



The quarterly newsletter of the Canada-British Columbia Forest Resource Development Agreement

'Reforestation should be top priority'

Reforestation should be the forest industry's top priority, according to the vast majority of British Columbians; and BCers are fully aware that forestry is the province's most important industry.

These and many other findings are the result of an awareness poll conducted last June for FRDA (the Canada-British Columbia Forest Resource Development Agreement) by Decima Research. A total of 1000 telephone interviews were conducted amongst residents 18 years of age and older.

Multiple use viable

In other key findings, an overwhelming consensus (83%) believes that the multiple-use concept is viable; that future wood shortages can be avoided (83%); and that pesticide spraying may be justified if the resource is at stake (73%).

When compared with protecting the environment and increasing jobs, reforestation is clearly the top priority for 68% of respondents. This response is consistent throughout all regions of the province. Responsibility for reforestation is clearly perceived as belonging to industry, with 55% of respondents identifying industry as currently doing the most in replanting.

However, a strong majority (73%) believe we are underplanting. Just 17% consider the present level of planting acceptable. This contrasts with only 10% who would argue there is more than needed.

The forest industry is seen as making the most important contribution to the provincial economy by 62% of respondents, although regional variances are marked. In some forestry communities, this response goes as high as 76% but nowhere is it below 50%.

The provincial economy is rated as only fair (47%) or in poor shape (38%). By contrast, only 14% award a good to excellent rating. And these ratings are by people who consider the forest industry to be very (32%) or somewhat (33%) important, directly or indirectly, to the economic security of their own households.

Perhaps understandably, diversification of the provincial economy is seen as important (61%), al-

New co-chairman named to FRDA

John Cuthbert, assistant deputy minister and chief forester, has been appointed FRDA co-chairman by the Hon. Jack Kempf, Minister of Forests and Lands.

As Renewal went to press for its first issue in the fall last year, FRDA's provincial co-chairman, Al MacPherson, announced his retirement as deputy minister of forests effective August 31.

Other changes that took place at the same time saw the ministries of forests and of lands, parks and housing combined under a new name, the ministry of forests and lands, with a new deputy minister, Robert D. Flitton.

Cuthbert is responsible for the forestry division of the ministry, including resource planning, silviculture, research, protection, planning and inventory, and recreation. He is a registered professional forester and began his career with the forest service in Terrace in 1961; he was appointed chief forester in April, 1985. though the public would not pursue diversification at the expense of further forestry development. The prevailing view is clearly to diversify where possible, but not at the expense of the forest industry.

Held in high esteem

This high esteem for forestry is possibly tied to the fact that most individuals recognize that about half of the products used in day-today living come from our forests.

A point of interest to many forest companies will be the fact that the overwhelming majority (83%) takes the view that multiple uses of forest lands can be entirely compatible. This consensus bridges all sectors of the population, including those with an interest either in recreational use or environmental protection.

...see "Poll" on page 3

How's Renewal fitting the bill?

Is Renewal giving you the information you want?

This is the second issue of your quarterly FRDA (Canada-British Columbia Forest Resource Development Agreement) newsletter. Its purpose is to keep you informed about the progress of the five-year, \$300million Agreement and to provide you access to sources of any further FRDA information you may need.

We would appreciate hearing any comments you may have. Please write to The Editor, Renewal, at the address on page. 2

PROGRAMS

Look for forestry ads on TV

A national forestry awareness campaign is about to kick off in January, 1987, with a blitz of television ads lasting through April.

This will be the first phase of a two-part campaign jointly funded from federal-provincial agreements across the country.

Initial television ads will focus on general forestry awareness and on generating credibility with the general public. A second series of ads, between September and November 1987, will become more issue-oriented with emphasis on regional challenges.

Following the television campaign will be a series of two-page color ads in selected national magazines. These will offer more detailed information and will provide opportunities for direct response from the audiences.

The campaign is intended to reach every urban Canadian adult

Renewal

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Publisher:

The Communications Working Group, FRDA. The Agreement is jointly funded by the Canadian Forestry Service and the B.C. Ministry of Forests and Lands.

Editing/Design: Glover Business Communications Ltd. between the ages of 18 and 44 during the next year. The objective is to increase interest in the forest sector and to create a sense of pride in our international standing in the marketplace due to efficient management of our resources.

A public relations component aims at encouraging opinion lead-

ers to support the awareness campaign. This will be achieved by informing them on the economic value and world presence of the Canadian forest sector.

