VALUE MATERIALISATION OPPORTUNITIES IN HARVESTING

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My presentation will focus on the issues of value recognition and capture of value opportunities from our operational perspective. Those who developed and promoted the tending regimes, in the 1950s and 1960s, must surely be regarded as visionaries. The challenge of present and future forest industry management is to recognise this vision by insuring the full materialisation of value from our plantation resources.

Value materialisation opportunities during planning of harvesting

Before we can hope to develop a marketing strategy for our standing trees, the accurate identification of resource characteristics in terms of quality and quantity is essential. Any mismatch of accepted orders must result in a sub-optimisation of the forest resource. This may require the felling of additional forest to meet orders, and thereby cause further supply imbalances between log products. While the identification of qualities and quantities become easier as we get into the harvesting of more uniform second crop stands, it is evident that the existing pre-harvest mensuration and assessment tools, are not sufficiently developed to ensure a mismatch of predicted and actual out turn does not occur. While high intensity sampling obviously provides an increased level of confidence, the highly subjective nature of perimeter tree assessment, branch size, diameter and sweep remain a major source of concern.

The application of existing technology to the forestry industry can provide forest managers and marketers with a higher degree of confidence that the pre-sold resources are, in fact, available. Laser and ultrasound based tools offer the opportunity to capture higher quality information, faster, and less arduously than is presently available with existing assessment tools.

Value materialisation through mechanised harvesting

Assuming we make progress in value recognition of the standing tree, it then becomes the challenge of the harvesting team to ensure the full capture of this potential value. Each function within the harvesting operation has the opportunity to contribute to the value capture process. The manual felling process has been the focus of significant research and training effort to minimise value loss during falling. The development of improved felling methods and the introduction of wing cuts has significantly diminished value loss during felling.

Motor manual felling has also been identified as the single most dangerous function within our industry. The record has not been good, with felling accounting for 60 per cent of the forestry industries fatalities during the last 20 years. Until recently, tree size and machine development had limited mechanised felling initiatives to small piece size harvesting on rolling to flat terrain.

However, the demise of the central North Island old crop stands, and the adoption of Scandinavian technology to larger tree sizes, now provides the opportunity to further explore mechanised felling. There is a felling head which has been working in Kaingaroa Forest now for 18 months. The 85 centimetre capacity means there is no scarf involved in the falling. By reducing pruned stump heights from 15 centimetres, it is possible to capture an additional nine cubic metres per hectare of pruned butt. The value gained in excess of $3000 per hectare. Given the production of this machine, up to 1200 cubic metres or two hectares a day, the additional value captured would offset those costs by more than five times. We still have some further work in diminishing the scarring immediately above the scarf but that is quite solvable by spreading the force over a wide area.

The impact of mechanised felling on breakage is also being evaluated with some initial findings indicating an additional capture of another nine cubic metres per hectare at the top of the tree.

While we talk about capturing the value of our forest estate, we tend to over look the value of the logging work force who are out there doing this job. LIRO did a study in a 3.2 cubic metre piece size stand in Kaingaroa last March. The study looked at the heart rate of the machine operator and compared it to a conventional motor manual faller who also undertook delimbing. The study indicated an excessively high work load during manual felling. We all recognise, that it is a tough, dangerous, difficult job and if want to able to keep our trained people in the industry longer, so that they retire with good backs at age 65 plus, mechanisation must be adopted. If that happens I think the whole industry will be in a better situation.

Recent developments in mechanised delimbing and processing now offer the opportunity to potentially eliminate the use of the chainsaw from the industry as it potentially a very lethal piece of equipment.

A Denis 2000 which has been operating in clear fell in Kaingaroa for the last six years. The next stage of mechanised delimbing is the Timber Line. There are two working in Australia in Radiata. They are the preferred option over the Denis type equipment in more difficult going in North America. This particular machine is of interest, as is the prototype large Waratah harvester in CHH Forest's operations.

The only difference is that the primary focus of Tasman Forestry's mechanised delimbing initiatives is the development of a system which undertakes the delimbing on the cut over prior to full tree extraction to either the landing or the road side. The final processing options may then include either partial or complete merchandising by either motor manual, complete mechanised systems, or the full tree cartage to a centralised processing facility. Several companies are looking at what options this might hold for the capture of additional value.

