

Canada-Manitoba Forest Renewal Agreement
1984 - 1989

Program A Subprogram 2
and
Program B Subprogram 4

ANNUAL REPORT 1986 - 1987

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INTRODUCTION

On March 15, 1984 the governments of Canada and the province of Manitoba entered into a five year Canada-Manitoba Forest Renewal Agreement. The Agreement enable Canada and the Province to undertake programs of forest resource development and is consistent with "A Forest Sector Strategy for Canada (1981)", and the "Manitoba Forest Management Plan, 1981-2000". A joint strategy was developed with four major programs implemented. The major emphasis of the strategy, and the basis of this report, is placed on two of these programs, Program A: Forest Renewal and Program B: Intensive Forest Management.

This report focuses on Program A Subprogram 2: Forest Renewal and Program B Subprogram 4: Forest Stand Tending, both directed to Industrial Forest Management License Areas, Private Woodlots and Federal Lands. The bulk of the activities during the 1986-87 fiscal year were conducted on the license areas of the two major forest companies in Manitoba, Abitibi-Price Inc. in Pine Falls and Manfor Ltd. in The Pas.

ABITIBI-PRICE INC.

Program A Subprogram 2: Forest Renewal

Four major silvicultural programs were carried out by Abitibi-Price Inc. under Program A-2 Project Number 5211. The total amount of funds allocated through the Project Proposal Authorization Form for this program were \$175 000. The programs and their respective budgets were: Forest Surveys (\$17 640); Mechanical Site Preparation - tractor blading (\$20 691); Tree Planting - contract planting (\$57 882) and employee planting (\$57 337); and Chemical Weeding (\$21 450).

Forest Surveys Program:

The main categories of surveys are in the form of pre and post treatment surveys. Pre-treatment surveys are used to identify and verify backlog areas requiring treatment and to prescribe the necessary treatments. They include ground and aerial reconnaissance, mapping, and data compilation work. Post-treatment surveys consist mainly of survival, regeneration, and stand tending surveys, and other follow-up treatment surveys to determine effectiveness of treatments. The Survey Program is active all year round.

The total number of hectares surveyed was 3 395 at an expenditure of \$25 925. The average unit rate was \$7.64 per hectare. The total number of person-weeks of employment created was 18.7.

Mechanical Site Preparation Program:

Tractor blading of 115 hectares in mainly two separate blocks east of Highway 304 and along the Jack Pine Road were treated. The areas contained poplar and were alternate strip sheared for the establishment of white spruce plantations. The treatment was carried out during the fourth quarter (February 4 - March 20, 1987) and had an expenditure of \$24 579 for a unit rate of \$214 per hectare. The number of employment person-weeks created was 10.5.

The areas are scheduled to be disc trenched in Summer 1987 and planted during the Spring 1988 Tree Planting Season.

Tree Planting Program:

The Tree Planting Program (Table 1) was active in the spring (May 5 - June 5) and in the fall (August 26 - October 8). The program consisted of Abitibi-Price directly employed piecework planters plus various planting contracts. All the stock for the Planting Program was grown by Dakota Ventures Ltd. of Portage La Prairie and funded under the Purchase of Trees Program. A total of 712 400 trees was planted on 331.3 hectares at an expense of \$110 236. The total cost per thousand seedlings was \$154.83 and the number of person-weeks of employment created was 160.7.

During the 1986 Spring Planting Program 429 400 trees were planted on 201.3 hectares. Of these, approximately 188 000 trees were planted under contract and 241 000 were planted by Abitibi-Price employees. Almost all the stock type were black spruce container grown seedlings (styro 3-13 plugs). However about 700 white spruce styro 3-13 and 3 000 black spruce 2+0 bare root were also planted.

The Spring Program consisted of fill-in planting of previously established plantations at Bear River (240 975 t) and the Pine Creek Fire area (65 750 t), and initial plantation establishment at Bear River (66 275 t) and Trans-License and Highway 304 shear bladed areas (56 400 t).

