



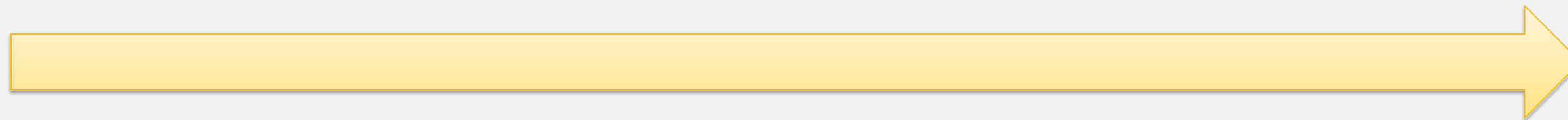
University of Idaho
Extension

GROWING YOUR OWN SEEDLINGS

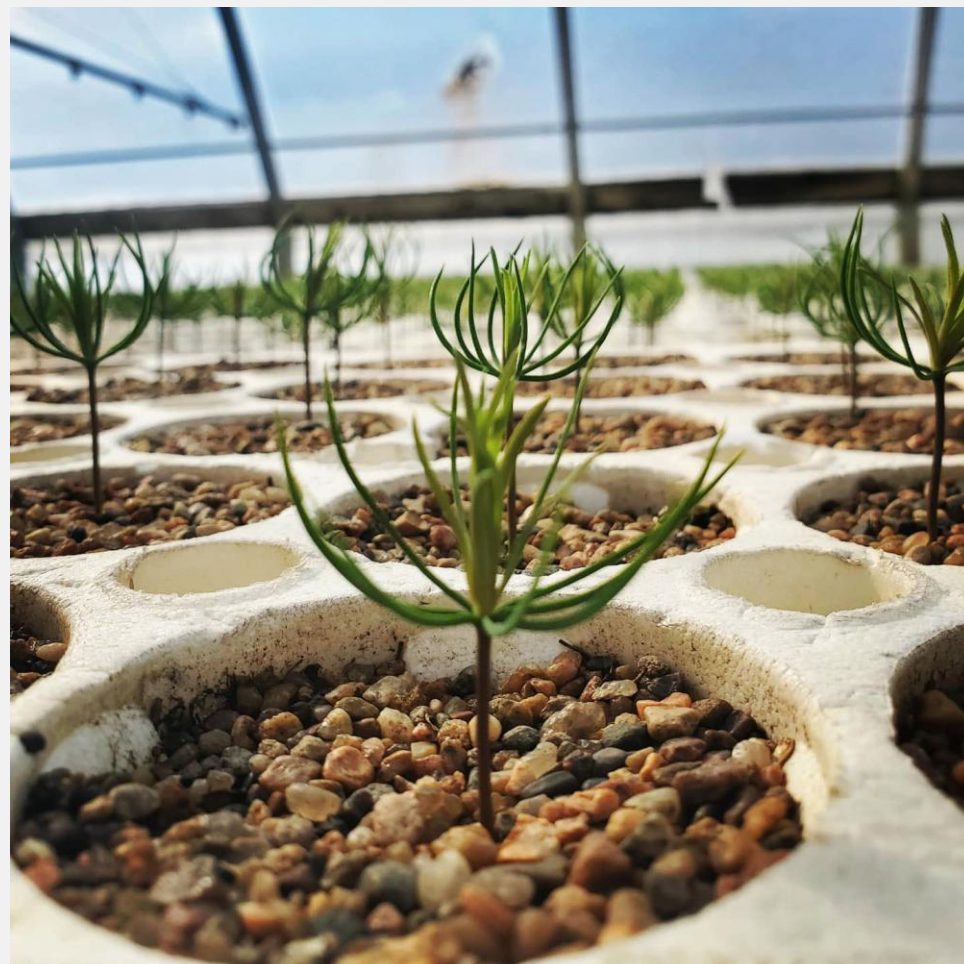
LAUREN KING

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EXTENSION EDUCATOR

FROM SEED TO SEEDLING



Hand Sowing, Photo Credit: Lauren King



Young Seedling Photo Credit: Lauren King

Seedling Photo Credit: Lauren King



3 year Out-Plant, Credit: Lauren King

WHY START YOUR OWN PLANTS FROM SEED?

