All Regional Research Officers

From: Silviculture Branch
Date: 82/07/20
File: 955-23-2

Re: Establishment, Assessments, and Reporting of Multi-Region Co-operative SX Planting Trials

When a Regional - Silviculture Branch co-operative planting trial involves two or more Regions, the results are forwarded to this office for amalgamation in one report.

In the interest of uniformity, therefore, would you please establish, plant, and assess such trials to provide information on the following:

1) Site factors, by completing items B1-20 on the F.S. 739, Planting Site Prescription form.

2) General location, shown on a key map.

3) Details of planting stock, as:
   a) Species
   b) Seedlot
   c) Stock types
   d) Nursery
   e) Quality, as it could effect performance
   f) Average dimensions =
      Top Height, cm
      Root Collar diameter, mm
      Top: Root ratio
      Root growth capacity (by arrangement with the nursery quality control technician)

4) Planting dates

5) Assessment dates

6) Weather and Soil Conditions at planting, i.e. temp. range, precipitation, wind, and soil moisture.

7) Table of percent survival by stock types/treatments in terms of condition* - Good, Fair, Poor, Dead, to a total of 100%. If planted trees cannot be found at assessment they are classed as missing and are not included in the calculation of percentages.
*Good - without 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 the tree is unlikely to survive or develop into a merchantable tree.

8) Table of height growth by stock types/treatments in terms of initial height, remeasured (assessed) height, and thus increment, to the nearest centimetre.

9) Table to show root development

Where this is one of the trial objectives, plant at least 60 extra trees per treatment to provide for excavation at both assessments.

Record data on individual trees under the following headings -

<table>
<thead>
<tr>
<th>Stock Type:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Root Collar Diameter</td>
<td>mm</td>
</tr>
<tr>
<td>Number of Tape Roots</td>
<td></td>
</tr>
<tr>
<td>No. of Primary Laterals*, by Quadrants</td>
<td>Q1 Q2 Q3 Q4</td>
</tr>
<tr>
<td>No. of Laterals with Spiral $\geq$90°</td>
<td></td>
</tr>
<tr>
<td>Ave. Length of Laterals cm</td>
<td></td>
</tr>
</tbody>
</table>

*The first developed, originating just below the root collar, and growing outwards as well as downwards.

Average the data for each stock type and tabulate under the above headings to provide an indication of the dimensions and configuration of the root system.

10) Add comments that you feel will aid in the interpretation of the data.

Interim assessments are made at the end of the first and second growing seasons and a final after five.

Please forward all data after the second and final assessments when they will be combined with those from other Regions for an interim and then a final report.

\[\text{Signature}\]

P.E. Robson
Forester

PER/IJ
RE: SX TRIALS FUNDING 82/83 SILVICULTURE PROGRAM BUDGET.

FURTHER TO MEMOS 81.07.29 & 82.01.19 YOUR REGION ALLOTMENT IS

<table>
<thead>
<tr>
<th>Region</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>VANCOUVER</td>
<td>$47,650</td>
</tr>
<tr>
<td>PR. RUPERT</td>
<td>10,835</td>
</tr>
<tr>
<td>PR. GEORGE</td>
<td>16,230</td>
</tr>
<tr>
<td>CARIBOO</td>
<td>20,175</td>
</tr>
<tr>
<td>KAMLOOPS</td>
<td>20,000</td>
</tr>
<tr>
<td>NELSON</td>
<td>25,570</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>140,460</strong></td>
</tr>
</tbody>
</table>

MR. NEWMAN AT THIS BRANCH WILL ARRANGE TRANSFER WITHIN SILVICULTURE PROGRAM TO AN APPROPRIATE REGION SILVICULTURE ACCOUNT: PLEASE ADVISE HIM THE ACCOUNT NUMBER A.S.A.P.

ADDITIONAL ALLOTMENTS WILL BE FORTHCOMING AS OUR BUDGET IS REVIEWED.

R.C. JONES
MANAGER,
SILVICULTURE BRANCH

cc: C. Newman
cc: Research – Attn: H. Benskin – We should discuss further priorities.
cc: R. Brown
cc: J. Gilmour
cc: R. Jones
TITLE - REMEASUREMENT OF TREES PLANTED FOR E.P. 589 - "Survival and Initial Growth of Morphologically Defined Classes of Douglas-fir Planting Stock on High Site Lands Subject to Dense Cover".

