

SESSION 4 : CRITERIA FOR SELECTION OF HELICOPTERS

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The key factor with selection of a helicopter for timber extraction operations is that there is sufficient value in the timber to be extracted to meet the high cost of the extraction. This then limits the use of helicopters to the following areas :

1. Extraction of high value logs, such as kauri or other premium species (normally low volumes - see Appendix 3).
2. Sawntimber extraction where the end product removed has been modified to further optimise its value, thus increasing the quality of each load.
3. The harvesting of post and pole material, which is possibly the highest value product from exotic stands. This may, however, be only marginal.
4. Environmentally sensitive areas, such as water catchment areas where ground disturbance is unacceptable, or areas of high visual impact such as the Blue and Green Lakes at Whaka Forest Park (Rotorua), are areas where the alternative of helicopter extraction could be investigated.
5. Areas which may come on stream over the next 10-20 years are those of farm woodlots, planted with high value trees, such as Blackwood, Walnut, etc., where extraction by normal techniques may be unacceptable due to damage to pastures and property (fences) caused by these.

Methods of further optimising the value of each drag, apart from the technique referred to of sawing the timber prior to extraction, are to cut logs in as long lengths as possible, and arrange the end use before commencing the operation so no unmerchantable or unrequired timber is extracted. Also, by increasing the hours flown by the helicopter at one time, a corresponding decrease in the total hiring cost results, which will in turn decrease the cost of extraction. This further optimises the value of the timber harvested.

The use of helicopters in assisting with the layout of hauler sites is the area which is most likely to have greatest impact on the New Zealand logging scene over the next decade. In the paper presented by J. Pomare of N.Z. Forest Products Ltd, the cost savings of this are quite apparent. There is a requirement for good planning so the operation is ready to start immediately the helicopter arrives. There is also a need for good co-ordination between the hauler driver and the helicopter pilot, to maintain safety of such operations.

The availability of skills necessary for the high level of preparation and organisation of a helicopter operation is the key to the success or failure of the operation. Pilots cannot be expected to know much about logging, as bushmen cannot be expected to know much about helicopters. One method discussed of overcoming this,

was the use of a specifically trained crew working for a helicopter company to do all phases of the operation with the helicopter company tendering on the open market for the wood. Although this prospect poses some logistics problems in getting the crew about the country, and in organising sufficient work for them, it would have definite advantages in the cost effectiveness of timber preparation as they would be experienced. This would overcome the costly problem of training new crews for each different operation about the country.

Planning and Organisation Requirements

In log extraction operations the most suitable machine is the Lama. There is no need, at this stage, to go into any further details re machine size and availability, except to say that a larger machine may pose problems in accumulating sufficient logs to form a load, and of disposal of the produce. In New Zealand, operations are achieving 80% of the lift capacity of the machine. This would not be so easy with a larger machine.

The high cost and essentials of speed to these types of operations necessitate more lead time and a higher degree of preparation/organisation than conventional operations. Sufficient timber needs to be prepared prior to the helicopter's arrival. Felling and crosscutting operations can only be undertaken while the machine is extracting, as long as they are away from the line of flight. Planning roads and landings to be used, needs to be made well in advance, taking into consideration :-

Volume to be extracted - will the road stand up to that amount of log transport or do they need any upgrading;

Skid position - downhill preferably so the machine will be flying into a head wind during extraction;

Size of the skid - is it large enough to land volume required onto it; is there room to load trucks and work a loader.

Is there sufficient room to facilitate easiest possible re-fuelling of the machine.

Although all these are important, the key factor is the speed at which the timber is extracted, i.e. 2 minutes per cycle, thus this must be cleared and processed at a corresponding rate.

Other items also require good lead time and organisation.

Communications - It was felt that this is one area where the current New Zealand practice could be improved. The use of helmet airphones with attached voice activated microphones is one aspect which should be followed up. Not only does this make the radio operators job easier but would mean that he could assist with hook catching, thus releasing one person to assist in another part of the operation. This area of breaker-out/pilot communications, was one where it was felt that lessons could be learnt from the U.S.

Accurate scaling data is required if load size is to be maximised. This can be difficult to obtain. However, it was felt that with

the load cell incorporated into the tagline much meaningful information can be obtained. Readouts from these units can assist in further work in similar areas extracting the same species. It was also stressed that wood densities within some species vary considerably from district to district and needs to be carefully checked before commencement of an operation.

Considerable discussion arose on strop requirements. This is fully covered in the section on safety requirements later in this discussion. It was agreed that sufficient strops should be on hand to enable pre-stropping to be carried out up to 30 cycles ahead of the extraction. These strops should be easily returned to the people in the bush doing this pre-stropping. If loads are to be dropped into water, as may occur in the Marlborough Sounds area, then the Pacific Northwest technique of having a polystyrene ball attached to the strop to prevent it sinking, is required. This also makes them easier to find in the bush and reduces the likelihood of losing any strops.

On the question of helicopter and its equipment, it's the pilot's responsibility to remove all unnecessary articles from the machine before starting, to ensure maximum lift capacities. It is also the pilot's decision as to the amount of fuel he should carry. However, it was agreed that with the Lama, which has a reliable fuel gauge, it is safe on a logging operation where he is never further than 2 minutes from his refuelling site to go to 10 minutes only of fuel left.

As mentioned before, the question 'management of the operation' presented some interesting concepts. The idea of a helicopter company having its own gang of bush experienced employees is an interesting one with many advantages and disadvantages. The main advantage is that a pool of highly skilled workers is always available for timber extraction work. However, on the debit side, if a helicopter firm successfully tenders for a sale of wood the forest management group responsible then loses a certain amount of control over the operation, especially if it is a stumpage sale. The relative merits of this could be argued for some time. There can be no doubt that a contract orientated working atmosphere must produce considerably lowered timber preparation costs.

The main recommendations from this session would be :

- High value timber
- High level of organisation/planning
- High level of skill by those on the ground.

The other aspect of using helicopters to assist in setting up or laying out of hauler sites is one that has possibly not been developed to the extent that it merits. Many forests have helicopters working in them from time to time. If adequate pre-planning was carried out then it should be easy to use these machines to do this simple but labour intensive job.