

Seed Procurement, Seed Labeling, & Seed Certification

Seed Procurement

Sources of Seed

- **Seed Orchards**
- **Seed Collection Areas**
- **Seed Production Areas**
- **Seed Purchase (dealers)**
- **Seed or cone purchase (open market)**
- **Contract collecting**

Seed orchards

- Set up with the sole purpose of producing high volumes of high quality seed
- Established with genetically superior trees
- *Very high-intensity management (fertilized, mowed, sprayed)*

Seed collection areas

- Stands identified as good places to pick cones ('open' stands such as picnic areas and campgrounds)
- Seed production is usually an 'afterthought' and may always be a secondary use
- No implication of genetic improvement because trees were not selected, they were just 'handy'

Seed production areas

- Stands not originally intended for seed production, but converted to that use.
- Rogued of inferior phenotypes (therefore there is a possibility of slight genetic gain)
- Thinned heavily (preferably before crown closure)
- May be topped or pruned up from the base for ease of access

Seed production areas (continued)

- Often fertilized, mowed, and sprayed for cone and seed insects (management intensity approaches that of a seed orchard)
- Often used as a stop-gap until seed orchards flower
- Often used for exotic species when there is no other good source of seed

Seed or cone purchase

- Seed dealers (simple, inexpensive, but may not have the source you want)
- Newspaper ads/radio announcements
- Employees (but be *terribly* careful about liability)

Contract collecting

- Has tremendous advantages:
 - You get to pick the stands
 - Can check in advance for cone ripeness
- Has tremendous disadvantage:
Liability
- Can collect from recently logged areas (be careful about cone ripeness)

Contract collecting (continued)

- Scout troops, 4H clubs, and other 'kid organizations' (Be very careful, should probably be limited to 'ground collection')
- Logging crews
- Tree removal companies

Seed Labeling

Seed Labeling

- Most states require labeling of agricultural seed
- In big agricultural states this is taken very seriously
- Tree seed labeling is relatively recent and usually a subset of agricultural seed labeling laws

New York State

- Dr. Gene Farnsworth was the prime mover for NY State
- NY was one of first states to require labeling for **tree** seed
- The regulations were adopted in 1956: Chapter 631, Article 9
- Similar statutes have now been adopted by many other states

In N.Y. the label includes:

1. Name and address of collector or vendor
2. Name and purpose of any seed treatments
3. Any coatings on seed that may be toxic
4. "Kind and variety" (Roughly: species & sub-species or strain)

In New York the label must include (continued):

5. Percent by weight of pure seed (note: this is by **weight**, not number of seeds)
6. Percent germination (Must be re-tested annually- probably an unnecessary requirement for most tree seeds.)
7. Year of collection
8. State and county of collection (or similar designation if foreign equivalent)

Seed Certification:

Seed Certification:

- In the United States, tree seed certification is **voluntary**
- In NY, conducted by the New York Seed Improvement Cooperative, located at Cornell University
- For tree seed, the Cooperative relies upon ESF to supply expertise

Seed Certification

(Continued):

- For international sales **into** or among OECD countries, certification is **mandatory**.
- For seed certification under the OECD scheme, there are four categories:
 - Source ID
 - Selected
 - Seed Orchard
 - Tested

Categories of Certified Seed

OECD Category (NY equivalent)	Tag color	Criterion
Source identified (Source)	■	Known collection point and known origin .
Selected (Standard)	■	Known collection point, known origin, and: <ul style="list-style-type: none"> • collected under supervision of certification agent, • isolated from off-types, • parent stand of better quality than average, • large enough population to prevent inbreeding.
Seed Orchard (Selected)	■	Same criterion as above. In addition: <ul style="list-style-type: none"> • orchard design & objectives • isolation from contaminant pollen, • and location must be approved and registered in advance
Tested (Superior)	■	Same criterion as above. In addition, progeny tests must have been completed and material proven superior to the best commonly available source of seed for that species and use ("standard"). It must exceed the mean for the standards in at least one important trait and match the mean in at least two others. If it falls below the standard in any trait this must also be stated.

Categories of Certified Seed Source identified

- Known **collection point** and
- known **origin**.

Categories of Certified Seed Selected

Same as above. In addition:

- Collected under supervision of certification agent,
- Isolated from off-types,
- Parent stand of better quality than average, and
- Large enough population to prevent inbreeding.

Categories of Certified Seed Seed Orchard

Same criterion as above. In addition,

- orchard **design & objectives**,
- **isolation** from contaminant pollen,
- and **location** must all be **approved and registered** in advance of cone collection

Categories of Certified Seed Tested

Same criterion as above. In addition,

- **Progeny tests** must have been completed and material proven superior to the best commonly available source of seed ("standard") for that species and use
- It must exceed the mean for the standards in at least one important trait and
- Match the mean in at least two others.
- If it falls below the standard in any trait this must also be stated.

Unit of Certification may be:

- Stand,
- Orchard,
- Clone, or
- Individual tree

Nursery management of improved seed

- Much more valuable than normal seed-
- Nursery objective should be maximizing the yield of plantable seedlings per pound of seed rather than per ft² of nursery bed.

May influence:

- Containerization
- Fall sowing v.s. stratification and spring sowing
- Density of sowing per ft² of bed or per container.
- Time to grow the seedlings 3-0 v.s 2-0
- Fertilization rates
- Fungicide treatment
- pelletizing the seed

Possible Plantation Management Changes

- Should be planted at widest recommended spacing to maximize the number of acres covered
- Should be deployed to best sites (Or worst sites if specially selected)
- May be able to shorten the rotation
- Should generally practice most intensive management commonly used for the species and silvicultural system