INTRODUCTION - E.P.589 was initiated in 1965 in four locations in the Vancouver Forest Region; Chehalis River, Franklin River, Gold River and Tofino. Three stock types were planted; 2+0 Br, 1+2 Br, and 2+1 Br. Each of these stock types were stratified into two morphological classes, large and small stock, thus making for six combinations. The trees were measured for height and diameter growth in the autumn of the following four years. Results were published, indicating growth differences between the stock types. To determine whether the differences in height and diameter growth still were present 15 years after planting, two sites were remeasured (Franklin River and Tofino sites). Not all plots were found at these sites and the Gold River site could not be remeasured due to the inability to find the plots. The only site, left therefore to be remeasured is the Chehalis River site.

OBJECTIVE - To locate and remeasure E.P.589 plots located near Chehalis River. Also to analyze results from all plots remeasured to determine if growth differences in the various stock types still remain. The results will be discussed in a final report.

STUDY AREA - Chehalis River, Maple Ridge Forest District, Vancouver Forest Region.

METHOD - The Chehalis River location is made up of three sites, each site containing two plots. Each plot contains one line of 25 trees of each stock type-size combination (six lines). Therefore, in total about 900 trees will have to be remeasured. All plots must first be relocated. In a previous location, brushing out was necessary in order to measure tree heights accurately. Therefore this process may be necessary in this case. Tree heights and diameters will be measured along with any comments pertaining to the health of the tree i.e. forked top, chlorotic, etc. Analysis of the data from this location as well as the data from the other locations remeasured will be done to determine if growth differences between the stock types are still present.

DURATION - 3 months in total - June, 1982 - Reconnaissance - locate plots
Aug., 1982 - Remeasurement

BUDGET - $5,000 Wages for remeasurement, analysis, & report
$1,500 Travel & accommodation
$1,500 Vehicle rental

$8,000 Total Cost.

March 26, 1982
BD/gm
To: Peter Robson  
Silviculture Branch  
1450 Government St.  
Victoria, B.C.

From: Research Section  
Date: Feb. 4, 1982  
File: 780

Re: First and Second Year Reports for the SX-80 Series Stock Trials

Enclosed is a copy of the first and second growing season report on the six SX-80 stock trials which were established in the Prince Rupert Forest Region.

Please note that considerable detail has been included in the form of six appendices. I expect this material will help the Silviculture Branch assemble a comprehensive report using information from similar stock trials in other Regions.

J. Pollack  
Forest Research Officer  
Prince Rupert Forest Region

cc: Manager, Silvicultural Research  
Silviculturalist North  
R.S.M. Forestry, Prince Rupert Forest Region  
Silviculture Officer  
District Managers, Prince Rupert Forest Region  
co-operating forest companies
All Regional Forestry Managers

Re: Sx trials - supplementary funding for Regions

Further to the Sx trial supplementary funding proposition (see R.C. Jones/H. J. Benskin co-signed memo of 81 07 24), this is to advise you that regional submissions have been received and reviewed in the manner agreed upon. Approval-in-principle was given to the projects listed on the attached sheet. Regional Research Foresters and Silviculture Officers are now requested to collaborate in preparing detailed project plans in accordance with current established procedures for Sx trials. Final approval will be given by Silviculture Branch once projects plans have been received, approved and provided that plan budget funding for 1982/83 is forthcoming. Curtailed budgets would, of course, necessitate a re-evaluation of approved projects and postponement of those deemed lower priority. The regional response to the Sx trial supplementary funding proposition was very encouraging, with many worthwhile and important initiatives being put forward. We look forward to the successful field program in 1982/83.

H. J. Benskin,
Manager,
Silviculture Research,
Research Branch.

R. C. Jones,
Manager,
Silviculture,
Silviculture Branch
Sx trial proposals - approved in principle.

Carib
- Effectiveness of direct seeding in the Chilcotin pine subzone. $12,000
- Effectiveness of alternative machines for producing elevated planting spots 20,000
- Effectiveness of the NFRC large scale photo sampling system for plantation performance assessment. 15,000
$47,000.

