FARM FORESTRY AND THE PROFIT MOTIVE

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INTRODUCTION

There has always been a fair amount of tree planting on farmlands. Most of this has been of an amenity nature, with little view to making profits from the sale of timber. Farm forestry at present is rather a pleasant business — something of a hobby to the established farmer who, with half a lifetime of farm development and routine stock work behind him, finds the growing and tending of trees a gentle pastime. In some cases, however, it is becoming a stimulating challenge to economic utilization and disposal. Farmers are coming to realize that well cared for woodlots or plantations, *carefully sited in relation to extraction and market,* can yield net returns much in excess of the weed-covered areas or one-ewe country that they might replace. Trees could become another farm crop, and as such could greatly benefit farm and the district economy in particular areas where farming has its battles against difficult soils and contours. This quickening interest is emphasized in the rapid spread of farm forestry associations over the last ten years. There are now some thirty-odd associations from Kaitaia to Invercargill.

It need hardly be stressed that a farm forester is first and foremost a farmer. His main income derives from his agricultural pursuits and in most cases it is with this in the forefront of his planning that he will plant trees. From them he hopes to gain tangible benefits to his farm in the form of:

(a) Higher producing stock, crops and pastures, growing under well designed shelter.

(b) Savings in farm costs, by providing cheap fencing materials and farm timber for home use.

(c) Sale of surplus small round material and, ultimately, final crop sawlogs, which he may conserve until the need arises for money to be passed into the development or maintenance of the farm.

(d) Establishment of a reserve free of estate duty at his death.

THE ECONOMIC BACKGROUND

It can be seen, then, that there must be a strong profit motive in the farmer's venture into forestry. If New Zealand farmers are to plant extensively, a profit on the enterprise is essential, otherwise the whole agricultural side of the farm could be dragged down to eventual bankruptcy. There will need to be some very far-reaching changes in national and large company forestry if this is to come about in some districts. These, rather pointedly, are all fairly handy to large State forests or integrated commercial mills. One has seen forests within very short distance of urban motorways being tied up in long-term agreements at ridiculously low stump-

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ages. The large forest-owning commercial companies also exert a depressing influence on stumpages, which they represent merely by book entries between forest and mill and which seem to influence their outside dealings. Our Forest Service is now trying to give a lead by gradually increasing stumpages to realistic levels, which will automatically increase those from private sources. But political thought drags fifty years behind the times, in its unreasonable fear that higher stumpages will mean higher timber prices. In fact stumpages are a very small part of the cost of manufactured timber.

Combined with the hope for better stumpages is the need for efficient management, utilization and selling. As far as utilization of thinnings is concerned, farm forestry could well dominate the local post and batten business, by combining in groups to use portable plants for sawing and preservation of produce, and to sell direct to the local farming industry. By cutting out double transport and sales commissions and by undercutting prices, quite substantial net stumpages can be obtained — around 1s. 6d. per cubic foot in the case of posts and 2s. for battens. Curiously these stumpages would be far in excess of those for good quality sawlogs. Fenton (1962) quotes this as indicating too high a price for roundwood; but in the writer's opinion it denotes too low a price for sawlogs. There would seem little chance of pulpwood sales being profitable, except near one of the larger mills in the Bay of Plenty. Until stumpages approach the range of 4d. to 6d. for reasonably sited stands, little interest will be shown by farmers, who will concentrate on the post market or thin to waste.

For efficient sawlog production, farmers are now persuaded that stands must be thinned and pruned. The farm forestry loan scheme has this provision explicitly written into it; but farmers will have to watch every aspect of siting, spacing, pruning and rotation to ensure that maximum profits will be made. Shorter rotations will be called for, as final repayments can mount alarmingly after thirty years at 5% interest. The wide spacings and intensive pruning practices of the Queensland and South African foresters will be most suitable on those soil types where good form is easily obtained, as they will accelerate final realization.

PROFITABLE PRACTICE

How then can farmers go about growing trees for profit?

The basis of all forestry on the farm, in relation to the sale of timber, *should be to grow the most valuable logs in the shortest space of time,* utilizing to best advantage the thinnings that accrue in the process. The pattern of tree growing will differ greatly from the extensive coniferous plantings so common to large enterprises. Rather will there be a mosaic of small and large plantations; in many cases with gap plantings to utilize small but very fertile sites within the stand. New ideas of growing high quality pruned logs within shelterbelts or as space-planted single trees on eroding hillsides and in the valleys should prove a profitable sideline. As at present, the handily sited woodlot, worked perhaps on a short (ten to fifteen year) rotation for post production, will always be the most immediately profitable proposition. Perhaps it would not

be out of place to outline a few practical applications of these principles.

