Agrisoft Systems
NEWSLETTER
Seventh Edition, Jul. - Sep. 2013

Message from the Management

New pest and disease module for OMP on the way

Dear Customers,

During the past summer months we at Agrisoft Systems have split our attention between continuing the on-going development projects and helping our customers to get the best out of the new OMP version 8.7.2 that was released in late June. A particular highlight was a site visit to two plantations of the Cargill group in Sumatra and Kalimantan that was carried out by two members of the Agrisoft team. The fruitful visit included user training sessions focusing on the recent changes to OMP as well as discussions on possible improvements that could be implemented in the future. We would like to take this opportunity to thank all the staff on location for their hospitality and for helping to organize the visit. The training activity will continue in the coming weeks, with a 5 day advanced operator training to be held in Yogyakarta for the benefit of OMP users from another customer plantation in Sumatra.

Following the release of OMP version 8.7.2, the OMP development work has largely been divided between two main projects. On the one hand, we are working on a major revision of OMP Nursery, the specialized database application for single and double stage nurseries. In the course of this revision we are aiming to improve the handling of fertilizer and pesticide data as well as improving the user friendliness of the program. The second main project is a new OMP module to capture data on pest and disease outbreaks. A fundamental change of the data structure based on individual pest and disease events will allow us to store more detailed and more useful data. The new module will tie in with the existing OMP Pesticide Add-In, making it possible to record which control methods were used in response to which pest outbreak. Furthermore the new module is designed to document integrated pest management methods and to analyze their usefulness. A closer look at the key features of the new pest and disease module that is currently under development will be included in the later parts of this newsletter.

As usual, this newsletter includes a profile of an Agrisoft Systems staff member as part of the series “Who's behind OMP”. In this edition, the focus is on programmer Daryadi, whose recent projects include the Ten Year Crop Budget application that was released earlier this year. The final section of this newsletter is devoted to a list of various upcoming development projects and improvement ideas.

Yours faithfully,

Max Kerstan
(Komisaris)

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Who's behind OMP

Programmer Staff:
Daryadi

In this edition, the series "Who's behind OMP" will profile Daryadi, one of the multitalented programmers at Agrisoft Systems. Daryadi was born in Gunungkidul, Yogyakarta on the 28th of May 1986. Ever since being introduced to the subject of computers when he was at junior high school, Daryadi was fascinated by the computer world. Soon he felt dissatisfied with the material covered at the school and chose to study computers by himself using books, the internet and any other resources that he could find. After graduating from junior high school, Daryadi continued his education at SMK Negeri 2 Depok, Yogyakarta, majoring in the Informatics Engineering program. Through his dedicated self-study program, Daryadi had obtained excellent skills and knowledge in most of the subjects, and he was asked by his teacher to give presentations in front of the class to share his knowledge with his fellow students.

In 2008, Daryadi joined the Agrisoft Systems Indonesia team as a programmer. Initially Daryadi specialized in Geographical Information Systems (GIS), and soon he deepened his knowledge on the subject by studying topics relating to OMP-GIS including GPS tracking for map creation, thematic mapping, and working with MapInfo and ArcGIS. The current form of the OMP-GIS Add-In is the

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result of his hard work in collaboration with the other GIS programmers at Agrisoft Systems. Daryadi's skills are not limited to GIS, and his love of learning new techniques allowed him to quickly master programming in MS Access as well. These skills enabled him to make important contributions to the development of the OMP-AMIS software suite, both in the OMP-DBMS main application and in the various Add-In programs. Beyond this, Daryadi played a big role in developing the recently released Ten Year Crop Budget (OMP-TYCB) application, a program designed to easily generate long term yield forecast scenarios in a largely automated process.

In addition to his extensive skills and knowledge about OMP-AMIS, Daryadi has an infectious enthusiasm for OMP and an eagerness to share his knowledge with other. This makes Daryadi a perfect candidate to conduct operator trainings and support site visits on behalf of Agrisoft Systems. For example, Daryadi recently participated in a successful site visit to a pair of estates owned by one of our customers, PT. Cargill Indonesia in South Sumatera and Central Kalimantan.

