# OMP Plantation

# Version 10.1

agrisoft

What's New

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# 2.  Introduction

OMP Plantation 10.1 is a version upgrade release that introduces many exciting new features and additions throughout the OMP Plantation suite. The main improvements include:
-   Completely new standalone GIS mapping application, removing the dependence on costly third-party host software.
-   Support for mapping of point-level data from OMP Field Survey.
-   Explicit recording of area in yield used for all yield calculations, separately from the overall block area.
-   Month-based status recording of block areas and palm census data.
-   Recording of "high conservation value" (HCV) areas, and option of excluding HCV areas from fertilizer rate calculations.
-   Flexible definition of fields to include in the global filter.
-   Rule-based system for specifying the block maturity age.
-   New data analysis form and report for block growth status by month.
-   Additional grouping options and fields on various data analysis forms and reports.
-   New block-level fields for water conservation measures and main harvest method.
-   Improved multi-user setup support.

These main features are discussed in more detail in the following sections. As usual, the upgrade release includes also a large number of smaller bug fixes and improvements to ensure that the application remains compatible with any new developments in the IT infrastructure such as new versions of Microsoft Windows or Office.

# 3. What's new in OMP Plantation 10.1

## 3.1.  Global filter

The global filter now has support for custom filter fields. In addition to the standard fields (e.g., year, division, block, etc.) users can select up to eight different fields on which to filter data. In order to choose which fields to include, users must go to the "Global filter" menu of the "System settings" as shown in. From there, users can pick both the fields to include as well as their sorting order. Figures 1 and 2 show the custom filter fields and the relevant settings form.

Figure 1: Section of global filter form showing custom filter fields.



Figure 2: List of available fields in system settings.

## 3.2.  OMP-DBMS: General settings

OMP 10.1 includes several new system settings that give you greater control over how palm ages and palm maturity status are calculated on a block by block basis. The first is palm age on planting. It is sometimes the case that a plantation begins counting palm ages from 1 instead of 0 meaning that the palm's age is 1 in the year or month of planting. This option can be specified from the "System settings" form as seen in figure 3. Once a user has made a selection and closed the form a palm age data recalculation will automatically be performed.

Figure 3: Palm age calculation settings.

In OMP 10.1, users also have the ability to define rules for when a block should be regarded as mature. On a plantation the age of maturity for palm stands in a block can be different for different blocks. There are many factors that can contribute to this, such as the planting material used, the soil type, the year of planting, the water deficit at the time of planting among other things. In order to account for a wide variety of these or similar conditions, the user can now explicitly specify under which conditions a block should be considered mature. This can be done through the "Palm age and maturity" menu in the "System settings" form as shown in figure 4. Clicking the "Add new" button opens the "Maturity age" form (figure 5) where users can add multiple sets of rules using the familiar "Edit SQL expression" wizard. Notice that a maturity age must be specified for each rule. It is this age that will be used to decide whether a block is mature or immature for all blocks that meet the conditions specified in the rule, rather than the default maturity age.



Figure 4: Palm maturity age rules categories.

Figure 5: Palm maturity age rule definitions.

## 3.3. OMP-DBMS: Data entry

This version of OMP introduces new ways to enter data as well as new kinds of data for users to enter. One of the biggest changes in OMP 10.1 is the way mature areas are calculated. In older versions of OMP, the mature area was calculated based on the number of mature palms counted in the last palm census. The problem with this approach is that palm censuses are usually not performed very often and so the number of mature palms is usually out of date. In order to achieve more accurate calculations, users can now manually input "area in yield" as a separate number and have OMP use this area in yield calculations. Additionally, users can now input an area of a block designated as having "High Conservation Value" (HCV).

Figure 6 shows the "Block area history" section of the "Areas and palm census" tab of the "Edit block data" form. Notice that area information must be input with both the year and month where any of the block area status has changed, e.g. a section of the block has become mature or been designated as HCV.

