This feature is related to the field equipment data. The user receives an assessment report on the status of their fields by uploading the extracted files containing the field device measurements.

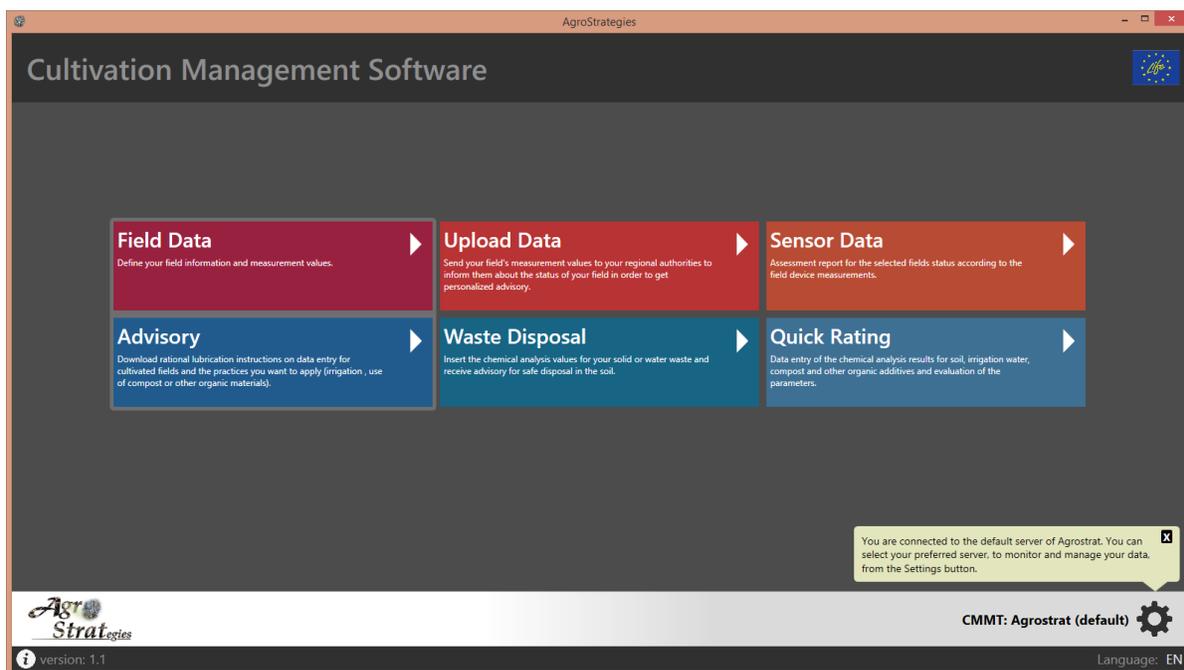
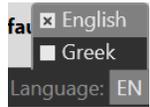


Figure 6. Initial screen view

In order to change the application language, you must select the **Language: EN** button from the status bar



The info button  leads to the project information screen (**Error! Reference source not found.**) where you can view a short project description and details for the contributors.

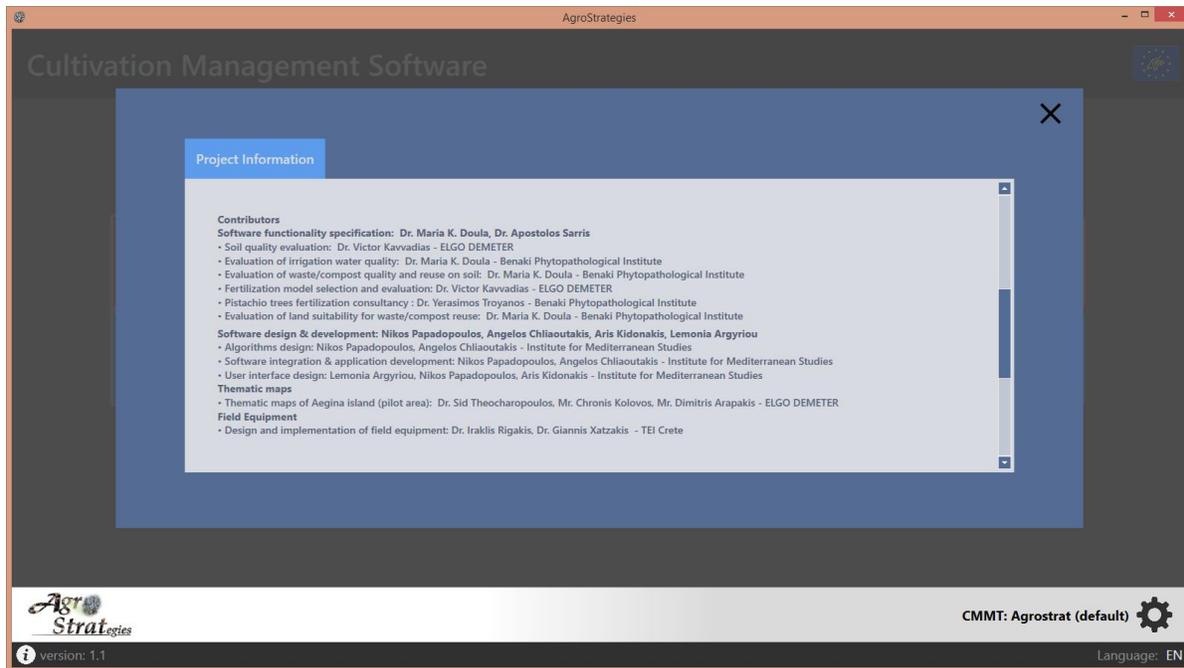
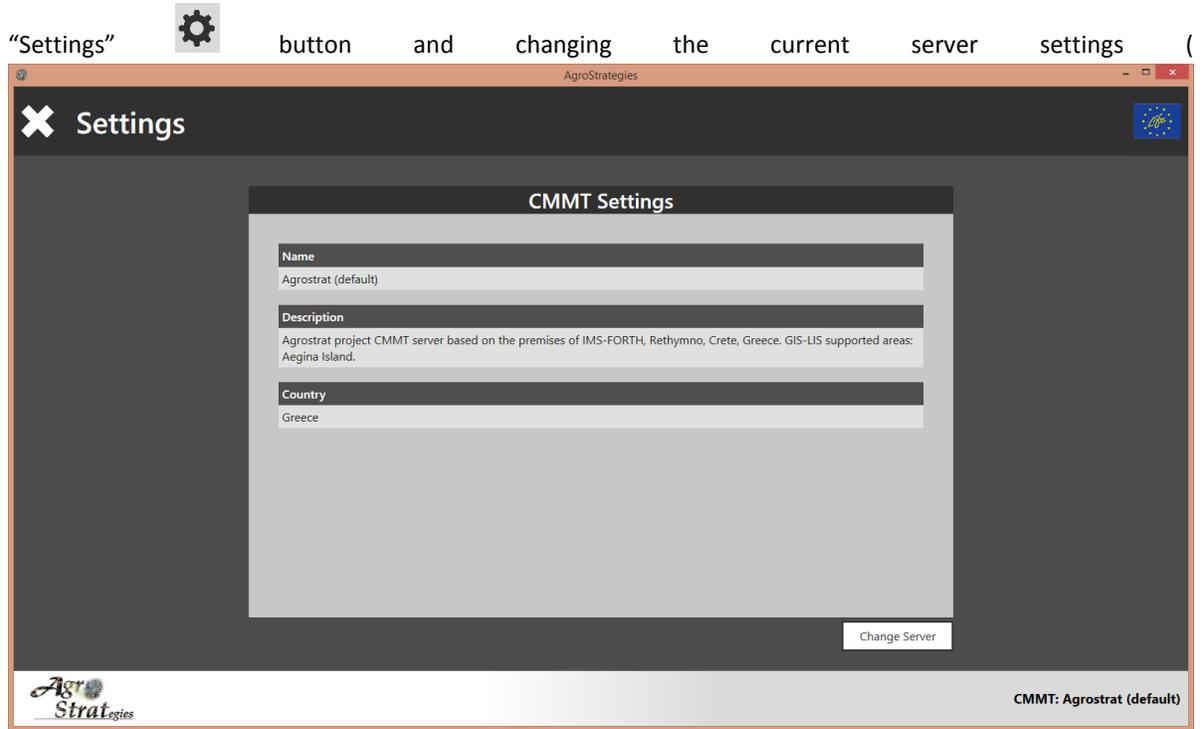


Figure 7. Project information view

4.2. SERVER SETTINGS

Upon initial execution of the application the communication is set to the default server of the Agrostrat's project. The connected server **CMMT: Agrostrat Default Server** is shown at the bottom of the initial view (Figure 7). An informative popup window will guide you to setup the server of your regional authority by selecting the



).

