WORKING PLAN

SX 90111Q

EVALUATION and COMPARISON of FERTILIZATION at TIME of PLANTING with GROWMAX

RALPH WINTER
COLENE WOOD

Silviculture Branch

90-05-02
TITLE: Evaluation and Comparison of Fertilization at time of Planting with Growmax

INTRODUCTION: Studies by Burdett (1984), Thompson and Brockley have indicated benefits due to fertilization at time of planting. This trial will examine the benefits of adding slow release fertilizer at the time of planting, comparing the resultant survival and growth of outplanted seedlings.

"Gromax" is a trade name for the product distributed by Promac Forestry Research of Duncan, B.C. Fertilizer formulation is granular, with a specific amount for each seedling contained in a "teabag".

OBJECTIVES: 1. To compare:

   a) outplanted seedlings which have had fertilizer incorporated at the time of planting, with

   b) control seedlings

Comparisons will consist of measuring the seedlings' height growth, root collar calliper, survival and root development. Subjective comparisons of vegetative competition will also be recorded.

Liaison with Weyerhaueser Canada Ltd. is encouraged for collaboration of trial results.

STOCK: Se 2+0 PSB 313 Seedlot _____
        Pl 1+0 PSB 313 Seedlot _____

All stock was operationally grown and stored for the Vernon District, with no special handling or treatments applied prior to outplanting.

TREATMENTS: All treatments will be applied at the time of planting, as follows:
TREATMENT NO.  TREATMENT

1  Control. No other amendments.

2  1 package of Gromax ( ) package fertilizer placed in planting hole.

3  1 package of Gromax ( ) package fertilizer placed in planting hole.

LOCATION: Weyerhaeuser Canada Ltd., Lumby Division cut blocks, Openings ...

TRIAL DESIGN: Two location replications for all 3 treatments will be established. For each treatment 140 seedlings (4 replications of 35 seedlings) are required at each location. A total of 840 seedlings will be marked at one location. A total of 1680 seedlings will be planted and marked at the two locations.

Of the 35 seedlings in each row:

10 - measured for height and caliper and estimated for vegetation competition (#11-20)
25 - measured for survival (#1-25)
10 - available for root examination and destructive sampling (#26-35)

Trees will be spaced 2.0 m apart in rows with rows spaced 3.0 m apart. A total of 12 rows are required for each species, with 24 rows at each location.

METHOD:

Seedlings will be planted using a planting shovel. Gromax "tea-bags" will be placed in the planting hole near the centre portion of the plug.

Vegetation competition will be subjectively determined by estimating the percentage of occupancy by all potentially competing species of vegetation within a 30 cm radius plot surrounding the seedling (to the nearest 10%). A list of the species considered competition will be kept.

At each remeasurement, the survival and condition of each seedling will be recorded. Condition codes are:
(0) = Dead
dark green needles, better than
average growth, no damage/disease
(1) = Good-
average growth, no damage/disease
(2) = Average-
green needles, average growth
(3) = Poor-
chlorotic, may have dead leaders or
branch tips, less than average
growth or growth stressed

In addition, damaged seedlings will be coded:

(4) = Dead terminal
(5) = Frost damage to buds
(6) = Animal damage
(7) = Other damage/disease (comment as well)

**SCHEDULE:**

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<th>MEASUREMENT</th>
<th>S/90</th>
<th>F/90</th>
<th>F/91</th>
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<td>Height/Calliper</td>
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<td>Interim Report</td>
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**REPORTS:**

Establish Report (Fall 1990) - this report will include original stock measurements and summary; maps (1:100 000) showing location of test sites, (1:15 000) showing location of trial plots within treatment blocks and sketches showing the row order for stock treatment types, a completed FS 739, ecological evaluation and planting report, and representative photography. Trial locations will be documented on mylars and History Records. Map clearance will be requested.

**DISTRIBUTION:**

Research Officers - All Regions
Silviculture Officers - All Regions
Resource Officer Silviculture - Vernon District
Silviculture Branch Agrologist
Manager, Nursery and Seed Extension Services
MoF Library
Weyerhaueser Canada Ltd. - Rod Willis