



# HARVESTING TECHNOLOGY IN NEW ZEALAND NEW SOFTWARE MEASURES WHAT MATTERS

## Part Two

New Zealand fosters a culture of creativity and the forest industry has recently enjoyed success by incorporating innovative ideas, benefiting contractors and forest owners.

Loggers in New Zealand are using new tools such as feedback software, a GPS tracking system for choker-setters who wear special GPS units that are synced each morning with the yarder. The yarder operator can then track the location of the choker-setters on a screen in their cab at all times without needing a clear sight line. As a secondary warning system, when the choker-setters are inside a preset corridor, a flashing warning or audible alarm alerts the yarder operator. The tracking system provides another way to reduce miscommunication regarding location of choker-setters and accidents.

While machine operators are benefiting from tracking workers, crew foreman and owners have also found new ways to monitor production. One example is cloud-based software such as “STICKS” which allows a user to upload and report on Standard for Forest Data and Communication (StanForD) data, which is collected by most modern processing heads-on-board computers. Files are created as each tree is cut, which record all the information about which log grades and volume have been produced. This information is uploaded to the Cloud and a supervisor can see up-to-date information in real time on each of the log grades and total volume that has been cut. Furthermore, they also get live updates on what has been loaded onto trucks as well as what has been delivered to end destinations. Contractors seem to enjoy this system as they can more accurately assess total production as opposed to traditional methods such as piece counts and they receive more timely information than the traditional truck scaling tickets. The system allows them to also prioritize log grades cut based on market demands, which can be updated in real time.

Unmanned Aerial Vehicles (UAV) are increasingly used for applications in forest management, including ways that benefit loggers. Some loggers in New Zealand have even purchased their own to aid in their operations.

Typically, initial skyline setup and line shifts result in considerable downtime. One way of reducing the time and manpower required for setups is by using a UAV to fly a lightweight synthetic straw line across cable spans. Some contractors report the process, which normally requires multiple workers and several hours of strenuous work, can now be completed in about a half hour with minimal effort. Some are even using the UAV to get a different perspective of the job site for planning purposes, or to fly the clearcut after the job is finished to access slash left on-site. Other examples include quarry or chip pile volumes, which can be accurately measured and regularly updated by flying the site with a LiDAR-equipped drone.

A few years ago, researchers successfully demonstrated the ability to operate a steep slope tracked felling machine including winch assist by remote control in conjunction with live video feed. The system has now been commercialized and allows the operator to work remotely with all the controls, seat and diagnostics as in the real machine. Remote controlled tailhold anchors have been a favourable way to reduce the time associated with yarder line shifts, and a remote control system was recently installed into an excavator, where with the aid of cameras mounted in the cab, the yarder operator can reposition the anchor machine on their own.

Camera systems are also finding their place in operations for monitoring areas out of sight for worker safety or for productive reasons. For example, in grapple yarding where a spotter is normally required, cameras can be setup in the harvest area and relay a video feed to a

screen in the cab of the yarder that can be remotely panned and zoomed. Cameras have also been integrated into new motorized grapple carriages designed for tower yarders or mounted externally onto other carriages like swing yarder grapples. These carriage camera systems can also include infrared mode for low light conditions, GPS tracking, provide distance and altitude information and can transmit up to 900 metres. These camera systems aid grappling of stems without the use of a spotter while also making the task of yarding easier on operators. Some grapple yarding operations are now using lights mounted onto the carriage in conjunction with their camera system, which is helping them extend working hours. The lights are also helping with simple tasks, like making maintenance on the yarder or carriage at the beginning or end of day easier in low light conditions.

These are only a few of the innovations being implemented in New Zealand. There are many others on the horizon soon to come. While forestry is often referred to as a “sunset” industry, from what I can see with these many exciting developments, the sun is just starting to rise.▲

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*Originally a forester from California, Hunter Harrill is a senior research assistant at the New Zealand School of Forestry. He provides research for the logging industry through New Zealand Forest Growers Research (FGR), teaches forest engineering at the University of Canterbury and provides outreach and extensions services to loggers and forest managers.*