

Interim Report - October, 1986

SX 84115 0

Fertilizing Interior Spruce
at Time of Planting

Introduction

Results of E.P. 858 indicate that fertilizing interior spruce seedlings at the time of planting can double plant biomass within two years. Where seedling survival is jeopardized by rapidly encroaching vegetation, fertilizing newly planted stock may provide an effective means to improve plantation establishment. The cost-effectiveness of fertilization versus the use of large stock has not yet been determined.

Objectives

- 1) To determine operational problems and costs associated with fertilization at the time of planting.
- 2) To assess the effect of enhanced growth due to fertilization on plantation establishment success and the cost per hectare of satisfactorily restocked land.

Interim Measurements

Measurements of total height, 1986 increment, and stem caliper were taken in September, 1986 on two [REDACTED] established in the Spring of 1985 - one near Fort Nelson and one near Vanderhoof. Vigour (thrifty, fair, or poor) and remarks on condition were also noted.

Each trial consisted of two fertilized and two control plots with fifty trees established in each.

Interim Results

The second year results are summarized on the following page*. The fertilized plots show greater height, leader growth, caliper, and vigour than the control plots. Survival is slightly higher on fertilized plots in Fort Nelson (94% vs 93%) but lower in Vanderhoof (84% vs 89%).

Overall the Fort Nelson Trial is performing much better than the Vanderhoof location. At Vanderhoof there is a high percentage of fair and poor vigour trees with dead tops and multiple leaders.

Notes on symbols used in "Remarks" column:

DT	dead top
ML	multiple leader
FLAT	tree horizontal

* All measurements in milli-meters.

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Means for Surviving Trees by Plot

Vanderhoof

Fertilized Plots

Plot #	height (mm)	increment (mm)	caliper (mm)	Survival	Condition (% of live)		
					Thrifty	Fair	Poor
1	250	23	5.2	78%	20%	40%	38%
2	232	25	5.1	76%	38%	33%	26%
3	294	33	5.8	94%	58%	31%	8%
4	286	31	5.8	88%	53%	29%	16%
Average	<u>265</u>	<u>28</u>	<u>5.5</u>	<u>84%</u>	43%	33%	22%

Control Plots

Plot #	height	increment	caliper	Survival	Condition (% of live)		
					Thrifty	Fair	Poor
1	244	17	4.8	96%	10%	61%	27%
2	230	18	4.5	80%	41%	41%	15%
3	256	13	4.9	94%	19%	46%	33%
4	255	19	5.0	84%	12%	56%	30%
Average	<u>246</u> *LESS	<u>17</u>	<u>4.8</u>	<u>89%</u>	21%	51%	26%

Fort Nelson

Fertilized Plots

Plot #	height	increment	caliper	Survival	Condition (% of live):		
					Thrifty	Fair	Poor
1	333	90	5.8	96%	80%	18%	0%
2	349	87	5.8	90%	72%	26%	0%
3	278	47	4.7	90%	30%	63%	0%
4	339	80	5.7	98%	96%	2%	0%
Average	<u>325</u>	<u>76</u>	<u>5.5</u>	<u>94%</u>	69%	27%	0%

Control Plots

Plot #	height	increment	caliper	Survival	Condition (% of live):		
					Thrifty	Fair	Poor
1	337	62	5.1	92%	53%	43%	0%
2	314	41	5.0	96%	33%	63%	2%
3	319	64	5.4	90%	72%	24%	2%
4	288	51	4.9	94%	65%	31%	2%
Average	<u>314</u>	<u>55</u>	<u>5.1</u>	<u>93%</u>	56%	40%	2%