Kamloops
- Cost-benefit analysis of site preparation relative to planting success. 20,000

Nelson
- Operational trial of copper coated plugs Sx81212 $ 4,275
- Effect of apple storage facilities on field performance of planting stock. 4,275
- Production of height-age standards for plantations 7,125*
*estimate may be revised upwards. $15,675

Vancouver
- E.P.589. Survival and initial growth of morphologically defined classes of Douglas fir planting stock on high site lands subject to dense cover. 8,000
- Floughing as a method of site improvement in Northern Vancouver Island 2,450
- Corrective fertilization of Brittain River Douglas fir plantation. 15,200
- Fertilization with nitrogen to improve growth of stagnant Sitka spruce near Nahwitti Lake 22,000
$47,650

P. Rupert
- Planned SX-81212Q 2,880.
$5,300.

P. George
Bear Lake Backlog Conversion Study 1,760
Stewart Lake Site Conversion Project 6,600
E.P.786.06 Outplanting Nibex Spaced Stock E.P.859.03 Early growth of Interior Spruce Stock 2,190
r. George (Cont'd)

E.P.858.01 An investigation of the effect of plug stock size on white spruce plantation success. 2,080.
E.P.859.01 Suitable Interior Stock Types and Quality for Reforestation. 3,600

$16,230

Comments:

1. The E.P. projects approved are only those that were deemed to meet the requirement of an Sx trial, i.e. a non-complex short term investigation having a direct bearing on operational practice. Otherwise, Sx trial funds will not be used to support E.P. research.

2. Projects must be planned and implemented within the indicated budget. Silviculture Branch will not accept responsibility for budget overruns.

3. Project expenses may be j.v.'d to Silviculture Branch provided that detailed project plans have received prior approval.
MEMORANDUM

From: Cariboo
Date: February 11, 1982
File: 780-13-6-13
       780-13-6-14

To: Ministry of Forests
     1450 Government Street
     Victoria, B.C.
     V8W 3E7

Attention: Pete Robson
           Silviculture Branch

I have checked over your table which I am returning to you. The only mistakes which should be corrected are in the first assessment section and are as follows:

**First Assessment**

Sx 8001

<table>
<thead>
<tr>
<th>Sellers</th>
<th>Pl</th>
<th>PSB</th>
<th>22</th>
<th>62</th>
<th>15</th>
<th>1</th>
<th>99</th>
</tr>
</thead>
</table>

Sx 8005

| Sellers | Pl  | CSS  | 18   | 66   | 14   | 2   | 98 |

These corrections are not due to your calculations but rather due to a miscounting of the original data which I have now remedied. Therefore, the information I sent you on June 18, 1981 should be corrected to show these changes.

Your table now has the percent figures adding up to 100 which is correct since the missing category has been excluded entirely from the calculations.

[Signature]
Warren Mitchell
Research Technician
Cariboo Forest Region

Attachment

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RECEIVED
FEB 16 1982
SILVICULTURE BR.
VICTORIA, B.C.
PLANTING TRIAL SX 81104 K

PLANTATION: Kingfisher Creek, Vernon District (Enderby)

SPECIES: S SEEDLOT: 2509 STOCK CLASSES: 1½ + 1½ BR
2 + 0 BR

BIOGEOCLIMATIC ZONE: ESSF h (Engelmann Spruce-Subalpine Fir-Wet)

FIRST YEAR SURVIVAL & CONDITION (%):

<table>
<thead>
<tr>
<th></th>
<th>Planted</th>
<th>Survival</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½ + 1½</td>
<td>Fall '80</td>
<td>98.3</td>
<td>97.1</td>
<td>0.6</td>
<td>0.6</td>
<td>1.7</td>
</tr>
<tr>
<td>2 + 0</td>
<td>Fall '80</td>
<td>97.3</td>
<td>95.7</td>
<td>1.1</td>
<td>0.5</td>
<td>2.7</td>
</tr>
<tr>
<td>1½ + 1½</td>
<td>Spring '81</td>
<td>97.9</td>
<td>94.8</td>
<td>2.1</td>
<td>1.0</td>
<td>2.1</td>
</tr>
<tr>
<td>2 + 0</td>
<td>Spring '81</td>
<td>96.0</td>
<td>96.0</td>
<td>0.0</td>
<td>0.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

BASIS: 1½+1/2 Fall-177 trees, 2+0 Fall-185 trees,
1½+1/2 Spring-193 trees, 2+0 Spring-199 trees.

