Agrisoft Systems
NEWSLETTER
Fifty-third edition, Apr.— Jun. 2025

Message from the Management

Planning for labor requirements

Dear Customers and Friends,

One of the core responsibilities of plantation managers is ensuring that all essential field operations are carried out on time and at appropriate intervals. While this applies across the board—from weeding to fertilizing—the highest priority remains harvesting, where any delays directly lead to lost crop and reduced revenue.

Yet delivering timely harvests consistently is far from straightforward.

A key factor underpinning success is having the right labor resources at the right time. Across many regions, particularly in Southeast Asia, labor availability remains a persistent challenge. In countries like Malaysia, for example, there is a structural shortage of people willing to work in oil palm plantations—an issue made even more complex by regulatory and demographic trends.

Even determining how much labor is needed in the first place can be difficult. Strong seasonality and crop peaks—sometimes concentrated in just a few months—mean that fixed labor planning models often fall short. The number of harvesters required in a peak month may be dramatically higher than in an average month, and staffing to the average can result in significant losses during the peak.

The first challenge is to forecast the volume of crop that will be available to harvest. This is based on an accurate historical crop distribution and can also take into account shorter term effects or BBC crop forecasts. It is important to keep in mind that historical crop distributions may be distorted due to incomplete harvests, making it easy to underestimate the peak crop. Ideally the crop distribution is computed using data from BMP blocks where there are no labor constraints.

Adding to the complexity is the fact that harvesting productivity (measured in tons per manday or hectares per manday) is highly variable. Productivity is influenced by several on-the-ground factors, such as:

- Block topography and accessibility
- Harvesting methods (e.g., manual vs. mechanised)
- Field upkeep and pruning condition
- The volume of fruit available for harvest at the time

This means that even with adequate staffing, actual field performance can vary considerably month to month. Conversely, it is non-trivial to accurately estimate ahead of time the number of harvesters that will be required during the peak crop months, even if we have a good crop forecast available.

To address these challenges, data-driven tools are becoming increasingly important. Tools such as the OMP Resource Use module, which is explored in more depth in this edition's feature section, offer plantation teams the ability to ana-

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lyze historical labor deployment against agronomic parameters—down to the individual block level. This enables more accurate forward planning, especially around critical periods like crop peaks.

Importantly, most plantation companies already maintain detailed records of labor and equipment use through their ERP systems. These datasets can often be easily imported into OMP, enabling deeper analysis when combined with field-level agronomic data.

With harvesting being the most time-sensitive and economically significant field operation, improving labor forecasting and planning is essential—not just for operational efficiency, but also for securing the full value of the crop that's already in the field.

Warm regards,

Max Kerstan

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Feature

Field Work and Resource Use in OMP

The OMP Field Work and Resource Use modules operate on the concept of a "field work job" which is essentially a field work task such as harvesting, pruning or fertilizer application that has been formalized with a name and ID code. Field work jobs can be created in the form "Define field work jobs" found in the "Field Work & Upkeep" tab of the main menu (Figure 1).

Jobs are divided into different "Job types", including fertilizer or pesticide application jobs, harvesting jobs and "normal" jobs. The main difference is how the effective schedule for each job type is defined. For harvesting jobs, the schedule is given by the annual crop budget entered in OMP CB. For fertilizer and pesticide application jobs, the schedule follows from the relevant recommendations. Finally, for normal field work jobs the schedule can be directly entered or generated in OMP.

In the "Resource requirements" section you can define expected resource use rates for the selected job. Resources are divided into four main categories: "Labor", "Fuel", "Material", and "Equipment", and the individual items can be defined in the OMP picker definitions area.