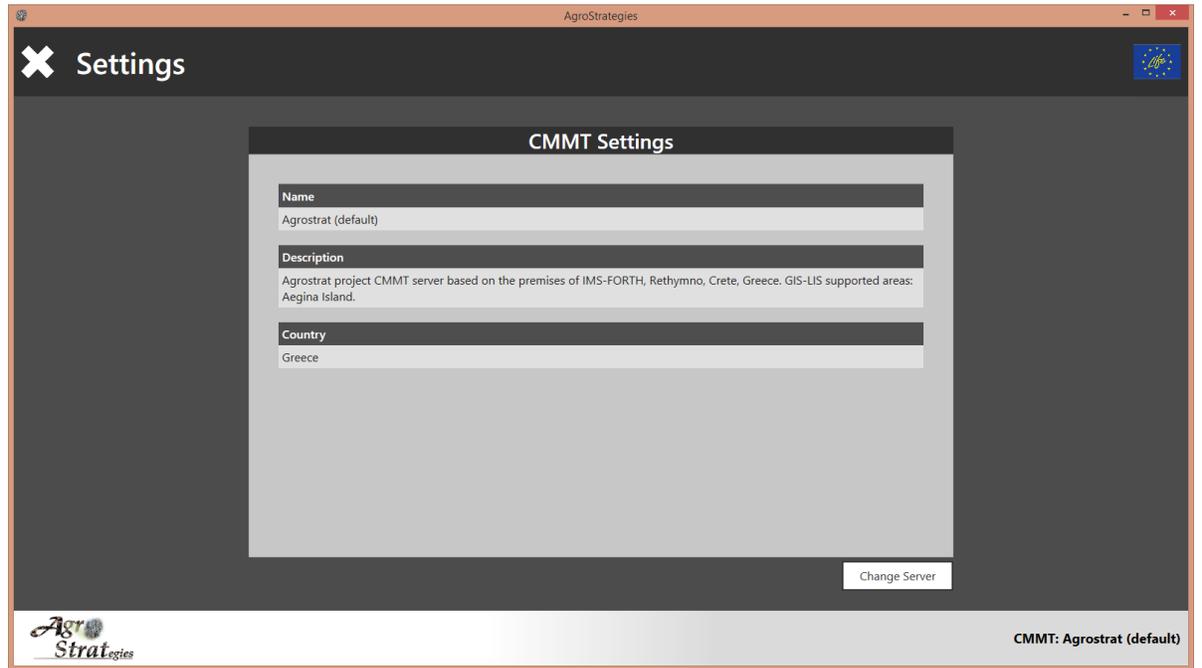
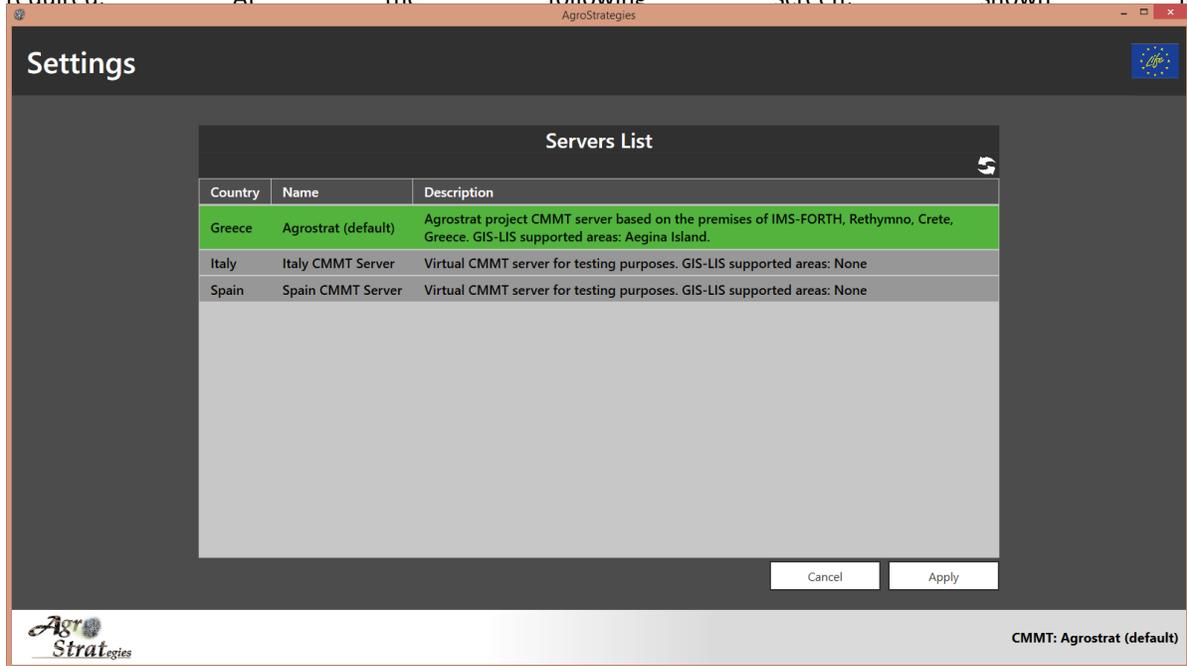


Figure 8. Current server settings

Press the **Change Server** button to change the current server settings. An active internet connection is required. At the following screen, shown in



, a list of all available servers is depicted. Choose the server related to the region of your fields and press the **Apply** button.

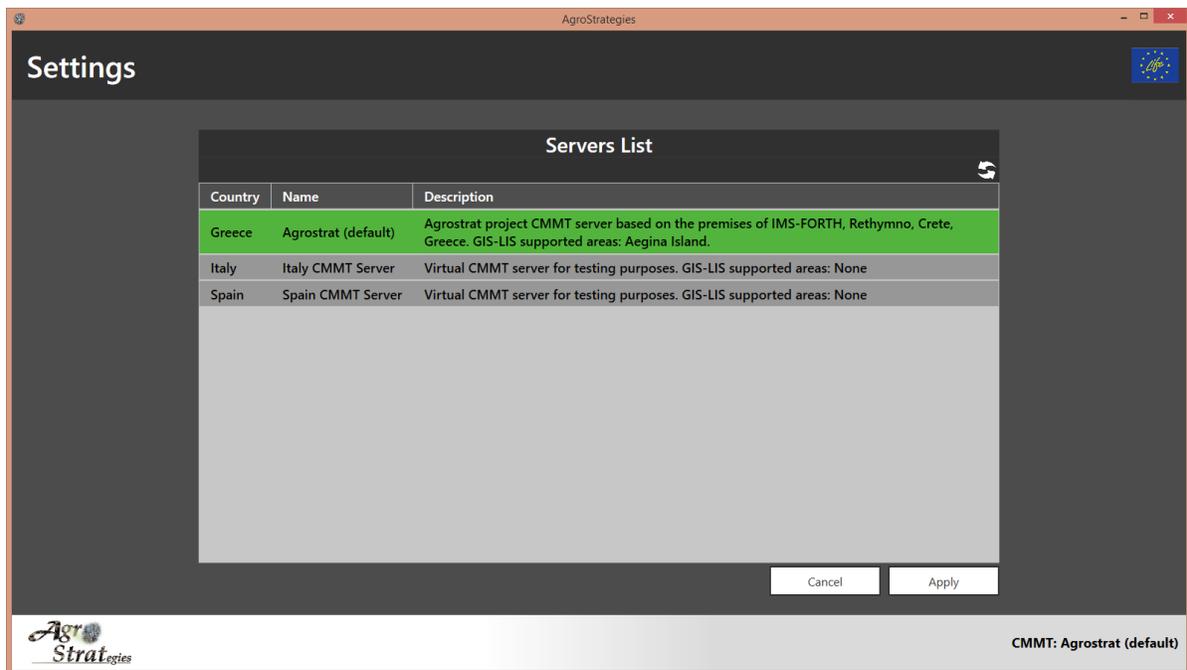


Figure 9. Available server list

By selecting a new server, you will notice that the details in “CMMT Settings” view have been updated. Press the  button in order to return to the initial view.

5. MAIN FEATURES

5.1. FIELD DATA

In the main view of the “Field Data” option the user can create a new field and record general info (location, name etc.) or edit/delete information about previously recorded fields. The user can also create a new measurement record with chemical analysis data for a specific field or edit/delete recorded measurement data. The main view consists of two separated select lists as shown in **Error! Reference source not found.** . The cultivation fields defined by the user are displayed on the left list, while on the right list, the chemical analysis records appear upon selection of a certain field.

