MANAGING A TREE FARM LICENCE

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INTRODUCTION

In the past, progressive forestry in Canada has been delayed, not so much by the lack of desire, or knowledge, by foresters, as by the lack of effective Government policies to stimulate and permit the progress of long term forestry. We, in British Columbia, through our Tree Farm Licence Legislation now have a policy which favors such progress. This Act was passed in 1947, and thereby marked the beginning of effective private forestry on a large scale in B.C.

The Program Committee requested me to describe the management principles of Tree Farm Licences (or T.F.L.'s, as they are commonly known), with particular reference to the one I am familiar with. Therefore, the following comments may not apply to every T.F.L. in B.C. The Management Licence operated by my Company, British Columbia Forest Products Ltd., was granted in 1955, and thus has been in existence only a short seven years.

PRINCIPLES

The fundamental principles which were set up initially for the establishment of sustained yield managed units were:—

1. That production must equal the allowable cut.
2. That all acres must be protected from fire, disease, and insects.
3. That all productive acres must be reforested and kept in a productive state.

WORKING PLAN AND CUTTING PERMITS

Tree Farm Licences operate under the following two documents:

1. Working Plan

Along with the original contract, this is the official "Bible" for the T.F.L. and incorporates the long term principles agreed upon by the licensee and B.C. Forest Service for the management of each licence. Naturally, changes in the way these principles will be carried out will occur as experience is gained, and these are incorporated in succeeding plans, which are usually revised every decade.

The first need in working up long range plans for any sustained yield unit is an up-to-date and accurate inventory. From these figures, the allowable cut, and logical sequence of cutting are determined and included in the Working Plan, along with the planning for each Block of the T.F.L.

2. Cutting Permits

Cutting Permits form the year-to-year authority for cutting timber on each patch. As you are no doubt aware, the common method of logging on the coast of B.C., is by clear cutting in patches. Initially, our request for cutting permits embodied patches of approximately 100 acres, but as better utilization, rapid abatement of the slash hazard, and immediate reforestation became common practice in our Company, the patches have now developed into areas around 300 acres.

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These larger patches reduce the threat of windfall along the exposed edges, as well as reduce the road construction required at the early stages of development. The studies on our T.F.L. have shown us that a saving of five years growth is being attained by immediate restocking, or an increase of over 500 cubic feet per acre over a 90 year rotation. We also find that an intangible benefit of patch logging is the one of flexibility—both for operating and market changes.

The Forest Service approval for a cutting permit varies from 1 to 10 years depending on the amount of engineering layout and road construction which has been carried out in the field. We are fortunate in two of our blocks to have approval for 9 year permits. This approval covers both private and Crown land within the T.F.L.

It might be of interest to trace the procedure for determining the actual settings to be logged each year. In a large integrated Company such as ours, an estimate is first obtained from our manufacturing plants of the species and grades that are desired for the coming year to satisfy the market demands. These estimates are then proportioned to the various camps according to the areas developed and the stands available. The camp management team, including the divisional engineer and forester select the settings to be logged, taking into consideration the many factors of available equipment, roads, decadence and other forestry aspects, weather, etc.

CONTRACTORS

In most T.F.L.s a volume equivalent to 30% to 50% of the allowable cuts on Crown lands is made available for contract logging.

REFORESTATION

This clause of the contract is probably the most onerous, but necessary, one of all, following one of the basic principles that all productive land must be kept in a productive state. A licensee is given seven years to restock high site lands and ten years for low site areas. It is our practice to restock all lands as soon as possible after logging and/or burning by planting usually with 2-0 Douglas fir.

The number per acre and spacing varies greatly depending on aspect, naturals, and distance from seed source, however, our average is slightly over 320 seedlings per acre. By the establishment of these seedlings, and the natural seeding that will occur, we hope to restock the area with a mixed stand in the shortest time. This method of immediate planting not only gives us greatest increment during the rotation but also gives us partial control of the species distribution and the genetic quality in the next crop, and a chance to beat brush invasion of these logged lands.

In order to keep up with the extensive planting program on all of our lands, we established in 1956, a permanent forestry crew consisting of a graduate forester and six men, whose main responsibility from October 1 to May 1 is the planting of some one million seedlings. Naturally, additional men are hired in the peak periods to help with this planting work. We have been gratified with the results of this crew, which is the only one in existence in our coastal industry. We find that the planting is to a uniform

high standard on all of our lands, and that the cost has been reduced over the previous method of hiring all casual labourers. The men in the permanent crew are trained on the job in many aspects of forestry and with a graduated pay scale within the crew, our safety record is good and our turnover has been quite low. The crew has carried out many other functions during the rest of the year, such as cone picking, regeneration surveys, fire control duties, plus tree cruising, establishment of baselines for cruising projects, and trail construction.