The job types also differ slightly in how you can define the resource use rates. For general field work jobs, rates can be defined on a per hectare, per block or per palm basis. For jobs related to harvesting or application of fertilizer or pesticides, rates can also be defined per ton of fruit harvested or ton of fertilizer/pesticide applied. Note that it is also possible to enter non-constant expressions for these rates if desired. For example, you could enter an expression to

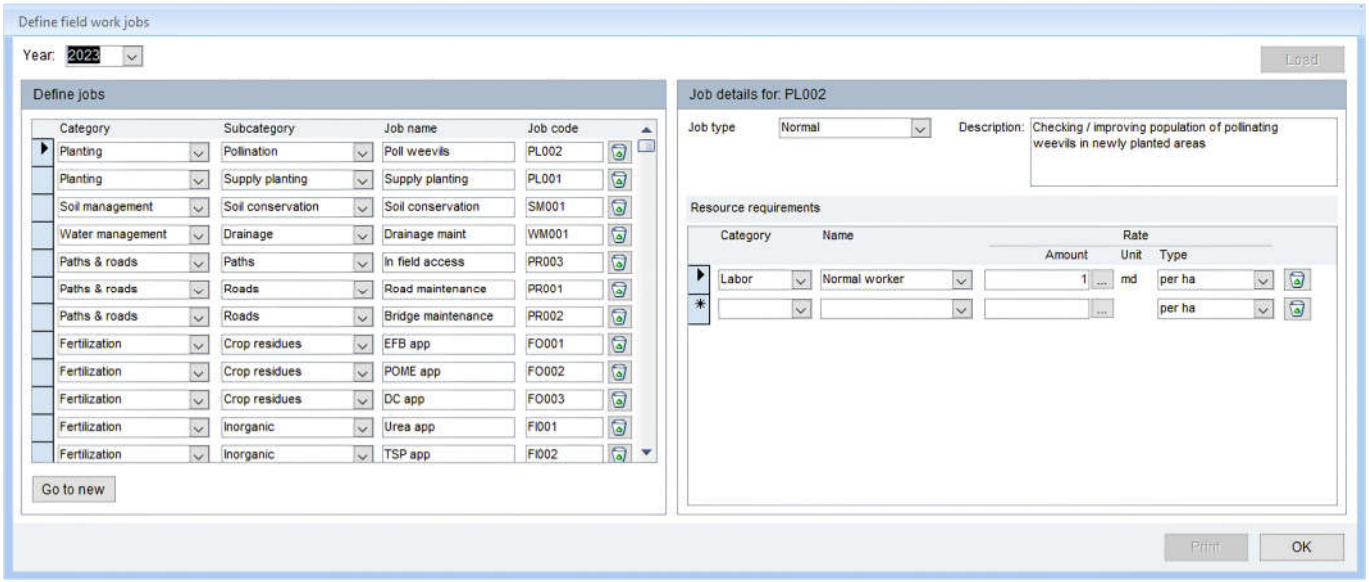

Figure 1: "Define field work jobs" form.

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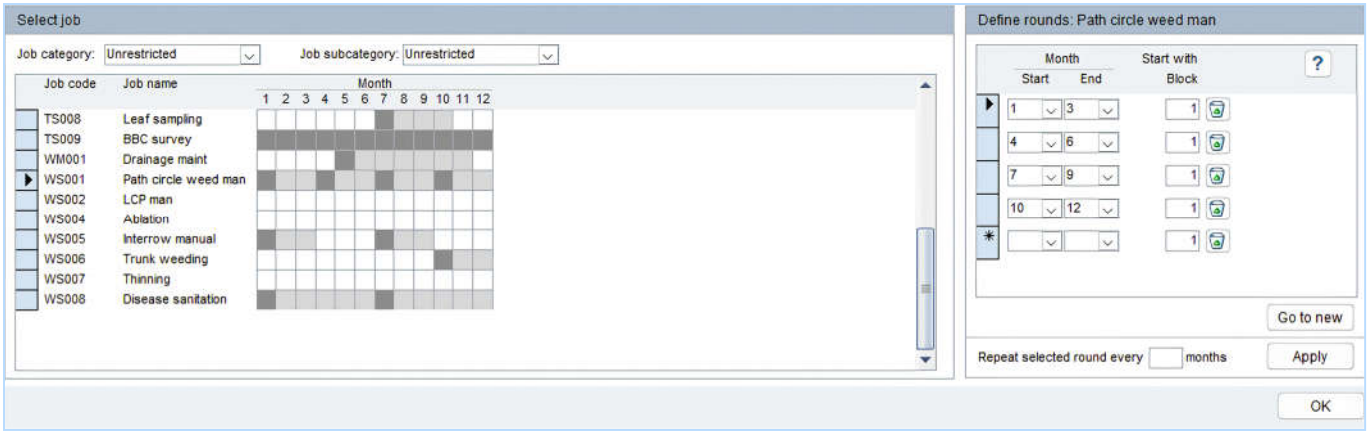

