



# Agrisoft Systems NEWSLETTER

Seventeenth Edition, Jan. - Mar. 2016

## Message from the Management

### Supporting sustainable smallholder palm oil production

Dear Customers and Friends,

Over the past years sustainability has become one of the most important buzzwords in the oil palm industry, driven by the (in some cases deserved, but in many cases undeserved) generally bad reputation of the oil palm industry in the public eye regarding environmental and social issues. With recent events like the disastrous forest fires in Indonesia in the past year and the global consensus of the Paris climate conference, this importance will surely only increase in the future.

While the mention of sustainability in the context of the oil palm industry typically makes you think first of environmental impacts such as deforestation and greenhouse gas emissions, it is important that also social sustainability is not treated as an afterthought. Social sustainability for oil palm plantation and milling companies must extend beyond the fair treatment and payment of their own workers to the training, support and fair treatment of the local smallholder community.

Smallholders or outgrowers, i.e. individual farmers or cooperatives who grow oil palms on usually relatively small plots of personally or communally owned land and sell their fruit to a milling company in the vicinity, are an important part of the global oil palm landscape. In Indonesia and Malaysia, the two primary producers of palm oil in the world, smallholder areas have been estimated to account for up to 40% of the total area planted with oil palms<sup>1</sup>. As much of the worldwide palm oil production takes place in remote, underdeveloped regions, smallholders often lack the training, knowledge and capital to manage and maintain their plantings to an optimal level. As a consequence, smallholders typically achieve significantly lower yields than well-managed large

scale plantations in similar environmental conditions. Closing this yield gap is very important not only to ensure that more money flows into the local communities but also because higher yields from existing plantings means that less new land needs to be cleared to



satisfy the global palm oil demand. Furthermore, insufficient training means that smallholders can contribute disproportionately to the environmental impact of oil palm cultivation, for example through indiscriminate use of pesticides and fertilizer or through slash and burn land clearing practices. Finally, ill-educated smallholders are at particular risk of exploitation by the milling companies due to incomplete knowledge of their legal rights and responsibilities.

Of course, the points highlighted above are nothing new to the oil palm industry. Countless NGO's, projects and initiatives but also responsibly-run oil palm plantation companies have for years put a lot of effort into supporting smallholders through training, supply chain and marketing support, loans and the supply of fertilizers and seedlings. In the shape of the Smallholder Information System (SIS) add-in for OMP, Agrisoft Systems has developed a tool supporting these efforts by enabling users to store and analyze data on smallholder groups, questionnaire and survey results, farmer training

<sup>1</sup>Sonja Vermeulen and Nathalie Goad, „Towards better practice in smallholder palm oil production”, <http://pubs.iied.org/pdfs/13533IIED.pdf>



# Agrisoft Systems NEWSLETTER

Jan. - Mar. 2016

## Message from the Management

and knowledge levels, loans, farmer livelihoods and much more. It is a source of personal satisfaction that this software is being used not only by a number of our plantation customers but also by various projects of international organizations like the Solidaridad Network and the World Bank. In the first quarter of 2016 alone we have installed the software and provided user training at new smallholder projects in Indonesia, the Ivory Coast and Nigeria. I look forward to continuing to develop tools to support better environmental and social sustainability in the oil palm and banana plantation industries.

Besides the smallholder tools described above, one of the main current areas of focus for the Agrisoft Systems development team is on providing better tools for day-to-day plantation management. In this context we have been working on improvements to the OMP-HRR add-in

program for daily production analysis with recently added features like a report on days since last harvest by block. In the coming months we are aiming to add features to record stocks of fruit that have been harvested but not yet picked up and taken to the mill, as well as options to display this information in the form of daily GIS maps. Furthermore, we are working on a completely new module for budgeting and recording of regular field work activities like pruning, drainage, weeding etc. This new module, which will be implemented first in the context of our BMP banana plantation program but will also be migrated to OMP in the future, will be profiled in more detail in a separate article in this newsletter.

Yours sincerely,

Max Kerstan





# Agrisoft Systems NEWSLETTER

Jan. - Mar. 2016

## Preview

# BMP Field Work module

Besides ensuring that harvesting and fertilizer application is being carried out according to schedule, maintaining field upkeep standards is one of the most important tasks in the day-to-day work of plantation and field managers. Field work in this sense can encompass any number of different activities including for example manual or chemical weeding, pruning, drainage implementation or repairs, road repairs etc. While of course some particular tasks may only need to be carried out on demand or at irregular intervals, the majority of field upkeep tasks are typically carried out at regular intervals throughout the year. By setting up a good work plan at the beginning of the year, field managers will be able to ensure efficient distribution of labor and other material requirements, derive corresponding field work budgets and of course monitor and react whenever work is falling behind schedule. The aim of the new BMP Field Work module is to give plantation managers a powerful and flexible tool to generate field work schedules or budgets, record field work actuals and actual material and labor usage, and monitor and reconcile differences between the two. While the module will be

implemented first in the context of BMP, we have designed it with the requirements of OMP in mind and are planning to transfer the module to OMP in the future.

