

# Nursery Production Timelines: Tips for Successful Grower and Buyer Partnerships

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Pitkin Forest Nursery  
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**University of Idaho Pitkin Forest Nursery**

# University of Idaho Pitkin Forest Nursery

- **The Pitkin Nursery is the operational component of the Center for Forest Nursery & Seedling Research:**
  - **Conduct research to improve plant regeneration success and restoration**
  - **Produce top-quality nursery stock relevant to the region**
  - **Prepare graduates to be leaders in their fields**
  - **Be the source of information for those seeking help in native plant regeneration**
  - **Support students with scholarships and assistantships**
- **We grow over 400,000 seedlings per year**
- **We are a training facility for 30 students per semester and the Hoist Program**

# Teaching



# Research



# Container Sizes used in the Production of Seedlings

**Styro 5**  
**(160/90)**

**Styro 6**  
**(112/105)**

**Styro 8**  
**(91/130)**

**Styro 10**  
**77/170**

**Styro 20**  
**45/340**



# Western Larch



**Styro 5  
(160/90)**

2016/10/17



**Styro 10  
(77/170)**

2016/10/17



**Styro 20  
(45/340)**

# Why Buyer needs Quality Seedlings for Planting

- Harsh sites
- Proper planting techniques
- Herbicide problems - mixture
- Understory vegetation





