

INDUSTRY SMALLWOOD HARVESTING INTENTIONS

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1. INTRODUCTION

That smallwood harvesting operations will continue in New Zealand for the next decade is a certainty. However, we cannot be so certain of the actual quantity of smallwood which will be harvested. The problem is that the only available national forecasts of roundwood in New Zealand failed to use the same definitions of smallwood as those used for this Seminar. The National Planning Model was produced first so it can hardly be blamed for this oversight. It does mean however that we have a gap in our knowledge and the size of the gap, or rather the quantity of smallwood to be harvested, would give a further indication of the importance of the subject of this Seminar.

Not only do we need to know the magnitude of the problem area we are dealing with but we also need to understand what kind of problem it is. This means that we want information on the kind of material which will be logged and the way in which it will be harvested. This kind of information is needed for the development or introduction of appropriate harvesting machinery and also to indicate the directions for research and development.

Over the past few months, LIRA has undertaken a survey to find the answers to these unknowns. The survey was directed to forest owners to give a check on the proportion of the total New Zealand resource which had been covered by the survey.

The initial approach to the forest owners sought their co-operation. The list of forest owners to be approached came from the Forest Owners Association (minimum forest holding 150 hectares) and from LIRA mailing lists. After receiving agreement to co-operate in this survey, the actual questionnaire was distributed, together with some explanation and instructions. Replies have been received from all major forest owners. The result gives a good indication of what the industry intends doing in terms of smallwood harvesting over the next ten years.

ACKNOWLEDGEMENT

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2. THE QUESTIONNAIRE

The objectives of each question in the questionnaire can be described as follows:

- 2.1. The first question asked the area of plantation forest established at March 31st 1980. The total forest area covered by questionnaire returns compared with the total plantation area in New Zealand would give an estimate of the survey coverage.
- 2.2. The second set of information requested the quantity of smallwood which the forest owner intended to harvest from his own forests. This was broken down by the type of operation: that is, whether it was from thinnings, from clear-felling young or unthrifty stands or from harvesting logging residues. For each of these three categories, the quantity to be harvested was listed as either ground hauling systems, or cable hauling systems. Finally, the quantity to be harvested was to be given in time periods, first for the current year (1980), second for 1981-85 and third for 1986-1990. The objective of these questions was to find out sufficient detail about smallwood harvesting intentions to provide useful answers to the unknowns, while not involving the forest owner in too much detailed analysis.
- 2.3. The questionnaire also attempted to find out what constraints there were on increasing smallwood harvesting. Thus it asked whether harvesting was being foregone because of lack of market, because of stands on steep terrain, or because of silviculture policy.

3. RESULTS

3.1 Coverage of Survey

Forest owners responding to the survey held 766,000 ha of established plantation forest at 31 March 1980. It is estimated that the total N.Z. exotic forest estate at that time was 816,000 ha. Therefore, the coverage of the survey is some 94% of the total possible forest area. This coverage is so close to the total possible that no adjustment has been made to the survey results. They therefore, represent a slightly conservative estimate of industry's intentions.

3.2 Quantity of Smallwood to be Harvested

The survey results are summarised in Figure 1. The total quantity of smallwood to be harvested remains reasonably constant over the next 10 years.

3.2.1 Logging Residues

The quantity of logging residue which, if it is intended to be harvested, is less than 1% of the total smallwood to be harvested and it will all be extracted by ground skidding methods. According to an analysis of residue availability, this represents less than 10% of the potentially available residue. (See Figure 2.)

		Time Period			
		1980	1981-85	1986-90	
Annual quantity of Smallwood to be harvested - m ³	Thinning	60,000	99,000	121,500	Cables
		1061,000	1352,000	1098,000	Skidders
	Clearfell small trees	25,500	36,500	124,500	Cables
		765,500	771,500	591,500	Skidders
	Second phase or residue	-	-	-	Cables
		15,500	20,500	20,500	Skidders
	TOTAL	1,927,500	2,279,500	1,956,000	

Figure 1. Survey Results

Operation	Skidwaste m ³ /ha	Cutover waste m ³ /ha	Total waste m ³ /ha
Radiata pine clearfell	4	29	33
Radiata pine thinning	1	5	6
Other species clearfell	5	16	21

Source: The originator of this survey does not wish to be identified. From the National Planning Model it is estimated that 7 to 10 thousand hectares of radiata pine will be clearfelled per year during the period 1980-1990.

Figure 2. Available Logging Residues

3.2.2 Clearfelling small trees

There is a steady volume of between 700,000 and 800,000 cubic metres per year to be harvested over the next decade. Initially the bulk of this is from stands of unthrifty species. In the latter part of the period there is an increasing contribution from clearfelling young stands of radiata pine. An important feature of this resource is the increase over the decade in cable logging methods, with a corresponding decline in the use of ground skidding methods.

3.2.3 Thinning

Estimated volumes from thinning operations are slightly higher in the early part of the decade than in the latter part. As with clearfelling small trees there is an increase, (although less dramatic), in the volume to be logged by cable methods. Thinning operations will make the major contribution to smallwood volumes (60% of the total).

3.3 Constraints on Smallwood Harvesting

Lack of markets was rarely given as a reason for foregoing smallwood harvesting operations. (The alternatives were to thin to waste or crush unthrifty stands.) Owing stands on steep terrain was the main reason given, with silvicultural policy preventing extraction thinning being a moderately common response.

4. DISCUSSION

The following points arising from this survey are worth further elaboration:

- 4.1 The National Planning Model estimates total roundwood removals over the next decade, of 8.6 million cubic metres per year. From this survey the average volume of smallwood will be 2.1m.cubic metres per year, or 24% of the total. However, if the cost of harvesting N.Z.'s timber resource is considered, the proportion which must be spent on smallwood further emphasises its importance. Calculating smallwood at twice the logging cost of larger timber (a conservative estimate), the smallwood share of total logging costs rises to 39%.
- 4.2 The production rate of motor-manual smallwood logging systems varies between thinning and clearfelling, and with tree size - but would not average more than 100 cubic metres per day, or 23,000 cubic metres per year. Cable logging thinning operations would achieve no more than half of this. Thus, relatively minor variations in volume available for harvesting can mean significant changes in the number of logging crews required.
- 4.3 Although the total volume to be harvested remains relatively constant, the proportion to be logged with cable systems increases considerably, for both thinning and clearfelling. Thus, this survey has further emphasised the importance of cable logging methods. It is interesting to note that steep terrain is a major constraint on further smallwood harvesting.
- 4.4 Industrial users were not specifically asked what plans they had for expanding smallwood intake. However, from information in trade magazines and national newspapers this year, a shortage of wood resource is holding back further expansion. As an example, the Chinese recently expressed interest in a jointly owned pulpmill in N.Z. - but there is little hope that the wood will be available.