Because of our desire to obtain as high an allowable cut as possible from the Tree Farm Licence, we have recently completed a three year program of scarifying and planting about 500 acres per year of high site brush lands. These productive areas, once restocked will allow us to increase our cut by 100 cubic feet per year for each converted acre. We hope that more idle lands can be put back into production by this, and other, methods in the years to come.

FIRE PREVENTION

Long term firebreaks, which are at least $\frac{1}{2}$ mile wide, are laid out every $1\frac{1}{2}$ -2 miles along a drainage and will be allowed to remain for many years after the intervening areas have been logged. The short term firebreaks around each approved patch are left to stand until the completed patch has also been logged, burned, and restocked.

After logging, the B.C. Forest Service Ranger or Slash Disposal Officer examines each setting to ensure that all snags are fallen and to instruct on the disposal of slash by burning. In addition to the areas covered by these instructions, we burn a few settings to facilitate planting.

We have constructed a good network of trails and cabins on our T.F.L. for inventory and protection access, and in addition, many abandoned logging roads will be maintained for reforestation and protection purposes. A fire danger rating system is used on all of our logging operations, incorporating the four weather elements—fuel moisture, relative humidity, wind velocity, and calendar date. These factors are combined into a numerical rating system, which includes a closure index when the fuel moisture drops below 8%, the relative humidity drops below 30%, or the numerical rating drops below a specified level. The above system was inaugurated in 1947, and since that time, we are proud to report that no serious operational fire has occurred on our lands. To our knowledge, we were the first Company in B.C. to use such a system.

All of the fire control aspects have a great bearing on the location, size, and order of setting development on our T.F.L. These measures, plus good fire fighting equipment, good pre-organization, and crew training have kept our fire losses at a low level.

RESEARCH

This important phase of forestry is being carried out now under our T.F.L. system of permanent tenure, but was pretty well ignored by industry before 1947 because of the vast areas of temporary ownership in the Province. Most Companies, including our own, are now active in establishing experiments on many problems such as growth and yield, thinning and pruning, brush eradication, and scarification.

Many applied research studies originate with one of the sub-committees of the Tree Farm Forestry Committee. This group was formed in 1958 at the instigation of the B.C. Forest Service for the purpose of discussing mutual problems connected with this form of tenure with the various T.F.L. holders on the coast. Foresters from the Forest Service and Industry meet informally throughout the winter months in an effort to expand our forestry knowledge on these managed units through a co-operative effort. The two most important sub-committees are:

1. Tree Improvement Board

This was one of the original sub-committees formed by the parent group, and is concerned with improving the quality of seed collected by the Companies and Forest Service. Progress has been made on plus tree selections, and the establishment of clone banks and seed orchards.

2. Reforestation Sub-Committee

This group was formed in 1961, on the coastal area, and has been very active in the important field of reforestation. The important progress to date centers around the problems of seedling standards, animal browsing, and brush control.

OTHER RESPONSIBILITIES

All Tree Farm Licencees are guided by stringent regulations on utilization, damage to immature stands, damage to fish-run streams, etc. The contract also specifies that the volume logged must be within 10% of the allowable cut every five years; otherwise penalties will be assessed.

CONCLUSIONS

In the relatively short time that T.F.L.s have been in existence, we, as foresters, have become very much aware of the importance of allowable cuts. In other words, when we can practice better utilization, reduce our rotation, restock our logged lands faster, use better planting stock, or convert more idle land into productive acreage, we will automatically increase our allowable cut.

The benefits of the Tree Farm Licence system to our economy have been very great.

It has helped to create a higher degree of integration in many Companies in our industry; i.e. at least four pulp mills were established in the Province as the result of the granting of a Tree Farm Licence.

Sustained yield has created permanent communities instead of "boom and bust" logging camps, and sawmill towns. An indicator of permanency in T.F.L.s is the calibre of roads, bridges, and permanent structures built in these areas.

I believe that the establishment of this Tree Farm Licence Legislation has enabled the progressive forester to embark on many long term projects which will be of lasting benefit to forestry in British Columbia.