SESSION 1
Paper (b)

INDUSTRY USER POINT OF VIEW

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I am very pleased to have been asked to deputise for my Managing Director, Mr K.F.L. Carter, and to speak in conjunction with Mr Andy Kirkland on the subject of smallwood harvesting.

In 1970 I would have had to say to you that industry was not much interested in smallwood although a few major projects were relying to a small extent on this source of raw material. Standing here today in 1980 I must say to you that industry is deeply involved and in fact is totally committed to the necessity of smallwood harvesting to enable it to continue its satisfactory levels of operation during the 1980's. In 1970 we were basically a sawlog wood processing country however with the demands of the market and the manufacturing units throughout the 1980's I feel sure, by successful smallwood processing, we will be able to even out the radiata wood supply in New Zealand over the next two decades.

Pan Pac has become increasingly committed to smallwood supplies throughout the 1970's however has at the same time encountered increasing problems of higher costs, harvesting techniques and processing requirements. These problems generally relate around the small stem sizes and cover the difficulties of maintenance of supply, productivity and therefore costs.

It is encouraging to see that throughout the next two days this Seminar will cover all of these aspects and many other worthy of your attention. On Monday afternoon I had a look at the radiata thinnings in the Lake Taupo Forest. After our several years experience in mechanical harvesting of smallwood in Kaingaroa I was again reminded that the best ideas in research do not always result in the most successful operations. That is not meant to be a criticism of our operation in the past, not what I saw on Monday however the key point I would like to commend to you here is that if going to mechanisation, selection and training of operators is of the utmost importance.

I would now like to start from the final product and work back towards the forest. I will go over experiences of Pan Pac and hope that many of these will demonstrate our company's involvement and deep commitment to the smallwood scenario.

In referring to the market I would like first of all to say that it has become very clear that one of the most important smallwood sources now and in the future, radiata thinnings, can make one of the best mechanical pulps in the world. In fact, with the aid of the thermo-mechanical process I feel sure that we will be able to reach the highest standard in the near future. I have been saying for over five years that in New Zealand we are not doing enough research into mechanical pulping techniques. In the main, little progress is being made because increasing costs of electricity and smallwood on the surface appear to count out any early rapid expansion in the mechanical pulping field. The overall market position now and in the future in this field is most encouraging and if prices continue to rise there is a great danger that the smallwood harvesting research will, like the mechanical pulping research, be left well behind the market requirements. Recent expansion announcements in the press support this view.

I have said before that I do not believe this country, (if it was called upon to do so) could through its logging sector, not its manufacturing sector, cope with the forecast peak in wood supply in the 1990's. (The demands of capital, labour, management etc, must steadily progress.) If this Seminar over the next two days can bring about a realisation that efficient smallwood harvesting linked up with the market requirements can bridge this gap, then we will all have made a significant contribution to the smooth development of the forest based industries in New Zealand.

I would now like to move my comment into the wood processing area and indicate to you some of the experience Pan Pac has had over the last decade. Can I firstly say that we believe we have been successful because we have a totally integrated operation covering the full range of products from short length thinnings through to large diameter reject logs. We also believe we have been successful because we have been able to efficiently handle each of these readily identifiable wood groups. We have no experience of handling solely smallwood to make the ultimate manufacturing process economical however our indications of costs that I will give later clearly show that a new industry based on smallwood alone is exceedingly vulnerable to the wood harvesting and processing sector. As far as the Pan Pac operation is concerned we aim to economically extract and utilise all wood available within our various forest concessions. The smallwood group accounts for approximately 40% of our wood intake and the techniques we use begin in the forest where log selection and cutting must allow for efficient transportation and ultimate conversion into chip material ready for final processing. Smallwood, as far as we are concerned, falls into three categories and these are :-

(a) Short length thinnings 5-7ft (1.5 to 2.1 metres),

(b) Short length for truck and trailer operation 8-25ft (2.4 metres to 7.5 metres), and

(c) Long lengths 25-41ft (7.5 metres to 12.3 metres).

