



Message from the Management

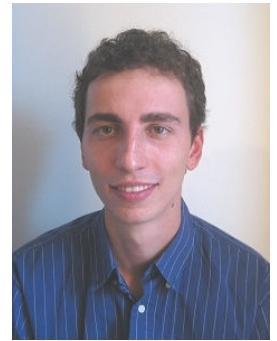
Summary of ongoing development

Dear Customers and Friends,

Over the past 3 months, the Agrisoft development team has been working on a number of different topics ranging from OMP-GIS improvements to a major feature update of the OMP Fertilizer Planner application.

Within the Banana Management Program (BMP), major steps forward have been made in the development of the new field work module which has been profiled in the 17th edition of this newsletter. The new module is designed to simplify the process of creating field work schedules and monitoring the on-going field work schedules, which is one of the most important day-to-day tasks for plantation managers. Many field upkeep tasks (for example weeding, road maintenance, drain maintenance etc.) must typically be carried out at regular time intervals in each cableway. This is the underlying idea behind the data structure of the new module, which requires users to first enter a “job definition” record for each distinct task and then reduces the budgeting problem to specifying when which job is to be carried out in which cableway. A powerful field work budget generator function simplifies this process by generating a work schedule in such a way that the area to be covered each week is as close to constant as possible within the boundary parameters defined by the user. Data on actual field work carried out will also be recorded using the same job-based system, making it possible to display budget vs actual data analysis forms and reports which allow managers to easily monitor that field work is carried out as prescribed. Over the past months, the initial coding process of the data entry side of the module

has been completed and we have now started the testing process alongside coding for the data analysis features. While the field work module will initially be implemented in BMP, we have been careful to design it in such a way that will allow relatively easy migrating to OMP in the future.



The major new development project on the OMP side is the planned new field survey and data collection solution featuring a custom-build smartphone app and a new matching OMP add-in. Users will be able to enter and maintain definitions for questions and surveys within the add-in program with all the relevant definitions being displayed in the smartphone app to make data collection in the field as easy as possible. The app will support scanning QR codes which can be attached to specific palms or survey points to read out the location, but it will also be possible to select/enter the survey point manually to cover regions in the plantation where survey points have not yet been marked with QR cards. For further information on this topic, please refer to the previous edition of this newsletter, which contains a more detailed feature article. While the add-in component of the new field survey module is currently in the design stage, the initial app design has been completed and we are making good progress on the actual implementation. The OMP-GIS team has been working on a number of important improvements to the OMP-GIS module. First and foremost, we have been working to ensure compatibility of our GIS thematic



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mapping application with the newest versions of MapInfo, which are only available as 64 bit applications. In terms of features, the main improvement concerns the way color-coding information and legend definitions are stored. In the past, the definition of the map legends was hard-coded into the application, but moving forward users will be able to define and store the value ranges and associated colors for each map directly within the main OMP application. This will make it much easier to adjust maps to the specific situation of each estate and to make sure that the map legend ranges suit the range of actual data values found within the OMP database. Furthermore, the entire mapping menu has been redesigned to make it much easier to select or change the time period for which data is to be displayed. Significant efforts have also been undertaken to streamline and refactor the code in order to enable a single code base for both 32 and 64-bit versions of OMP-GIS and BMP-GIS, which will greatly simplify maintaining and improving the application further in the future.

Within the main OMP application and the suite of existing add-ins, we have started editing and unifying the data structure, form layout and code base of the various applications. This represents an important step in our goal to move from the current add-in-based system towards a single integrated application with a single SQL Server data file. For example, the entire system settings area used to define and maintain pick-up list values has been completely redesigned to allow for a more relational data structure and to integrate a large number of additional criterion fields which can be surveyed using the new field survey modules. The module used to import data from Excel has also been recoded from the ground up to present a much simpler and clearer import process for the user, with detailed information

on the underlying reason in the case where any records were rejected. Besides this, we have added a number of new chart analysis tools and reports while also implementing various smaller improvements and bug fixes.