For Daryadi, life is an adventure. He likes challenges and will always try to measure up to these challenges and to overcome any obstacles that may arise. As to his future plans, Daryadi said "I am happy and grateful for the trust that has been placed in me by Agisoft Systems, and as a programmer I want to continue developing OMP-AMIS to ensure that it remains the best software for oil palm plantation agronomy."

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What's New

Improved pest and disease recording

By: Max Kerstan

If left unchecked, outbreaks of pests or diseases have the potential to cause serious damage to the palm stand in oil palm plantations and to significantly impact on oil yields. Unlike the effects of other factors such as e.g. climatic influences, the impact of pest and disease outbreaks can be limited by correct and decisive management actions. This makes it clear that effective pest and disease monitoring is an important part of a plantation management decision support tool like OMP. Besides possible impacts on yields and productivity, the growing global awareness for sustainability in the oil palm industry makes it important to document the control measures that were used to combat pest or disease outbreaks. In particular, it is desirable for planters to have a tool to document the proportionality of the pesticide or herbicide use on their plantations to the severity of pest and disease outbreaks. To better handle these challenges, the Agrisoft Systems development team has decided to completely revamp the pest and disease recording module in OMP.

The new pest and disease module will be based on quite a different data structure to previous versions of OMP, designed to offer much more flexibility on the reporting side. The key point is that pest and disease data is now grouped by event or outbreak, rather than occurrences of individual pests being recorded on a block-by-block level. This makes it much easier to track the development of an outbreak and to trace the evolution of the affected area and the severity over time. When a new outbreak is detected, a special data entry screen will make it possible to quickly enter key information such as which blocks are affected, the affected area in each block, the severity of the outbreak and much more.

Based on information stored about the outbreak, the plantation management can then decide whether control actions are necessary. Recommendations for control measures as well as records of the actual control measures undertaken can be entered either for multiple blocks at a time using a quick entry wizard or on a detailed block-by-block level as shown in figure 1. A significant advantage of the chosen approach is that control measures such as application of chemicals can be linked directly to the records of a corresponding pest or disease event. This in particular makes it easier to justify the use of chemicals and to analyse and compare the effectiveness of different control measures. Chemical control measures entered in the new pest and disease module will be directly linked also to the overall records of pesticide application in the OMP Pesticide Add-In. This link will in particular make it possible in the future to distinguish between preventive and corrective pesticide or herbicide application in reports on chemical use.

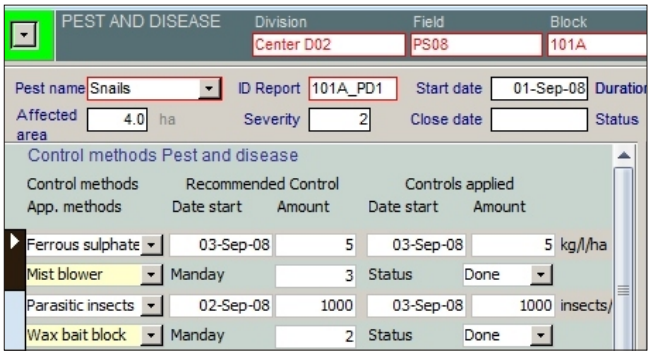

Figure 1: Block level data entry for pest control methods. In the example shown, an outbreak of snails with severity level 2 is detected on 01.09.2008. In the following days, the outbreak is combated using both biological (parasitic insects) and chemical (ferrous sulphate application) control methods.

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Clearly, it is often necessary to analyse the development of a pest or disease outbreak over time, for example to decide whether control methods are necessary or to judge the effectiveness of control measures undertaken in the past. To allow for this, the new pest and disease module will make it possible to record multiple field survey results for each outbreak. In each survey, it will be possible to record not only the affected area and the number of affected trees on a block-by-block level, but also to separately record the severity of the pest or disease outbreak and the severity of the damage that has already been caused. This in particular makes it possible to track the process by which the palm stand recovers from the damage caused, which can of course take far longer than the actual initial outbreak. Just like the control method recommendations, it will be possible to either quickly enter survey results for multiple blocks using a quick entry wizard or to edit detailed records on a block-by-block basis.