(a) SHORT LENGTH THINNINGS

This category is generally delivered to our mill on a flat deck truck with the 6-8ft lengths of radiata thinnings loaded across the tray of the truck. The truck is generally loaded with a hydraulic crane and can be off-loaded the same way or simply tipped from the truck. At the mill conventional mobile log handling equipment is not suitable for the unloading process nor the handling process. We have adapted a log loader with a multiple bottom fork arrangement and a cage type curved hold down. This arrangement allows any foreign material to drop free while at the same time securing the short lengths of logs for the distance between the stockpile and the infeed chains. The short lengths are fed into a drag chain arrangemen specifically designed to deliver them directly to the debarking drum.

(b) SHORTS

Many of the top logs from radiata clear felling as well as radiata thinnings fall into the category of shorts. The technique of delivery from the forest to the mill is either by loading the shorts in with the long lengths or loading them onto truck and trailer units separately. When shorts are loaded in with long lengths it is best if the log stacker can lift them directly from the truck to the deck for processing. When placed in log yards the shorts tend to separate and tangle with the longer lengths. Shorts delivered on short trucks store quite satisfactorily and can be handled by conventional log handling equipment. The critical fact as far as the mill is concerned is that the infeed deck for shorts must be fitted with a hydraulic cherry picker which can readily untangle and process the short lengths.

(c) LONG LENGTHS

Thinnings (11 to 12 year old), top logs and other species (Ponderosa, Corsican etc) are the main types that fit into this category. Upon delivery at the mill conventional mobile log stackers can be used although additional hold down arms to restrict the movement of small diameter wood can improve the handling characteristics. Recovery of long lengths of small-wood from the stockpiles can vary greatly. We have found that Ponderosa and Corsican with its very high taper is exceedingly difficult to recover from the stockpile to an infeed deck. The logs have generally been loaded into the truck, top and tail, for the maximum transport efficiency and when recovered from the log yard tend to "birds nest" as the stacker forces the heavier butts apart. When this "birds nest" is placed on the infeed decks the problem is further accentuated and under these circumstances a cherry picker fitted to the decks is essential for good productivity. In fact, our experience in the early days was that it is almost impossible to transfer this sort of material from an infeed deck to a cut-off saw infeed chain without the aid of a cherry picker. We also believe by our experience in this field that the popular over-seas trend of using slash decks for random length smallwood would not be suitable for Ponderosa and Corsican.

Smallwood handling in the mill also has several other drawbacks, in that the thinnings, Ponderosa, Corsican etc, all fall into the category of low bone dry fibre yield when being processed into chips. This has a significant affect on the costs of this chip production. The Ponderosa and Corsican fibre for mechanical pulping is considerably inferior to the radiata, and in particular the thinnings fibre. We believe that if this was better recognised in the royalties the use of some of these less thrifty species may be made more attractive for the manufacturer. The Ponderosa and Corsican species in particular have very high bark percentages generally ranging between 12 and 15 % of the green weight of the log delivered on site. These factors in combination make Ponderosa and Corsican very expensive as a fibre source.

Another problem that is encountered with all smallwood handling techniques in the mill is that when using dry drum debarkers the random length and low diameter combine to cause major refuse handling problems. During the cross cutting procedure for feeding the dry drum debarker multiple stems are the most efficient way of handling. This invariably leads to short lengths of small diameter wood going into the drum and generally forcing their way through slots into the refuse system. The belts, elevators and drag chains designed to handle bark and sawdust do not like handling two to three foot lengths of 2 to 4 inch diameter pulpwood. In addition, if the small lengths succeed in getting through to the chipper, they can create what we call cards when they enter the chipper sideways generating large surface area curved chips which when re-chipped, often are reduced to sawdust.

Our No.2 woodroom built in 1976 (for smallwood handling exclusively), is capable of processing in excess of one thousand tonnes of smallwood in a 13 hour working day. Considering one thousand tonnes per day at approximately 2 logs on the deck per tonne, or ten lengths per tonne in the drum debarker, can be processed from infeed through to chip screens by two shifts of three men each day, we beleive we have made a significant step forward. If our company and any others in New Zealand are to adequately cope with the needs of the 1980's, recognition must be given to the rapid trend towards smallwood and the need for developing efficient handling techniques in the mills.