Figure 2: Defining field work rounds.

model higher rates of labor use for the jobs of pruning or bunch cutting for blocks with older, higher palms.

For “normal” field work jobs, you can set up a work programme in terms of how many rounds or cycles of a certain job should be carried out per year. For example, Figure 2 shows 4 rounds scheduled for the job “Path circle weed man”, starting in months 1, 4, 7 and 10 and each round lasting 3 months. On the other hand the job “Leaf sampling” is scheduled for one cycle in the year, beginning in month 7 and lasting until month 10, while “Interrow manual” weeding is scheduled for 2 cycles of 3 months duration each, starting in months 1 and 7. In this way you have finely grained control over when exactly each kind of job should be carried out, in particular making it easy to schedule more field work for months outside the crop peak or outside fertilizer application months.

OMP can then generate a detailed work schedule by job, block and month based on these rounds. Essentially OMP spreads out the work to be done to the individual blocks in such a way that the total area to cover is roughly even in each of the months in the defined work round. The order in which blocks are processed follows the field upkeep index that you can enter within the OMP block characteristics data, so that you will not receive a work plan that proceeds through the blocks in a sensible way and does not “jump around” between different corners of the plantation.

Of course, it is highly likely that you will want to apply somewhat different field upkeep operations in different areas of your plantation. For example, you may want to do several rounds of pruning in older blocks whereas young immature blocks will not require any pruning yet. To support this, you can assign your blocks to so-called “field work units” in OMP. You can define as many or as few field work units as you need depending on how homogeneous the plantation blocks are. The field work rounds can be defined separately for each field work unit. If you already have a field work schedule planned outside of OMP, you can of course also skip the assignment

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to field work units and rounds and instead import the work schedule by month, job and block directly into OMP.

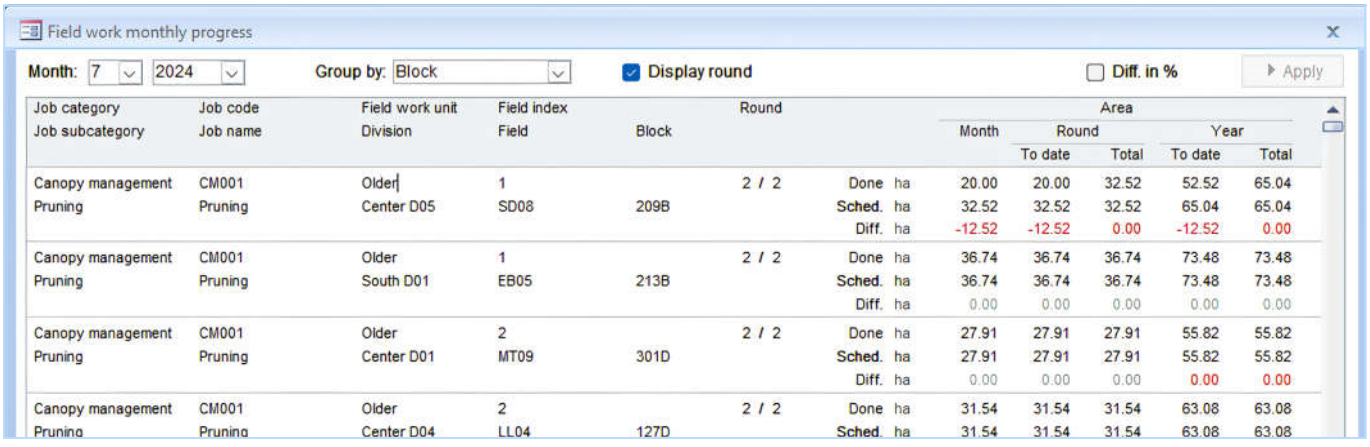
Recording of actual field work carried out is straightforward: simply record the hectares done by job, block, date and optionally work team ID. Many plantations have already established strong routines and systems for recording actual field work data for their ERP and payroll systems, in many cases including app-based mobile data recording with details of work done by individual workers. The OMP field work module is not intended to replace or reproduce such data collection systems. Instead, available data can be imported or automatically pushed into the OMP database. This gives you additional data analysis options, in particular for comparing the actual work progress versus the schedule or for comparing with other agronomic parameters, without increasing the data collection workload.