Further promotion will be done through National Forest Week activities in May and by distributing materials to various target groups.

Conifers to replace alder stand

Healthy alder stands in the Vancouver forest region are being converted to more valuable conifer stands to make better use of "some very productive forest lands," says B.C. Forest Service silviculture officer Jerry Kennah.

Presently funded under the cost-shared FRDA program 1.3 (see Fig. 1 pages 4-5), the project was started in 1981 under a previous federal-provincial agreement. The objective is to convert 1 000 ha per year, mostly to Douglas-fir but also to some grand fir (a balsam species) and western red cedar, depending on specific site requirements.

The current stands of alder, birch and maple are up to 50 years old, having established themselves on previously harvested sites, explains Kennah.

"They're healthy looking stands but they're not contributing to the AAC (Annual Allowable Cut) for the province.

"This year we're concentrating on 15 to 100 ha stands in the Chilliwack-Fraser Valley, east Vancouver Island and Sunshine Coast areas. All the available FRDA funds are being used on TSAs (Timber Supply Areas)," he says.

Most of the hardwoods are

being cut down and offered to the general public for firewood; free permits may be obtained through the local forest district office. Once the land is cleared it is replanted with the desired softwood species.

"The initial sites we treated are nice plantations now with healthy trees about two metres high," Kennah adds.

Indians implement new forestry plans

Inventory and management plans drawn up by B.C.'s Indian bands promise to bring 87 700 ha of forest land under forest management.

Funded under the CFS (Canadian Forestry Service) Indian Forest Lands Program, 29 separate projects, to conduct forest inventories and develop forest management plans, have been implemented by 53 Indian bands.

FRDA funding has provided \$721,000 to which the bands and tribal councils have added a further \$307,000 from other sources.

Mark Atherton, CFS forestry development officer, is in charge of the program which has a total five-year budget of \$7 million.



Minister of State (Forestry and Mines) Gerald Merrithew (I), opens the new CFS district office in Prince George with Lorne McCuish, MP for Prince George/Bulkley Valley.

New CFS office opened in Interior

A new Canadian Forestry Service (CFS) district office in Prince George will give a higher profile to the FRDA programs in the region.

Opened in September by the Honourable Gerald S. Merrithew, Minister of State (Forestry and Mines), it is the first CFS district office in British Columbia.

Staff in the office, located at 550 Victoria Street, will serve as field representatives of the CFS regional headquarters at the Pacific Forestry Centre, Victoria, and will be fully supported by the 174 staff members there. Current staff members are Walter Matosevic, forestry development officer and Shannon Stone, development officer.

Their work will be involved primarily with the programs funded under FRDA, including research projects and the Indian and Private Forest Lands programs of the CFS. They will also provide professional forestry services for the job development projects funded by the Department of Employment and Immigration.

TFLs brought into FRDA

Tree Farm Licence (TFL) holders are to be included in FRDA programming for the last three years of the agreement, with the provincial government adding some extra funding to re-establish intensive silviculture goals.

FRDA management has decided to provide \$1.5 million per year for allocation to intensive forest management programs in TFLs. This funding is in addition to commitments that have already been made to TFL management plans.

In addition, the B.C. Forest Service is hoping to provide \$4.25 mil-

Poll (continued from front page)...

On the subject of the future of the industry, the majority (62%) believes it will not be possible to continue to meet the demand for forest products, given the current level of replanting. However, this situation is seen as correctable, with 85% believing any future shortages can be avoided if a real effort at reforestation is made quickly enough.

Reflecting this view, the public's short-term outlook for forestry is poor, with 40% saying the situation is going to get worse. In comparison, only 25% believes matters will improve and 35% says things will stay the same.

On the issue of chemical use in the forests, a strong majority (73%) of all residents adopts the view that it is necessary in the event of a threat which could affect supply to the forest industry.

The balance of the population divides evenly between the two views that spraying the forests is no different from spraying farm crops or that chemical use is not justified under any circumstances (13%).

When it comes to attributing responsbility for future investments in forestry, the majority (45%) holds inlion per year in new funding for application to Section 88 projects (Section 88 reimburses TFL holders certain costs connected with improving Crown forest land within their TFLs).

Combined, the new allocations mean an extra \$5.75 million per year for TFL improvements — a total of \$17.25 million over the remaining three years of the agreement starting in April, 1987.