The new module is based upon the concept of individual field work “jobs” corresponding to particular field work activities. Jobs in BMP can be defined with a short ID which can for example match a budget activity code as well as a longer, more descriptive job name. Furthermore jobs are grouped into categories and subcategories, as shown in figure 1. While users will be able to define jobs and subcategories according to their individual requirements, the main categories will be hard-coded by Agrisoft Systems to facilitate data analysis later on.

Each job can be furnished with a longer description of the precise task to be carried out, as well as a detailed specification of the materials, chemicals, equipment and labor to be used in the job. This specification includes not only a list of the materials to be used but also the desired application rate on a per ha basis, in order to be

Category	Subcategory	Job name	Job ID
Drainage	Maintenance	Drainage large	DR001
Field upkeep	Equipment	Maintain cables	FM002
Field upkeep	Equipment	Maintain irrigation	FM003
Pruning	Field	Clearing	FM001

Figure 1: Job definition screen.





# Agrisoft Systems NEWSLETTER

Jan. - Mar. 2016

## Preview

able to work out the overall material requirements from the field work budget. Specifically for chemicals, it will be possible to define a particular fraction of the block area to be treated in addition to the application rate. This feature is designed to ensure that users can enter the “real” spraying rate for activities like for example path weeding and still

Name	Rate
Fuel	0.5 l/ha
Drainage pipes - small	15 m/ha
*	1/ha

Figure 2: Job details with specification of materials.

obtain a correct budget for the total herbicide requirements even though only a fraction of the block area is to be sprayed. Of course, all drop-down lists of materials, chemicals, equipment and labor categories will be fully customizable by the user. Specifically for chemicals there will be an additional layer of detail in that it will be possible to individually define active ingredients and products as well as their composition in terms of active ingredients.

Having defined a list of jobs, the next step is to work out the actual work schedule for each job, i.e. when it is to be carried out in which cableway or block. The first thing to specify for each job is the frequency, i.e. how many times a year the job is to be carried out. We anticipate that it may be necessary to have different job frequencies in different parts of the plantation. For example, it might be necessary to carry out drainage repairs more frequently in a swampy part of the plantation whereas a more hilly part of the plantation may need less drainage work but more work on activities like terracing. To handle this, it will be possible to define multiple “field work groups” in BMP and to assign cableways to different field work groups as required. Each such field work group should correspond to a family of cableways which are similar in their characteristics and have the same field upkeep requirements. The field group assignment screen, shown in figure 3, includes a helpful summary of the number of cableways and the total area that has been assigned to each group. Of course, it will be possible to copy the field work group assignment from previous budget years and to import this assignment from Excel spreadsheets.

Having completed the definition of jobs and the field work group assignment, the next step is to specify the actual budget settings for each field

Cableway ID	Group	Index
BAN_003_001_011_00B_002	3	1
BAN_003_001_011_00B_003	1	1
BAN_003_001_011_00B_004	1	2
BAN_003_001_011_00B_005	1	3
BAN_003_001_010_00A_006	10	1
BAN_003_001_010_00A_007	1	4
BAN_003_001_010_00A_008	1	5
BAN_003_001_009_00B_009	1	6
BAN_003_001_010_00A_009	1	9

  

Field work group	Cableways	Area (BoY) ha
1	21	123
10	67	123
2	67	123
3	42	123
5	27	123
6	42	123

Figure 3: Field group assignment.



# Agrisoft Systems NEWSLETTER

Jan. - Mar. 2016

## Preview

group. The BMP field work budget generator wizard, pictured in figure 4, combines a continuous form where users can specify settings for each job with a visual calendar representation of the work schedule. This visual representation is extremely useful to get an idea of whether the schedule will lead to a relatively even distribution of work throughout the year. While figure 3 shows the budget defined in terms of weeks, it will also be possible to switch to fortnight- or month-based budgeting.