- Choose the seed source
- Jump start on growth
- Time sow dates with planting
- Can be cheaper than buying commercially
- Quality control
- Site specific (rare or local ecotypes)

THE PROCESS

1. Finding Seed
2. Seed Stratification & Prep
3. Container Prep
4. Sowing
5. Transplanting & Thinning
6. Fertilization & Irrigation
7. Height and Diameter Goals
8. Dormancy
9. Outplanting

Things to Keep in Mind:

- Species
- Location
- Seedling Quality
- Pests & Diseases
- Resale?



THINGS TO KEEP IN MIND

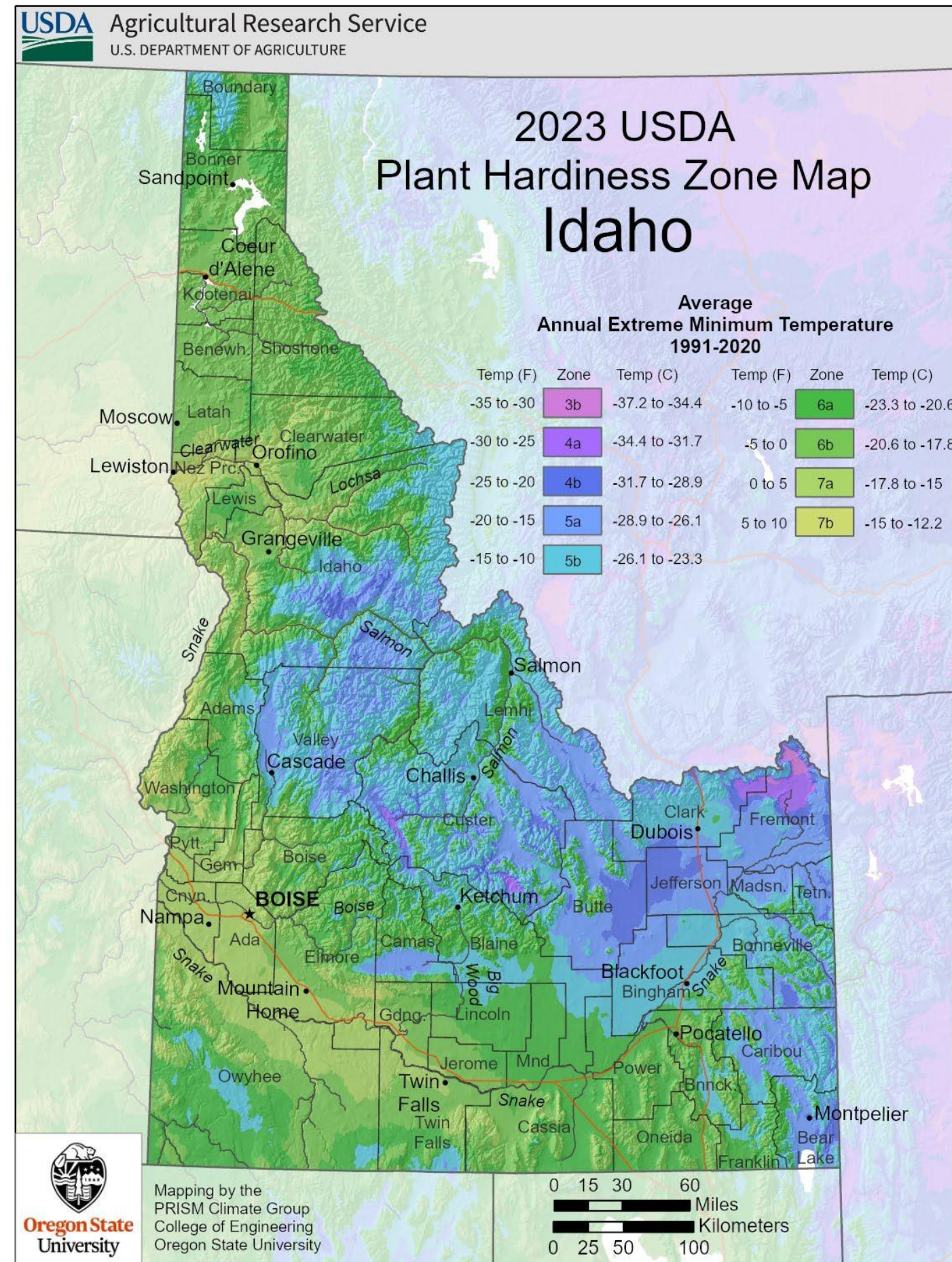
SPECIES

SCIENTIFIC VS COMMON NAME

Alaskan Larch	American Larch	Western Larch	Eastern Larch	Tamarack
Larix laricina	Larix laricina	Larix occidentalis	Larix laricina	Larix laricina