Licencees are being asked for their input, and, following consultation, funding allocation decisions will be made.

dustry responsible, while 20% feels it's up to the provincial government and 17% the federal government.

This compares roughly with perceptions of the current state of affairs, with 43% stating that industry is the largest investor today. The only anomaly is the provincial government's involvement. About 36% believes the provincial government is the largest investor today; only 20% believes it should be.

On the subject of forest management, industry is marginally ahead, with 47% of all residents considering its performance responsible, compared to 40% for the provincial government.

Further ratings on industry performance indicate reasonably good assessments on efficiency oriented matters; investment in modernization receives a much higher rating than does maximizing the use of trees in felled areas, for example. Industry receives its lowest rating on sensitivity to environmental considerations.

For a copy of the complete poll results, write to Elaine Teske at the CFS address on page 8 or call 388-0600 (Victoria).

For intensive forest management program New funding formula eases allocatio

Deciding which forest region should get what dollars and for which reasons is a tricky balancing act at best; it's an invitation to protracted discussion at worst.

But now there is a formula for deciding what portion of FRDA funding should go to each region under the intensive forest management program.

Starting with the 1987/88 fiscal year beginning April 1, 1987, the formula will be used for allocating FRDA funding for the conifer release, juvenile spacing, and fertilization cost-shared sub-programs (see Fig. 1 these pages).

The job of bringing all the criteria together and applying relevant values to each factor fell on Frank Barber, intensive silvicultural forester with the MOFL.

"Our objective was to find the best mix of several factors," Barber says. "We looked at the biological growth potential of each region, the social implications, and the economy. These factors were related to the overall FRDA objectives of sustaining and increasing the forest resource and of strengthening the employment potential of the industry.

"We started out with a list of about 35 criteria in five categories but narrowed that down to 16 criteria in four major categories: falldown, regional needs, population dependency on the forest industry, and endowment ratios."

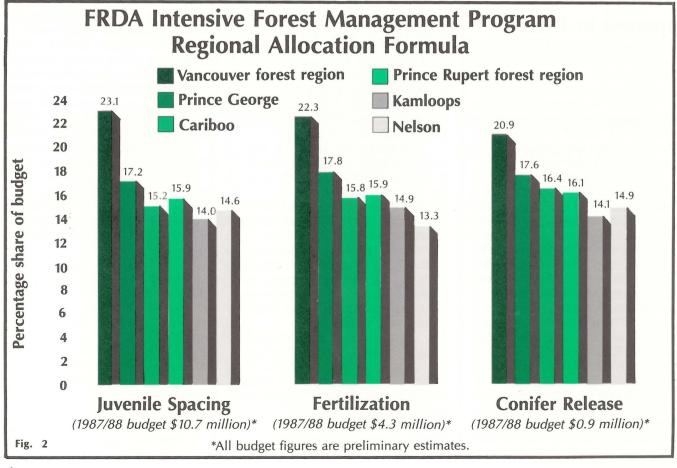
Barber explains that "falldown" takes into consideration the status of short and longterm wood supply

and the effect of intensive treatments on alleviating any shortages.

"Regional needs" assesses the total potentially treatable area in each region and what can be feasibly treated in one year given present levels of funding and manpower.

"Population dependency" considers the percentage of population that is dependent on the forest industry and "endowment ratios" simply means the overall productivity of the forests in any given region.

The outcome of this rational approach is shown in the graphs below (Fig. 2) where each region is allocated a percentage share of funding for each of the three sub-programs affected. These percentages are arrived at by using weight



n decisions

STATISTICS

factors that reflect the relative importance of 16 separate criteria (see separate story "Factors").

Preliminary budget estimates show that in fiscal 1987/88, Vancouver forest region will receive the largest share of funding under this formula with just over 23% of the juvenile spacing budget, almost 22% of the fertilization funds and just over 20% of conifer release.

Prince George is projected to receive the next largest share with 18.2%, 17.8% and 17.6% respectively. However, it should be noted that the differences between regional allocations is fairly slim in both percentages and dollars.

Of the four major criteria groupings considered, the factor of "regional needs" is considered the most important, with a weighting equivalent to 40% of the total.

The factors of "population dependency on the forest industry" and of "endowment ratios" receive values accounting for 22.1% and 23.2% respectively while "falldown" accounts for 14.7%.