OMP will calculate a detailed resource use budget by job, block, month and resource type by evaluating the resource use rates defined in the job definitions in conjunction with the following data.

- For “normal” jobs, the specified field work schedule of the area to cover by block, job and month.
- For harvesting jobs, the crop budget output and/or the area of the blocks with budget output > 0.
- For fertilizer application jobs, the fertilizer recommendations and/or the area of the blocks with recommendations > 0.
- For pesticide application, analogous to the fertilizer case.

It is obvious that having an accurate estimate of resource requirements for upcoming field operations is very important in order to ensure that all required resources are available on time and in sufficient quantities. This applies particularly to things like harvesting labor, where having too few harvesters can immediately lead to non-recoverable crop losses.

Actual resource use can be entered into OMP by resource type, date, job and block. The specifica-



Job category / Job subcategory	Job code / Job name	Field work unit / Division	Field index / Field	Block	Round		Area Month	Round To date	Round Total	Year To date	Year Total
Canopy management	CM001	Older	1		2 / 2	Done ha	20.00	20.00	32.52	52.52	65.04
Pruning	Pruning	Center D05	SD08	209B		Sched. ha	32.52	32.52	32.52	65.04	65.04
						Diff. ha	-12.52	-12.52	0.00	-12.52	0.00
Canopy management	CM001	Older	1		2 / 2	Done ha	36.74	36.74	36.74	73.48	73.48
Pruning	Pruning	South D01	EB05	213B		Sched. ha	36.74	36.74	36.74	73.48	73.48
						Diff. ha	0.00	0.00	0.00	0.00	0.00
Canopy management	CM001	Older	2		2 / 2	Done ha	27.91	27.91	27.91	55.82	55.82
Pruning	Pruning	Center D01	MT09	301D		Sched. ha	27.91	27.91	27.91	55.82	55.82
						Diff. ha	0.00	0.00	0.00	0.00	0.00
Canopy management	CM001	Older	2		2 / 2	Done ha	31.54	31.54	31.54	63.08	63.08
Pruning	Pruning	Center D04	LL04	127D		Sched. ha	31.54	31.54	31.54	63.08	63.08

Figure 3: Field work done versus schedule including round and year to date values.

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OMP Data Print Out – Resource use monthly actuals vs budget — DEMO

Year: 2024 Group by: Job category, Division, Labor: Skilled worker Display: Difference in amount

No filter active.