Figure 6: Area data entry subform.

Users can also manually enter palm census data in the "Palm census history" section of the "Areas and palm census" tab of the "Edit block data" form as shown in figure 7. The idea here is the similar to the idea behind allowing users to manually enter area data.



Figure 7: Palm census data entry subform.

OMP 10.1 now allows users to enter the water conservation methods used for a given block. Users must first enter picker definitions for the water conservation methods used in their plantation in the new "Water consv. measures" menu of the "Picker definitions" form as shown in figure 8.

Figure 8: Water conservation measures picker definitions form.

Afterwards, users can select these water conservation methods when entering or updating block information. This can be seen in figure 9, where you can select one of the previously defined water conservation methods from the drop-down menu in the "Soil, water and road management" section of the "Upkeep status" tab in the "Edit block data" form.



Figure 9: Water conservation measures drop-down menu.

Once water conservation measures have been entered for some blocks, users can then view summaries of nutrient and production data grouped by water conservation measures in the "Production & nutrients by field status" form as shown in figure 10.



| Water cons. measures | Production | | | Leaf level | | Soil exc. K | Applied N | Rainfall | Water deficit | Dry months | Count |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yield | ABW | Bunches | N | K | | | | | | |
| | t/ha | kg | b/p | % DM | % DM | cmol/kg | kg/p | mm | mm | mt | rcs |
| Cover crops | 13.9 | 7.2 | 13.6 | 2.61 | 0.90 | | 0.66 | 2,544 | -90 | 2 | 1 |
| Mulching | 10.2 | 6.1 | 11.6 | 2.36 | 1.29 | | 1.47 | 2,544 | -90 | 2 | 1 |
| Deep Tillage | 26.2 | 22.9 | 8.7 | 2.48 | 0.76 | | 0.72 | 2,687 | -152 | 3 | 1 |

Figure 10: Production summaries grouped by water conservation measures.

The second new block-level field is the "main" harvest method. Note that in the daily production data entry it is still possible to record the harvest method used for each individual daily harvest, in case this is not constant over time. Nevertheless, typically blocks are assigned to a "normal" harvest method that is used in this block the vast majority of the time. This "usual" harvest method is the information that can be recorded in the new block level field. In particular, it is then possible to compare key performance data such as yields across different harvest methods.

Users can manage the possible values in the "Harvest method" menu on the "Picker definitions" settings form as seen in figure 11. This user-defined harvest method then becomes another entry in the drop-down selection in the "Harvest" section of the "Yield/Harvesting" tab of the "Edit block data" form (figure 12).



Figure 11: Harvest method picker settings.
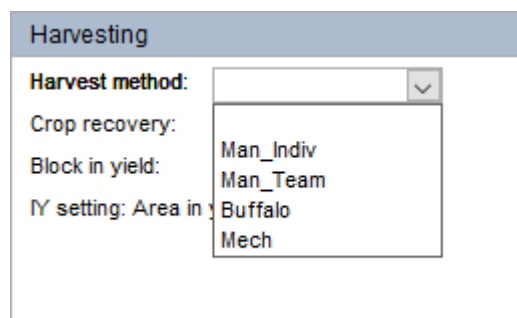


Figure 12: Harvest method drop-down menu.

## 3.4. OMP-DBMS: Data analysis

OMP 10.1 further facilitates the data analysis process by improving the layout of various forms and including additional fields and grouping options. For example, in the "Block Agronomic Summary" report, users can now see the 12MRT yield in the summary section of each grouping. Figure 13 shows an example of this where the 12MRT yield is seen alongside the area and MFH information for Center D01.