The 1986 Fall Planting Program consisted of 283 000 trees planted on 130 hectares. These were all planted under contract. There were two stock types planted, bare root black spruce 1p+1 transplant stock (61 150 t) and black spruce styro 3-13 plugs (221 850 t). The planting consisted of fill-in planting at Bear

River (27 650 t) and initial planting at Sandy River West (160 850 t) and Gold Creek (94 500 t).

Serious stock problems were associated with the Fall Program resulting in high seedling mortality. Seedlings with incomplete bud set suffered extensive frost damage. Many of the seedlings also had little to no root activity and this also contributed to the high mortality rate. In the fall mortality was estimated to be 50-60% with actual survival to be determined by survey in Spring 1987.

Table 1. 1986 Planting Program

Season	Location	No. of Trees	Stock Type	Units (ha)
Spring				
Fill-in	Bear River	240 300	Sb Styro 3-13	
		675	Sw Styro 3-13	
	Pine Ck Fire	65 750	Sb Styro 3-13	
		306 725		
Plantation	Bear River	66 275	Sb Styro 3-13	
	Trans-License	3 000	Sb 2+0	
	Hwy 304	53 400	Sb Styro 3-13	
		122 675		
Spring Total		429 400		201.3
Fall				
Fill-in	Bear River	27 650	Sb 1p+1	
Plantation	Sandy River West	33 500	Sb 1p+1	
		127 350	Sb Styro 3-13	
	Gold Creek	94 500	Sb Styro 3-13	
		255 350		
Fall Total		283 000		130.0
Planting Program Total		712 400		331.3

Herbicide Program:

Chemical Weeding with the foliar herbicide Roundup (glyphosate) was sprayed on 190 hectares between August 11-28, 1986 (Table 2). The guarantee for Roundup is: glyphosate 356 grams per litre present as isopropylamine salt. The application rate was 2.5 litres per hectare (0.89 kilograms of active ingredient per hectare). Total expenditures incurred were \$21 810. This created 3.4 person-weeks of employment.

The entire herbicide program was a site preparation treatment. Two application methods were used, aerial spraying with both fixed-wing and rotor-wing, and ground spraying (sprayer mounted on a skidder).

Under aerial fixed-wing, 74 hectares were treated at Bear River. Total expenditures were \$7 161 (\$96.77/ha). Under rotor-wing, at Highway 304, 74 hectares were treated and \$9 008 incurred (\$121.73/ha). The ground application treated 42 hectares at a cost of \$5 641 (\$134.31/ha). Locations were Highway 304 (22 hectares) and Starr Lake (20 hectares).

Table 2. Herbicide Program Summary

Application Method	Units Treated	Expenditures	Person Weeks

Aerial Fixed-Wing	74 ha	\$ 7 161	
Rotor-Wing	74	9 008	1.2
Ground	42	5 641	2.2
	-----	-----	-----
	190 ha	\$21 810	3.4

Abitibi-Price Inc. Program A-2 Summary:

Abitibi-Price under Program A-2 had an expenditure of \$7 550 over budget. In total the program created 193.3 person-weeks of employment, had expenditures of \$182 550 and treated 4 031.3 hectares (Table 3).

Table 3. Abitibi-Price Inc. Forest Renewal Program Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Forest Surveys	\$ 17 640	\$ 25 925	3 395 ha	18.7
Mech. Site Prep.	20 691	24 579	115	10.5
Tree Planting	115 219	110 236	331.3	
			(712 400 t)	160.7
Herbicide	21 450	21 810	190	3.4
	-----	-----	-----	-----
	\$175 000	\$182 550	4031.3 ha	193.3

Program B Subprogram 4: Intensive Forest Management

Three major programs were carried out by Abitibi-Price Inc. under Program B-4 Project Number 5212. Allocated funding amounted to \$325 000. The programs and their respective budgets were: Mechanical Site Preparation - shear blading (\$59 850), disc trenching (\$26 120), and angle blading (\$30 330); Purchase of Trees (\$157 840); and Pre-Commercial Thinning (\$50 860).

