

Reforestation



Certification of Tree Seed

What certification is all about

The objective of this circular is to introduce forest land managers to the State of Oregon's Forest Tree Seed Certification standards. The purpose of certification is to maintain and make available to the public forest tree seed properly identified as to species and origin.

Forest tree seed certified in Oregon and Washington has been harvested, extracted, stored, and sold in compliance with the official certification standards of the legally appointed state certification agencies.

The procedures followed in producing each class of certified seed have been carefully developed to assure that the seed is true to geographic origin and elevation.

The standards established to distinguish between certification classes are used to provide reproductive material that will accommodate all types of forest owners (Federal, state, industry, and small private) and to set basic requirements for tree improvement programs.

Certifying tree seed is important to reforestation because it can enhance the potential for outplanting success by providing information about tree location and parentage.

Tree location denotes the environmental conditions to which seedlings are best adapted, thereby informing the forest land managers of suitable planting locations where seedlings will survive and grow best.

Tree parentage provides a handle for selecting parents with growth and developmental characteristics that will yield a more desirable tree.

In the context of the certifiable tree seed classes, we (1) recommend Select-B or Source Identified-A, (2) accept Source Identified-B, and (3) discourage the use of Audit-class seedlings.

Classes of certification

There are six classes, listed here in order of preference (#1 is the worst case, #6 is the best). These numbers are repeated at the left of table 1, which summarizes the data given here. (State of Oregon forestry regulations customarily list these classes in four groups: Audit, Source Identified, Select, and Tested.)

Audit is described first because it is the situation that forest land managers most often encounter.

Italicized terms are defined in the glossary.

1. Audit

(Brown or white label signifies "Audit")

Applicant's records of procurement, processing, storage, and distribution state that *reproductive material* was collected from within stated *seed zone* and 500-foot *elevation increments*, so that the resulting nursery stock is Audit Class or better.

- Minimum classification level.

- *Collector* is not required to register with the *buyer* before collection but must do so after sale.
- **Regulation:** Only records of *producer* are *audited*. No field *inspection* of collectors by *certifying agent* is required.

2. Source Identified—Subclass B (SIB)

(Yellow label; B signifies "Procedural supervision") Applicant and certifying agent know reproductive material was identified by the *collector* as collected from within a 500-foot elevation increment of a designated seed zone (or a portion of it) and that the resulting nursery stock will be SIB or better.

- Collector must register with the buyer before collecting SIB reproductive material.
- **Regulation:** Certifying agency inspectors shall conduct field inspections, plant/warehouse inspections, and audit.

3. Source Identified—Subclass A (SIA)

(Yellow label; A signifies "Personal supervision") Applicant and certifying agent know, based on verification of the collector by the applicant's representative, the seed zone (or a portion of it) and 500-foot elevation increment from which the collector obtained reproduc-

Table 1. Summary of seed certification classes in order of preference (#1 is the worst case, #6 is the best)

Class	Label color	Class criteria
1. Audit ^a	Brown or white	Minimum qualifying level. Collector is not required to register with the buyer until after collection. No field inspection of collectors by certification agency is performed; only the producers' records are audited.
2. Source Identified-B ^a	Yellow	Collector registers with the applicant/buyer before collection and is responsible for identifying origin of reproductive material. Certification agency conducts field, plant, and warehouse inspections, and a complete audit for Source Identified, Select, and Tested classes.
3. Source Identified-A	Yellow	The applicant/buyer must submit a written collection plan to the certifying agency before collection and is responsible for providing a representative to confirm the origin of reproductive material gathered by the collector. Agency inspectors verify origin of the reproductive material.
4. Select-B	Green	Female reproductive material is collected from trees selected for specific characteristics. No progeny testing is conducted. Certification agency examines trees and their reproductive material for Select and Tested classes.
5. Select-A ^b	Green	Reproductive material of both genders is collected from trees selected for specific characteristics and is examined by agency inspectors. No progeny testing is conducted.
6. Tested ^b	Blue	Maximum level of certification. Progeny tests are conducted, and test data are provided for reproductive material that was selected on the basis of specific desired characteristics.

^a Woodland owners normally receive "Audit" or "SIB" seedlings from nurseries; consequently, no information regarding general site characteristics or quality of parent trees and their reproductive material is available.

^b These seed classes arise from research that focuses on development of more elaborate tree improvement programs of the future.

tive material and that nursery stock will be SIA or better.

- Collector must register with the buyer before collecting SIA reproductive material.
- Collector must supply daily collection itinerary so that field inspectors can verify source of reproductive material.
- Regulation: Certifying agency inspectors shall conduct field inspections, plant/warehouse inspections, and audit.

4. Selected—Subclass B

(Green label; B signifies female parent known)

Reproductive material originated from trees selected for specific *characters* as described in *Certificate of Genetic Identity* but has not been evaluated by *progeny test*. All requirements for Source Identified Class (2 and 3, above) are met.