OMP Report – Block agronomic summary October 2017

**Division: Center D01    YOP: 1999**

Area: 537.7 ha        Y 12M RT: 30.4 t/ha

MFH: 30 mt

| Yr | Production data | | | | | Nutrient application (inorganics) [kg/p] | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Yield | | | ABW | BN HR | N | | P2O5 | | K2O | | MgO | | B | |
| | Bud | Act | Diff | | | A | R | A | R | A | R | A | R | A | R |
| | t/ha | t/ha | t/ha | kg | b/p | | | | | | | | | | |
| 2017 | 22.5 | 30.1 | 7.5 | 27.5 | 8.4 28 | 1.3 | 1.5 | 0.2 | 0.5 | 0.4 | 2.5 | 0.3 | 0.3 | 0.002 | 0.028 |
| 2016 | 20.1 | 29.7 | 9.6 | 26.7 | 8.5 28 | 1.5 | 1.7 | 0.9 | 1.0 | 2.3 | 2.3 | 0.4 | 0.4 | 0.023 | 0.023 |
| 2015 | 0.0 | 29.5 | 29.5 | 26.4 | 8.5 26 | 1.3 | 1.9 | 0.8 | 0.8 | 2.6 | 2.6 | 0.2 | 0.2 | 0.017 | 0.018 |
| 2014 | 0.0 | 29.8 | 29.8 | 25.6 | 8.8 23 | 1.3 | 7.5 | 0.3 | 2.2 | 2.2 | 24.5 | 0.2 | 2.5 | 0.011 | 0.088 |

Figure 13: 12MRT information at the summary level.

Another feature is to allow grouping by field in the "Leaf/Rachis nutrients by parameter" form now as seen in figure 14. The last feature is the addition of the YOP column to monthly/YTD yield form at block grouping level, as seen in figure 15.

Leaf/Rachis nutrients by parameter

| Year | Division | Field | LSU | Palm age | Planting material | Soil type | Block list |

| Division | Field | Leaf [% DM] | | | | | | | | Leaf [mg/kg] | | | | | TLC | Leaf [% TLC] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | N | P | K | Mg | Ca | Cl | S | Si | B | Cu | Zn | Mn | Fe | cmol/kg | K | Mg |
| Center D01 | MT04 | 2.71 | 0.166 | 1.05 | 0.29 | 0.54 | 0.54 | 0.27 | | 16 | 6 | 14 | 13 | | 78 | 35 | 31 |
| Center D01 | MT05 | 2.69 | 0.169 | 1.06 | 0.28 | 0.55 | 0.55 | 0.28 | | 17 | 7 | 15 | 14 | | 77 | 35 | 29 |
| Center D01 | MT06 | 2.71 | 0.161 | 1.05 | 0.27 | 0.56 | 0.55 | 0.28 | | 16 | 5 | 15 | 14 | | 77 | 35 | 29 |
| Center D01 | MT07 | 2.63 | 0.163 | 1.02 | 0.27 | 0.53 | 0.55 | 0.27 | | 17 | 6 | 15 | 14 | | 75 | 35 | 29 |
| Center D01 | MT08 | 2.65 | 0.165 | 1.04 | 0.29 | 0.55 | 0.56 | 0.27 | | 17 | 7 | 13 | 13 | | 78 | 34 | 31 |
| Center D01 | MT09 | 2.67 | 0.168 | 1.09 | 0.29 | 0.53 | 0.55 | 0.27 | | 17 | 6 | 15 | 14 | | 78 | 36 | 31 |
| Center D01 | MT10 | 2.81 | 0.176 | 1.13 | 0.30 | 0.56 | 0.56 | 0.26 | | 17 | 5 | 16 | 14 | | 81 | 36 | 30 |

Figure 14: Tab to sort by field in leaf nutrients summary form.