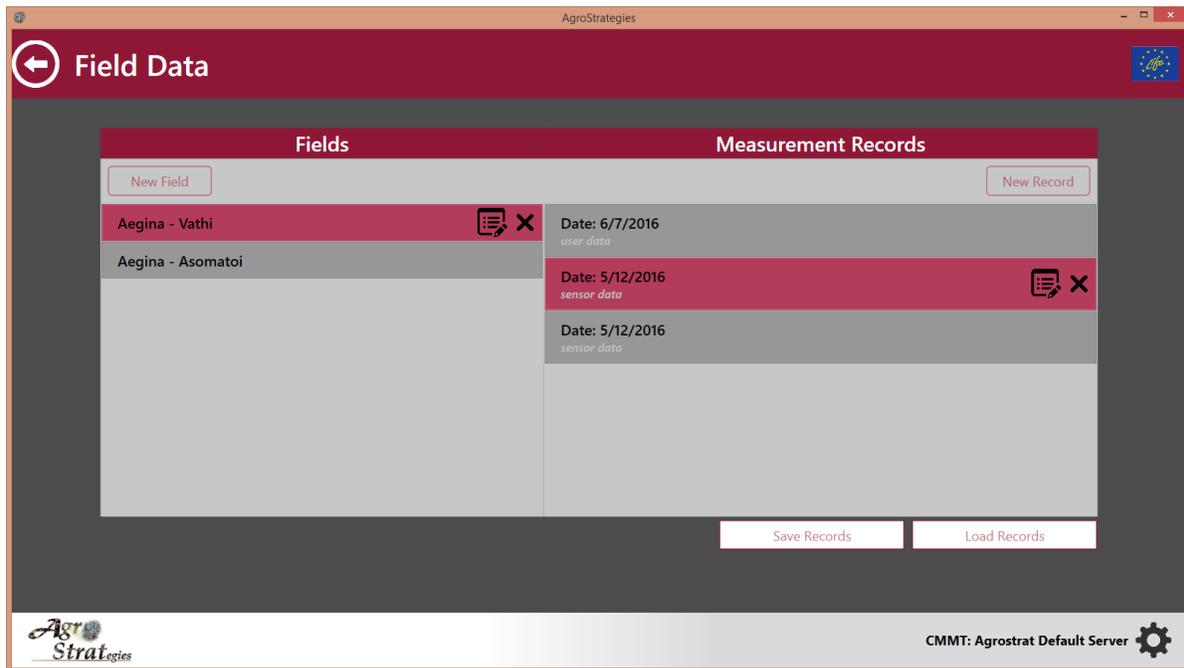


Figure 10. Field Data view

5.1.1. ADD FIELD INFORMATION

Press the  button in order to record information about a new field. You must provide all the required information in the “Add Field Information” view that is displayed next. You must provide a name and a short description, define the area length and the country of the field. Furthermore, you can define the

geographic location for your field by spotting it on the map on the right side of the view, or by entering the coordinates manually.

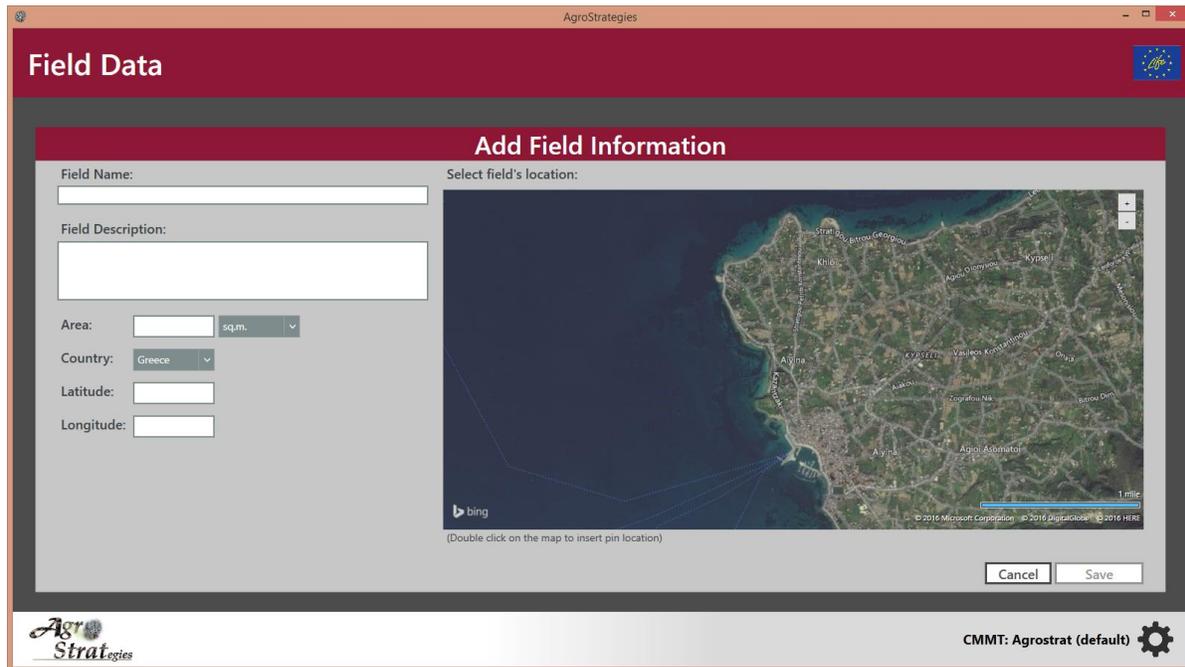


Figure 11. Add new Field Information view

To navigate on the integrated map, click the middle mouse button (or click the left and right button simultaneously) and drag the pointer to your desired direction. To zoom in/out use the scroll button of your mouse, otherwise use the plus/minus buttons  found on the up right corner of the map. Finally, to define the coordinates of your field double click using the left button of your mouse on the desired location. A pin will be shown on the map marking your field's location.

Press the  button to store the information for your field. The  button remains grey and disabled until you provide all the necessary information. Press the  button to return to "Field Data" main view without storing the information for your field.

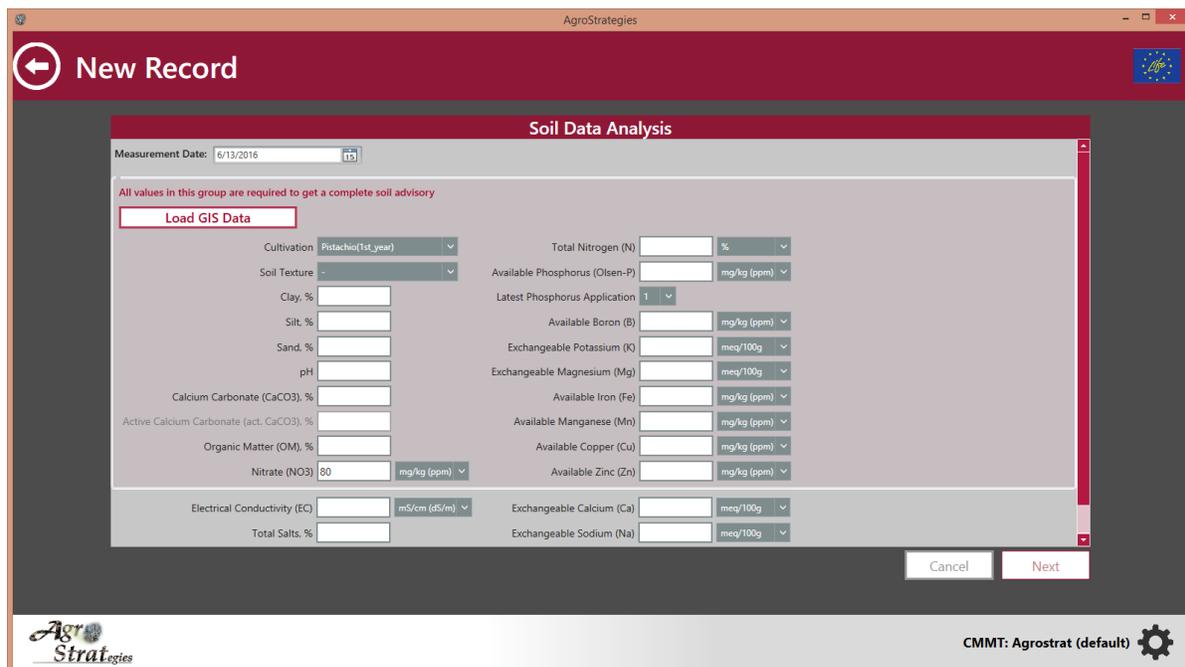
5.1.2. ADD CHEMICAL ANALYSIS DATA

Select a field from the list and press the  button in order to enter chemical analysis data for that field. Provide chemical analysis data for the soil, water and organic material in the sequential views (**Error! Reference source not found.**). In the first view enter the soil chemical analysis data and press the  button to navigate to next screen. Do the same for the water chemical analysis view. At the third and last view

enter the requested organic material chemical analysis data. Press the  button to store all the data and return to the “Field Data” view. Use the  button anytime to return to a previous screen during the input data process. Return to the “Field Data” view by pressing the  button without storing any of the chemical analysis data entered.