AVERAGE HEIGHT GROWTH (cm):

<table>
<thead>
<tr>
<th></th>
<th>Planting Ht.</th>
<th>1st Yr. Ht.</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1½+1/2</td>
<td>Fall '80</td>
<td>14.16</td>
<td>19.88</td>
</tr>
<tr>
<td>2 + 0</td>
<td>Fall '80</td>
<td>15.75</td>
<td>20.80</td>
</tr>
<tr>
<td>1½ +1/2</td>
<td>Spring '81</td>
<td>14.50</td>
<td>21.88</td>
</tr>
<tr>
<td>2 + 0</td>
<td>Spring '81</td>
<td>15.97</td>
<td>21.60</td>
</tr>
</tbody>
</table>

SITE-DESCRIPTION: Moist Sth. aspect, shallow to bedrock, elevation
1400 m., broadcast burn, with heavy cover of
annual vegetation.

WEATHER: Cool and moist during and after plantings.

STOCK CONDITION @ PLANTING: 1½+1/2 BR - good, abundant fibrous root system
2+0 BR - good, considerably less fibrous roots

DATES: Planting - 80.10.02 + 81.05.25 ASSESSMENT: 81.10.15

FACTORS OF PERFORMANCE: No adverse climatic conditions. Heavy annual
vegetation may have contributed to some
mortality.

STATUS: Continuing. Re-examine in 2nd Year (1982).
PLANTING TRIAL SX 81105 K

PLANTATION: 92T13-7, Shil Fire, Lillooet District

SPECIES: F i, Py  Seedlots: F - 148  STOCK CLASSES: F-2+0 BR Surrey
PL-2235  2+1 BR Surrey
Py-3362  1 1/2+1/2 BR Skim

BIOTYPE/CLIMATIC SUBZONE: IDFa-Very Dry Submontane Interior Douglas-fir

FIRST YEAR SURVIVAL & CONDITIONS (%):

<table>
<thead>
<tr>
<th>Survival</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
<th>Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plot #1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F 2+0 BR</td>
<td>71.2</td>
<td>57.0</td>
<td>6.6</td>
<td>7.6</td>
</tr>
<tr>
<td>2+1 BR</td>
<td>83.9</td>
<td>72.4</td>
<td>8.0</td>
<td>3.5</td>
</tr>
<tr>
<td>1 1/2+1/2 BR</td>
<td>71.6</td>
<td>59.9</td>
<td>4.6</td>
<td>7.1</td>
</tr>
<tr>
<td>Pl PSB 211</td>
<td>87.8</td>
<td>61.6</td>
<td>14.4</td>
<td>11.8</td>
</tr>
<tr>
<td>2+0 BR</td>
<td>51.8</td>
<td>42.8</td>
<td>4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>Py PSB 313</td>
<td>97.0</td>
<td>74.3</td>
<td>13.1</td>
<td>9.6</td>
</tr>
<tr>
<td>2+0 BR</td>
<td>87.4</td>
<td>73.4</td>
<td>9.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

BASIS: F 2+0, 2+1 - 198, F 1 1/2+1/2 - 197, Pl PSB 211-189, Pl 2+0-199, Py PSB 313-198, Py 2+0-199 trees.

Plot #2 F 2+0 BR 90.0 |
| 2+1 BR    | 88.6 | 84.8 | 3.8  | 0.0  | 11.4 |
| 1 1/2+1/2 BR | 85.0 | 70.0 | 11.4 | 3.6  | 15.0 |
| Pl PSB 211 | 92.3 | 80.8 | 7.1  | 4.4  | 7.7  |
| 2+0 BR    | 80.1 | 68.3 | 6.2  | 5.6  | 19.9 |
| Py PSB 313 | 97.8 | 89.6 | 3.8  | 4.4  | 2.2  |
| 2+0 BR    | 95.1 | 86.4 | 5.4  | 3.3  | 4.9  |

BASIS: F2+0-176, F2+1-185, F1 1/2+1/2-193, P1PSB211-182, Pl2+0-163, PyPSB313-182, Py 2+0-185 trees.

