

INTERIM REPORT

SX 81212Q and SX 82205Q

Cooperative Chemical Root

Pruned Lodgepole Pine Trial

November 28, 1984

REPORT SX 81212 Q

INTERIM

FINAL

DATE NOVEMBER 28, 1984

TITLE COOPERATIVE CHEMICAL ROOT PRUNED LODGEPOLE PINE TRIAL

Report prepared by: *S.M. Willis* (Signature)
S.M. WILLIS (Typed)

Report & distribution approved by: *R.G. Brown* (Signature) (for Regions -
Silviculture Officer)
R.G. BROWN (Typed)

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R.C. JONES (Typed)

INTERIM REPORT

SX 81212Q, Cooperative Chemical Root Pruned Lodgepole Pine Trial and SX 82205

I Objective

To assess the effects on the survival, growth and root development of lodgepole pine grown in styroblocks having copper painted cavity walls.

II Introduction

Nine trial locations for SX 81212Q were established by the Forest Research Officers in Prince Rupert, Nelson and Kamloops in the spring of 1981 at the request of Silviculture Branch. The second growing season assessment is described and analyzed in this report. In addition the establishment report is included for SX 82205, at Kidd Creek (Nelson Region).

All 9 trial locations were planted with lodgepole pine. The objective of this trial is to compare the field performance and root development of regular PSB stock with that of chemically root-pruned stock grown in copper treated styroblocks.

Prior to sowing the cavities of the styro-blocks were painted with a mixture of water, Baprok exterior latex paint and cupric carbonate. The mixture applied contained 0.07 kg/l of cupric carbonate powder. Lateral root growth within the container is inhibited when a root tip comes in contact with the painted side of the cavity.

After planting, the lateral root tips are expected to regenerate and continue to grow horizontally. This will provide additional mechanical stability and improved performance.

III Design

Regional trial designs were used at each location. At the Prince Rupert sites 400 trees per treatment were planted. At the Kamloops and Nelson locations 200 trees per treatment were planted.

IV Planting and Assessment Dates

<u>Region</u>	<u>District</u>	<u>Location</u>	<u>Planting</u>	<u>Assessments</u>
Prince Rupert	Lakes F.D.	Paul Fire	82-06-15	Fall 82, 83 & 86
	Morice F.D.	Parrott Lakes	82-05-27	" " " "
	Morice F.D.	Andrew Bay	82-06-04	" " " "
	Kalum F.D.	Dragon Lake	82-05-26	" " " "
Kamloops	Penticton F.D.	Nicoamen River	82-05-12 & 18	Fall 82, 83 & 86
	Lillooet F.D.	Mt. Gottfriedsen	82-06-25	" " " "
Nelson	Kootenay Lk. F.D.	Kidd Creek	82-06-28	Fall 82, 83 & 86
	Kootenay Lk. F.D.	Lamb Creek	82-06-25	" " " "
	Kootenay Lk. F.D.	Kidd Creek	83-05-17	" 83, 85 & 87

(Sx 82205Q)

V Trial Stock

Region	Seedlot	Stock Type	Nursery	Top Height (cm) At Planting		R.C.D. (mm)	
				Control	Treated	Control	Treated
PR	3774	PSB 211	RRK	17.1	12.0	2.4	2.1
PR	2177	PSB 211	SKN	9.1	8.7	2.4	2.5
PR	4256	PSB 313	KOK	6.8	10.7	1.6	2.5
PR	4254	PSB 211	KOK	11.9	16.0	1.7	2.1
K	3134	PSB 313	VER	20.5	21.5	N/A	N/A
K	3217	PSB 313	HAR	13.0	11.0	N/A	N/A
N	4276	PSB 313	HAR	9.7	8.0	N/A	N/A
N	4277	PSB 313	SKN	16.0	16.9	N/A	N/A
N	4277	PSB 313	SKN	9.9	8.5	2.2	2.5

VI Site Factors

Region	Location	Sub-Zone	Elev(m)	Aspect	Soil	History	Site Preparation
P.R.	Paul Fire	SBSe	1040	N63E	Clay Loam	L.61	Windrowed 80
P.R.	Parrott Lake	SBSe	995	S60W	Silt,Clay Loam	L.78	Disc Trencher 1981
P.R.	Andrew Bay	SBSe	1030	S66W	Silt,Clay Loam	L.78	Nil
P.R.	Dragon Lake	CWHf	310	S66E	Sandy Loam	L.78	Nil
K	Mt. Gottfriedsen	ESSFe	1440	N	Sandy Loam	L.74	Broadcast Burned 74
K	Nicoamen R.	IDFa	1000	W	Sandy Loam	L.77	Nil
N	Kidd Creek	ICHa1	1575	S20W	Silt Loam	N/A	Broadcast Burned
N	Lamb Creek	ESSFc	1696	S20E	Loam	L.72	Spot Burned
N	Kidd Creek (SX 82205Q)	ICHa1	1200	Flat	Silt Loam	L.78	Broadcast Burned 82