You can select the measurement date by using the relative menu  that appears on top of the data entry forms.

By selecting the  button you can fill automatically the required parameter values for which you do not have information. The estimated values are provided with the use of GIS services using data coming from analysis of samples of your field’s region.



(a)

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New Record

Water Data Analysis

Measurement Date: 6/13/2016

All values in this group are required to get a complete water advisory

Nitrate (NO3) meq/l
 Nitrate as Nitrogen (NO3-N) meq/l
 Potassium (K) meq/l
 Boron (B) meq/l
 Borate as Boron (BO3-B) meq/l

Water Quantity: m3/4tremma
 Watering Frequency (per year):

pH
 Electrical Conductivity (EC) mS/cm (dS/m)
 Total Hardness ppm CaCO3
 Calcium (Ca) meq/l
 Magnesium (Mg) meq/l
 Sulfate (SO4) meq/l
 Sulfate as Sulfur (SO4-S) meq/l

Total Dissolved Solids (TDS)
 Chlorides (Cl) meq/l
 Sodium (Na) meq/l
 Bicarbonate (HCO3) meq/l
 Carbonate (CO3) meq/l
 Phosphate (PO4) meq/l
 Sodium Adsorption Rate (SAR)

Optional Water Values (Heavy Metals)

Cancel Next

AgroStrategies CMMT: Agrostrat (default)

(b)

AgroStrategies

New Record

Organic Material Data Analysis

Measurement Date: 6/13/2016

All values in this group are required to get a complete advisory for your organic material

Total Nitrogen (N) % (g/100g)
 Potassium (K) % (g/100g)
 Potassium Oxide (K2O) % (g/100g)
 Phosphorus (P) % (g/100g)
 Phosphorus Pentoxide (P2O5) % (g/100g)

Nitrate (NO3) % (g/100g)
 Ammonium (NH4) % (g/100g)

Have you ever used organic material in the past? No
 Application of organic material will be: Surface distribution

Heavy Metals

For the evaluation of the suitability of the organic material for land distribution, the software will use the relevant legislation of your country regarding the land spreading of organic materials and sewage sludge. For the evaluation you should enter the total concentrations of cadmium, copper, mercury, nickel, total chromium, lead and zinc in soil and in the organic material to be distributed on soil.

Heavy Metals in Organic Material:

Cadmium (Cd) mg/kg (ppm)
 Nickel (Ni) mg/kg (ppm)
 Zinc (Zn) mg/kg (ppm)

Copper (Cu) mg/kg (ppm)
 Chromium Total (Cr tot) mg/kg (ppm)
 Hexavalent Chromium (Cr VI) mg/kg (ppm)

Cancel Save

AgroStrategies CMMT: Agrostrat (default)

(c)

Figure 12. Chemical analysis input views (a) Input soil chemical analysis, (b) Input water chemical analysis, (c) Input organic material chemical analysis

For each chemical factor enter the chemical analysis value at the box beside the name of the factor Total Nitrogen (N) . Choose the necessary measurement unit for each factor using the dropdown menu when applicable. In cases where the chemical analysis factors can be provided in different forms, choose the one related to your data using the radio buttons found on the left of the factors' name. Proceed by entering the value of the factor to the enabled textbox beside.

Potassium (K) % (g/100g)
 Potassium Oxide (K₂O) % (g/100g)

In order to get a complete fertilization advisory, you must fill all the required factors' values on the colored box, as shown in the figure below.

All values in this group are required to get a complete advisory for your organic material

Total Nitrogen (N) % (g/100g) Nitrate (NO₃) % (g/100g)
 Potassium (K) % (g/100g) Ammonium (NH₄) % (g/100g)
 Potassium Oxide (K₂O) % (g/100g)
 Phosphorus (P) % (g/100g)
 Phosphorus Pentoxide (P₂O₅) % (g/100g)

Have you ever used organic material in the past?

Application of organic material will be:

Figure 13. Required organic material chemical analysis values, to receive complete fertilization advisory

5.1.3. EDIT/DELETE DATA

You may edit/delete the general information defined for a specific field, as also its chemical analysis records, using the "Edit"  and "Delete"  buttons accordingly. These buttons appear, upon selecting a certain field (**Error! Reference source not found.**) or a chemical analysis record from the list.



Figure 14. Select field record to display the edit and delete buttons

"Edit Field Information" and "Edit Record" views, which are displayed if you press the edit button, are similar to the views "Add new field information" and "New Record" views described in sections 5.1.1. Add Field and 5.1.2. Add Chemical Analysis Data accordingly. In this case each view shows the previously stored data.

If you choose to delete a field or measurement record an overlay confirmation message is displayed.

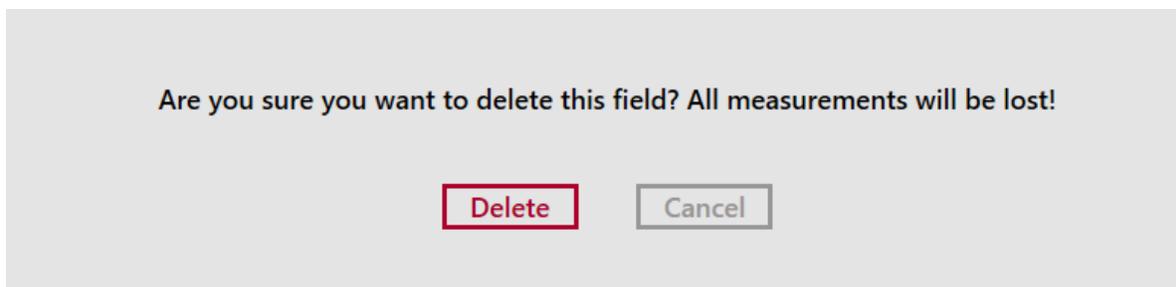


Figure 15. Confirmation message for deleting a field

5.1.4. SAVE/LOAD RECORDS

You can use the Save Records button to save a file containing all of your fields' information including the chemical analysis records for each field, to a specific location of your choice in your PC or to a storage device you may have connect. Define the name of the file containing the stored data as also the location to be stored, using the popup menu that is displayed. You may press the Load Records button to load data files to the application, which have been previously stored using the method described above. Use the overlay popup menu to load the file containing the stored data. By executing that action, all data already stored using the "Field Data" feature will be lost and replaced by those found on the file.

5.2. ADVISORY

This feature provides the user with the option to receive an evaluation report of the chemical analysis values recorded and assigned to a specific field. The user can also receive detailed fertilization guidelines according to practices he intends to apply, taking also into account the legislation regulations of their country.

The initial screen of the "Advisory" (Figure 16) contains two select lists similar to the "Field Data". Select a field and a related measurement record, previously stored in the "Field Data" view in order to receive advisory for the specific record selected.

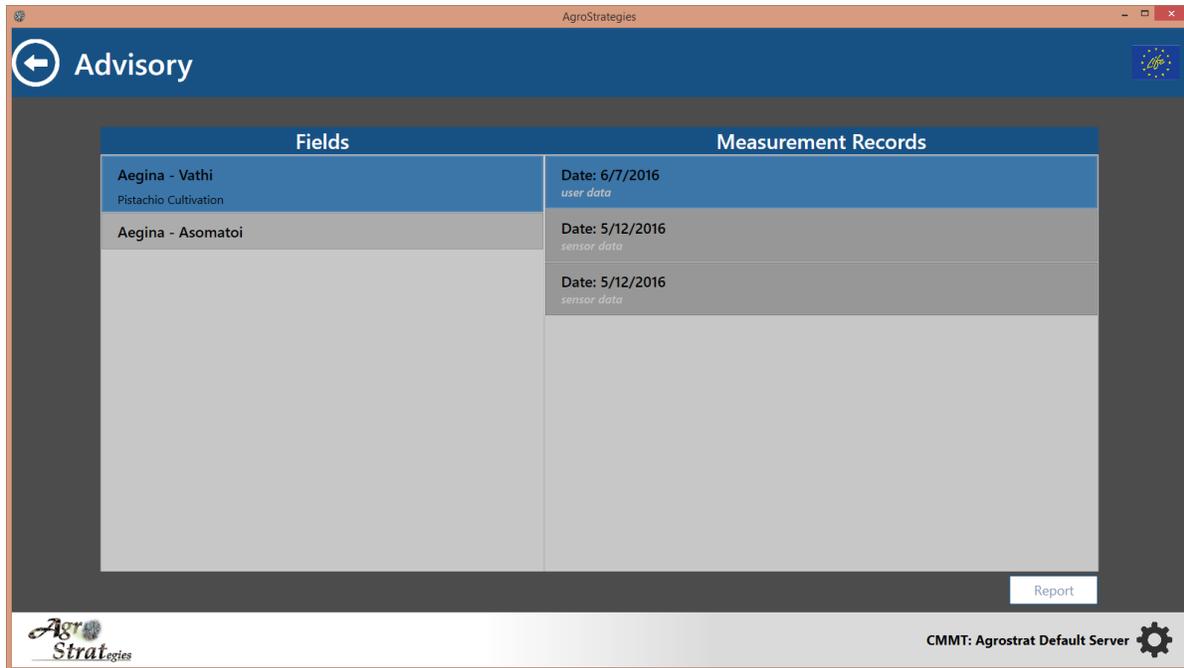


Figure 16. Choose a field and a measurement record for that field to receive evaluation and advisory