# South Aspect – Artificial Regeneration had Poor Survival





**Research Site**



**Planting Crew**



## Planted Research Site

# Site 1 - Western White Pine – 91/130 – non copper

July 7, 2005



Site 1, Rep 1, Trt 4



Site 1, Rep 1, Trt 6



**Styro 20 (45-340)  
Douglas-fir,  
Planted May 2007,  
Measured Fall 2011**



**Styro 20 (45/340)  
Western Larch,  
Planted May 2007,  
Measured Fall 2011**



**Thistle Patch  
Sprayed with  
Herbicide**





**Western  
White Pine  
from Site  
with Thistle**



**Western White  
Pine showing  
Effects from  
Herbicide  
Application**



**Western  
White Pine  
Showing  
Effects of  
Herbicide  
Application**



## **Understory Vegetation:**

**Ponderosa Pine**

**Planted May 2000,**

**Styro 20 (45/340)**



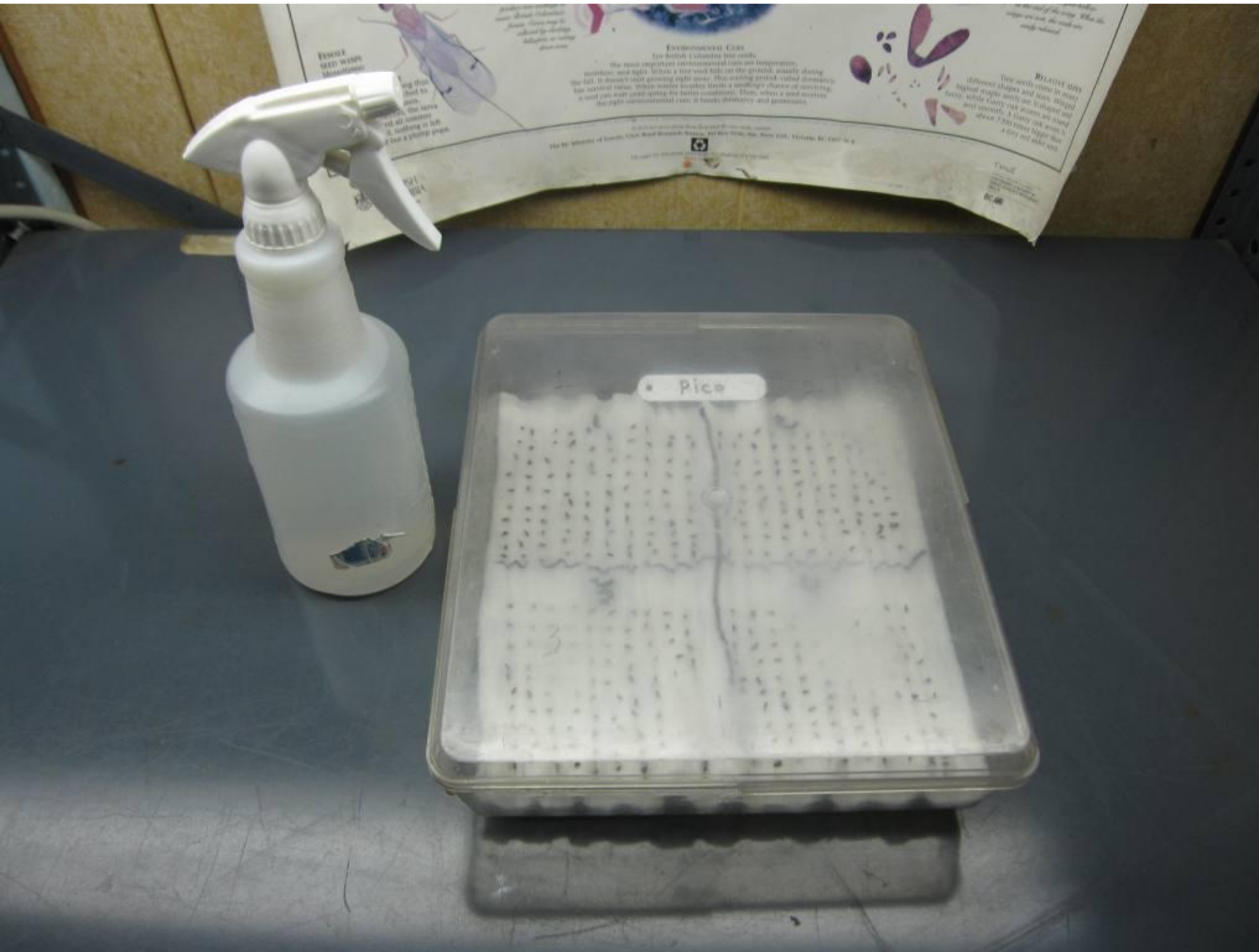
**Understory Vegetation:**  
**Western White Pine**  
**Planted May 2000,**  
**Styro 20 (45/340)**

A wide-angle photograph of a large, modern greenhouse. The structure features a curved, translucent roof supported by a metal frame. Inside, rows of young plants are growing in trays, organized into long aisles. The lighting is bright and even, highlighting the greenery and the clean, industrial environment of the facility.

**Nursery production timelines: Tips for successful grower and buyer partnerships**

# Seed Supplied by Buyer

- **Germination test may not be accurate for nursery greenhouse conditions:**
  - Germination test may be many years old.
- **Timetable for stratifying seed supplied by buyer**
- **Seed is full of pitch:**
  - Seed needs to be cleaned before use in Old Mill Seeder Machine
  - Pitch weighs something
  - Amount of seed supplied by client is less than needed for sowing



**100 Seeds  
per Quadrant**



## Sowing Rates

Seeds per Cell

Germination %

1

90-100

2

85-89

3

75-84

4

65-74

5

55-64

6

45-54

7

40-44

**Germination Test  
on Conifer Seed**

# Timeline for Germination Test

<u>Species</u>		<u>Soaking/Rinsing (days)</u>	<u>Stratification (days)</u>	<u>Germination Test (days)</u>
PSME	Douglas-fir	3	28	21
PIEN	Engelmann Spruce	3	28	21
PICO	Lodgepole Pine	3	28	21
LAOC	Western Larch	3	28	21
THPL	Western Red Cedar	3	28	21
PIPO	Ponderosa Pine	3	50	21