- Reproductive material from the female parent is selected, known, and of record.
- Regulation: Certifying agency inspectors shall examine trees and their reproductive material and shall conduct field inspections, plant/warehouse inspections, and audit of all pertinent records.

5. Selected—Subclass A

(Green label; A signifies both male and female parents known)

Reproductive material originated from trees selected for specific characters as described in *Certificate of Genetic Identity* but has not been evaluated by progeny test. All requirements for Source Identified Class (2 and 3, above) are met.

- Both parents contributing to collected seed have been selected and are of record.
- Donor parents from which cuttings, scions, etc., have been collected are selected and are of record.
- Regulation: Certifying agency inspectors shall examine trees and their reproductive material and shall conduct field inspections, plant/warehouse inspections, and audit of all pertinent records.

6. Tested

(Blue label signifies genetic test)

Parent trees are selected for specific characters that are evaluated by progeny tests (or other appropriate tests) under conditions described in the *Certificate of Genetic Identity*. All requirements for Selected Class (4 and 5, above) are met.

- Maximum classification level.

- Production and processing are conducted so as to insure *genetic identity* of seedling stock originating from tested reproductive material.
- Regulation: As indicated above for Select Class (4 and 5).

The Oregon Tree Seed Zone Map: How to interpret it

An official Oregon Tree Seed Zone Map (figure 1) is recognized as an aid in identifying the origins of tree seed. Zone boundaries separate regions that differ environmentally. Within each seed zone, 500-foot elevation steps are also designated.

The basic zone code has three digits:

First digit identifies broad geographic regions: 0 Coastal—Pacific Ocean to Coast Range summit; 2-5 Interior—Coast Range summit to Cascade Range summit; 6-9 East side—Cascade Range summit to eastern boundary.

Second digit identifies arbitrarily assigned zones within geographic regions that are classified according to similar environments.



Figure 1. Oregon State Tree Seed Zone Map, adopted April 5, 1966, by the Western Forest Seed Council, Portland, Oregon. Seed zone data have been added by the U.S. Forest Service.

Third digit identifies local regions as subzones that serve to better orient the collector geographically and to make seed collecting easier.

Elevation. These two added digits identify 500-foot steps that are used together with the seed zones to handle variations among trees caused by adaptations to different altitudes. For example, certified tree seed collected near Portland at 0 to 500 feet is designated 042-05; seed collected near Grants Pass at 2501 to 3000 feet is designated 511-30.

For further information, see *certifying agent* in the glossary or write the authors of this publication, Forest Research Laboratory, Oregon State University, Corvallis, Ore. 97331.

Glossary

Applicant—Individual or organization that submits an application for reproductive material certification to certifying agency and that assumes responsibility for compliance with these standards.

Audit—Periodic examination by certifying agency of all, or any part, of the records and procedures specified in field standards and processing standards, and of additional records pertinent to inventory and distribution of reproductive material.

Buyer—Person who first receives reproductive material from the collector.

Certificate of genetic identity—A document describing the ancestry and breeding behavior of a homogeneous quantity of forest reproductive material.

Certifying agent—Duly designated state agent. *Oregon:* Oregon Seed Certification Service, 102 Farm Crops Bldg., Oregon State University, Corvallis 97331. *Washington:* Washington State Crop Improvement Assn., Inc., 513 N. Front St., Yakima 98901.

Character—A distinct trait, not necessarily an invariable feature, that is exhibited by all individuals of a group and capable of being described or measured: growth rate, growth form, needle color, resistance to disease, etc.

Collector—Person who collects reproductive material at its source.

Elevation increment—Code for 500-foot increments in altitude above sea level, designated by the first two digits of the upper elevational limit of the increment: 05 = 0 to 0500 feet, 20 = 1501 to 2000 feet, 35 = 3001 to 3500 feet.

Genetic identity—The ancestry and breeding background of the forest reproductive material.

Inspections—Field: Observation by certifying agency of all activities and records involved in propagation, collection, buying, production, and transportation of forest reproductive material to assure compliance with field standards.

Plant/warehouse: Observation by certifying agency of all activities and records involved in receiving, processing, storage, and labeling of forest reproductive material to assure compliance with processing standards.

Parent trees—Tree(s) from which male and/or female reproductive material is gathered for use in progeny testing or as nursery stock.

Reproductive material—Seed, pollen, wilding trees, cuttings, scions, etc., originating from forest trees.

Producer—Person, company, bureau, or agency with overall responsibility for producing forest reproductive material.

Progeny tests—Parents evaluated by comparing the performance of their offspring under conditions that permit controlled analysis of parental characteristics.

Seed zone—Geographic area delineated on Western Forest Tree Seed Council's Tree Seed Zone Map (1973) or similarly authoritative maps of seed zones as approved by certifying agent.



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This publication was prepared by David R. DeYoe, Extension reforestation specialist, Oregon State University. It is one of a series of publications being developed as an Extension Woodland Workbook. Your county Extension forestry agent has additional information.

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