5.2.1. EVALUATION REPORT

Press the button to preview the “Evaluation Report” view as shown in Figure 17. The view contains an array with records about the evaluation of the chemical analysis values, you selected. Each evaluation entry contains the name of the chemical factor, the value provided, the category of the factor, and the evaluation. The evaluation is divided to a detailed evaluation description text and a color scale indicator. Red color indicates strong concern, orange is of medium concern, yellow is of light concern and green is an optimum value indicator.



Figure 17. Evaluation report view

Use the tab on the left side of the view, in order to navigate between soil, water and organic material evaluation reports.

5.2.2. ADVISORY REPORT

Navigate to the “Advisory Report” (Figure 18) view by pressing the  button, to receive rational fertilization advisory for applying conventional fertilizers or any organic material, according to the values provided to the selected measurement record. Through “Advisory Report” view you are provided with information about the exact fertilization quantity for each primary chemical element, as also detailed guidelines concerning their disposal.

Soil Advisory

Element	Advisory
Nitrogen (N)	The recommended dose is 8.5Kg/1000m ² . Broadcast the fertilizer during orchard establishment all over the field and incorporate into soil. It is suggested to fertilize at the same time with organic material addition (e.g. manures, composts).
Phosphorus (P)	The recommended phosphorus amount is 35Kg/1000m ² . Broadcast fertilizer all over the field and incorporate into soil. It is suggested to fertilize at the same time with organic material addition (e.g. manures, composts).
Potassium (K)	No complementary Potassium fertilization is required, since the soil contains adequate amount of this nutrient.
Magnesium (Mg)	No complementary Magnesium fertilization is required, since the soil contains adequate amount of this nutrient.
Zinc (Zn)	No complementary Zinc fertilization is required, since the soil contains adequate amount of this nutrient.
Boron (B)	The recommended boron dose is 0.06Kg/1000m ² . Spray the recommended boron fertilizer dose on the planting lines.
Copper (Cu)	No complementary Copper fertilization is required, since the soil contains adequate amount of this nutrient.
Manganese (Mn)	No complementary Manganese fertilization is required, since the soil contains adequate amount of this nutrient.
Iron (Fe)	No complementary Iron fertilization is required, since the soil contains adequate amount of this nutrient.

Organic Material Advisory

Organic Material Advisory cannot be proposed as you are missing input values.

Figure 18. Advisory report view

Press the  button to export the Evaluation and Advisory report and store it locally to your PC as a pdf file.

5.3. QUICK RATING

Through this feature the user can receive a quick evaluation for soil, water and organic material status, based on the chemical analysis values provided.

In the first view of the “Quick Rating” (Figure 19 **Error! Reference source not found.**) feature, you may enter the values of the parameters related to the soil factor.

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Quick Rating

Measurement Values

Soil

Soil Texture

Clay. %

Silt. %

Sand. %

pH

Electrical Conductivity (EC) mS/cm (dS/m)

Water

Calcium Carbonate (CaCO₃). %

Active Calcium Carbonate (act. CaCO₃). %

Organic Matter (OM). %

Total Salts. %

Organic Material

Total Nitrogen (N) %

Available Phosphorus (P) mg/kg (ppm)

Available Boron (B) mg/kg (ppm)

Exchangeable Potassium (K) meq/100g

Exchangeable Calcium (Ca) meq/100g

Exchangeable Magnesium (Mg) meq/100g

Exchangeable Sodium (Na) meq/100g

Cation Exchange Capacity (C.E.C.)

Available Iron (Fe) mg/kg (ppm)

Available Manganese (Mn) mg/kg (ppm)

Available Copper (Cu) mg/kg (ppm)

Available Zinc (Zn) mg/kg (ppm)

Report

AgroStrategies

CMMT: Agrostrat (default)

Figure 19. Input chemical analysis values for soil

By selecting the “Water” tab you navigate to the screen for entering parameter values for water (Figure 20).

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Quick Rating

Measurement Values

Soil

Water

Organic Material

pH

Electrical Conductivity (EC) mS/cm (dS/m)

Total Hardness ppm CaCO₃

Calcium (Ca) meq/l

Magnesium (Mg) meq/l

Total Dissolved Solids (TDS)

Nitrate (NO₃) meq/l

Nitrate as Nitrogen (NO₃-N) meq/l

Sulfate (SO₄) meq/l

Sulfate as Sulfur (SO₄-S) meq/l

Optional Water Values:

Aluminum (Al) ppm (mg/l)

Arsenic (As) ppm (mg/l)

Beryllium (Be) ppm (mg/l)

Cadmium (Cd) ppm (mg/l)

Chromium Total (Cr tot) ppm (mg/l)

Manganese (Mn) ppm (mg/l)

Chlorides (Cl) meq/l

Boron (B) meq/l

Borate as Boron (BO₃-B) meq/l

Sodium (Na) meq/l

Potassium (K) meq/l

Bicarbonate (HCO₃) meq/l

Carbonate (CO₃) meq/l

Phosphate (PO₄) meq/l

Sodium Adsorption Rate (SAR)

Cobalt (Co) ppm (mg/l)

Copper (Cu) ppm (mg/l)

Fluoride (F) ppm (mg/l)

Iron (Fe) ppm (mg/l)

Lead (Pb) ppm (mg/l)

Molybdenum (Mo) ppm (mg/l)

Report

AgroStrategies

CMMT: Agrostrat (default)

Figure 20. Input chemical analysis values for water

Finally, you may select the “Organic Material” tab in case you want also to get evaluation on the status of organic material you may own by entering the values for its relative parameters (Figure 21).

Figure 21. Input chemical analysis values for organic material

At the end of the data entry session, you may view your evaluation report by selecting the  button below. The screen that appears is described on section 5.2.1. Evaluation Report.

5.4. WASTE DISPOSAL

Using the “Waste Disposal” feature the user can get guidelines for disposing waste by providing chemical analysis data of the waste he wants to dispose, as also chemical analysis data of the soil, where waste will be disposed.

You have to select the field you intend to dispose solid or water waste, using the initial view of this feature (Figure 22Error! Reference source not found.).