# Timeline for Crop Seed Treatments

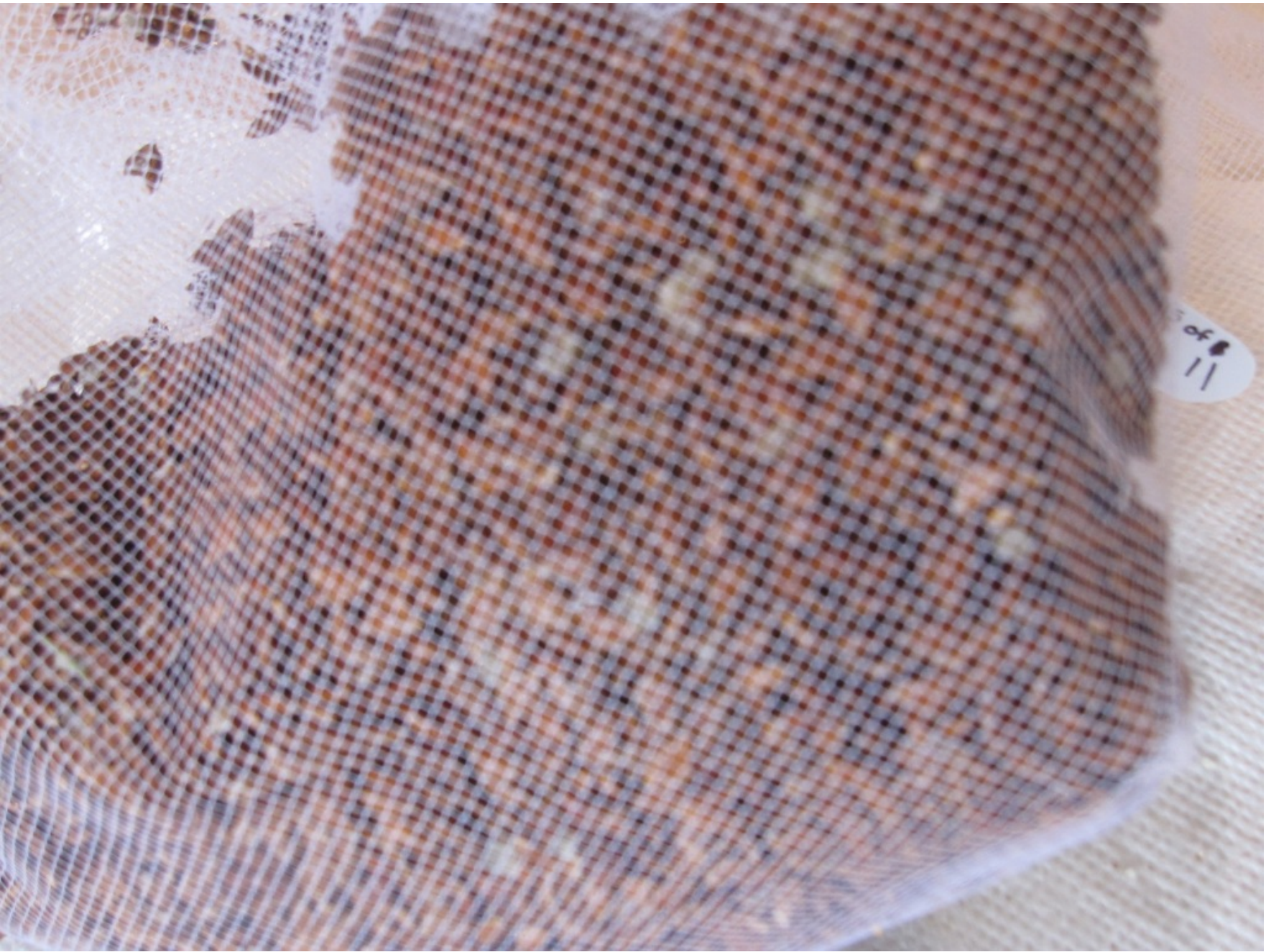
<u>Species</u>		<u>Soaking/Rinsing (days)</u>	<u>Stratification (days)</u>
PSME	Douglas-fir	3	28
PIEN	Engelmann Spruce	3	28
PICO	Lodgepole Pine	3	28
LAOC	Western Larch	3	28
THPL	Western Red Cedar	3	28
PIPO	Ponderosa Pine	3	50