Mechanical Site Preparation Program:

Three different site preparation treatments were to be carried out under this program; shear blading and piling, disc trenching, and angle blading (Table 4). Angle blading however was cancelled by Abitibi-Price due to the reduction in required site preparation as a result of reduced planting stock availability. The funds for this project were re-allocated to the Pre-Commercial Thinning Program.

Disc trenching activities using a company owned Donaren 180 disc trencher on a contract JD740 skidder were carried out during the second quarter at Sandy River West, Gold Creek, and areas shear bladed in the winter of 1985-86. In total 266 hectares were scarified at a cost of \$29 303. Employment person-weeks created were 13.1 and the unit rate was \$110.16 per hectare.

At Sandy River West and Gold Creek 119 hectares of brush and young poplar were trenched. These were then planted by the Fall 1986 Planting Program. The remaining 147 hectares, located in the Bear River area and along Highway 304, were older poplar sites shear bladed between February and March 1986. The sites were trenched in preparation for planting in Spring 1987.

Shear blading and piling of 112 hectares along the Jack Pine Road took place between February 4 - March 5, 1987. The total cost was \$45 140 representing \$403 per hectare. The number of person-weeks created was 15.1. The areas are scheduled to be herbicided in August 1987, disc trenched in Fall 1987 and planted in Spring 1988.

Table 4. Mechanical Site Preparation Program Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Shear Blade	\$ 59 850	\$45 140	112 ha	15.1
Disc Trench	26 120	29 303	266	13.1
Angle Blade	30 330	cancelled	-----	----
	-----	-----	-----	-----
	\$116 300	\$74 443	378 ha	28.2

Purchase of Trees Program:

Seedlings planted by Abitibi-Price Inc. and funded under the Canada-Manitoba Forest Renewal Agreement are grown and supplied by Dakota Ventures Ltd. (Dakota Plains and Dakota Tipi Indian Bands) of Portage La Prairie. The stock is grown under contract to Abitibi-Price and funded through the Agreement.

Total expenditure under this program was \$174 047 and it involved 1 281 000 seedlings. Actual number of seedlings purchased was 876 000. Fourth quarter expenditures under this program represent partial payment for crop currently growing plus overwintering (storage) and transportation costs. The total number of person-weeks of employment created was 201.

Under the 1986 Stock Agreement between Abitibi-Price Inc. and Dakota Ventures Ltd. three stock types were grown and funded. These were styrobloc plugs 3-13 and 4-15 centimetre cavity size, and 1p+1 transplant stock. The cost was \$170.00, \$185.00, and \$80.00 per thousand respectively. For the transplant stock this cost represents the transplant stage. The 1p (the first year grown as a plug) portion was paid for under the 1985 Stock Agreement.

Under the 1986 Overwintering Stock Agreement between Abitibi-Price and Dakota Ventures the cost for overwintering and transportation of approximately 400 000 plugs was \$5.00 per thousand seedlings.

Pre-Commercial Thinning Program:

Pre-Commercial thinning (juvenile spacing) of low land black spruce-tamarack sites was conducted during the first and fourth quarters in the Trans-License Road, Cascade Road, and Black River areas. Total expenditure was \$75 010 treating 148 hectares for a unit rate of \$506.82 per hectare. This expenditure includes expenses incurred during the third quarter for area reconnaissance, access, delineation etc. A total of 69.9 person-weeks of employment was created.

Abitibi-Price Inc. Program B-4 Summary:

Total Program B-4 expenditures were \$323 500. This treated 526 hectares, involved 1 281 000 seedlings of which 876 000 were purchased, and created 298.7 person-weeks of employment (Table 5).

Program B-4 was under budget by \$1 500. With Program A-2 over budget by \$7 550, Abitibi-Price under the two programs had a total over expenditure of \$6 050.