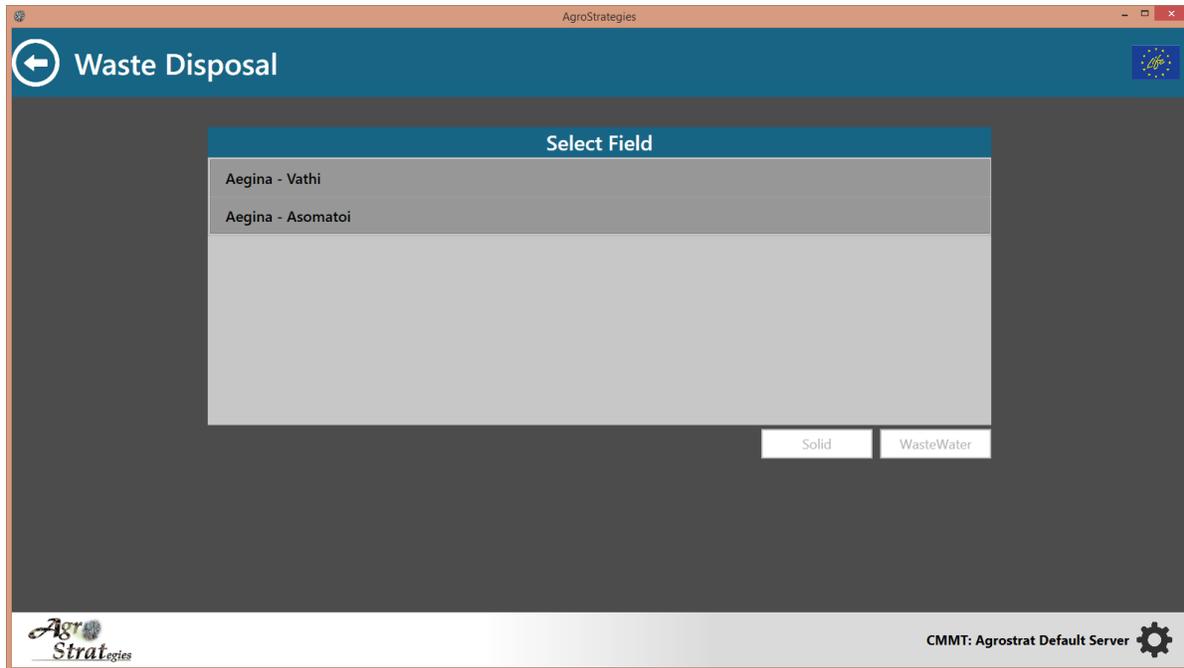


Figure 22. Choose a stored field on the initial view of Waste Disposal

You will receive information about the suitability of solid or water waste disposal, according to the data recorded related to the field selection from the list. Suitability information provided by the software, depends on the morphological parameters of the field's geographical location. For the "Waste Disposal" feature, active internet connection is necessary. Select one of the buttons, found below the field list, according to the type of waste you want to dispose (solid or water). Buttons are both enabled (Figure 23), only in case where soil is suitable for both solid/water waste disposals.

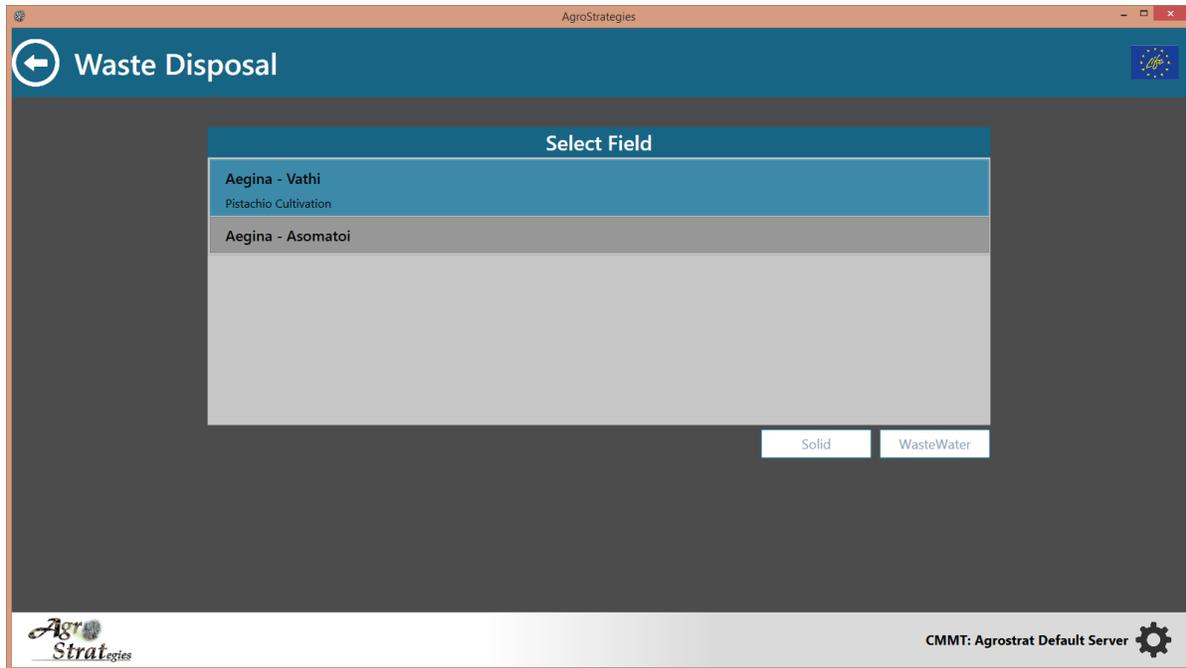


Figure 23. Selected field is suitable for both solid and water waste disposals

On the other hand, if either type of waste disposal is not applicable on field's soil, the corresponding button is disabled. In such case an informative text, indicates also the type of waste and the reason that is unsuitable for disposal (Figure 24).

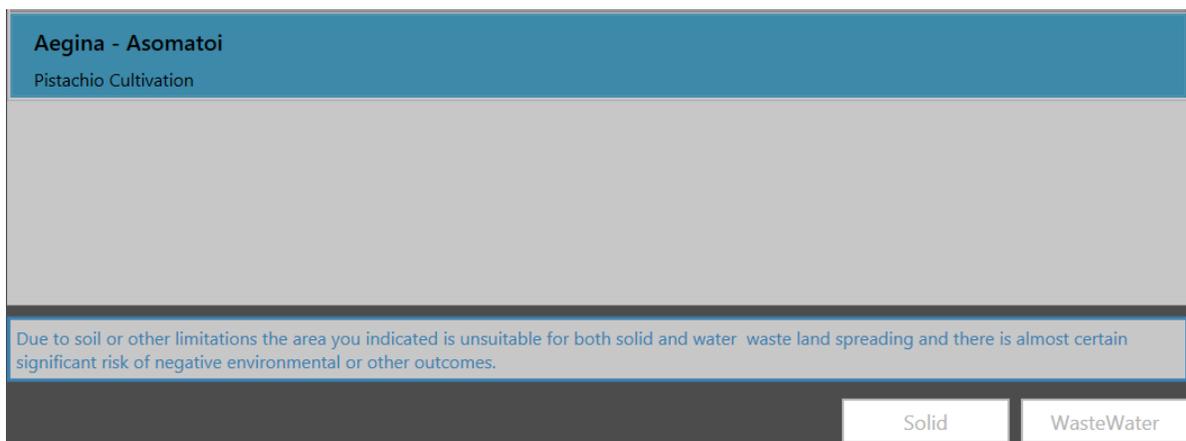


Figure 24. Field soil is unsuitable for waste and water waste disposal

5.4.1. SOLID/WATER WASTE DISPOSAL

In case field's soil is suitable for waste disposal, select the or button, to navigate to solid or water waste disposal view respectively. At the next view (Figure 25) you need to enter the required chemical analysis values of solid or water waste (depends on the selected action) to be disposed, but also the soil's chemical analysis.

The area you indicated is moderately suitable for waste land spreading. Input the required data in order the amount of waste that can be distributed on soil to be calculated. It is recommended to proceed to waste land spreading after receiving an expert advice. It is supposed that waste land spreading will take place by incorporation into soil up 30 cm depth.

For waste you should input the following parameters based on chemical analysis:

(This function is suitable only for pistachio cultivations found in Aegina Island)

<input type="radio"/> Total Nitrogen (N)	2.5	% (g/100g)	<input type="radio"/> Phosphorus (P)		% (g/100g)
<input type="radio"/> Potassium (K)		% (g/100g)	<input type="radio"/> Phosphorus Pentoxide (P2O5)	1	% (g/100g)
<input checked="" type="radio"/> Potassium Oxide (K2O)	2.9	% (g/100g)	Copper (Cu)	106	mg/kg (ppm)
Zinc (Zn)	99	mg/kg (ppm)	Polyphenols	4.5	g/kg

For soil you should input the following parameters:

<input type="button" value="Get GIS Values"/>					
Total Nitrogen (N)	0.58	mg/kg (ppm)	Available Copper (DTPA-Cu)	2.6	mg/kg (ppm)
Available Phosphorus (Olsen-P)	8.4	mg/kg (ppm)	Available Zinc (DTPA-Zn)	1.8	mg/kg (ppm)
Exchangeable Potassium (K)	0.7	meq/100g	Total Polyphenols	50	mg/kg (ppm)

Figure 25. Solid waste disposal view

Enter all the required data and the press the button to receive information about the maximum amount of solid or water waste that can be disposed throughout the entire area of the field (Figure 26). Button will remain inactive if required data are missing.

You have also the capability to get missing soil chemical analysis values, using the GIS-LIS service as described in section 5.1.2. Add Chemical Analysis Data. In addition, you can retrieve missing values of waste chemical analysis using "Retrieve Mean Values" but at the current version of the software function is only suitable for the field of Aegina Island.

The maximum amount of solid waste that can be disposed of in soil is: 295 tn. distributed to the entire field.

Figure 26. Solid waste disposal report about the maximum amount to be disposed, according to the data entered

5.5. UPLOAD DATA

User can upload the information of each stored field, as also the chemical analysis records, to regional authorities by using the “Upload Data” feature. Data are uploaded to the responsible authority’s server chosen by the user as described in section 4.2. Server Settings. Authorities can provide the user with a personalized advisory, based on the data uploaded.