VII Results

TABLE 1: Condition and Survival of Copper Treated and Untreated Plugs by Location
After Two Growing Seasons

REGION	LOCATION	SEEDLOT	STOCK TYPE	TREATMENT	* CONDITION %				SURVIVAL 2ND YEAR
					AFTER 2 YEARS				
					G	F	P	D	
P.R.	Paul Lake	3774	PSB211	Control	N/A	N/A	N/A	N/A	95
				Copper Treated	N/A	N/A	N/A	N/A	95
P.R.	Parrott Lake	2177	PSB211	Control	N/A	N/A	N/A	N/A	99
				Copper Treated	N/A	N/A	N/A	N/A	97
P.R.	Andrew Bay	4856	PSB313	Control	N/A	N/A	N/A	N/A	97
				Copper Treated	N/A	N/A	N/A	N/A	96
P.R.	Dragon Lake	4254	PSB211	Control	N/A	N/A	N/A	N/A	70
				Copper Treated	N/A	N/A	N/A	N/A	59
K	Mt. Gottfriedsen	3134	PSB313	Control	80	6	7	7	93
				Copper Treated	90	4	3	3	97
K	Nicoamen R.	3217	PSB313	Control	86	1	1	12	88
				Copper Treated	81	2	1	16	84
N	Kidd Creek	4276	PSB313	Control	83	13	1	3	97
				Copper Treated	88	8	1	3	97
N	Lamb Creek	4277	PSB313	Control	61	20	11	8	92
				Copper Treated	64	18	11	7	93
N	Kidd Creek (SX 82205Q)	4277	PSB211	Control	N/A	N/A	N/A	N/A	N/A
				Copper Treated	N/A	N/A	N/A	N/A	N/A
				Control					91% Av.
				Copper Treated					90% Av.

*Good - Without visible defect or with one so slight as not to effect the growth rate.
 Fair - With some conspicuous defect that the tree is likely to outgrow.
 Poor - So seriously damaged that it is unlikely to survive or develop into a merchantable tree.

TABLE 2 - Height at Planting and After 2 Growing Seasons of
Copper Treated and Untreated Plugs, by Location

REGION	LOCATION	SEEDLOT	STOCK TYPE	TREATMENT	TOTAL HEIGHT-cm		INCREMENT-cm	% INCREMENT
					AT PLANTING	AFTER 2 YEARS	2nd YEAR	AFTER 2 YEARS TOTAL
P.R.	Paul Lake	3474	PSB211	Control	17.1	18.8	8.8	51
				Copper Treated	12.0	16.9	10.9	90
P.R.	Parrott Lake	2177	PSB211	Control	9.1	23.1	16.1	177
				Copper Treated	8.7	23.0	16.0	184
P.R.	Andrew Bay	4256	PSB313	Control	6.8	29.8	13.3	195
				Copper Treated	10.7	21.8	15.8	148
P.R.	Dragon Lake	4254	PSB211	Control	11.9	22.1	14.1	118
				Copper Treated	16.0	21.7	17.2	108
K	Mt. Gottfriedsen	3134	PSB313	Control	20.5	27.0	6.5	32
				Copper Treated	21.5	26.9	5.4	25
K	Nicoamen R.	3217	PSB313	Control	13.0	24.9	11.9	92
				Copper Treated	11.0	23.4	12.4	113
N	Kidd Creek	4276	PSB313	Control	9.7	22.3	12.6	130
				Copper Treated	8.0	22.2	14.2	178
N	Lamb Creek	4277	PSB313	Control	16.0	23.6	7.6	48
				Copper Treated	16.9	25.9	9.0	53
N	Kidd Creek (SX 82205Q)	4277	PSB211	Control	10.0	N/A	N/A	N/A
				Copper Treated	8.0	N/A	N/A	N/A

VIII Comments

The interim results are consistent with N. Burdett's findings that after two growing seasons there is no significant difference between the performance of standard grown and copper painted plugs.

Increased lateral root development is expected to occur in the next few years. This will provide additional mechanical stability and improved performance.

IX Status

The 5th year assessment for SX 81212Q is scheduled for the fall of 1986.

In addition to measuring survival and growth a sample of trees will be excavated and an assessment of lateral root development will be made.

The second year assessment for SX 82205Q will be carried out in Spring '85. In addition another trial location will be planted in the Nechako Seed Planning Zone in Spring '85.