LOCATION

- Physical location
- USDA Cold Hardiness Zone
- Frost Pockets
- Water Availability
- Sun Exposure



Frosted Western Larch, Photo Credit: Lauren King

SEEDLING QUALITY

- Seed (genetics)
- Grower practices
- Handling & storage
- Environmental conditions

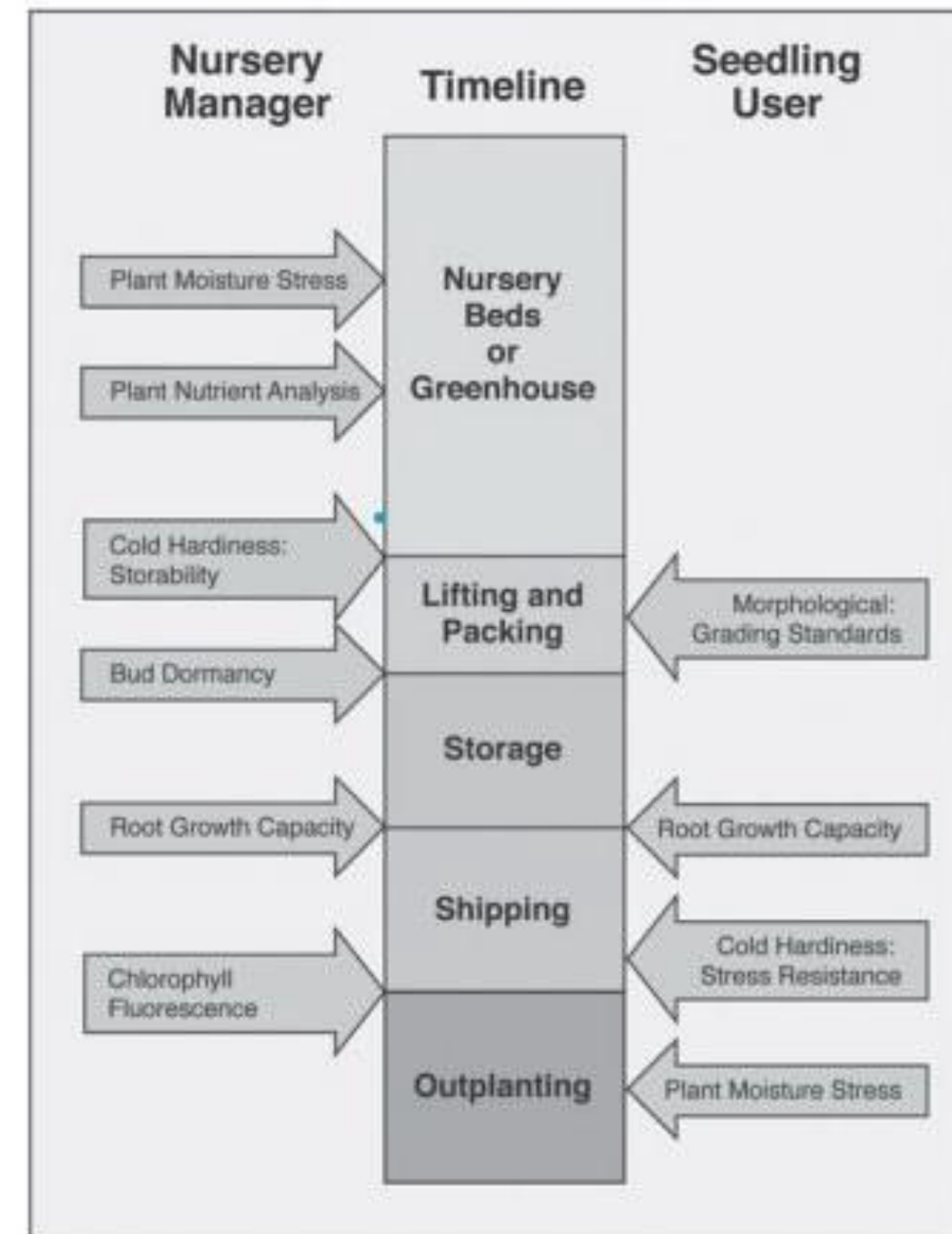
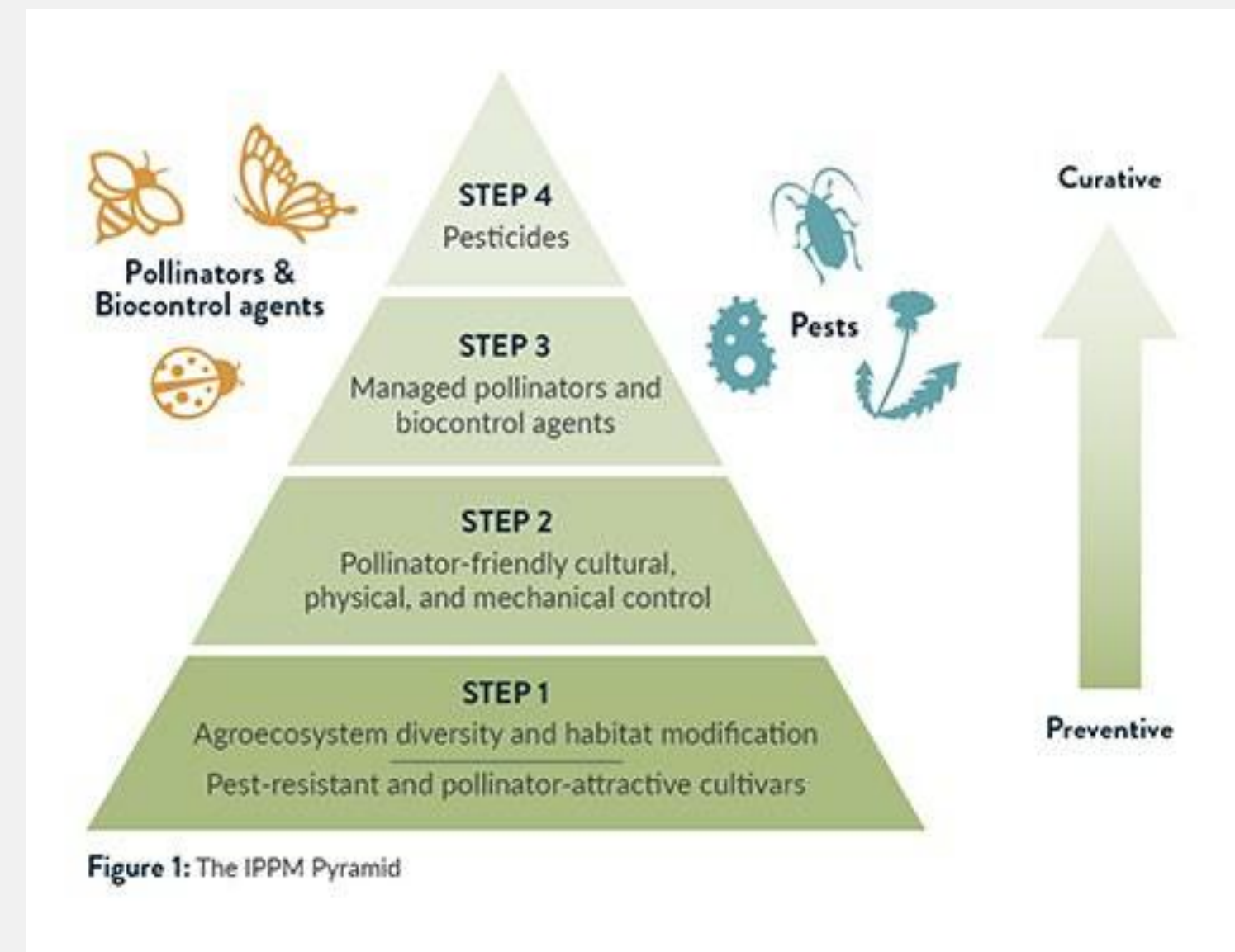


Figure 2. Seedling quality tests can be done by both nursery managers during the production cycle or by nurseries and seedling users during harvesting, shipping, and outplanting (from Landis and others 2010).