Agrisoft Demo Estate

Year	Resource category	Resource name	Job category	Division		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2024	Labor	Skilled worker	Harvesting	Center D01													
					Amount act. md	1,876.8	1,804.2	1,985.6	1,842.5	1,946.5	1,858.5	1,638.5	1,932.0	1,970.6	1,932.5	2,009.9	1,924.0
					Amount bud. md	1,971.4	2,008.0	2,039.1	2,080.9	2,032.7	1,930.5	1,784.4	2,058.1	2,131.4	2,192.3	2,136.7	2,111.2
					Amount diff. md	-94.6	-203.8	-53.5	-238.4	-86.2	-72.0	-145.9	-126.1	-160.8	-259.8	-126.8	-187.2
2024	Labor	Skilled worker	Harvesting	Center D02													
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					Amount act. md	2,358.0	2,306.1	2,502.3	2,353.8	2,547.3	2,320.9	2,135.5	2,406.5	2,426.4	2,532.2	2,521.7	2,456.7
					Amount bud. md	2,514.5	2,531.5	2,597.8	2,651.1	2,584.5	2,453.4	2,264.7	2,545.0	2,610.9	2,690.1	2,685.1	2,644.9
					Amount diff. md	-156.5	-225.4	-95.5	-297.3	-37.2	-132.5	-129.2	-138.5	-184.5	-157.9	-163.4	-188.2
2024	Labor	Skilled worker	Harvesting	Center D03													
						Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
					Amount act. md	1,513.0	1,446.4	1,595.1	1,457.7	1,394.6	1,170.6	1,104.8	1,278.3	1,482.8	1,491.8	1,475.5	1,416.4
					Amount bud. md	1,520.1	1,566.0	1,558.5	1,505.4	1,371.7	1,179.8	1,130.4	1,299.8	1,504.1	1,519.5	1,511.2	1,523.5
					Amount diff. md	-7.1	-119.6	36.6	-47.7	22.9	-9.2	-25.6	-21.5	-21.3	-27.7	-35.7	-107.1

Figure 4: Resource use actual vs. budget report.

tion of job and block are optional, in case the resource use cannot be clearly apportioned to a specific job or block. For example, assume a certain truck is always refuelled at the division fuel station but this truck is then used for various field upkeep jobs in various blocks in the division. In this case the information on how many litres of diesel were issued to the truck may be readily available, but apportioning the litres precisely to the specific jobs and/or blocks would require manual estimates. On the other hand, for other kinds of resources the fully detailed information may be readily available, for example worker mandays are often available by job, block and date. The flexible data entry system allows appropriate recording in any case.

Most plantations will already have detailed digital records of their resource use in the shape of ERP systems. In this case, the data can be imported into OMP or automatic data transfer mechanisms can be set up that pull the data across into OMP on a scheduled bases. Having the actual resource use data available in OMP opens up additional analysis and reporting possibilities, from straightforward actual vs. budget reports to more detailed analysis comparing the resource use against other agronomic parameters stored in OMP. For example, using OMP QW you could analyse specifically how the harvesting labor use for different harvesting jobs (e.g. bunch cutting, loose fruit collection) varied between blocks with different topography and field upkeep standards, and even over time between low crop and peak crop months. This kind of information is in turn very helpful to improve the budgeting for future years in order to optimize your resource use even more.

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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.

Oil extraction module

- New module focusing on oil yields, oil extraction rates and milling losses
- Standalone WPF application independent of Microsoft Access
- Overall OER monitoring by comparing oil output to FFB harvest
- Recording of mill loss rates at different stages of the milling process via direct measurement of losses
- Control charts and monitoring tools for mill losses
- Bunch analysis results for individual sample bunches for OER benchmark
- Bunch grading (e.g. ripe, underripe, overripe bunches) at mill ramp or in the field
- Correlation of different results with each other and where possible with other field/block parameters e.g. palm age, planting material, seasonality

Upcoming general improvements

- Additional block-level field for soil gravel content
- Fourth row of data on form and report "Monthly/YTD production"
- Function to load queries from other OMP QW data file
- Allow for month-to-month changes in OMP-GIS base maps
- Improved data analysis for resource use rates
- Options to see more information on number of rounds and average round length on harvesting productivity data analysis form
- GIS mapping for tracks of OMP FS surveyors
- In OMP FS app compare current position to stored position of predefined points
- New reports for leaf nutrients versus critical and optimal leaf nutrient levels

OMP 10.5 release

- Additional grouping options for various forms and reports
- New chart for multi-year trends of harvesting productivity parameters
- Automatic synchronization of daily and monthly production data tables, regardless of which time level data was entered or edited at
- Function for "number of points surveyed" in OMP Field Survey expressions
- Option to importing FS results with questions in columns
- Report for the number of blocks and area where a certain pesticide was applied per month
- Possibility to select columns to update in back-end APIs
- New block-level field for water table depth
- Newly redesigned nutrient balance report
- Function to copy field work job definitions and round definitions to other year