



World-first approach to harvesting-crew management

BY SANDRINE MARRASSÉ
PHOTOGRAPHY BY MARION HUGHES

Innovation is at the heart of Nelson Management Ltd (NML*)'s approach in a range of areas within its operation. It is committed to supporting innovation amongst its contractors, but is also continually seeking to incorporate industry-leading practice in its logistics and business intelligence systems. In a world first, NML is implementing a new approach to scheduling harvesting crews that is being watched with a great deal of interest by other forestry companies, both locally and globally.

NML's Resources Forester Marion Hughes and Business Performance Analyst Nigel Brabyn have rolled out a supply chain software system called CrewSO (Crew Scheduling Optimisation) that allocates, tracks and manages supply and demand in NML's 78,000 hectares of forest in the Nelson and Marlborough regions.

"CrewSO is a system that integrates forestry management software, supplied by Trimble Forestry, and a resource modelling tool, developed by Remsoft, (both Canadian companies), that enables us to get the right products, from the right harvesting crews, to the right customers, at the right time," says Nigel.

The implementation of the

CrewSO system has the potential to have an ongoing positive effect in the communities in which NML operates because it will result in harvesting equipment being shifted less often between sites, more efficient use of logging trucks, and safer workplaces for harvesting crews.

"Crews will have the ability to plan further ahead," says Marion. "The harvesting sites will be prepared for crews well before they get there and will be set up exactly as they need them to be. In the past, we have often had to shift crews into areas that weren't ready or were set up for another crew, sometimes at short notice, and this can lead to conditions that aren't ideal. We believe the new system will decrease the risk of incidents because the variables and conditions of particular sites will be known much further in advance."

By focusing on customers' order and delivery needs first, NML were able to work back and design a system that revolutionises the manual and arduous spreadsheet system previously used for scheduling logging crew operations. "CrewSO optimises the harvest plan," says Marion.

"It uses the customer's orders and matches them with available resources to come up with the best value for the customer and the business. It works out which harvesting crew should harvest each area and which customer that wood should be delivered to. This is a world-first, crew-scheduling tool that creates an optimised solution using the most up-to-date data available. It can solve this complex problem in less than half an hour whereas previously, because of the manual nature of the task, the process might take days!"

Many forestry companies, including NML, have designed supply and demand models over the years but they were stand-alone, one-off models that could only solve one question at a time. Often by the time they had the answer, the question that needed to be answered had changed. "What's new about CrewSO is that we have integrated it with our day-to-day management systems so it can be run using near real-time data supplied directly by a wide range of operational, sales and marketing staff," says Nigel.

The resulting daily schedule of activity is utilised by a wide cross-section of NML staff to help them manage

harvesting operations. Every day the actual results are compared with the company's harvest plan so that performance can be measured promptly and efficiently. To achieve this, Nigel has been working with a local company, Montage BI, to develop reports and dashboards using a graphics-based software called Tableau. This software produces highly interactive data visualisations, focused on business intelligence.

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"We are building a lot of automation into the data processing so that the results can be quickly and easily understood by anyone who needs it, via a web interface," says Nigel. This advanced software means that there is a single source of up-to-date, factual information that everyone across the business can access, from senior management to contractors on the forest floor. "In this day and age it's vitally important that everyone is on the same page, looking at the same plan and reading the same results. That is especially important for our customers. They know what they have ordered but they need to know when they are going to get it and be assured it's the quality they were expecting," says Nigel.

"The data that CrewSO uses is maintained by the people who are responsible for that part of the business. This creates a sense of ownership of the data and helps keep the quality of the information at a high standard," says Marion.



ABOVE NML's Business Performance Analyst Nigel Brabyn and Resources Forester Marion Hughes
LEFT Hayden Barnes - Endurance Logging Ltd (left) and Wayne Wells - Nelson Operations Team Leader for Nelson Management Ltd review the 18-month harvesting schedule for Endurance Logging

"Running CrewSO for our crew scheduling and customer delivery plan is already reducing our operational costs, and it will reduce stress levels for staff and create a more certain workflow for our harvesting contractors. Our product predictions are now more accurate and our customers can be confident that we will deliver the volume of wood they have ordered, and that we will continue to deliver the quality and quantity of wood they require."

"The impact has been massive!" says Hayden Barnes, owner of Endurance Logging, when asked how CrewSO has impacted on his business. "It's given me the faith to invest in new equipment, and confidence about my future."

The next phase in this visionary project is at the testing stage already, and is a longer-term version of CrewSO. CrewSO is designed to cover the next

18 months of operations, but the new system will schedule operations over the next 60 months (five years). "The only other difference is that, instead of allocating harvesting crews, it will allocate harvesting equipment type, for example, ground-based harvesting or tower harvesting," says Marion.

"This system (we've called it the Tactical Harvest Solution - THS) will be able to tell us if we have the right number of each equipment type for the next five years, and if not, what equipment type we need, and when we need to change. Some of the benefits of using THS will be forward planning much further into the future with our harvesting crews, preparing areas for harvest at the best time for environmental and cost savings, and the ability for customers to see five years of product that has been allocated to them." **WT**



Nelson Management Ltd Managing Director Lees Seymour looks at the CrewSO dashboard

*[Nelson Management Ltd is the management company for Nelson Forests' 78,000 hectares of forest in the Nelson, Tasman, and Marlborough regions. More than 600 people are employed across the business, and the company harvests 1.2 million m³ of log sales annually. Seventy percent of the logs harvested are processed by local sawmills into products for the domestic and export market]

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