PESTS AND DISEASES

- Insects, Fungi, Weeds, Bacteria, Animals
- Common insects to watch out for:
 - Lygus bug, aphids, larch casebearer, root mealybugs, black vine weevil
- Common fungus:
 - Root rot, damping off, cankers, mold, rusts, blights, casts, leaf spots
- Pest Management Plan:
 - Scale of operation will influence treatments
 - **Follow all laws and regulations when applying any product**



IPPM Pyramid. Adapted from Egat et al. (2020)
<https://extension.usu.edu/>

RESALE?

- If producing seedlings as a business / for resale: ISDA Nursery License
 - \$100 annual fee
 - <https://licensing.isda.idaho.gov/>



Nursery Online Application Registration

NEW Online Nursery License
Application Registration

 [Nursery Licensing Procedures](#)

 [Nursery Information and Frequently
Asked Questions](#)

[Learn More](#)



LET'S GET GROWING



SEED

COLLECTION

SEED COLLECTION FOR STATE NURSERIES

SPECIES	SEED CROP FREQUENCY	TIME TO SCOUT	LOOK FOR DURING SCOUTING	TIME OF COLLECTION	SEED SHAPE AND APPEARANCE	LOOK FOR AT COLLECTION	COLLECT METHOD	CLEANING	STORAGE	COMMENTS
ASH, BLACK	1-3 YEARS	JULY-SEPT	GREEN SAMARA CLUSTERS	OCT-JAN	FLAT-EXCLAMATION POINT-TWISTED	BROWN TO TAN SAMARA CLUSTERS BEST IF COLLECTED JUST AFTER LEAF FALL	H,T/S,P	SEPARATE SEEDS FROM STEMS	DRY TO 30% - STORE IN MOISTURE PROOF CONTAINER AT 20F	HANGS ON IN BUNCHES WELL INTO DECEMBER
ASH, WHITE	3-5 YEARS	JULY-SEPT	GREEN TO YELLOW SAMARA CLUSTERS	LATE SEPT-LATE NOV	FLAT WING, ROUND RICE SHAPED SEED-EXCLAMATION POINT-NO NOTCH ON WING	BROWN TO TAN SAMARA CLUSTERS-CAN HAVE A PURPLE CAST	H,T/S,P	SEPARATE SEEDS FROM STEMS-CAN REMOVE WINGS WITH SOME EQUIPMENT	DRY TO 7% - STORE IN MOISTURE PROOF CONTAINER AT 20F	DIFFICULT TO TELL FROM GREEN ASH - PURPLE LEAVES ONLY SURE WAY
ASH, GREEN	1 YEAR	JULY-SEPT	GREEN TO YELLOW SAMARA CLUSTERS	OCT-JAN	FLAT WING-RICE SHAPED SEED-EXCLAMATION POINT-SOMETIMES NOTCHED WING	BROWN TO TAN SAMARA CLUSTERS	H,T/S,P	SEPARATE SEEDS FROM STEMS-CAN REMOVE WINGS WITH SOME EQUIPMENT	DRY TO 7% - STORE IN MOISTURE PROOF CONTAINER AT 20F	CAN BE LOCATED NEAR RIVERS AND IN WET AREAS-CAN HAVE VERY POOR TO GOOD TIMBER QUALITY
ASPEN	1 YEAR 4-5 YEARS	MAY/JUNE	CATKINS/COTTON	LATE MAY TO EARLY JUNE	PEPPER SIZE SEED IN A WAD OF LOOSE COTTON	WINDROWS OF COTTON WITH PARTIALLY OPEN CATKINS	RAKE,BLOW/ VAC,PICK	REMOVE COTTON FROM SEED ON A VIBRATING SCREEN	DRY TO 5%-STORE IN MOISTURE PROOF CONTAINER AT 41F OR LOWER	TREMBLING AND BIG TOOTH ASPEN PRODUCE SEED AT DIFFERENT TIMES - moisture cements cotton

Wisconsin DNR: Seed Collection for State Nurseries

<https://dnr.wisconsin.gov/sites/default/files/topic/TreePlanting/SeedCollectionTraining.pdf>

SEED PURCHASING

- Not all seed is created equal
- Amazon/Etsy
- Local/Regional Seed Collectors
- National Seed Collectors/Distributors