# Timeline to receive Seed from Buyer

<u>Species</u>		<u>Sow Date March 1 or mid-April</u>
PSME	Douglas-fir	8-Dec
PIEN	Engelmann Spruce	8-Dec
PICO	Lodgepole Pine	8-Dec
LAOC	Western Larch	23-Jan
THPL	Western Red Cedar	26-Jan
PIPO	Ponderosa Pine	25-Oct



**Pitch needs to be Removed before Sowing. The Pitch Sticks to the Tubes of the Old Mill Seeder**



**Seed in Cold Stratification, Notice Pitch in Seed**

# Contract between Buyer and Grower

- **Buyer needs to provide Grower with the following:**
  - **Number of total seedlings requested with delivery date**
  - **Number of seedlings per box and the correct type of box**

# Pitkin Nursery Specifications for Buyer

- The nursery sets minimum (15 cm) and maximum height (30 cm), seedling crop tops look even to the eye
- The nursery sets minimum stem caliper (2.7 mm)
- The nursery sets number of seedlings per bundle
- Seedlings properly packaged
- Seedlings without actively growing root tips or poor roots
- Seedlings having at least 2/3 of a plug with soil media attached to roots
- Seedlings without stem or top damage



# **Pitkin Nursery Specifications for Buyer**

- **Seedling plug does not contain multiple seedlings**
- **Seedlings without forked tops**
- **Notify buyer about any extra seedlings from 10% oversow**
- **Seedlings without disease**
- **Notify buyer of any significant changes in seedling inventory or crop condition**
- **If needed, seedlings need to be defrosted for planting in the field**
- **Price and payment are handled by the Director of the Nursery**



# Seedlings Stored in Freezer for UI Experimental Forest



**Pitkin Agrees to Provide 88,450 Seedlings which Comply with the Specifications of this Agreement. Delivery Date is 4/1/17**