In the main view of the “Upload Data” feature (Figure 27) choose the field to be upload, along with its descriptive information and its chemical analysis records. Only fields that contain geographical coordinates and at least one chemical analysis record, are displayed in the list. Press the **Send** button to upload data to the responsible authority. To successfully upload data using the specific feature, an active internet connection is required.

The screenshot shows a web application window titled "AgroStrategies". The main header is "Upload Data" with a back arrow icon and a European Union flag. The central panel is titled "Send data to central authority" and contains an information icon and text: "Stored fields that do not contain exact coordinates and at least one chemical analysis, they don't appear on the selection field list." Below this are input fields for "Name:", "Email:", and a "Select field:" dropdown menu currently showing "Aegina - Vathi". There is a large text area for "Your message:". At the bottom of the panel, a red status message reads "All measurement data of the selected field uploaded successfully" next to a "Send" button. The footer includes the "AgroStrategies" logo and "CMMT: Agrostrat Default Server" with a gear icon.

Figure 27. Upload data view

In addition, along with the field data uploaded, you can send your name, your email and a relative question. Filling out the later information is optional, but it is highly recommended in order for the responsible authority to be able to contact you in order to provide you with personalized advisory.

5.6. SENSOR DATA

This feature (Figure 28) is responsible for storing measurement data, collected using the field equipment. It is consisted of three logical operational steps:

1. Reading the measurement data, stored on the memory data file of the field equipment.
2. Mapping the measurement data with the fields already stored on the software.
3. Storing each measurement data record to its mapped field.

Steps are described in detail in the following subsections.

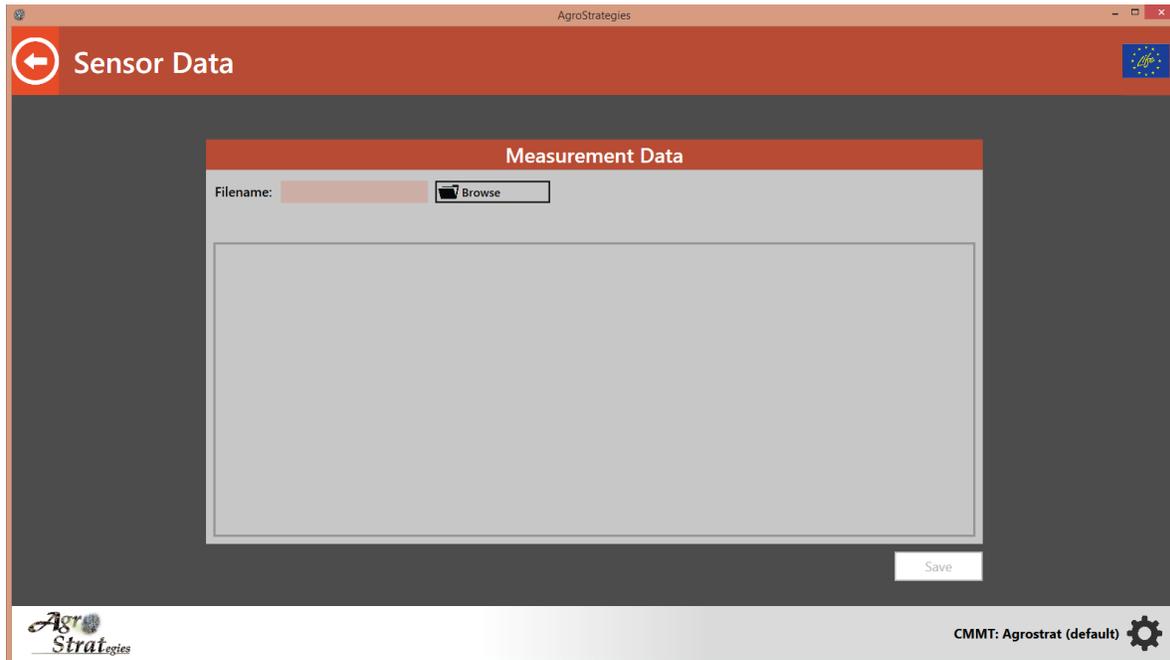


Figure 28. Sensor Data view

5.6.1. READING FIELD EQUIPMENT'S DATA

In the main view of “Sensor Data” feature press the “Browse” button to navigate to the disk location where the field equipment’s file is stored. To get more information and detailed instructions on how to use the field equipment, and how to store the measurement data file to your local disk, please refer to user manual found on the project’s official website (<http://agrostrat.gr/en/fieldEquipment>).

All the stored measurement values will be loaded, by selecting the file from the relative location, as shown in Figure 29. A descriptive error message is displayed if the Software is unable to read the file.

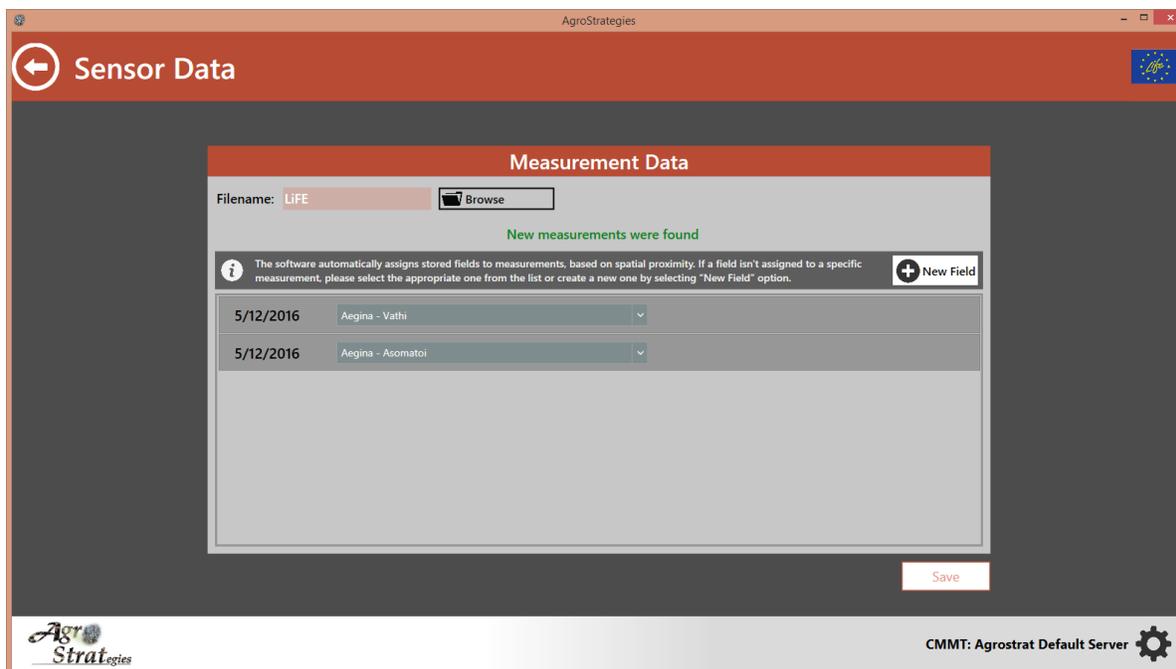


Figure 29. Measurement data stored on the memory file of the field equipment, are successfully loaded

5.6.2. MAPPING DATA

In case where the measurement data file contains new measurements, successfully loaded during the previous step, software will automatically try to map them with already stored fields, based on the geographical coordinates of each field. Figure 30 displays the selection list with the new measurements found. Each record on the list contains the measurement date on the left, and the relative field on the right.

5/12/2016	Aegina - Vathi
5/12/2016	Aegina - Asomatoi

Figure 30. Mapping measurement data – store fields selection list

If a measurement data record cannot be mapped to a stored field automatically, the active selection, in the field dropdown list displayed beside the measurement date, will be empty as shown in Figure 31. In that case you must map the measurement data record with a stored field manually, using that dropdown list.

5/12/2016	
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Figure 31. Software was unable to pair the measurement data with a stored field

If you cannot find the appropriate field on the dropdown list (you haven't stored that specific field yet, through "Field Data" feature), press the "New Field" button to insert it to the system. (see section **Error! Reference source not found.. Error! Reference source not found.**). Field will be displayed on the dropdown list as soon as you complete entering all the required information and store it to the software.

5.6.3. DATA STORAGE

Press the  button to store the measurement data to the paired field as explained in the previous section. If a specific measurement record is not mapped to a field it won't be stored to the system. Each measurement data record successfully stored to the system, will be displayed in "Field Data" feature by selecting the corresponding field, with the identifier "equipment data" as shown in Figure 32.