(1) *The Woodlot for Provision of Fencing Material*

Siting of this is most important. It should be reasonably near the homestead for there are many times when rough weather or slack periods will leave the odd hour available for the owner and men to do profitable work. Transport to the drying sheds and treatment baths will also be reduced. Potential benefits to the farm are represented by a saving of perhaps £30 per 100 for posts and a similar amount per thousand battens. In normal times the hill country farm can thus save several hundreds of pounds in costs annually. This fencing material is at present the most profitable and easily sold output from farm woodlots, especially if the owner endeavours to keep costs to a minimum by cutting and treating with his own resources. If he were to build up a group of clients on neighbouring farms, and was willing to wait a while for his money in odd cases, really excellent net stumpages could be obtained. (The only fly in the ointment is that under the T.P.A. Act, creosoted material produced on the farm may not be advertised or sold as "treated", nor can it even be indicated that preservative treatment has been given.) The use of an efficient *safe*, portable batten-saw would enable the farmer to put out good quality material right on the site. Many home-made batten-saws are extremely dangerous when cutting short lengths. However, one designed last year in this district, with a hydraulically operated table, has an output of 400 battens per hour. Forest Service engineers now have a good-looking job on the drawing table, and soon to be tested out in the field.

On-the-spot conversion is the key to profitable woodlot utilization.

(2) *Special Methods of Silviculture for Larger Plantations*

It has been emphasized earlier that, whenever practicable, farm foresters must pursue shorter rotations. For the first rotation this could also tie in with the forecast period of timber deficit, beginning about 1980. It might even pay to have, say, ten per cent. of the plantation area under really radical thinning and pruning regimes, in order to secure a quick sale for repaying initial loans and interest on the block. Plantations established under the loan scheme would otherwise have to pay interest at 5% on the whole of the money lent, even though half of this may be written off after a few years.

Silvicultural schedules on farm properties need to be simple and utilitarian, because every operation must pay, and labour is not easy to obtain in many districts. A simple schedule of pruning 120 to 150 stems to 18 ft in two stages, at crop heights of 18 ft and 35 ft, followed by thinning down to this number at the final pruning, would seem to be all that is necessary. The long wait to make higher pruning worth while would, I think, exclude it on the score of economics, especially in the first cycle.

With our smaller plantings and compartments, marginal trees will form a greater proportion of the block. Special treatments have been worked out on some farms to control the strong branching habit of these trees, and yet at the same time take advantage of their fast growth. Planting along margins with such species as

Eucalyptus saligna, E. regnans, and *E. delegatensis,* or various erect poplars at wide spacings, is one method. Careful pruning of the poplars is of course necessary. Another method is to plant three or four rows at 6 × 6 ft spacing around the margins, select the final crop trees from the second row in, and prune them early. The remainder can be removed at an early age as a post crop, thus deriving full benefits from their ready accessibility.

(3) *Growing High Quality Clean Logs in Shelterbelts*

The most efficient form of shelter is now acknowledged to be the tall, narrow, two-storied, single-row belt. Elite strains of such species as *Pinus radiata,* Douglas fir, *Eucalyptus saligna, E. botryoides, E. cladocalyx, E. delegatensis,* and poplars of good clones such as *P. robusta* and Italian hybrids I.455, 78, 30 and 45/51, can be planted at fairly wide spacings, say 9 ft. An under-storey of shade-tolerant species like *Thuja plicata, Cryptomeria japonica* var. *elegans,* etc., will then provide a combination of good timber and shelter. The second-storey tree can be placed quite near the base of the single row of tall trees in the same year of planting. By pruning the best stems of the timber species, from say four years, to favour the under-storey, a careful balance of top and low shelter can be maintained. At the same time, good fast-growing peeler logs or sawlogs may be grown. The suppressed or poorer quality top-storey trees can be cut to coppice in the case of the eucalypts or poplars, thus increasing the density of low shelter. It is quite possible to obtain annual increments of one inch or more in diameter. Such belts are neat, attractive, and highly profitable.

(4) *The Profitable Culture of Various Hardwoods*

Silvicultural requirements are rather similar in the case of the two more important groups: the poplars and eucalypts. Both require plenty of headroom to produce logs of large diameter. Such logs are necessary to overcome various growth stresses allied to early-wood. Jacobs (1955) quotes a rule-of-thumb that for every foot of diameter growth there must be provided sixteen feet of spacing. For eucalypts of selected strains there would be little need for initial spacings of less than twelve feet. In fact, in swamp plantings with heavy rush growth, fifteen to sixteen feet is more often the rule. While these spacings may encourage greater amounts of difficult earlywood, thinnings yield logs suitable for batten production even at ten to twelve years old.