Pinus ponderosa subsp. ponderosa
 NORTH PLATEAU PONDEROSA PINE, PONDEROSA PINE, WESTERN YELLOW PINE

BUYING OPTIONS
 ● 36.06 lb **MT**
 3500' Elevation

In Stock: 36.056 lb (Total:36.056lb)
 3500' Elevation

Estimate 20 seeds (+/- 1)

1 packet

1pkt \$7.95

ADD TO CART

All items have bulk rates priced in

DETAILS

Germination:	91%	Collected in:	Montana
Germination test:	Cut (Full Seed)		Lincoln County
Purity:	99%	Crop year:	2024
Seeds per lb:	8,910	Min. hardiness zone:	4
Quantity:	36.06 lb	Item ID:	1835696

CHARACTERISTICS

www.sheffields.com

GROWING INFO

\$4.99

Ponderosa Pine seeds
 ClearCreekPetalStore

- Includes [Etsy Purchase Protection](#)
- Ships from Idaho
- Arrives soon! Get it by [Mar 27-Apr 3](#) if you order today
- Returns & exchanges accepted

Quantity: 1

4 payments at 0% interest with [Klarna](#) [Check purchase power](#)

Add to cart

Item details

Highlights

- Handpicked by [ClearCreekPetalStore](#)
- Ships from Idaho! Shorter shipping distances are kinder to the planet

Naturally grown and harvested Ponderosa Pine tree seeds. We are privileged to live among hundreds of beautiful Ponderosa Pine trees in the central Idaho mountains. Each year we gather seeds and cones to share with you. 10 seeds per envelope.

[Report this item to Etsy](#)

www.etsy.com

SEED

STRATIFICATION & PREP

- Research propagation protocols
 - Rngr.net
- **Stratification**: exposing seed to a set temperature for a set time to break dormancy
- **Scarification**: softening the seed coat, using water, acid or mechanical sandpaper or nicking the seed coat with a knife
- **Imbibe**: Soaking seed to rehydrate



Hanging seed on wire rack, Photo Credit: Lori Mackey

Pre-Planting Treatments: Seeds are placed in cold moist stratification for 120 days. Germination occurs at 21C.

PROPAGATION

NO SEED? NO PROBLEM! (SOMETIMES)

- Willows (*Salix* spp.)
 - Harvest material while dormant
 - Store in a cool place until spring
 - Soak material to increase root formation
 - Place in soil, keep moist



Willow Cuttings

<https://pubs.extension.wsu.edu/product/propagating-deciduous-and-evergreen-shrubs-trees-vines-with-stem-cuttings/>

CONTAINERS

SELECTION

POT SIZES

The various pot sizes our plants are grown in



5 Gallon

10.5 - 12" dia



3 Gallon

9.5 - 10.5" dia



2 Gallon

8.5 - 9" dia



1 Gallon

6 - 7.5" dia



2.5 Qt

5.5 - 6" dia



Quart

4.33 - 5"



Pint

3.25 - 4"



Plastic trays
<https://stuewe.com/>



Styrofoam trays
<https://stuewe.com/>

CONTAINERS

PREPARATION

- Wash & Sterilize
- Fill with soil / media



SOWING

- Once seed has been stratified, time to sow!
- Seed sits on top of soil + top dressing
- Rather than planting seed like in a vegetable garden



Forestry Grit, a top dressing
www.targetproducts.com

Hand sowing seed into Styroblocks , Photo Credit: Lauren King

THINNING AND TRANSPLANTING

- Thinning
 - Reducing number of seedlings/container
 - Manually removing
- If transplanting:
 - Transferring a germinate from another container or germination test to fill a void
 - Transplant same age as original crop

FERTILIZATION AND IRRIGATION

- Weather will dictate how often seedlings need watered
 - Hot = frequent water
 - Overcast/cooler = less frequent
- Water soluble fertilizer
 - Mixed in with water, injection system
 - Common example: miracle grow
- Granular fertilizer
 - Slow release
 - Osmocote