Aegina - Vathi		Date: 6/7/2016 <i>user data</i>
Aegina - Asomatoi		Date: 5/12/2016 <i>sensor data</i>

Figure 32. Field equipment's data displayed to "Field Data" view after successfully stored to the system

6. TROUBLESHOOTING

6.1. STORING INSTALLATION FILE TROUBLESHOOTING

Specific web browsers may block the installation file from being stored, indicating the file may be harmful for your computer. In order to bypass this action, you must explicitly inform the web browser that the installation file is safe. As an example Figure 33 shows how to inform Google Chrome browser that the setup.exe file is not harmful for your computer by pressing the "Keep" when the relative warning message appears.

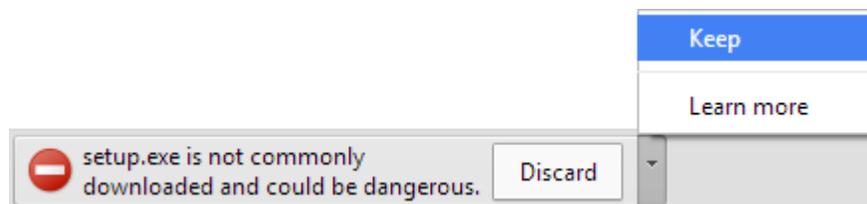


Figure 33. Google Chrome warning message after software download from the web

6.2. INSTALLATION TROUBLESHOOTING

In most cases, in Windows 8, 8.1, the initial screen of setup wizard won't appear immediately but instead the following message will appear (Figure 34), indicating a warning for protecting your pc from running an application coming from an unknown source. This is common security Windows message of no concern for this installation.

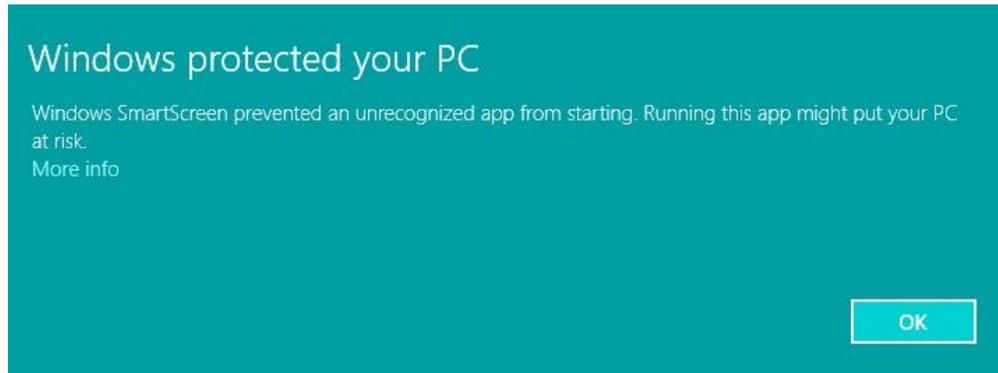


Figure 34. Windows SmartScreen preventing the application to get installed immediately

Proceed with the installation process, by clicking the "More Info" button. At the next screen, select the option "Run anyway" as shown Figure 35.

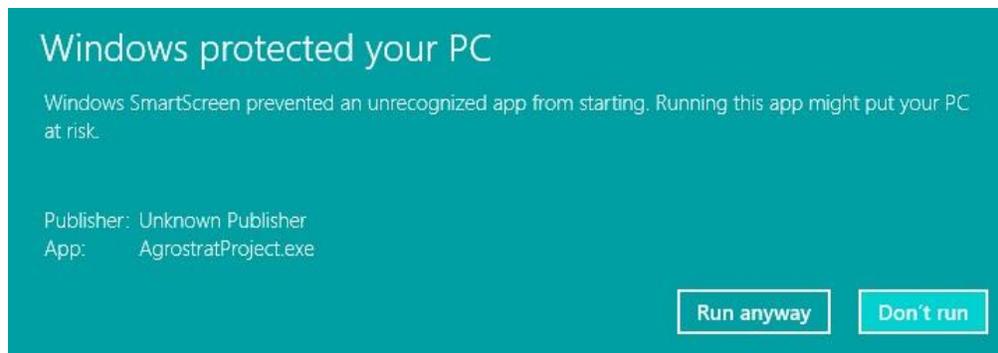


Figure 35. Press "Run anyway" button in order to proceed with the installation

6.3. SCREEN RESOLUTION TROUBLESHOOTING

Setting your screen resolution to the recommended dimensions, may still cause problems to the display of the software views (some views missing some part of the screen). In such cases the most probable cause is the current settings of the size of the text and icons in Windows.

To change the size, right click on your Desktop and choose "Screen Resolution" from the menu that appears. At the next screen choose "Change the size of text and other items" (Figure 36).

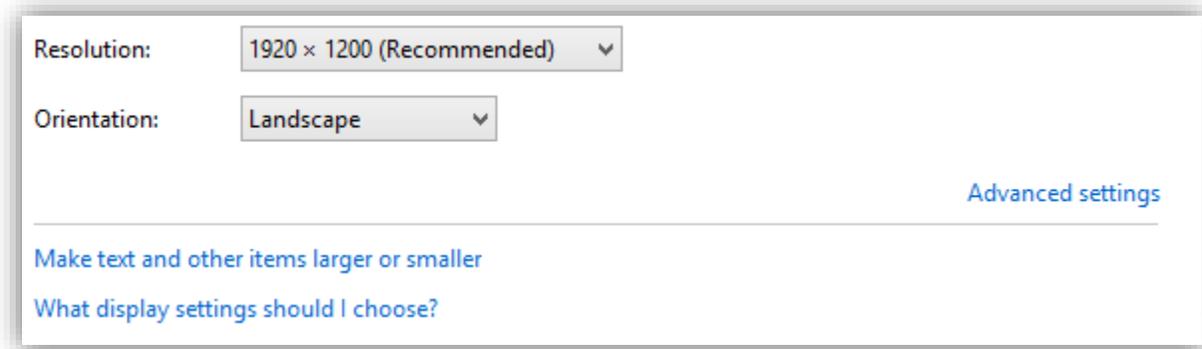


Figure 36. Select to change the size of text and other items

Make sure that in the next screen that is displayed the “Small Size – 100% (Recommended)” is selected. If not the case, then select it, click “Apply” button and restart the software.

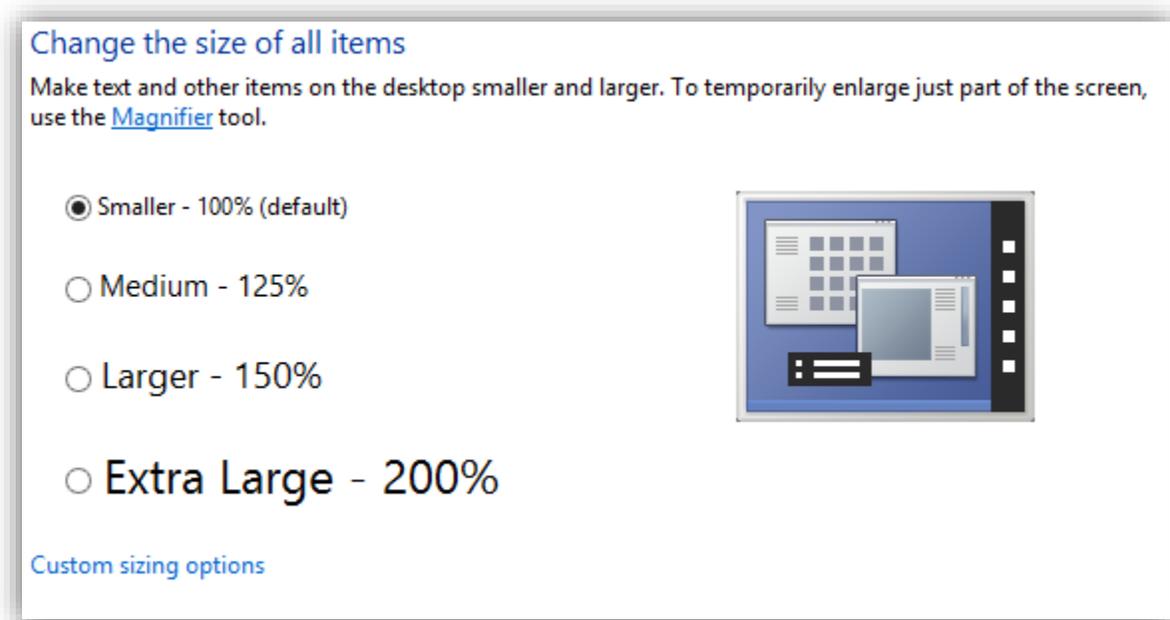


Figure 37. Select the small size of text and other item