Value materialisation opportunities during log making

For skid based manual log making it is obvious that continuously increasing value recovery and quality demands must be assisted by new technologies. Between 1985 and 1990, we saw a four fold increase in the number of log types with up to 18 being manufactured on the skid at any one time. The adage of skid full of loads of nothing has been noted from the despatch point of view. Potential benefits from capturing the

maximum value during the key days of the harvesting process are enormous and growing daily. For our company up to $2 million improvement in annual revenues can be gained if we are able to capture an additional one per cent.

For log makers faced with this level of complexity and responsibility, the adoption of value optimising systems to assist the log maker offers obvious opportunities to capture value. The development of such systems must also address the quantification of sweep, kink, wobble and internodes, features not presently catered for with existing computer based systems. Further benefits in real time log production, date and specification monitoring are obvious. If we can scale at the stump rather than the port, we are a lot closer to getting what our customers want.

The path of technology development offers further scope to capture value. The involvement of the logmaker in value audits, in house training courses, clear communication and feed back of customer requirements on a weekly basis, log making competitions, and the development of clear log making strategies have been found to produce positive impacts on value recovery outcomes.

Tasman Forestry harvests approximately 150,000 cubic metres pruned logs. After falling, we use paint to identify the end of the pruned zone in the bush. Dating of the pruned butt is done at the felling place to ensure optimal stock rotation and meeting our delivery on time. Other functions are ensuring the log maker has the correct tools. Numerous AVIS studies have highlighted particular areas of concern. Making sure the log maker has callipers and is using them has dramatically decreased any issues associated with diameter problems.

We also need to recognise the role of the people involved in the log making themselves. We trust them to an exceptionally high degree with the value of the choices they make, and must mention the continual feed back of information in the in-house training courses.

Tasman Forestry each year finds its ultimate logmaker at a logmaker competition that we run annually. The cost of a trip for two to Queenstown for a long weekend pales into insignificance, compared to the amount of value they could potentially lose daily. As log prices continue to escalate, the associated cost of production to achieve increases in value recovery, become less significant. Basically, we shouldn't be scared to spend a little bit more to pick up the additional value.

Further opportunities to realign contractor remuneration systems beyond the currently and highly successful value differential payment systems are timely. The progression to a value achievement payment system in preference to volume achievement payment system is currently being explored. This goal alignment between the forest owner and the harvesting contractor has only been limited in the past by lack of confidence and pre-assessment data.

The constant redefinition of what constitutes marketable fibre has provided scope to more fully utilise total stand volume. The development of systems to process and transport what has previously been unmerchantable industrial fibre, while reducing environmental concerns associated with slash around the landings and birds nests is evident. One of the problems with utilising this slash and waste material in the past has been in trying to develop the customer, and we are currently

working on two approaches to that. The first is our WoodTech chain flail chipper, working in Taupo supply Fletcher Woods Panel Plant.

We are also looking at how we can best process that material through Fletcher Wood Panels drum debarker. There is quite a vast amount of this resource out there across all the companies. We are all aware, of some of the pulp supply issues we are currently faced with, this has got to be seen as an ongoing and viable source of industrial fibre.

Value materialisation through improved marketing

I would now like to discuss value recognition and capture from the marketing end, as we see it from the harvesting perspective. In order to allow the full materialisation process to be maximised, the challenge of the marketing sector must be firstly to know as much about the resource as the forest grower, and secondly to know as much about the customer's end use requirement as the customer does - in short, a full understanding of the entire value chain. We must continue to break down knowledge barriers between the grower and the end user, by becoming more attuned to what the end user, the ultimate consumer, will value in Radiata products.

The marketing sector will better able to provide the customer with what they want. We need to be aware of the change in wood properties as we harvest new young crop stands, and as with pulp wood, look for opportunities to meet the market. Currently, specific geographical locations within Kaingaroa Forest are being harvested for specific customary uses, with tree age and stand density variations being targeted to end use market requirement. High density stands go to our Kawerau Mill for the MSG, while some of the lower density stands go to our Rainbow Mountain facility for visual grading. It is conceivable in the future that individual trees will be targeted and harvested for specific end uses.

Recent advances in log storage and protection, particularly in regard to sap stain control, offer further opportunities to add value during the production and marketing cycle.

The production of branded, debarked and sap stained logs is rapidly becoming a feature of the forest industry. As information technology develops, a move to the sale of logs based on individual log dimensions, and potential out turn, will become a formality.

Conclusion

In summary, the identification and capture of value is viewed as the greatest opportunity facing the forest industry today. The development of information capture and new harvesting and processing technologies offers the potential to substantially increase revenues flows from New Zealand's plantation forest resources.