Table 5. Abitibi-Price Inc. Intensive Forest Management Program
Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Mech. Site Prep.	\$116 300	\$ 74 443	378 ha	28.2
Purchase of Trees	157 840	174 047	1 281 K (876 K)	200.6
Pre-Com Thinning	50 860	75 010	148 ha	69.9
	-----	-----		-----
	\$325 000	\$323 500		298.7

MANFOR LTD.

Program A Subprogram 2: Forest Renewal

Manfor Ltd., on a budget of \$120 000, carried out five programs under Program A-2 Project Number 3208. The programs and budgets were: Forest Surveys (\$30 276); Mechanical Site Preparation - bracke (\$20 970) and ripper tooth (\$26 000) scarification; Project Access (\$36 754); and Cone Collection (\$6 000).

Forest Surveys Program:

Manfor Ltd.'s Survey Program consists mainly of regeneration surveys of backlog cutover areas. The purpose of the surveys is to locate suitable areas for treatment under the Agreement.

Total expenditures amounted to \$25 241. This includes the purchase of two 3-wheel all-terrain trikes (\$4 929). The number of person-weeks of employment created was 26 and 2 261.3 hectares were surveyed.

Mechanical Site Preparation Program:

Two scarification projects were carried out under this program. Bracke scarification was conducted in the first quarter and ripper tooth scarification in the fourth quarter.

Under bracke scarification 233 hectares in the Goose River area were treated at a cost of \$20 970 or \$90 per hectare. Four person-weeks of employment were created.

Under ripper tooth scarification 130 hectares were treated at the 2 mile point of the Atik Lake Road. Total expenditures were \$25 828 or \$198.68 per hectare and five person-weeks of employment created.

Project Access Program:

During the period of May 26 - July 3, 1986 Manfor upgraded 11.3 kilometres of the Goose River Road for the purpose of access during tree planting operations. The work consisted mostly of gravelling the old roadbed and placement of small culverts. Expenditures totalled \$36 754. Person-weeks created were 13.

Cone Collection Program:

During the last two quarters 58 hectolitres of jack pine cones were collected at a cost of \$5 972 or \$102.97 per hectolitre. Twenty-three person-weeks were created.

Manfor Ltd. Program A-2 Summary:

Total Forest Renewal expenditures were \$114 766 (Table 6). This treated 2 624 hectares, upgraded 11 kilometres of road, collected 58 hectolitres of cones, and created 71 person-weeks of employment. The program was under budget by \$5 234.

Table 6. Manfor Ltd. Forest Renewal Program Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Forest Surveys	\$ 30 276	\$ 25 241	2 261 ha	26
Mech. Site Prep.	46 970	46 799	363 ha	9
Project Access	36 754	36 754	11 km	13
Cone Collection	6 000	5 972	58 hl	23
	-----	-----		-----
	\$120 000	\$114 766		71

Program B Subprogram 4: Intensive Forest Management

Program B-4 Project Number 3210 consisted of the following programs and budgets: Tree Planting (\$187 524); Mechanical Site Preparation - ripper tooth (\$10 000), bracke (\$12 534), and slash rake (\$5 500); Technical Assistance (\$17 010); Stand Tending (\$72 261) and; Purchase of Seed (\$10 171). Total allocated funding was \$315 000.

Tree Planting Program:

During June and July 1986 Manfor Ltd. planted 824 665 black and white spruce paperpot seedlings on 335 hectares in the Goose River West area. A total of 156.6 person-weeks of work (supervision and tree transportation excluded) was carried out with an average of 1 052 trees planted per person-day. The total accumulated costs were \$ 187 524 or 22.74 cents per tree.

Mechanical Site Preparation:

Site preparation included bracke, ripper tooth and slash rake scarification (Table 7). The latter two were tried on a trial basis.

Bracke scarification of 136.7 hectares in the Goose River area was completed at a cost of \$91.68 per hectare for a total cost of \$12 534. Two person-weeks of employment were created. The work was conducted during the third quarter.