Monthly/YTD production

Group by: Block        Display: Yield [t/ha]        Bunches [b/p]

| Year | Division | Field | Block | YOP | | | Jan | Feb | Mar |
|---|---|---|---|---|---|---|---|---|---|
| 2017 | Center D01 | | 322A | 2015 | Act. yield | t/ha | | | |
| | | | | | Bunches | b/p | | | |
| | | | | | ABW | kg | | | |
| 2017 | Center D01 | | 345A | 2015 | Act. yield | t/ha | | | |
| | | | | | Bunches | b/p | | | |
| | | | | | ABW | kg | | | |
| 2017 | Center D01 | | 346A | 2015 | Act. yield | t/ha | | | |
| | | | | | Bunches | b/p | | | |
| | | | | | ABW | kg | | | |

Figure 15: YOP column in monthly yield production form.

OMP 10.1 also features the addition of the form "Monthly block growth status" form that allows users to view data on the maturity status for each block and month in a given year and calculate the effective fraction of the year where the block is mature. To access this form, navigate to the "Planting, Replanting & Age" section of the main menu and select the "Monthly block growth status" button shown in figure 16. This will open the new form where users can get a better idea of where a block is in its development (figure 17).
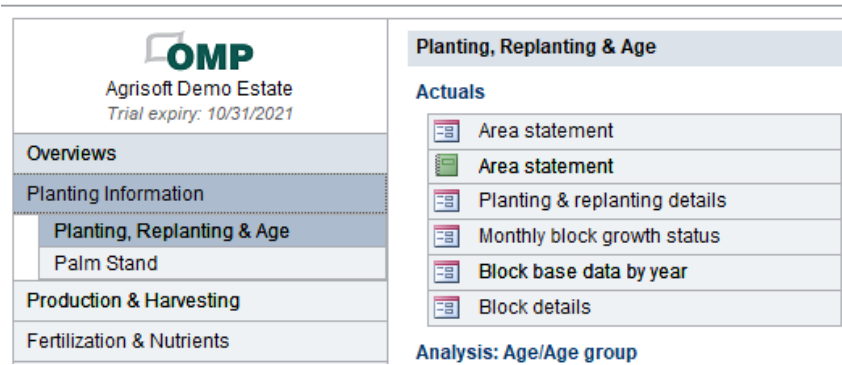


Figure 16: Button to bring up new monthly growth status form.



Figure 17: The new monthly block growth status form.

In the previous version of OMP-DBMS, there were two forms used for viewing fertilizer recommendations: the "Monthly recommendations" form and the "Monthly actuals vs. recommendation" form. In OMP 10.1, these two forms have been combined into a single form called "Monthly fertilizer overview" (figure 18), although there are still two separate buttons on the main menu for easier access to the familiar views. In addition to providing a nicer viewing experience by combining related information together, the new form also provides new features such as viewing the data at higher spatial levels (e.g., division, field, or block), different sub-grouping options (including no subgrouping) and the ability to select different units of measurement (e.g., tons or bags).

Figure 18: Combined monthly fertilizer overview form.

It is now possible to group by field on the "Monthly round lengths" form and associated report. This can be seen in figures 19 - 21.



Figure 19: Grouping by field on monthly round lengths form.



Figure 20: New "Field" grouping option for monthly round lengths report.

**OMP** Report – Round length offenders by field

No filter active.

Settings

Restricted to blocks in yield: Yes
Block is offender if: In yield and round length > 14 days

Year: 2017                                                                 Agrisoft Demo Estate

| Field | | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Year | Count rds |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Estate | # Offenders | | 92 | 100 | 99 | 109 | 149 | 79 | 92 | 84 | 89 | 103 | 91 | 94 | 117 | 459 |
| | Fraction | % | 20.2 | 21.8 | 21.6 | 23.7 | 32.5 | 17.2 | 20.0 | 18.3 | 19.4 | 22.4 | 19.8 | 20.5 | 25.6 | |
| Division: Center D01 | # Offenders | | 1 | | 3 | 6 | 24 | 7 | 35 | 10 | 30 | 24 | 27 | 32 | 53 | |
| | Fraction | % | 1.9 | | 5.7 | 11.3 | 45.3 | 13.2 | 68.8 | 66.8 | 18.9 | 56.6 | 45.3 | 50.9 | 60.4 | |
| MT04 | # Offenders | | | | | | 1 | | 5 | 2 | 1 | 4 | 2 | 5 | 4 | 7 |
| | Fraction | % | | | | | 14.3 | | 71.4 | 28.6 | 14.3 | 57.1 | 28.6 | 71.4 | 57.1 | |
| MT05 | # Offenders | | | | | 1 | 4 | 1 | 6 | 7 | | 6 | 4 | 4 | 5 | 9 |
| | Fraction | % | | | | 11.1 | 44.4 | 11.1 | 66.7 | 77.8 | | 66.7 | 44.4 | 44.4 | 55.6 | |