"Many of the individual criteria were difficult to quantify," Barber says. "Factors such as falldown are judgement decisions — if the an-

CANADA-BRITISH COLUMBIA FOREST RESOURCE DEVELOPMENT AGREEMENT							
	1985-	.90					
1.	BACKLOG REFORESTATION	Fed	Prov	Cost-S	Shared	Totals	
	1.1 Surveys and Prescriptions	0.5	21.0	1.5 21.3	1.5 21.3	3.5 65.6	
	1.2 Seeds and Seedlings1.3 Site Preparation	4.0	-	21.5	21.3	57.2	
	1.4 Planting	3.0	-	20.6	20.6	44.2	
	1.5 Implementation	5.0		-	_	5.0	
	1.6 Extension, Demonstration and R&D	4.0	6.0	7.0	7.0	24.0	
		18.5	27.0	77.0	77.0	199.5	
2.	INTENSIVE FOREST MANAGEMENT 2.1 Brushing, Weeding and Pest Control	2.0	1.0	4.0	4.0	11.0	
	2.2 Conifer Release	1.0	-	2.0	2.0	5.0	
	2.3 Juvenile Spacing	4.5	-	20.0	20.0	44.5	
	2.4 Fertilization	0.5	-	10.0	10.0	20.5	
	2.5 Implementation2.6 Extension, Demonstration and R&D	2.0	-	-	-	2.0 3.0	
	2.6 Extension, Demonstration and NaD	1.0	2.0				
		11.0	3.0	36.0	36.0	86.0	
З.	IMPLEMENTATION, COMMUNICATIONS AND EVALUATION						
	3.1 Implementation Contracts, Monitoring	0.5	-	6.0	6.0	12.5	
	and Evaluation			1.0	1.0	2.0	
	3.2 Communications	0.5	-	7.0	7.0	14.5	
	TOTALS	30.0	30.0	120.0	120.0	300.0	
				-			

Fig. 1 Funding for FRDA projects is allocated according to this schedule.

nual cut is increased, falldown will happen sooner, if reduced, the falldown will take longer provided the old-growth timber isn't harvested by nature through fire, insects or disease." In general, the mechanism was designed to provide the most efficient allocation of limited intensive silviculture funds between regions to improve the forests throughout B.C., he concludes.

Many factors considered for new formula

The following factors were considered for allocating FRDA's intensive forest management budgets under the conifer release, juvenile spacing, and fertilization sub-programs.

Falldown

- Regional falldown the difference between cutting levels and the long run sustainable yield
- Treatment effect on falldown

Regional needs

- Total potential treatable area
- Regional needs the total area that could be treated in one year with the present level of funding

and staff

- Treatment impact volume gain expected
- Treatment impact value gain expected
- Costs stump to truck and treatment costs per hectare

Population dependency

- Regional unemployment averaged over the past five years
- Regional forest industry figures the percentage of the labor force employed directly in the industry
- Annual mill production supported
- Regional economic growth
- Percentage of regional economy

based on the forest industry

Endowment ratios

- Regional AAC/provincial AAC how much each region adds to the provincial AAC
- Share of LRSY (Long Run Sustainable Yield) regional AAC compared to the percentage of LRSY provincial AAC — indicates a region's ability to maintain its AAC in the long run
- Ratio of regional to provincial net productive land base — compares each region's available land for intensive forest management
- Site productivity.

Early slash burns helping new research

RESEARCH

Well-documented prescribedfire burns from as long ago as the late 1960s in the Mission municipality's TFL are proving their weight in gold to present-day researchers.

"We know slash burning helps initial growth and establishment of new plantations," explains CFS fire researcher Bruce Lawson, "but at some point we often see a downturn in that growth due to a loss of nutrients from the original burn.

"We're trying to establish the when, where and why," he says, referring to FRDA research into prescribed fire effects on tree growth and site nutritional status.

"The Mission TFL plots are particularly useful to us as they allow us to examine the longer term ef-

Mounders: what works best where?

Higher seedling survival rates and better early growth are benefits of the technique of "mounding." But which of the many available mounding machines do you use on your site?

Some definitive answers are in the works following extensive field testing this past summer in the north-central interior of B.C.

"We're looking at the operational effectiveness of machinery for creating planting mounds on backlog sites," says project leader Lorne Bedford, site preparation specialist for the MOFL, silviculture branch. The work is being carried out under the cost-shared portion of FRDA's Extension, Demonstration, Research and Development sub-program of the Backlog Reforestation program (see Fig. 1 on pages 4-5).