Ripper tooth scarification of 36 hectares was carried out at the 2 mile point of the Atik Lake Road and in the Egg Lake area during the fourth quarter. This program was a continuation of

the ripper tooth scarification project under Program A-2. Manfor's intent was to try this method on a trial basis for direct seeding with jack pine. Average production levels were 0.81 hectares per operation hour. Total expenditures were \$7 153 or \$198.69 per hectare. This created two person-weeks of employment.

The slash rake scarification project encountered many problems. During January 1987 Manfor attempted to carry out the treatment on a backlog cutover site located near Egg Lake. The area was logged in 1980-81 and the accumulation of slash was considered high. The plan was to windrow the slash in large piles and burn if required.

Manfor rented a modified Raumfix 5-Tooth Slash Rake and mounted it on a contract skidder. The company however experienced many breakdowns with the rake. It also had to deal with poor quality replacement parts and the constant unreliability of the rake to function properly. The project was thus cancelled on January 22. Only four hectares were treated and two person-weeks of employment created. Total cost was \$4 513. Due to the problems and associated expenditures the unit rate is not a true reflection of normal treatment costs.

The slash rake budget was readjusted after the cancellation of the project and the surplus redistributed to Stand Tending.

Table 7. Mechanical Site Preparation Program Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Bracke	\$12 534	\$12 534	137 ha	2
Ripper Tooth	10 000	7 153	36	2
Slash Rake	5 500	4 513	4	2
	-----	-----	-----	---
	\$28 034	\$24 200	177 ha	6

Technical Assistance Program:

On January 12, 1987 Manfor Ltd. hired a Project Forester to assist in administering and implementing programs funded under the Canada-Manitoba Forest Renewal Agreement. Total expenditures were \$13 200. This represents 6 months total units with 3 months's funds for relocation expenses and 3 for the position's

expenses. Eleven person-weeks of employment were created.

Stand Tending Program:

This program consisted of a combination juvenile spacing-conifer release treatment in a young spruce-pine-aspen block on the Atik Lake Road. The treatment was conducted during February and March 1987. Expenditures totalled \$66 151 treating 150 hectares for a unit rate of \$441.01 per hectare. A total of 54 person-weeks of work was created.

Purchase of Seed Program:

Under this program 99.62 hectolitres of jack pine cones were collected during the fourth quarter. The cost was \$102.97 per hectolitre for a total cost of \$10 259. Thirty-nine person-weeks of employment were created.

Manfor Ltd. Program B-4 Summary:

Total Program B-4 expenditures were \$301 334. This treated 327 hectares, collected 100 hectolitres of cones, planted 824 665 trees and staffed a forestry position to the equivalent of 6 months. This created 267 person-weeks of employment (Table 8).

Program B-4 was under budget by \$13 666. With the surplus of \$5 234 from Program A-2 Manfor Ltd. had a total surplus of \$18 900 under the two programs.

Table 8. Manfor Ltd. Intensive Forest Management Program
Summary

Program	Budget	Expenditures	Units Treated	Person Weeks
Tree Planting	\$187 524	\$187 524	824 665 t	156.6
Mech. Site Prep.	28 034	24 200	177 ha	6.0
Tech. Assistance	17 010	13 200	6 mo	11.0
Stand Tending	72 261	66 151	150 ha	54.0
Purchase of Seed	10 171	10 259	100 hl	39.0
	-----	-----		-----
	\$315 000	\$301 334		266.6

FEDERAL LANDS

A stand tending project in the form of a conifer release operation was established for implementation at the Crossing Bay Indian Reserve of the Moose Lake Indian Band. Approximately fifty hectares were laid out for treatment.

Meetings and discussions took place with the Moose Lake Band and a contract was drawn-up and the work offered to the Band. Initially the Band showed interest but as time progressed this diminished considerably. With the lack of initiative and response by the Band to the contract offer the project was cancelled.