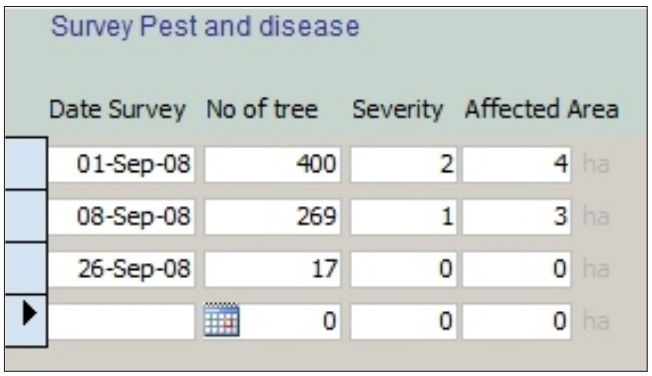

Figure 2: Block-level entry of field survey results. Sample data for the outbreak of snails as described in figure 1. The initial survey shows 400 trees affected over an area of 4 hectares. Control measures are applied on the 3rd of September (see figure 1). A subsequent survey on the 8th shows a reduction in the number of affected trees and a lower severity. Finally, a control survey two weeks later shows only a few remaining affected trees, and the outbreak can be considered closed.

The availability of chronological survey data on each pest and disease outbreak makes it possible to illustrate the development of an outbreak event over time. For example, one might consider monthly GIS maps of the affected area. These maps can be used to illustrate how a pest or disease outbreak spreads out over the plantation area and recedes after control measures have been implemented. Beyond GIS maps, the evolution of an outbreak can also be illustrated nicely using charts or graphs. Comparing these graphs to records of control measures that were undertaken also makes it possible to analyse the relative effectiveness of different control measures that might have been used during different outbreaks. The availability of data on the severity of damage caused by an outbreak can also be used to track how long it takes for a block to return to normal productivity levels. This can also be used to estimate losses due to pests and diseases by comparing the yield during the time when the block was affected to the yield of unaffected blocks of the similar age and other characteristics.

Finally, integrated pest management forms a crucial component of sustainable modern pest control. The new OMP module will also include further possibilities to document integrated pest management methods including the planting of beneficial plants or the fostering of certain predator types such as owls. A measure for the effectiveness of such general preventive measures can be obtained by comparing the frequency of pest and disease outbreaks before and after the implementation of the integrated pest management measures. New reports will also be included in the OMP Pesticide Add-In on the use of pesticides banned by e.g. the world health organization or the Stockholm convention.

We are confident that the new pest and disease module will become an important tool for plantation managers looking to handle pest and disease outbreaks efficiently and to document their actions as required by certification schemes like the Round Table on Sustainable Palm Oil. The new module is still under development, but is scheduled to be released as part of the next OMP update in early 2014.

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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.

Long-term Development Plans

- Enhance possibilities of comparing data between different estates
- Fertilizer chooser Add-In for OMP
- Simplify data structure and split of data between OMP and Add-In programs, remove redundancies
- Add-In for recording of automatic weather station data

OMP Nursery Overhaul

- Improve and simplify data entry wizards
- Improve methods to edit already entered data without compromising consistency
- Move fertilizer recording to progeny level and add new reports
- Add option to export data to Excel
- Add graphs of vegetative growth
- Improve program and data recalculation speed

This and That: general OMP improvements

- Add progress bar windows when opening reports or forms involving long queries
- Explore options for tabbed report and forms to simplify working with multiple open forms
- Enhanced possibilities to enter potential yield based not only on soil type
- Include yield potential and yield budget on various reports
- Improve charts on effects of thinning and ablation
- Add meteorological data such as photosynthetically active radiation, humidity, tensiometer readings etc.