Mounding was developed and initially tested in B.C. by Dr. R.G. McMinn and other researchers at the CFS Pacific Forestry Centre in Victoria. Basically, the technique involves inverting a scoop of humus and mineral soil onto an adjacent, undisturbed site thus forming a "sandwich" of humus between two layers of mineral soil.

Particularly on sites with wet, cold soils, these mounds provide warmer "micro" environments that encourage better seedling survival and faster growth.

Equipment tested included the latest Swedish and Finnish models

as well as one designed by B.C. Forest Service staff — the Ministry Mounder.

Sites chosen were at Kluskus Road (Vanderhoof Forest District), Mischinsinlika Creek (Mackenzie), Iron Creek (Fort St. John), and Stewart Lake (Dawson Creek). White spruce seedlings will be planted in the mounds this spring.

"This project serves both a development and demonstration function," says Dr. Dan Lousier, chairman of FRDA's Northern Interior technical advisory committee (and manager of the Ministry's ecology program).

"We plan to capitalize on the research done by the CFS and ensure that this technology is successfully incorporated into future operational pratice."

Contact Lorne Bedford at 387-1191 (Victoria) for more information. fects on tree growth and nutrition. There are very few studies that can provide fire impact and plantation establishment data that old because prescribed fire research in B.C. was in its infancy then."

A new plot was slash burned in October, 1985, to provide updated information.

The field work is being carried out by Ph.D. candidate Mike Curran under UBC professor Dr. T.M. Ballard. Curran is currently analysing the soil nutrition data and expects his report to be finished by the end of March.

Preliminary results show several nutritents are diminished by slash burning. Phosphorus, potassium, iron, zinc and boron are of particular concern, particularly in Douglas-fir

Curran is also working on related research under other FRDA cost-shared funding using data from slash burns conducted on Vancouver Island by MacMillan Bloedel as long ago as 1938 and by B.C. Forest Products in 1956. These data "should help sort out some of the relationships in his other research," explains Lawson.

For further information contact Bruce Lawson at 388-0600 (Victoria) or Dr. Dan Lousier, manager, ecology and soils, B.C. MOFL, at 387-3338 (Victoria).

Missing root fungi key to survival?

Balco Industries in Kamloops is conducting seedling root research that could yield higher survival rates on high-stress sites.

The belief that a lack of suitable symbiotic root fungi (mycorrhizal fungi) is contributing to these poor survival rates has led to a four-year research project funded under the federal component of FRDA.

Balco's Dr. Gary Hunt is innoculating nursery stock with the fungi that enables the tree's roots to draw moisture and nutrients from the soil. The seedlings are to be planted in different sites and their survival and growth rates recorded.

Several species of mycorrhizal fungi are being tested as are different innoculation procedures.

Research only began in May, 1986, so results are some way off. However, further information may be obtained from Dr. Jack Sutherland, a CFS senior research scientist at 388-0600 (Victoria).

Major fertilization program started

FRDA funding has triggered a major, \$16.75 million aerial fertilization program that started this past fall and will continue through the



Fertilizer is released from the helicopter's hopper over the designated area of young forest. The beneficial effects can last up to 15 years on some sites.

Profile (from back page)... and professional foresters.

Dobbs says a 10-module certificate course is being developed by Lorax Forestry Ltd. to train non-professional silviculture fieldworkers, and the Silviculture Institute of B.C. has already instituted a course it developed on advanced silviculture training for professional foresters.

All these FRDA activities have meant a considerable amount of extra work for the staffs of both the MOFL research branch and the CFS. But both Dobbs and Illingworth agree: they're "very pleased with the way it's going." end of the agreement in 1990.

Under the cost-shared FRDA program 2.4 (see Fig. 1, pages 4-5), a total of 58 257 ha is earmarked for fertilization over four consecutive years. Some 10 911 ha have already been fertilized, and plans call for a further 15 458 ha in 1987, 17 785 ha in 1988, and 16 928 ha in 1989.

"We have many forested areas that are deficient in nitrogen. With fertilization, we have an opportunity to correct this and to increase our future wood supply," explains Mike Wyeth, MOFL provincial silviculturist.

Priority sites were selected on the basis of the stand's ability to respond to the treatment, tree spacing, and status of the wood supply, Wyeth says.