Last but not least, we have been working hard on a new release of the OMP Fertilizer Planner application which is due in the next month. The new version includes powerful new features to allow handling of immature areas and blocks coming up for replanting, and will be previewed in more detail in the following article in this newsletter. The “What’s new” section at the end of the newsletter provides an overview of some of the things we are currently working on and which we have planned for the coming months.

Yours sincerely,

Max Kerstan





Preview

OMP Fertilizer Planner version 2

Over the past year, the OMP Fertilizer Planner with its rule-based approach to evaluating nutrient targets and sophisticated price optimization routine to calculate optimal fertilizer choices has proven to be an extremely powerful tool for generating efficient and transparent fertilizer recommendations for mature blocks. However, fertilizer recommendations for immature blocks typically require special handling because they are based on a given fertilizer program defined as a function of palm age. A similar caveat applies for blocks approaching replanting, where it can be economically advisable to reduce fertilizer dosages several months before replanting is due as the additional nutrients applied may be „wasted‘ when the palms are replanted. While both cases could in principle be handled in the previous version of the OMP Fertilizer Planner, this often required rather cumbersome rulesets and manual edits. In the second major version, we have mainly focused on improving these aspects by providing new dedicated scenario settings areas for easy and flexible handling of immature areas and blocks due for replanting.

In the immature growth phase, palms are developing rapidly. As a consequence, their nutrient requirement can also change relatively quickly. This makes it almost impossible to use a similar system as that which works well for mature blocks, i.e. generating yearly nutrient targets based on measured parameters such as leaf nutrient levels or field upkeep scores, for immature areas. Instead, it is necessary to define a fertilization program which assigns certain fertilizer amounts as a function of palm age in months after planting. This is the logic followed

by the new version of the OMP Fertilizer Planner, where the immature program can be defined using a new dedicated data entry form, see figure 1.

Fertilizer	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
DAP	1.00	0.00	0.50	0.00	0.00	1.00	0.00	0.00	0.00	1.50	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
KCL	0.00	0.00	0.50	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Kiesente	0.00	0.50	0.00	0.00	0.00	0.00	2.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00
Urea	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFB	0.00	0.00	1.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Figure 1: New data entry form for immature fertilization programs.

Note that the list of fertilizers used for the immature program does not have to be identical with the list of fertilizers included in the optimization routine for the mature fertilization program, and can even include crop residues. To provide even more flexibility, OMP Fertilizer Planner 2.0 allows users to define multiple different immature programs within one scenario. An example of a situation where this could be very useful is if different planting materials are being used in different parts of the plantation. For example, it may be possible that one progeny grows faster than the other, in which case it can be useful to assign it an immature program with higher fertilization doses at young ages. The validity range, i.e. the age at which the immature program ends and the palms should start following the normal fertilization program for mature palms, can also be adjusted individually for each immature program. To decide which immature program to apply to each block, OMP Fertilizer Planner uses



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a rule-based system which is very similar to the rule system used for nutrient doses and overrides, see figure 2. The major difference is that whereas doses are cumulative in the sense that a given block can receive multiple doses, immature programs are exclusive in the sense that any given block can receive only one particular immature program. Instead of forcing the user to define mutually exclusive rules, OMP Fertilizer Planner allows user to assign a priority score to each immature program. If a block passes the rules of multiple immature programs, the priority is used to decide which immature program applies. It is possible to include a „default immature program“ which does not have any rules and is applied whenever a block fails the rules of all higher-priority programs.

Operator	Folder	Field Name	Comparator	Value for selected field
AND NOT	All	Division	<	Center D01
AND	Base data	Field	>	Center D02
OR	Production	Block	>	Center D03
+	Age/Census	LSU_class	>	Center D04
x	Leaf analysis	LSU_group	>	Center D05
-	Soil analysis	Weather_Station	>	North D01
/	Field upkeep	Topography	>	South D01

Figure 2: Rule editor for immature programs.