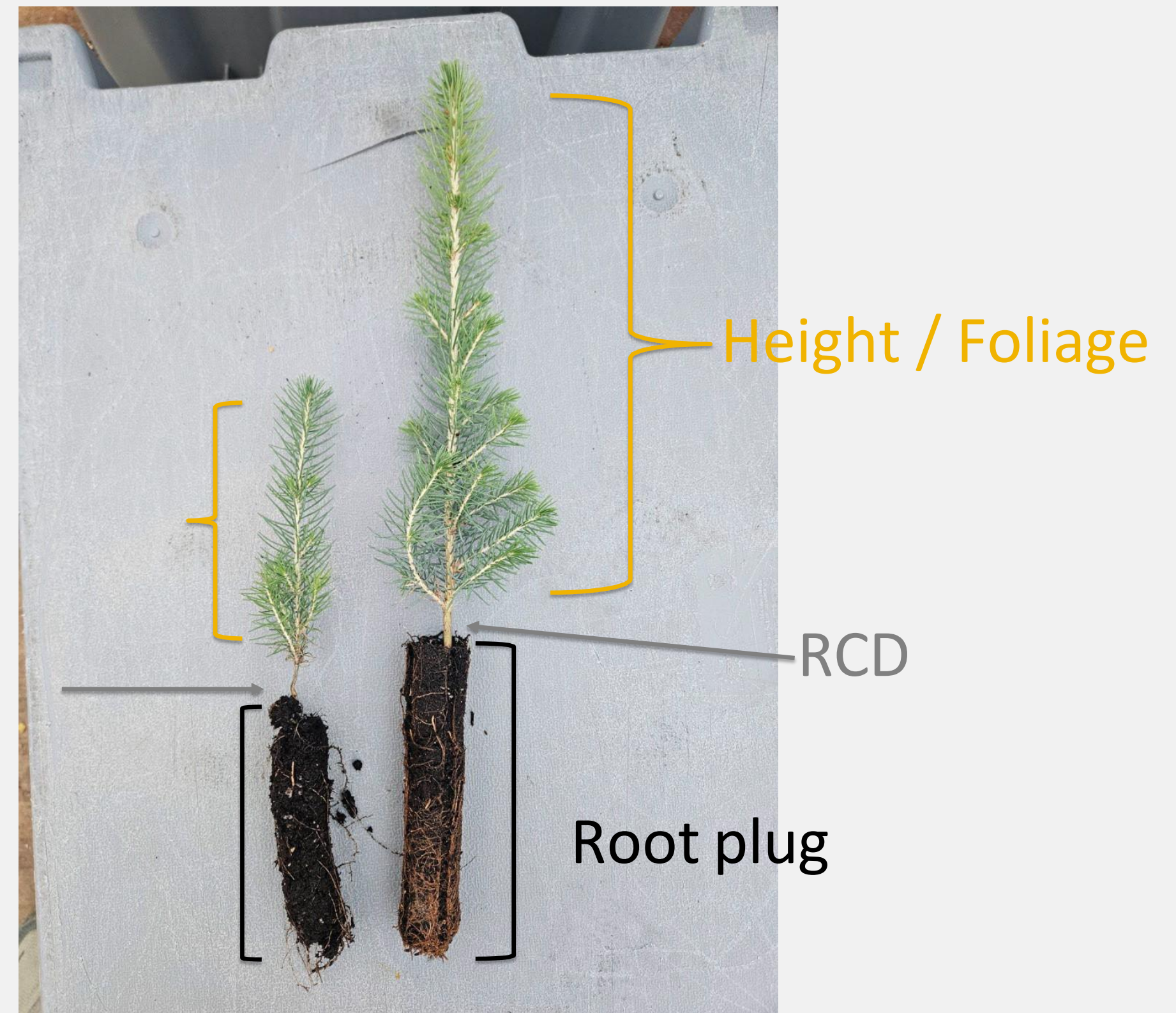
<https://scottsmiraclegro.com/>



<https://homedepot.com/>

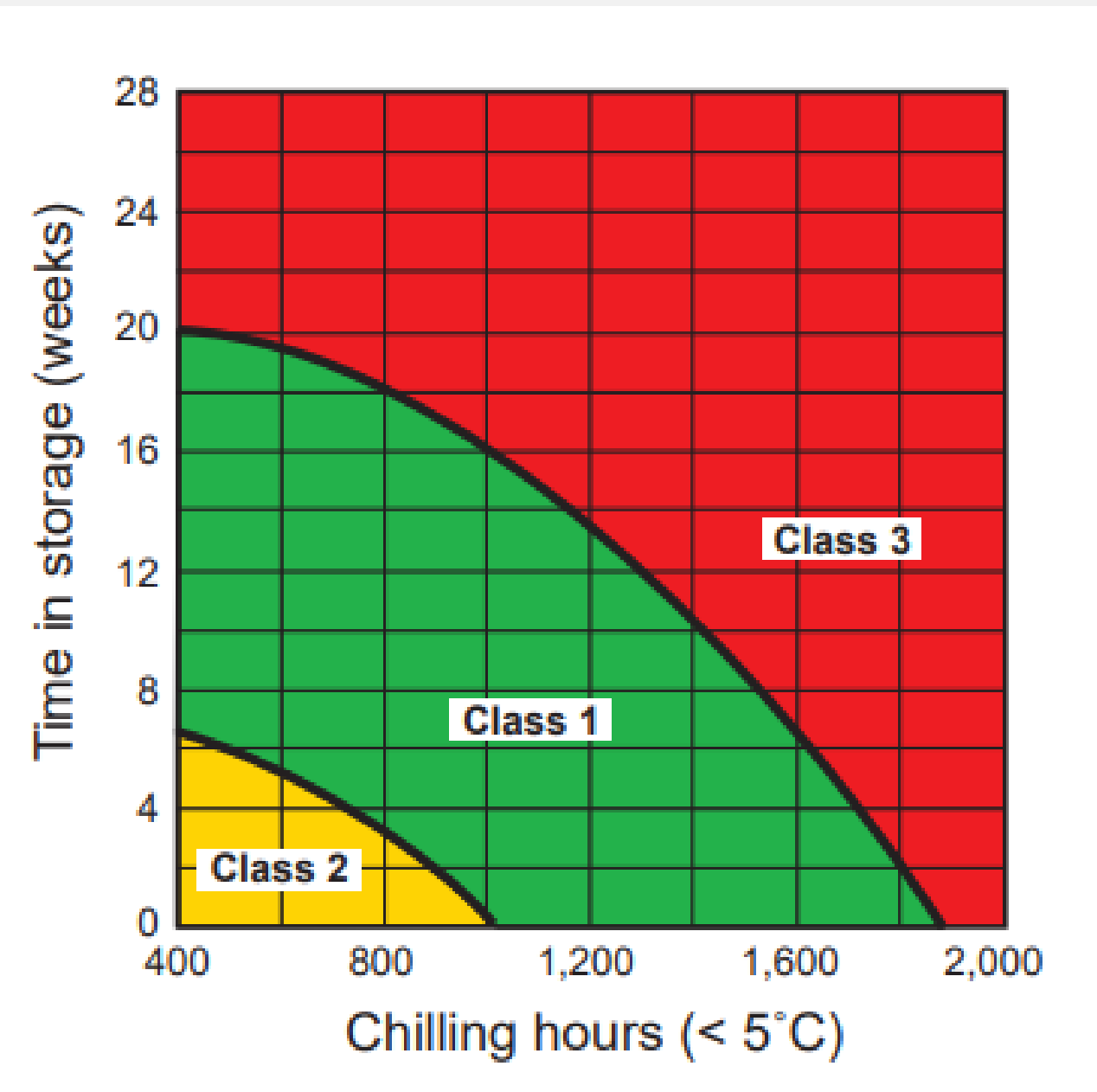
HEIGHT AND DIAMETER REQUIREMENTS

- Vary based on your goals
- 1:1 ratio (Roots : Shoot)



DORMANCY

- Natural cycle
- Cold storage can prolong dormancy until ideal planting time
- Pay attention to weather if not overwintering in a cooler/freezer



The Container Tree Nursery Manual, Vol. 7 Chap. 4

OUT-PLANTING

- Fall or Spring
 - Varies on site and personal preference
- Watch the weather!
 - Soil temp 40 degrees
 - No threats of frost for 2 weeks
- Transportation to Site
 - Storage of seedlings
 - Planting materials



Out-planting Site, Photo Credit: Lauren King

MORE RESOURCES

- Reforestation, Nursery and Genetic Resources
 - RNGR.net
 - Native Plant Propagation Protocols
 - The Container Tree Nursery Manual

RNGR REFORESTATION, NURSERIES,
& GENETIC RESOURCES





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QUESTIONS?

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