Figure 21: Grouping by field on monthly round lengths report.

Finally, users now have the option of grouping by harvest method in the "Monthly productivity" form and corresponding report (figures 22 and 23).



Figure 22: Grouping by harvest method in monthly productivity form.



Figure 23: Grouping by harvest method in monthly productivity report.

### 3.5. OMP-GIS: New application and point map support

The biggest single change in OMP Plantation 10.1 is the re-coding of the entire GIS module as a standalone application written in C# .Net. The new OMP-GIS will be able to run on any Windows PC without relying on any GIS host application. Of course, the new OMP-GIS module ties in with the rest of the OMP Plantation 10.1 infrastructure, and in particular it will be able to connect to the SQL Server back-end database.

In contrast with the old system, base block maps that form the basis of thematic maps do not need to be copied into a specific folder with a prescribed file name and table column names. Instead, base maps for each year can be imported using the common .shp shapefile format that is supported by practically all GPS devices and GIS programs. During this process, you have the option of specifying the field names in the shape file corresponding to the unique identifiers of the block in OMP, so you do not have to edit your actual shape file at all.

The new standalone native OMP-GIS mapper provides the same intuitive and easy-to-use interface as previous versions of OMP-GIS. In particular, once base maps have been imported opening a thematic GIS map of OMP data is a simple matter of choosing the map from the dropdown list (figure 24).
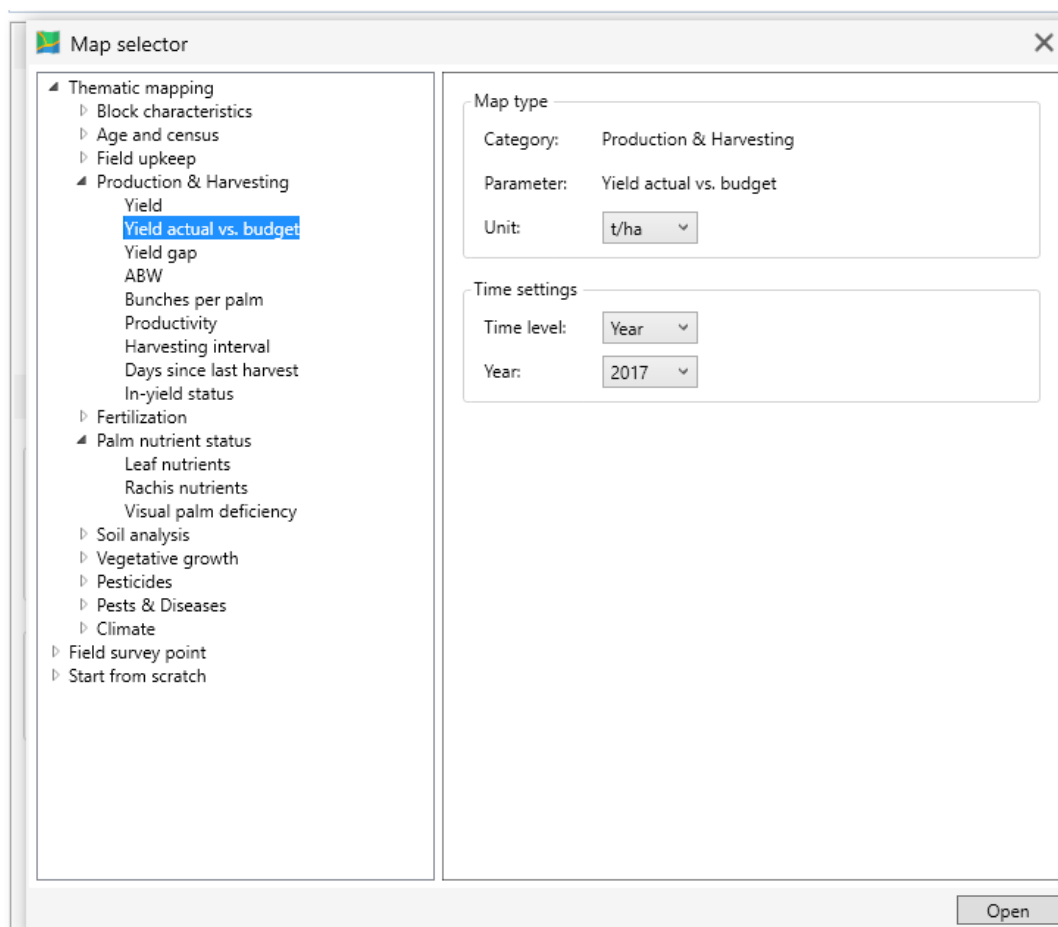