The case of blocks due for replanting is in some ways analogous to the immature case discussed above, as here it is desirable to reduce fertilizer doses by certain fractions as a function of the number of months until the block is scheduled to be replanted. As a consequence, the handling for blocks due for replanting in OMP Fertilizer Planner 2.0 follows a very similar approach to the handling of immature areas as described above. The only difference from a data entry perspective is that instead of entering the actual fertilizer amounts as in the immature program,

users are required to enter the percentage by which the fertilizer doses should be reduced compared to the „normal“ mature program as a function of months before replanting (figure 3).

Fertilizer	Reduce amount in month before replant to (%)																	
	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Urea	100.0	100.0	100.0	100.0	50.0	50.0	50.0	50.0	50.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
RP	75.0	75.0	75.0	75.0	75.0	75.0	75.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

Figure 3: New data entry form for replant programs.

Just as for immature programs, it is possible to define multiple different programs for reducing fertilizers in preparation for replanting. The same rule- and priority-based system that was described above for immature programs is used to decide which replant program is valid for which block.

Besides adding the new components for handling immature blocks and blocks due for replanting, we have also taken the opportunity to redesign the module used to define the monthly split of fertilizer application. Whereas in OMP Fertilizer Planner 1.0 users were required to directly enter the monthly spread for each block and fertilizer, the new version uses a rule-based approach which is completely analogous to the immature and replanting components described above. This makes it much easier for users to see the entire spread of the various different fertilizers at a glance, while the rule-based approach gives more flexibility in specifying exactly which spread should be assigned to each block. Each scenario will always include a „default“ monthly spread which does not include any rules and which is applied for all blocks which don't meet the rules of any of the other user-defined spreads.



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The last big improvement in the context of the scenario settings concerns dose overrides. Whereas overrides in the past were binary in the sense that they would either cancel nutrient doses completely or not at all, it is now possible to specify a reduction percentage for each override. For example, in the situation shown in figure 4 the corrective nitrogen dose would be reduced by 50% for all blocks matching the specified rule.

To match the new scenario settings features described above, various improvements have also been made to the data analysis part of OMP Fertilizer Planner in the new version. First and foremost, the old „dose application“ form has been replaced with a more general data analysis

form for scenario evaluation results which allows users to easily review how many and which block were affected by any dose, override, monthly spread, immature program or replant program. A „block details“ tab provides detailed information on the scenario evaluation at a glance for any chosen block. Furthermore, checkboxes were added to nearly all data analysis forms which allow users to easily restrict to results of only the mature or only the immature program. This is particularly useful to for example easily review which part of the fertilizer costs stems from the immature program. Finally, on all nutrient data analysis forms and reports options were added to restrict to the nutrient contribution of organic or inorganic fertilizers.





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From the developers desk

A selection of the on-going developments and plans which are part of our constant efforts to continue to improve Agrisoft products.

OMP-GIS & BMP-GIS

- Improved menu structure for map selection
- New dialog windows for specifying advanced map settings
- Compatibility with 64 bit version of MapInfo
- Ribbon-based menu for 64-bit MapInfo
- User-defined range and color settings for legends
- Map data directly pulled from main DB without need to export/prepare data for GIS first
- New classes of GIS maps

OMP-Field Survey

- New OMP add-in and smartphone app for field data collection
- Flexible definition of questions and survey types
- Possibility of determining survey point locations by scanning QR codes or by manual entry
- Implementation of data restrictions and lists of allowed scores
- Descriptions for each allowed score to ensure consistent scoring
- Email-based data transfer between app and add-in
- Possibility to update main OMP data set using scores from selected field surveys

OMP-DBMS

- Migration to .acddb and .acdde format
- Redesigned module for defining and editing pick-up list definitions and allowed scores
- Addition of a large number of new block status fields which can be surveyed with the new OMP Field Survey app
- New module for importing data from Excel with greatly improved data verification features
- New chart to compare YTD yield with YTD yield of previous years
- Option of entering monthly evapotranspiration manually for more detailed water deficit calculation
- Unified UI color scheme
- Integration of daily production recording (OMP-HRR add-in) into main OMP application
- New monthly distribution charts for yield and yield parameters