The cartage of smallwood is more expensive than larger logs and this is particularly so for short haul operations. Smallwood takes much longer to load efficiently onto logging trucks and with the increasing road user charges operators do their very best to place the load in the best position and load to the maximum legal limit. The assembly of smallwood in the various categories at the skid site has necessitated a rapidly increasing area for skids as compared to the volume of wood being removed. The use of rubber tyred mobile plant at the skid site has practically proved to be the most efficient however with the high capital cost of these units it has meant large volumes need to be handled per day to keep costs at a reasonable level. In this area I cannot stress enough the importance of good training and the selection of experienced

operators as the difference between a good and bad operator when handling smallwood can affect your productivity by as much as 100%.

I would now like to move my comment back to the area of extraction which is I believe the most critical. . We have experience in extracting more than 1,000,000 tonnes of small-wood mainly from the Central North Island pumice lands, but also from the foothills of the Hawkes Bay area. We have experience with several techniques going from conventional skidder and chainsaw gangs right through to the most sophis-ticated mechanical harvesting and delimbing techniques. In the mid-1970's we introduced our mechanical harvesting equipment to increase productivity in Ponderosa and to cope with a rapidly diminishing supply of skilled logging labour. In the late 1970's we abandoned this project basically because the scope of the operation proved to be incompatible with our systems, leading to lower productivity, higher costs and our belief that at this stage the small owner operator gang was more efficient. Much more I feel sure will be said about this area over the next two days.

I would now like to comment on the approximate costs of various operations which will give a better idea of where to apply our effort. The roading, skid preparation, extraction and loading of Ponderosa out of southern Kaingaroa Forest we estimate will cost us slightly over $10 per tonne this year. Radiata thinning in the same area with an age category of 9 to 12 years would have approximately the same cost factors applied. The Corsican stands in southern Kaingaroa which have a much heavier stocking and greater stem size drop back to approximately $6 per tonne for the same scope of work. The top logs and smallwood arising from the old crop radiata in Kaingaroa with the same scope of work in the coming year can be carried out for $4.50 per tonne. If we now move back to the Hawkes Bay area and in particular the foothills where often haulers are needed, Corsican would cost out of Gwavas, say, well in excess of $12 per tonne. In Esk where we have a radiata sawlog extraction operation the smallwood top logs arising cost for the same scope of work is $8 to $9 per tonne.

Our overall experience in the smallwood area shows that for extraction, a small gang with the owner-operator as the foreman, is most efficient for extraction. He is best at maintaining a regular supply and consistent productivity and generally yields the best overall costs. In the areas of loading and cartage, it is necessary to have several owner-operator contractors preferably able to move from one small extraction contractor to another clearing each maybe once or twice a week. As you can see, the cost components vary considerably and are not always in relation to the value of the wood. Unfortunately, the royalties paid also do not relate to the true values of the wood and if we are to be successful in manufacturing and marketing the products of smallwood harvesting we must have the costs of the various groups delivered at the mill more closely aligned to their true values and potential. Also, due to lack of satisfactorily efficient extraction techniques, some smallwood lots close to the mill cannot be economically harvested, while others at a considerable distance from our mill are marginally

acceptable. The cost of various smallwoods delivered to our mill today can vary by as much as $10 per tonne and often the variations are the reverse of their true value to us. We,like all other wood processors,currently look at the total package and until some major restructuring can be brought about some good wood supplies in the smallwood category are subsidising other less useful species.

CONCLUSION

The additional fibre requirements and in many cases the base supply for the 1980's will come from the smallwood source. Those manufacturers and marketers depending on this material will want a steady reliable supply with maximum recovery from the forest to the mill at the most favourable costs. Failure to achieve these objectives could mean that some company and maybe State Forest would have to be sold at below the cost of producing them. This will be necessary to keep the industries operating while bridging the wood supply gap.

I think we can say that the last five years have seen the basic introduction of a reasonable scale smallwood operation in New Zealand. The techniques have varied considerably and I feel sure that as the values of labour, machinery and fuels change over the next few years a change in economics will bring about further changes in techniques.

I also believe that sales of at least five years with volumes allowing economic plant and labour selection must lead to the most steady development of smallwood harvesting over the next five to ten years. The smallwood scenario will not cope with the wildly fluctuating annual volumes that have been experienced in the log export trade over the last decade. The resulting inefficiencies in plant and labour utilisation that have challenged the cost structures of the stable continuous plant operations if allowed into the smallwood area, could see our efforts of the next two days being in the main wasted.

I have covered many areas of interest to Industry - I feel sure that you can develop these to suit the various requirements for the future in conjunction with LIRA.