Figure 24: Map selector dropdown list.

The new GIS application supports all the previously known features such as panning, zooming, adding background layers and exporting multi-map layouts. The user interface is greatly improved compared to previous versions of OMP-GIS, in particular the way block information is displayed, settings of the currently active map can be edited, and in the way multiple thematic maps can be displayed and viewed at the same time (figure 25).
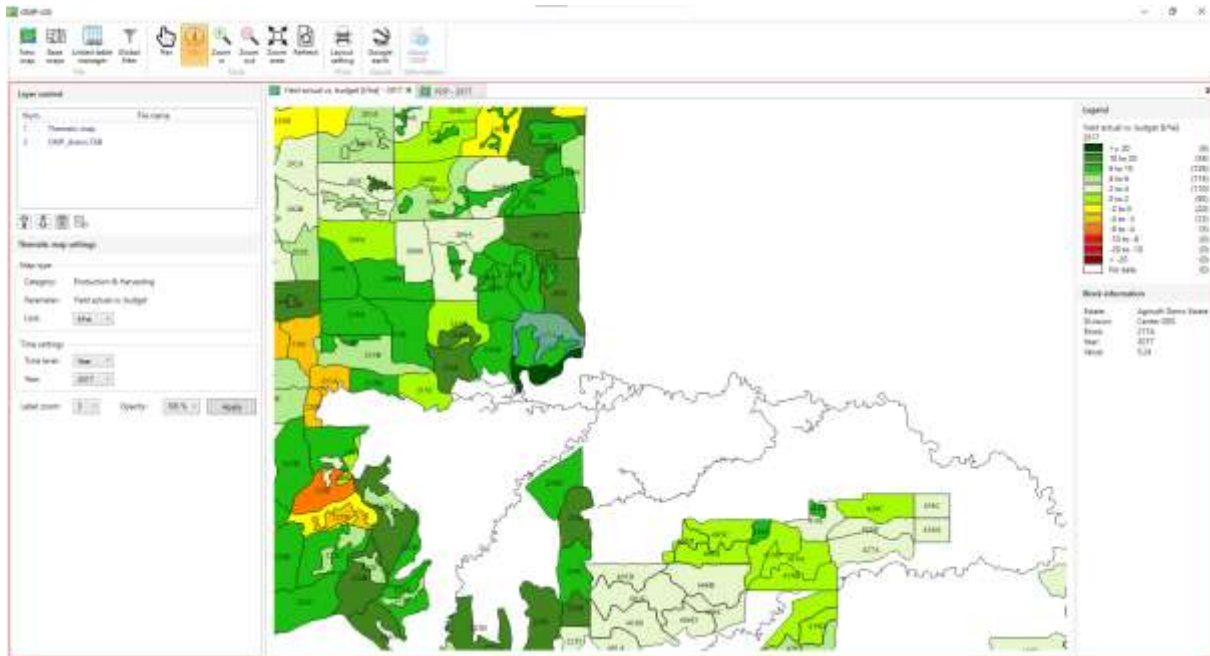


Figure 25: OMP-GIS screen with two active map tabs.