AVERAGE HEIGHT GROWTH (cm):

<table>
<thead>
<tr>
<th>Planting Ht.</th>
<th>1st Yr. Ht.</th>
<th>Increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plot #1 F 2+0</td>
<td>20.54</td>
<td>21.57</td>
</tr>
<tr>
<td>2+1</td>
<td>26.74</td>
<td>27.64</td>
</tr>
<tr>
<td>1 1/2+1/2</td>
<td>19.38</td>
<td>23.83</td>
</tr>
<tr>
<td>Pl PSB 211</td>
<td>8.92</td>
<td>16.05</td>
</tr>
<tr>
<td>2+0</td>
<td>19.82</td>
<td>20.85</td>
</tr>
<tr>
<td>Py PSB 313</td>
<td>11.03</td>
<td>16.44</td>
</tr>
<tr>
<td>2+0</td>
<td>16.60</td>
<td>20.51</td>
</tr>
</tbody>
</table>

......2/
- 2 -

<table>
<thead>
<tr>
<th>Plot #2</th>
<th>F 2+0</th>
<th>20.54</th>
<th>22.48</th>
<th>1.94</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2+1</td>
<td>26.74</td>
<td>29.68</td>
<td>2.94</td>
</tr>
<tr>
<td></td>
<td>1½+1/2</td>
<td>19.38</td>
<td>23.23</td>
<td>3.85</td>
</tr>
<tr>
<td>Pl PSB 211</td>
<td>8.92</td>
<td>17.78</td>
<td>8.86</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2+0</td>
<td>19.82</td>
<td>20.02</td>
<td>0.20</td>
</tr>
<tr>
<td>Py PSB 313</td>
<td>11.03</td>
<td>16.16</td>
<td>5.13</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2+0</td>
<td>16.60</td>
<td>20.06</td>
<td>3.46</td>
</tr>
</tbody>
</table>

**Planting Ht.** | **1st Yr. Ht.** | **Increment**

**DAMAGE TO LIVING TREES:**

<table>
<thead>
<tr>
<th>Nipped</th>
<th><strong>PLOT #1</strong></th>
<th>Dead Top</th>
<th><strong>Nipped</strong></th>
<th><strong>PLOT #2</strong></th>
<th>Dead Top</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. Trees</td>
<td>%</td>
<td>No. Trees</td>
<td>%</td>
<td>No. Trees</td>
<td>%</td>
</tr>
<tr>
<td>F 2+0</td>
<td>30</td>
<td>21.3</td>
<td>17</td>
<td>12.1</td>
<td>0</td>
</tr>
<tr>
<td>2+1</td>
<td>22</td>
<td>13.2</td>
<td>21</td>
<td>12.6</td>
<td>7</td>
</tr>
<tr>
<td>1½+1/2</td>
<td>35</td>
<td>24.8</td>
<td>18</td>
<td>12.8</td>
<td>19</td>
</tr>
<tr>
<td>Pl PSB 211</td>
<td>30</td>
<td>18.3</td>
<td>5</td>
<td>3.0</td>
<td>25</td>
</tr>
<tr>
<td>2+0</td>
<td>11</td>
<td>10.7</td>
<td>5</td>
<td>4.9</td>
<td>4</td>
</tr>
<tr>
<td>Py PSB 313</td>
<td>27</td>
<td>14.1</td>
<td>5</td>
<td>2.6</td>
<td>15</td>
</tr>
<tr>
<td>2+0</td>
<td>11</td>
<td>6.3</td>
<td>6</td>
<td>3.4</td>
<td>8</td>
</tr>
</tbody>
</table>

**SITE DESCRIPTION:** Plot #1-Steep, very dry, East aspect, elevation 950 m, 1979 wildfire, no vegetation, a few F snags, ≤ 15 cm d.b.h.

Plot #2 - Moderate, dry, Southeast aspect, elevation 1160 m, wildfire, little native vegetation, grass seeded, many F snags ≤ 15 cm d.b.h.

**WEATHER:** Cool and moist during and after planting

**STOCK CONDITION @ PLANTING:** F 2+0 BR - Good
2+1 BR - Good, ready to flush, showing root growth
1½+1/2 BR - variable stem length and root quantity, showing root growth.

Pl PSB 211 - Good
2+0 BR - long non-fibrous roots
Py PSB 313 - Good
2+0 BR - Good

**DATES:** Planting - 81.04.10 Assessments 81.06.03 & 81.09.24
FACTORS OF PERFORMANCE: Area heavily used by cattle, causing a lot of trampling and browsing, particularly on Plot #1.

STATUS: Continuing. Re-examine in 2nd Year (1982).