**PRT**  
Trusted to grow™



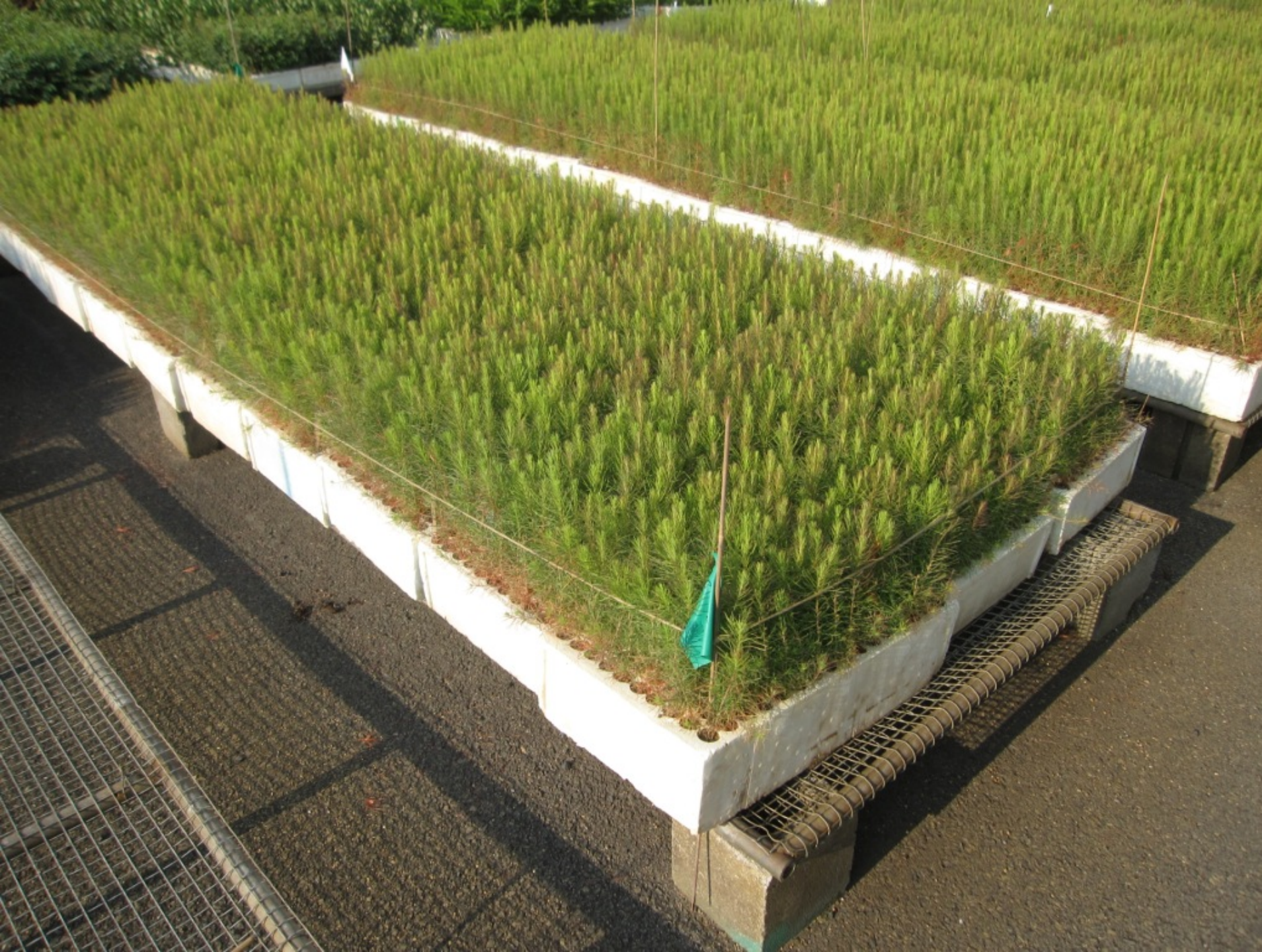
PRT Harrow  
Potlatch  
220 DF  
Lift Date : Dec 01, 15 Pesticide Free

16

**Pitkin shall  
Package all  
Seedlings for  
Shipment in  
Boxes at [220]  
Seedlings per  
Box**



**Seedling Height will be Measured from the Top of the Growing Container to the Tip of the Seedling Bud and will be Equal to or Greater than 15 cm and Less than or Equal to 30 cm**



