

A BRIEF REVIEW OF CABLE LOGGING IN NEW ZEALAND

W.B. Liley,
LIRA

The last thorough survey of the cable logging industry was carried out in 1976 and documented a population of about 50 machines. Indications are that the number has not changed greatly since. It depends less on the level of new acquisitions or eventual scrapping, and more on which units are brought back into service from temporary retirement. To paraphrase a popular T-shirt slogan - "Old haulers never die - they are rebuilt and then go faster".

The haulers we have in New Zealand vary considerably in size and power and configuration. The smallest unit currently producing is of about 50 hp and has a six metre tower. The largest are 450 hp machines with 30 metre towers. Within this wide range virtually no two machines are the same. Even within the same horsepower classes there are differences, depending on tower or spar configuration, transmission, undercarriage, number of winch drums, the brakes and the engine.

The equipment alone does not determine the nature of the hauler operation. There are a variety of rigging options of which, in N.Z., the highlead and Northbend systems have been most popular. Scab skylines and gravity return systems have been gaining popularity, especially since they offer some of the advantages of a skyline to a two drum machine.

Not surprisingly, with the small hauler population and the tendency to rebuild rather than acquire new units, the number of possible options that have been tried has been somewhat limited.

Techniques that are gaining popularity within New Zealand include :

- gravity return systems
- directional felling for hauler extraction
- two-stage landings. (At one landing the logs are unstropped from the hauler. From here they are snigged or carried to a second landing for processing and stacking).
- mobile back anchors.

Techniques that we have seen tried on a limited basis include :

- grapple hauling
- intermediate supports for the skyline
- multi-drum carriages
- Capstan winches
- swing boom yarders
- pre-stropping

- self-releasing strops.

LIRA would suggest that none of these have been adequately tested enough to rule them out as worthy of future attention.

Techniques or equipment that have had little or no attention include :

- a multitude of carriages
- true 'running' skylines. (The running skyline differs from the scab skyline in that a carriage takes the place of the buttrigging and rides the tailrope rather than a single block).
- endless line systems
- 'swinging' - wherein one cable logging system does the extraction and feeds another which essentially provides transport only
- tailspars
- interlock capacity in haulers
- prebunching
- processing at the stump.

With no two machines the same and different rigging options further complicating the issue, are there any general principles that apply to New Zealand logging?

We can note the following, although bear in mind that exceptions occur :

1. Our haulers are mostly handling Radiata which, with a few exceptions, is not being trimmed or cut to length in the bush. Instead it is processed on the skids and by comparison with overseas procedure this is unusual.
2. Cable logging in New Zealand rarely aims at full suspension of the load. Three principal reasons are :
 - we are logging tree length which requires a large amount of clearance for full suspension;
 - in many instances our haulers are relying on tightlining to provide suspension. This is in turn limited by braking capacity and engine power.
 - environmental restrictions in most cases do not require full suspension.
3. Most studies have indicated that of the non-human factors affecting daily production in a hauler operation, the most important are piece size and haul distance.
4. Production studies for all classes of haulers have indicated that mechanical availability is high - 90% or more - and this is consistent with overseas findings.

Machine utilisation - defined as the amount of mechanically available time that the machine could be used for productive work - is considerably less:- generally in the range 50-60%.

This is low by overseas standards.

5. Cable logging can be expensive. As a very rough indication, hauler clearfell logging is twice as expensive per cubic metre as easy terrain logging and the logging cost of hauler thinnings is twice as much per cubic metre again.

The equipment is expensive and hauler crews are larger than tractor crews for an equivalent level of production.

It is not, however, surprising that more difficult country requires more expensive logging techniques and the alternatives to cable logging may be just as expensive. What has not been subject to detailed study are the relative costs of the alternative systems options to cable logging steep country.

For a hypothetical steep country logging area we could conceivably have the options of :

- * Logging with tractors off a high density contour tracking network. We would expect a moderate logging cost but a high tracking cost.
- * Logging with short-reach cable systems off a medium density roading system. Relatively high logging costs but reduced roading cost.
- * Logging with long-reach cable systems and a low density roading system. Logging costs are highest - but the roading requirements of this option are the cheapest.

At this stage the data we have to work with for estimating the total cost of the various options can realistically be described as limited.