OMP 10.1 introduces support for point maps in the built-in GIS application. With point maps, it is now possible to map point-level data from the OMP-FS app. To do this, simply click the "New map" button in the ribbon to open the "Map selector" menu and select the OMP-FS survey type, question and date range (figure 26). Afterwards, you should see a map similar to the one in figure 27.



Figure 26. OMP-FS map selection on "Map selector" menu.

Figure 27: Point map using previously selected settings.

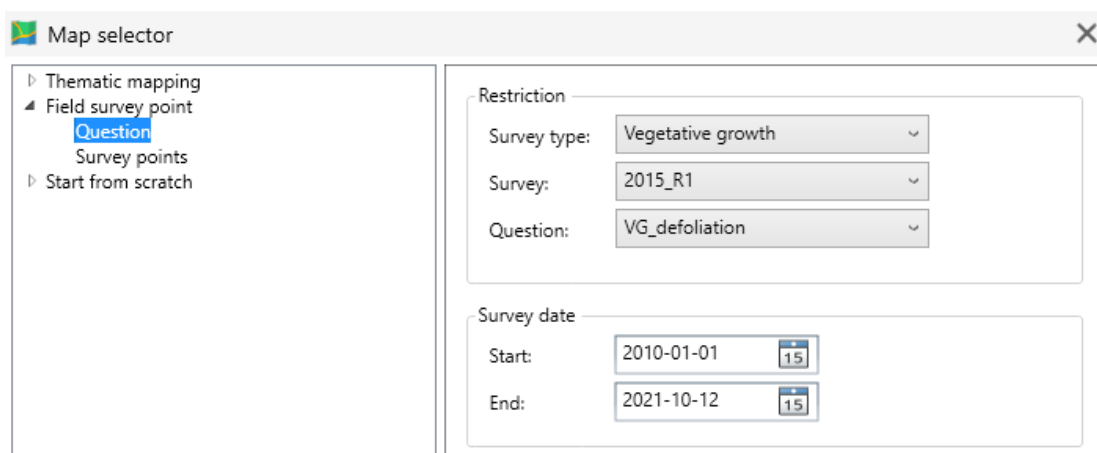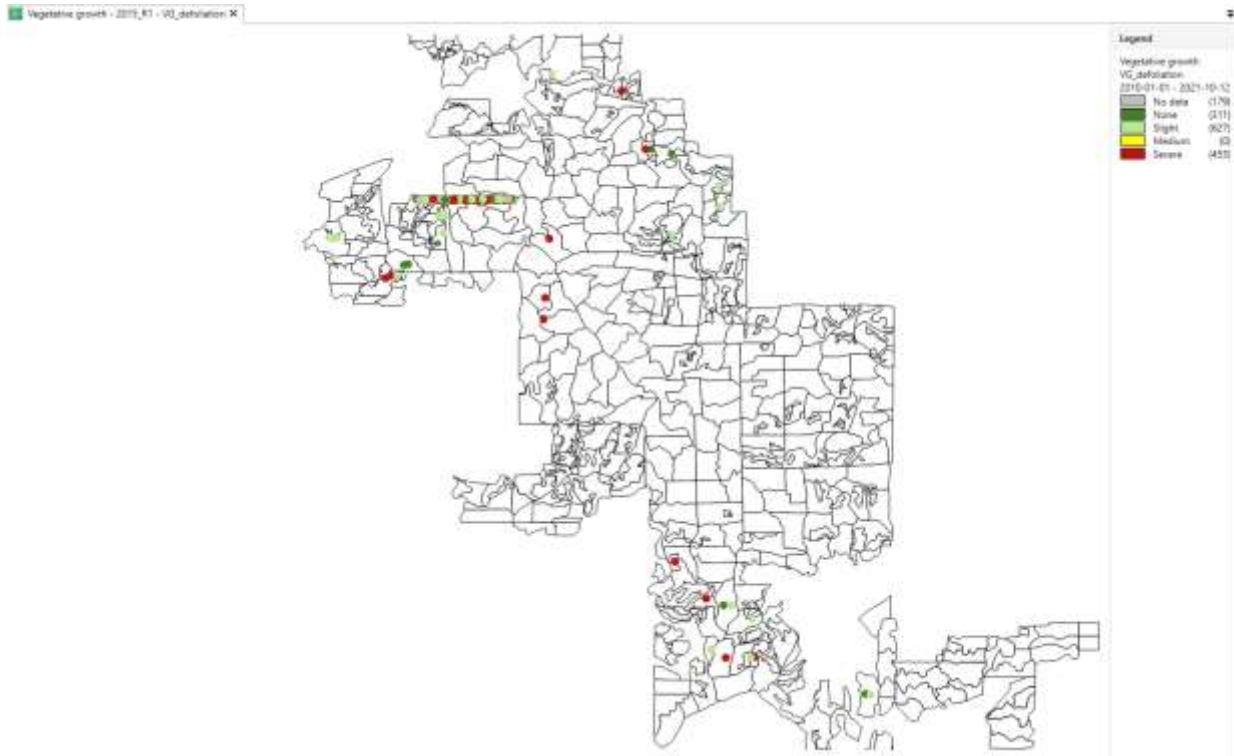All OMP-GIS map settings for thematic maps can be controlled from within the main OMP settings area. In particular, it is now possible to define ranges for maps showing quantities that depend on user entries, such as fertilizer types. For these kinds of maps, it is possible to define up to 4 "range groups" and then assign the parameter values (e.g. the fertilizers) to a GIS range group in the picker definitions form (see figure 28 for an example of the fertilizer case). This makes it possible to define meaningful color ranges even for parameters like fertilizers that cannot be hardcoded in OMP.