"Growth response is usually evident after a year and we can expect a response for five to 10 years, perhaps even 10 to 15 years on some sites and under certain circumstances."

The 1986 budget of \$2.1 million was spent on treating 6 187 ha in the Vancouver forest region, 990 ha in Nelson, 978 ha in Kamloops, 946 ha in the Cariboo, 938 ha in Prince George, and 872 ha in Prince Rupert.

Budgets for the program's remaining three years are currently projected at \$4.28 million in 1987-88, and \$5.2 million in each of the last two years.

Further information may be obtained from Wyeth at 387-1191.

Neutron probes, thermisters, diodes?

Sophisticated measuring devices are being used in the Kamloops Forest Region to study planting practices in B.C.

"We want to come to grips with the fundamental reasons why plantations succeed or fail," explains Alan Vyse, chairman of FRDA's Southern Interior technical advisory committee (and the Ministry's forest research officer, Kamloops region). "This is the key to advancing the success of planting practices in B.C."

Neutron probes, thermocouple psychrometers, thermisters and diodes are all being used by UBC Prof. Andy Black and two Ph.D. students in the study being partly funded under the cost-shared FRDA propgram 1.6 (see Fig. 1 on pages 4-5).

Site reconnaissance and preliminary microclimate monitoring were carried out in 1985-86 and Douglas fir and spruce seedlings were planted in the spring of 1986 on three study sites. These sites are being carefully monitored for seedling physiology, microclimate conditions, and growth and survival rates.

Fall site preparation treatments have been carried out recently for further planting in 1987.

Cooperating in the study are staff from the Kamloops Forest District and Evans Forest Products, and Dr. Dave Spittlehouse, climatologist with the Ministry's research branch.

About 25 operational foresters from the Kamloops and Cariboo forest regions participated in a field workshop organized by Vyse in efforts to communicate the findings from this research.

Further information may be obtained from Alan Vyse at 828-4158 (Kamloops).

Say FRDA's R&D leaders... Research focuses on field foresters

Operational foresters trying to clear up B.C.'s NSR (Not-Satisfactorily Restocked) lands are the focus of research under FRDA.

So says Keith Illingworth, provincial leader of the FRDA extension, demonstration, research and development working group and director of the MOFL's Research Branch.

"Backlog reforestation is the main thrust of FRDA research — addressing the immediate operational needs, and filling in any knowledge gaps," he says.

Illingworth's federal counterpart, Dr. Bob Dobbs, agrees: "The reason we have a research budget in the agreement is to further the objectives of FRDA, the main one of which is the reforestation of extensive areas of backlog."

Dobbs, senior program director, research, for the CFS Pacific Forestry Centre in Victoria, adds: "We are dealing with very difficult problems. NSR lands are not always the result of bad luck or neglect.

"Returning these lands to productive growth requires us to understand many interrelated and complex factors. We still need a lot of research in this field to help us make more informed prescriptions and hence more effective treatments. Then we'll be able to get the seedlings through the critical early stages of growth.

"The FRDA research program is intended to give us answers that can be applied within the life of the program; we need this information to ensure we're doing the best job possible," he says.

In addition to the general research being conducted under this program, Illingworth says the provincial component budget of \$6 million "has given us a great opportunity to upgrade research facilities necessary to support these research projects."

Recommending which re-



FRDA research is aimed primarily at operational foresters, say Dr. Bob Dobbs (I) and Keith Illingworth. Dobbs represents the CFS and Illingworth the MOFL.

search projects should be funded is largely the responsibility of three regional technical advisory committees (see story in fall 1986 issue of Renewal, page 2) that have representatives from CFS, MOFL, industry and academia. These committees, set up by the R & D working group, are coordinated by research branch silviculture manager Henry Benskin.

"But with all this talk about research and development, let's not forget the other part of our program title — extension and demonstration," Illingworth stresses.

"The value of research cannot be seen until the information is received and adopted by field foresters," he points out. "This aspect of extension and demonstration is an important part of our ministry's research branch mandate, and FRDA reinforces this.

It's a challenge for us to get the information out in useable form," he adds, saying they are currently using such channels as special purpose workshops and presentations to silviculture meetings. In addition, a FRDA research memo is being developed to report interim progress results to research clients.

ROFIL

Some of the federal component funding is being used to develop upgrading courses for fieldworkers

see "ł	Profile",	page	7
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