Message from the Management

A look back at 2015 and outlook for the coming year

Dear Customers and Friends,

On behalf of the Agrisoft Systems team I would like to wish you all a happy and fulfilling year 2016. As usual I would like to take the opportunity at the end of the year to take a look back at the most important development projects and milestones of 2015. Furthermore I will give a short outlook at some of the things we have planned for the coming year.

The major project of the first half of the year was the OMP Fertilizer Planner add-in program (OMP-FP), which uses the huge OMP data set to yield the most powerful fertilizer recommendation generation tool on the market. The program first allows the user to generate nutrient targets for every individual block and then evaluates the most cost-effective combination of fertilizers which can be used to meet these targets. The great power of OMP-FP lies in its flexibility, as the user has full freedom to design the rules on which fertilizer recommendations should be based. Hundreds of OMP fields can be used to build nutrient rules tailored to the precise requirements of each individual estate. While classically most approaches to fertilizer recommendations focus

almost exclusively on foliar diagnosis results, OMP-FP makes it extremely easy to increase the stringency of the recommendations by adding conditions based on field upkeep scores, soil analysis results, climate parameters etc. As the yearly fertilizer bill typically accounts for a very large part of the variable cost of production, this can lead to very significant cost savings as well as better yield responses due to more efficient distribution of fertilizers to different blocks. Users can easily create multiple different fertilizer scenarios and compare the effects. The assumptions underlying each scenario are clearly laid out, leading to a huge increase in transparency and accountability in the fertilizer recommendation generation process, which traditionally is often something of a 'black box'.

The OMP Fertilizer Planner is capable of optimizing the fertilizer costs while taking into account individual nutrient targets of each block, nutrient substitution through crop residue application and allowing for compound as well as straight fertilizers. In a typical estate with several hundred blocks, tens of allowed fertilizers and additional side conditions that must be met, this is a non-trivial mathematical problem. Tackling and solving this problem was one of our most challenging but also satisfying projects of the past few years. Further details on the OMP Fertilizer Planner application can be found on our website and in previous versions of this newsletter.

OMP Fertilizer Planner

Yearly Fertilizer Overview
Overview by division split by fertilizer

Agrisoft Demo

No filter active.

Scenario ID: 2014_A S1
Recommendation year: 2014/15   Reference year: 2013/14

Agrisoft Demo Estate

Division	Yearly recommendations			Yearly costs		
	t	kg/p	t/ha	$	$/p	$/ha
Center D01	758.6	4.63	0.58	717,876	4.38	549.49
Kieserite	116.9	0.71	0.09	98,746	0.60	75.58
RP	218.6	1.33	0.17	273,302	1.67	209.20
SOA	22.8	0.14	0.02	9,596	0.06	7.35
Urea	400.3	2.44	0.31	336,231	2.05	257.36
Center D02	902.4	4.36	0.54	854,480	4.13	515.15
Kieserite	151.8	0.73	0.09	128,264	0.62	77.33
RP	233.3	1.13	0.14	291,682	1.41	175.85
Urea	517.3	2.50	0.31	434,534	2.10	261.97

OMP-Fertilizer Planner

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Nutrient ruleset: Nutrient target settings				
Nutrient doses are defined: absolutely				
Nutrients in organic fertilizers: do not affect nutrient targets for inorganic fertilizers				
Nutrient ruleset: Oxide doses				
Dose ID	Oxide	Dose type	Dose kg/p	Description & Rules
MDN	N	Maintenance	1.25	All blocks except those excluded by override. No rules defined
CDN1	N	Corrective	0.80	Corrective N for low leaf N. Primary rule: Leaf_N < 2.3
CDN2	N	Corrective	0.50	2nd corrective N for very low leaf N, low rachis N and visual N deficiency. Primary rule: Leaf_N < 2.2 AND rachis_N <0.27 AND visualScore_N >= 2. Auxilary rule 1: Leaf_N < 2.2 AND rachis_N <0.26
CDNP1	N	Corrective	0.50	Corrective N with aim to release stored P from rachis. Primary rule: Rachis_P > 0.6 AND leaf_P < 0.147

The first half of 2015 also saw the completion and release of OMP Plantation version 8.8.2. As usual this release included a large number of improvements to OMP-DBMS and the various add-in programs. Many of these improvements relate to the general topic of fertilizers and plant nutrition, complementing the new OMP-FP add-in. For example, additions include a whole class of powerful customizable histogram charts to analyze distributions and development of leaf and rachis nutrient levels, improved recording and reporting of soil analysis results and a new class of fertilization schedule reports. Another major addition is a new, highly detailed block history report showing the complete agronomic history of each block over the last 4 years. We are sure that this report will prove to be an invaluable tool for field managers when taken along during field visits in either printed or electronic form.

