Accurate data needed in log making

What are the implications for non-corporate harvest managers?

As an example, consider a consultancy arranging the logging and marketing of smaller, privately owned forests, using three to six logging contractors. A once-per day data download system using telephone modems would allow the consultant to send each crew its cutting instructions, ensure even lines of within-specification logs between each crew, know the production by grade and length by crew and in total each night, know the stock available and the stock loaded that day, and so coordinate their business.

Using the Invader system will also enable the consultant to offer extra services to customers and landowners that should give a significant marketing advantage:

- Reassurance that the best logmaking decisions are made given the current marketing environment;
- Daily production reports; and,
- Record of loadouts linked to truck docket numbers.

Many small forest owners approach harvesting with a great deal of fear (sadly, often justified). Daily reports using such an objective, transparent system will be very reassuring and an effective marketing tool.

Conclusion

IFR Technologies Invader is now providing forest managers with detailed and timely information not previously available. This information is providing new opportunities to streamline forest management and improve margins.

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Superskids offer operational alternative

Paul Dickinson

Superskids, as defined by Carter Holt Harvey Forests Ltd. (CHHF) are whole-stem processing skids located near (within about 7 km of) the stands of trees to be processed, but of a greater size than conventional skids, typically exceeding a surface area of 5000 cubic metres. Superskids differ from central processing yards (CPY) in that CPYs are reasonably permanent entities processing stems from relatively long average haul distances, where roading networks allow safe and efficient long distance, whole stem haulage to the CPY. A single CPY may process stems from thousands of hectares.

Superskids are temporary entities which process stems from from a smaller area, up to 500 hectares of forest, while still offering many of the same advantages that CPYs have over conventional sized landings.

The wood catchment size is usually limited by the quality of the roading infrastructure to the skid. Roading influences stem haulage time, and the physical ability of the stem trucks to negotiate the roads, since trucks can potentially carry 38 metre stems. Similar to CPYs, superskids generally require what is called "two-staging" of whole stems, from the site of felling to basic extraction pads on the road edge, then from the extraction pads, to the superskid on a stem truck. Stems can be supplied to the superskid from several extraction operations, allowing high volume throughput. A minimum of 60,000 tonnes of available wood is generally regarded as being required to justify the establishment of a superskid operation.

Why use superskids?

An obvious value-recovery advantage of having a large stem processing area is to remove the physical constraint to the number of log types that can be produced (e.g. enhanced log stacks area). With high volume throughput and log storage capability, there is the ability to produce certain high-grade log-types that are traditionally slow to accumulate and would not be produced on a conventional skid given skid area and time constraints (e.g. sapstain risk).

CHHF's superskid experience to date shows a significant 'freeing-up' of production volume due to the elimination of interference between work elements at the extraction site. In many operations, stem processing tends to be the 'bottleneck', especially on small skids and especially in hauler operations. Processing away from the primary extraction site allows production to increase.

In addition, at the superskid machinery can be customised to specific tasks. For example two hauler operations each usually producing 170 tonnes per day with processing under the spar, can each produce over 230 tonnes per day when stems are removed by a stem truck to a superskid. In this case, the increase in output is accomplished through the addition of a stem truck, a minimal increase machinery when considered over the whole operation.

A very noticeable improvement, in the eyes of the operators, is that the traditional frequent and disruptive changes of location with conventional skid processing are eliminated. Given sufficient storage area and an efficient dispatch system, the skid area should never get too congested to continue work under a superskid system. A well organised 7,000 cubic metres skid should be capable of perpetually handling 800 to 1,000 tonnes per day, producing up to 30 log stacks.

Organisation of machinery, stacks, and elemental work areas on the superskid is critical to its success with regards to productivity and safety. Superskids allow logmakers using Timbertechs to work away from machinery in a safe, relatively quiet environment, improving their concentration and the resultant quality of stem data entered.

Superskids have a relatively high construction cost, ranging between $20,000 and $250,000 or more, depending on a range of factors such as topography, skid size, soils, and metal source. Despite the cost, use of superskids means a substantial reduction in the number and/or size of conventional skids which would otherwise serve as both extraction and stem-truck loading areas, requiring less total area and cost.

The use of a swing-yarder from the roadside eliminates the need for an extraction skid in some circumstances. This is extremely important in steep areas where the cost of developing extraction skids is high.

A superskid can be constructed on a more favourable site nearby. Unfortunately steeper terrain often means tighter corners that are harder for a full-stem truck to negotiate, so the cost of roading improvements needs to be carefully evaluated when siting a superskid.

Superskids offer major safety advantages, the obvious one being the removal of exposed workers from around moving machinery and logs. In a typical hauler operation for example, the number of people working under the spar reduces from four, to one (or zero if a grapple carriage is used).

Delimbing and loading of the stem truck can be done using a single excavator with a stripped down Waratah head. The logmakers are removed from the extraction site completely and are now based at the superskid. The hazard presented by the stem truck, mainly the swinging of the rear of the load across the whole road on bends, is isolated by a system of signage, radio communications, and road closures as required.

At the superskid, unloading of stems can be carried out in several minutes using drop staunchions. The stems are laid out on bearers with easy walking space between stems, enhancing log-maker safety and offering a better view of log defects. An optimal skid offers space for three sets of stem bearers. This means that the Timbertech operators are never working adjacent to any machinery.

This includes being separated from chainsaws as cutters will be working on a different bearer area until 'timber-techers' have completed their mark-up of a stack. The chances of logs rolling on logmakers are therefore minimised, as is exposure to noise, vibration, and engine fumes.

Higher surface construction quality than conventional skids means the operators are rarely working in muddy and slippery conditions, improving both safety and moral. The scale of the operation also enhances the economies of establishing decent smoko/other amenity facilities. Feedback from all operators involved in both the extraction and processing components of the superskid operations has been enthusiastic.

The effect of whole stem loads of about 40 to 45 tonnes on roads to date has been encouraging. Modified (higher bolsters and extended length) conventional log trucks are used, but all stems are loaded with the butts to the front of the deck. With most weight over the drive axles, there is minimal wheel slip, and minimal road damage.

Admittedly, some pre-operation road realignment is required in certain situations to allow operation of the stem truck. Current stem lengths being hauled are around 30 metres, with this expected to increase to 38 metres in some areas over the next 5 years. This haulage is obviously not carried out on public roads.

Waste accumulation is a potential problem given the volumes processed, despite delimbing at the extraction site. This is also an opportunity however, as sufficient volumes of waste may be produced to warrant the presence of a waste "hogger", producing boiler fuel or fibreboard material at an economical cost.

Environmentally, the superskid is preferred to conventional skids as total ground disturbance is less (due to minimal development of extraction dumps). This benefit is offset to the extent that significant road realignment is required to accommodate the stem truck. This last point again emphasises the importance of correct siting.

Reduced Transport Costs

Also with regards to siting, there is potential for log transportation costs to be significantly reduced when the superskid is located near a well-developed highway. Good road conditions between the superskid and log destinations allows trucks with lighter tare weights, and hence the ability to carry a higher payload on the open road. Log dispatch operations are made easier with loadouts from fewer sites, and the faster accumulation of grades at each site facilitates prompt customer service.

Summary

In summary, superskids offer enhanced value recovery, safety (weighted over total operation), volume throughput, environmental benefits, engineering savings (over total operation), distribution savings, and improved operator morale. Their effectiveness is constrained by the high volume availability required, a suitable construction site, and the capability of road alignment to operate full-stem trucks in the area.

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