**Seedling  
Heights in  
Western  
Larch  
Crop are  
Even**



**Uniform  
Bud Set in  
Western  
Larch**



**Stem Caliper will be Measured from the Top of the Growing Container and be Equal to or Greater than 2.7 mm**





**Stem Caliper will be Measured from the Top of the Growing Container and be Equal to or Greater than 2.7 mm**



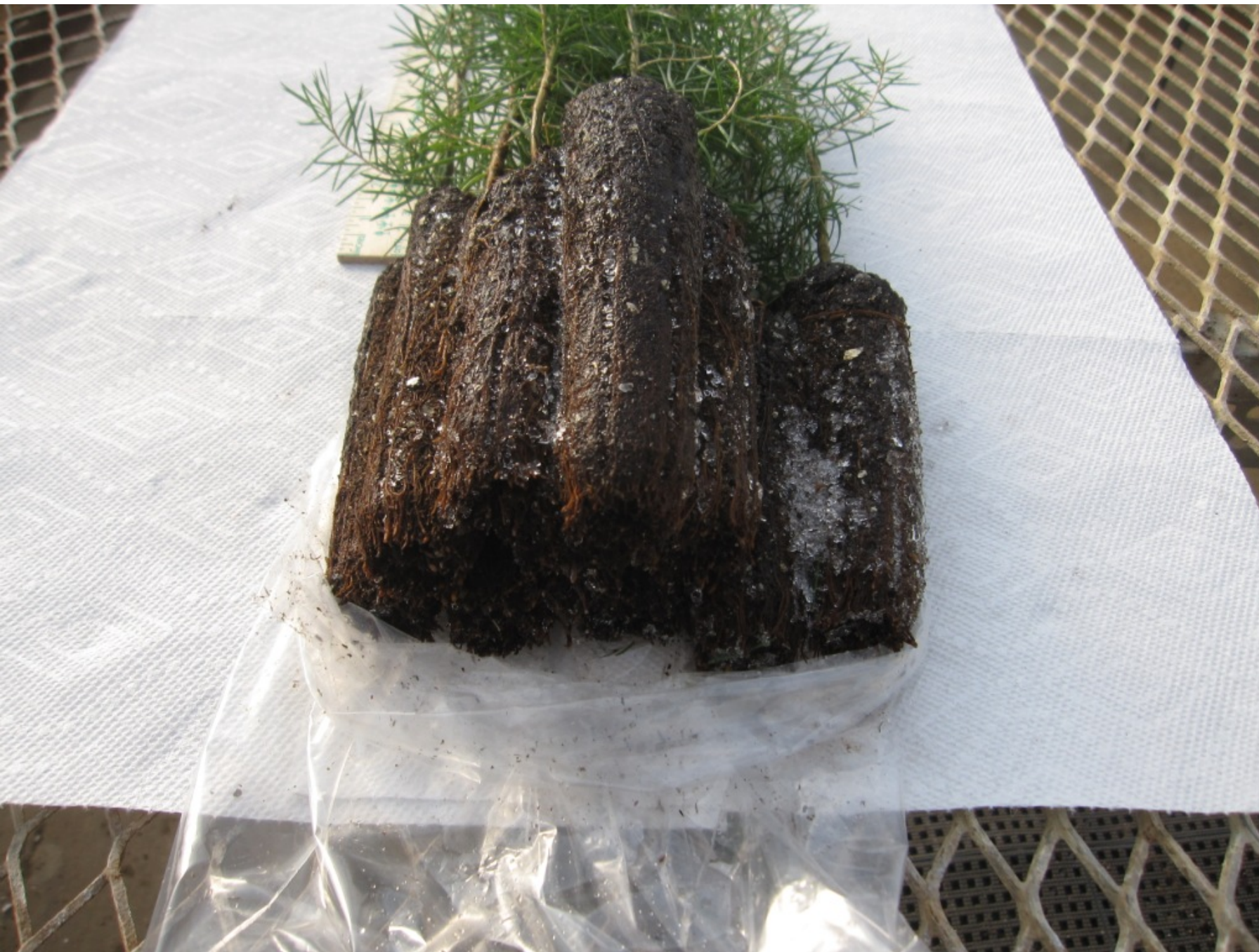
**Pitkin shall  
Package all  
Seedlings for  
Shipment  
Wrapped in  
Poly Shipping  
Bags in  
Bundles of [10]**



**Within 7 days of Delivery of each Lot of Seedlings, Client will Determine the Percentage of Seedlings, if any, which do not meet Specifications via the Box Audit**



**Roots  
should be  
Dormant with  
no Actively  
Growing  
Root Tips**



**Bottom of  
Root Plug  
should not  
have Actively  
Growing  
Root Tips.**

# Douglas-fir Seedlings Growing Timeline

**Germination Test**  
**December**

**Sowing**  
**March**


**Fertilized**  
**Early April**

**Water Flush/Outside**  
**Late May**

**Finisher**  
**Late July**

**Packing**  
**Dec or Jan**

# Questions?



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