In parallel with our work on the various components of the OMP suite, we continued the development of the BMP application for banana plantations, with several version updates released throughout the year. Improvements were made to almost all parts of the program, with the main focus lying on the production forecasting module due to its huge importance for banana plantations. In this context we added forecast vs actual comparison forms, improved data entry and

copying features for forecast assumptions as well as review forms which allow the user to see at a glance which parts of the plantation may have incomplete forecast assumption entries. General data analysis and reporting features were improved with the implementation of powerful dashboard reports at various temporal and spatial levels as well as various forms and reports to analyze details of the harvesting process. A whole new module was added to handle recording and reporting of container packing and shipping details. The GIS user interface was redesigned to
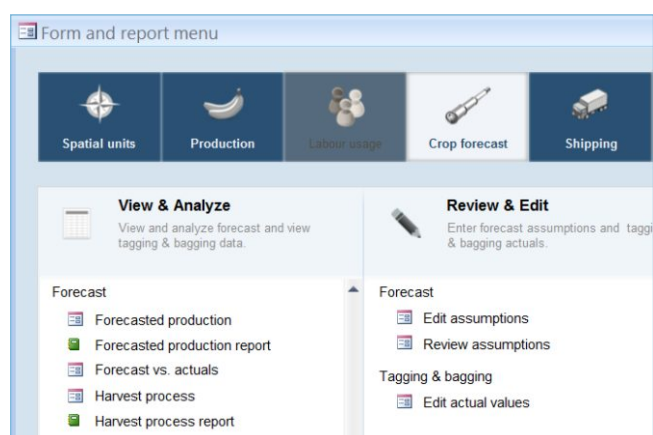
Banana Management Program

improve usability and a number of new thematic maps were added to the program. Furthermore, a large number of technical improvements were made to improve the speed and usability of the program, particularly regarding the data import and export module.

In the second half of the year the main focus of our development work shifted back to the OMP suite, with OMP Plantation release 8.8.3 completed at the end of the year. This version had two main aims. Firstly, the new release was to ensure compatibility with fiscal year mode where the reporting year does not run from January to December. Secondly, various features were added

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to the OMP-HRR add-in to extend the usefulness of the program with regards to monitoring and analysis of the harvest process. The additions include a "harvest round sheet" type report showing for each day in the month how many days had passed since the previous harvest as well as other to monitor and identify blocks that have not been harvested at reasonable intervals. A very useful feature that was added to OMP and all add-in programs is that all charts can now be copied and pasted in e.g. Excel or Word using a simple right-click. The update also includes numerous other bug fixes and additions such as a new chart comparing the long-term yield and black bunch count fluctuations to the monthly rainfall and water deficit.

At the end of the year the Agrisoft team worked on new versions for the OMP Nursery and OMP Ten Year Crop Budget applications. As with OMP 8.8.3 one of the main goals was to ensure compatibility of these applications with non-standard fiscal years, but we also took the opportunity to extend various program features at the same time. For OMP Nursery the improvements include the

addition of a comments field where users can record the palm rows and numbers where particular progenies were dispatched to, improved task list reports and a new class of vegetative growth charts with which you can compare the growth progress of different progenies, batches etc. In the OMP Ten Year Crop Budget application we added a number of new data analysis forms and reports focusing on the yearly area statement, the historic and budgeted yield profiles and the projected year-on-year development of the plantation age profile. All new reports allow for the underlying data to be exported to Excel. The data entry part of the program was also improved with the addition of new wizards that allow the user to bulk-delete replanting plans and to generate replanting plans based on the assumption of a fixed nursery capacity.

Besides the various development milestones mentioned above, 2015 also proved to be a very successful year for Agrisoft Systems from a commercial perspective. The new OMP Fertilizer Planner application was very well received and new OMP license sales ensure that there are now well over half a million plantation hectares worldwide under OMP license. It is particularly pleasing that two of our longest-standing OMP customers decided to significantly extend their OMP licenses this year, underlining the

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importance they place on OMP as an invaluable agronomy tool.

We have many exciting things planned for 2016 to ensure that it is just as successful as the previous year. One of the first things on the agenda is the addition of features for the OMP Fertilizer Planner to better handle blocks that are coming into or out of production. In particular we want to add a wizard in which users can specify the immature fertilizer programme in terms of months after planting. It will be possible to define multiple different immature programmes and use rule-based logic to specify which programme is to be applied for which block. Similarly it will be possible to specify rules to reduce fertilizer amounts based on certain number of months before the planned replant date which is entered for the block in OMP. We also aim to further enhance OMP as a complete solution for oil palm fertilizer recommendations by creating a custom data collection app for smartphone-based field data collection. This data collection is a crucial aspect of the fertilizer process because applying even the most finely tuned fertilizer scenario will yield spurious results if the underlying data is incorrect.

The other main target for 2016 in terms of product development is the long-awaited migration from Microsoft Access to SQL Server as the data server engine. We have already started working on this migration in the past two months by implementing new underlying functions to take advantage of the additional computational power provided by SQL Server. The SQL Server back-end will be trialed first in the context of the BMP project but all functions are implemented in a general manner to facilitate the implementation in OMP when the pilot phase has been successfully completed.

Yours sincerely,

Max Kerstan

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.

This and that: general OMP plans

- Feature to export OMP reports in PDF format and attach the result to emails
- Fiscal year handling for OMP Nursery, Seed Production and Tissue Culture
- Survey app for data collection in the field using smartphones or tablets
- Ribbon-based tool menu
- Improved license checks which do not require reinstalling for area extensions
- Better storage of user application data for patches which do not require reinstalling the backend database
- Additional data analysis features for harvest round lengths
- Migration of OMP back-end to SQL Server

OMP Fertilizer Planner

- Immature fertilizer programme by month after planting
- Flexible rule-based application for immature fertilizer programme
- Wizard for reduction of fertilizer amounts when approaching replanting
- Rule-based data entry for monthly spread of fertilizers
- Reports to compare results of different scenarios
- Additional flagging criteria
- Improved handling for adjustments of fertilizer recommendations in the current year

Banana Management Program

- Recording of nutrient recommendations per farm or cableway
- Recording and reporting of fertilizers applied manually or using fertigation
- Weekly field work reports on weeding, pruning and drainage maintenance
- GIS maps of cableways where field work was carried out
- Migration of BMP back-end to SQL Server
- Data analysis charts