Figure 4 shows various other settings for each job in addition to the aforementioned job frequency. The round length simply specifies the number of weeks (or months/fortnights) in which the field work round should be finished, i.e. in which all cableways in the field work group should be tackled. This setting will be used by the wizard to work out the area which needs to be covered in each week. For example, in a job in which the round length is 6 weeks it will be necessary to cover approximately one sixth of the total area of the field work group in each week. Knowing how many hectares to cover each week is of course naturally leads to the question: in which order should the cableways be tackled? To allow users to specify an order which makes sense in terms of the geographical location of the cableways in the field,

it is possible to assign a field work index to each cableway. This index is defined on the field work group definition screen shown in figure 3 and specifies the order in which cableways are to be tackled. Furthermore on the budget generator wizard it is possible to specify custom start cableways for each job, which is important to ensure that different jobs can easily be scheduled to fall into different weeks for a given cableway. For example, assume we have the jobs “pruning”, “drainage repairs” and “weeding” which are all to be carried out with the same frequency and the same round length. Clearly it would be undesirable to schedule all three jobs to be carried out in the same week in each cableway. By choosing suitable different starting cableways in each job it is easy to “stagger” the schedules in such a way that the 3 jobs are scheduled in successive weeks in any given cableway.

Although we are confident that the budget generation wizard described above will enable users to create very flexible and effective budgets using relatively few settings, it is of course possible that particular aspects of the budget will need to be tweaked even further. To do this, the BMP field work module will include a screen to manually edit the field work schedule, partially shown in figure 5. Here users will be able to individually enter or edit

Field work budget generator

Budget for year: 2016

Select field work group

Field work group: 1 Area (ha): 120.3 Number of cableways: 27

Define settings for budget

Job category: Unrestricted Job sub category: Unrestricted

Job name	Frequency	Round length	Week	Field Index	Cableway	Start at	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Drainage large	0	1	9	0	BAN_003_001_011_00B_002																									
Clearing	3	12	2	3	BAN_001_009_001_00A_001																									
Maintain cables	4	12	2	4	BAN_001_009_001_00A_001																									
Maintain irrigation	4	6	1	4	BAN_001_009_001_00A_001																									
Stabilize plants	5	7	1	5	BAN_001_009_001_00A_001																									
Remove leaf	4	6	1	4	BAN_001_009_001_00A_001																									
Sucker remove	5	2	2	5	BAN_001_009_001_00A_001																									

Figure 4: Budget generator wizard.



## Preview

Job	Cableway ID	Group	Index	Scheduled area by week (ha)															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Drainage large	BAN_003_006_007_00B_028	6	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00A_028	6	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00A_029	6	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00A_030	6	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00A_031	6	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00A_032	6	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_007_001_00B_001	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00B_027	6	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_006_00B_025	6	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Drainage large	BAN_003_006_007_00B_029	6	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 5: Part of manual budget entry form.

the area to cover in each week for every cableway and jobs.

Once the field work schedule has been defined using the tools described above, the details of the job specification will allow the program to calculate the required amounts of materials, chemicals, tools and labor for each cableway, week and job. Suitable data analysis forms and reports will be built into the program in order to be able to analyze and extract this information.

In addition to the field work budget, the new field work module will of course also be used to store records on the actual field work carried out and the materials used. The corresponding data entry form, shown in figure 6, allows users to define the area covered by job, day and cableway. Furthermore users will be able to enter the actual materials, chemicals, tools and labor used. To simplify data entry for this part, all materials, chemicals etc. that are part of the job definition will automatically be listed on the screen so that

users only have to enter the amounts used. In addition, for additional flexibility it is possible to manually add records for additional or alternative materials that were used without being specified in the original job definition. Of course, it will also be possible to import all this data in the form of Excel spreadsheets.

While we have not yet started on designing the data analysis features for the field work module, it is clear that the data structure described above will allow for many exciting possibilities. For example, it will be possible to have analysis and comparison of material budgets and actuals at different time and spatial levels, reports highlighting situations where we are lagging behind schedule, GIS maps of cableways scheduled for work in the next weeks by job, and much more. We are looking forward to continuing the design and development of this new module and are confident that it will prove to be a very useful addition to both BMP and OMP in the future.

Figure 6: Entry form for field work actuals.





# Agrisoft Systems NEWSLETTER

Jan. - Mar. 2016

## 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-HRR

- Possibility to record and analyze data on bunches harvested but not yet collected
- GIS maps of bunches remaining in the field by block
- GIS maps of days since last harvest by block
- Improved harvest round length analysis including maximum, average and latest round lengths
- Upcoming harvest schedule based on target round length and latest harvest dates
- Analysis forms for number of times a target round length was exceeded by block and year

### OMP-FP

- 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
- Better data analysis forms for reviewing rule evaluation
- Additional flagging criteria
- Options to restrict to only mature or only immature portions of the fertilizer programme on data analysis forms

### BMP Field Work Module

- Flexible definition of field work jobs with material, equipment and labor requirements
- Specification of pesticides and their composition in terms of active ingredients
- Budget generator wizard based on job frequency and round length
- Assignment of cableways to field work groups with similar requirements
- Manual editing options for field work schedule
- Calculation of overall material, equipment, chemical and labor budgets for field work