Figure 28: GIS range type setting for a fertilizer.

With OMP 10.1 supporting point maps for survey data collected via the OMP-FS mobile app, it is now possible to add GIS color ranges for the responses in each individual question in a given survey. In fact, it is recommended to do so especially for data obtained from the OMP-FS mobile app as they are not linked to OMP-DBMS and thus cannot make use of the global picker definitions. In order to include GIS color ranges simply select a question from the "Questions" form in OMP-FS and select a color for each response. As an example, figure 29

shows the "VG_defoliation" question that served as the basis for the point map in figure 27. Note the "GIS-color" drop-down menus next to the description field of each response that are used to choose a color for that response.



Figure 29: GIS color theme for the previous VG_defoliation point map example.

## 3.6. Improved multi-user support

The OMP Plantation 10.1 setup includes a new "multi-user" launcher tool, which makes it much easier for system administrators to install and maintain OMP in a multi-user setting. In particular, this is exceedingly useful for the case where OMP is hosted on a cloud server (e.g. Citrix, Azure) that is accessed by users remotely using a variant of the remote desktop protocol. Even in a case where multiple users are running OMP on the same physical machine, OMP Plantation 10.1 now only needs to be installed once. Upon executing the multi-user launcher, OMP will automatically create copies of the front-end application files for each client user, to avoid any possibility of temp file collisions and data integrity violations. Furthermore, the new launchers improve the way the Microsoft Office trusted location is set, so that it is no longer necessary for the administrator to manually define trusted locations for each user in a multi-user setting.