SUMMARY

During the 1986-1987 fiscal year Abitibi-Price Inc. and Manfor Ltd. implemented various forestry programs (Table 9). Under Programs A-2 and B-4 of the Canada-Manitoba Agreement Abitibi-Price Inc. incurred expenditures totalling \$506 050 and created 492 person-weeks of employment. The company treated 4 557 hectares (including planted area), planted 712 44 trees, and purchased 876 000 seedlings. Manfor Ltd. had expenditures of \$416 100 under the two Programs. They treated 3 286 hectares (including planted area), upgraded 11 kilometres of road for planting access, collected 158 hectolitres of cones, planted 824 665 trees and staffed a forestry position for the equivalent of 6 months. These activities created 337.6 person-weeks of employment.

Canada-Manitoba Forest Renewal Agreement summaries for Programs A-2 and B-4 are illustrated in Table 10 and activity program summaries in Table 11. Total expenditures by the two companies under the two Programs were \$922 150. This created 829.6 person-weeks of employment.

Table 9. Programs A-2 and B-4 Summaries By Industry

Company	Can-Man Program	Activity Program	Expenditures	Units Treated	Person Weeks
<hr/>					
Abitibi Price Inc.	A-2	Forest Surveys	\$ 25 925	3395 ha	18.7
		Mech. Site Prep.	24 579	115 ha	10.5
		Tree Planting	110 236	712 400 t	160.7
		Herbicide	21 810	190 ha	3.4
		Total A-2	\$182 550		193.3
	<hr/>				
	B-4	Mech. Site Prep.	\$ 74 443	378 ha	28.2
		Purchase of Trees	174 047	876 000 t	200.6
		Pre-Com. Thinning	75 010	148 ha	69.9
	Total B-4	\$323 500		298.7	
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	Total A-2 and B-4	\$506 050		492.0	
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Manfor Ltd.	A-2	Forest Surveys	\$ 25 241	2 261 ha	26.0
		Mech. Site Prep.	46 799	363 ha	9.0
		Project Access	36 754	11 km	13.0
		Cone Collection	5 972	58 hl	23.0
		Total A-2	\$114 766		71.0
	<hr/>				
	B-4	Tree Planting	\$187 524	824 665 t	156.6
		Mech. Site Prep.	24 200	177 ha	6.0
		Tech. Assistance	13 200	6 mo	11.0
		Stand Tending	66 151	150 ha	54.0
		Purchase of Seeds	10 259	100 hl	39.0
		Total B-4	\$301 334		266.6
	<hr/>				
	Total A-2 and B-4	\$416 100		337.6	
<hr/>					
Total Abitibi-Price Inc. and Manfor Ltd.			\$922 150		829.6

Table 10. Total Programs A-2 and B-4 Summary

Can-Man Program	Activity	Expenditures	Units Treated	Person Weeks
A-2	Forest Surveys	\$ 51 166	5 656 ha	44.7
	Mech. Site Prep.	71 378	478 ha	19.5
	Tree Planting	110 236	712 400 t	160.7
	Herbicides	21 810	190 ha	3.4
	Project Access	36 754	11 km	13.0
	Cone Collection	5 972	58 hl	23.0
	Total A-2	\$297 316		264.3
B-4	Mech. Site Prep.	\$ 98 643	555 ha	34.2
	Purchase of Trees	174 047	876 000 t	200.6
	Tree Planting	187 524	824 665 t	156.6
	Tech. Assistance	13 200	6 mo	11.0
	Stand Tending	141 161	298 ha	123.9
	Purchase of Seeds	10 259	100 hl	39.0
	Total B-4	\$624 834		565.3
Total A-2 and B-4		\$922 150		829.6

Table 11. Activity Program Total Summary

Program	Expenditures	Units Treated	Person Weeks
Forest Surveys	\$ 51 166	5 656 ha	44.7
Mech. Site Prep.	170 021	1 033 ha	53.7
Tree Planting	297 760	1 537 065 t	317.3
Herbicide	21 810	190 ha	3.4
Project Access	36 754	11 km	13.0
Cone Collection	16 231	158 hl	62.0
Purchase of Trees	174 047	876 000 t	200.6
Stand Tending	141 161	298 ha	123.9
Tech. Assistance	13 200	6 mo	11.0
Total	\$922 150		829.6