The natural branch-shedding habit of eucalypts makes them valuable producers of the clearwood so urgently needed in New Zealand. Concentration upon species with stress-free, fast and uniform growth-rates will produce timber with excellent milling properties. End uses such as strong structural timbers, flooring, furniture woods, and ornamental face veneers, are all within the scope of selected strains of *E. saligna, E. pilularis, E. muelleriana* and species of the ash group — notably *E. regnans, E. delegatensis, E. fastigata,* and *E. obliqua.* Concentration on a few favourable species in each district is necessary to create reserves for meeting future demand.

Poplars are essentially trees for the farm, adding grace to any countryside, Many promising hybrids are now available in New Zealand. Here again, wide spacings of 18 ft are necessary, making these species suitable for line-planting along fences and drains. On some of the sites where erosion-control planting is done it should be possible to manage selected poplars for veneer logs. Something like £90,000 worth of poplar timber is imported into New Zealand annually — mostly for match-splints. With Australia running out of hoop pine for this use, valuable export markets could be established for poplar timber. Our own veneer trade would also absorb considerable quantities.

MARKETING

It has been well said that marketing of timber products is eighty per cent. of the battle. The more the leaders of the farm forestry movement co-operate in their efforts to encourage private planting the more apparent this becomes. It would seem that to market farm timber in large quantities, as we hope will be the case in the future, much organization will be necessary. Already farmers in Taranaki, who together with their producer-owned dairy factories own about eighty per cent. of the mature timber in that province, have worked wonders by group selling and tendering of measured stands.

On a larger scale the future looks rather more forbidding. The recent jockeying among the large pulp and timber interests, the price rings, and the political influence of large concerns, indicate that large-scale marketing of farm timber may be a very tough business. Farmers, however, have previous experience of such things in the dairy industry (now fully controlled by producers) and in the meat industry. Nevertheless, we would be sorry to see the local sawmill put out of production by these big concerns. There seems to be no reason why, with ready finance, such mills could not be modernized with small efficient bandmills and thicknessers, to market the good quality, packaged timber so favoured by builders. It would be a sad thing indeed for New Zealand farm forestry if such mills ceased to operate, leaving the farmer at the mercy of regional industrial combines.

There is, of course, always the last resort to a co-operative milling and marketing organization. In any case, one of the functions of any co-operative sales organization would be to assess reserves, and to create markets for some of the unusual ornamental timbers that can be grown on the fertile sites available. In the meantime, by organized marketing of their present fairly modest holdings of mature timber, farmers can do much to improve their profits — and experience. By producing fencing material for local consumption they have the market at their door. This would expand rapidly if their utilization and sales organization improved — and if T.P.A. would make it easier for them, under a strict but impartial set of rules, to advertise and sell the final product.

THE FARM FORESTRY LOAN SCHEME

The loan has now completed its first year of operation and a great deal has been learned. As a measure of some courage and foresight it has been watched with great interest by several state commissions

in Australia. It has set a precedent for long-term investment in the production of vital raw material, by granting incentive bonuses on completion of specified operations. It has even been quoted as a pattern for the long-term financing of marginal land development.

While the original conception of most farmers and foresters involved small woodlots of ten to twenty acres, reflection and experience have shown that, if our target is to be attained, bigger plantations will also have to be encouraged. In Northland, my own home district, it has been found that the average area available for planting is likely to exceed one hundred acres, with very many areas of four hundred acres or more available. Although farmers may be keen to plant, the investment and loan involved on four hundred acres (at say £40 per acre to completion of pruning) would be £16,000. At 5% interest, the sum of £800 would have to come annually from bank overdraft. Banks have refused to meet these charges except where the farmer is "in a position of extra good equity". This qualification usually only applies to the farmer with little waste land on his property — not the farmer up the back road, who has the idle land available and the ability, character and will to plant — but no financial backing. It is hoped in such cases, which are in the majority, that eventually the interest will be written into the loan, the be repaid on the first major sale. If this should be done, farm forestry leaders could, with co-operative planting and fencing gangs, persuade even disinterested farmers to have their land planted, without any direct outlay in cash or disruption of normal farming activity. Some remedy for this practical difficulty over interest rates will, I think, be the point by which the scheme will succeed or fail.

Finally, farm foresters would like to thank the Ministers in both Governments for their real interest in our welfare, and the present Director-General and his predecessor Mr Entrican for their most active assistance. Once this scheme is finally ironed out we shall feel that we have come to the end of a long term of preliminary negotiation, opening out into some good active forestry which must benefit the whole country. Time is getting shorter in the race to beat our competitors for the handy overseas markets, and we should get busy without any more delay.

REFERENCES

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