



# Ontario's Natural Selections

## Woody Plant Seed Collection Guidelines for a *Changing Climate*

Seed collectors have a huge influence on a planting project's capacity to **provide ecological, social and economic benefits** for many generations. Follow these Guidelines to ensure your seed collections will be genetically diverse and fit and better able to withstand climate change, invasive species or other pressures.

**Before you forecast or collect a crop, be sure you can check off these guidelines:**

**1. Document and maintain seed lots by collection site location**

- To allow seed to be used in areas it is adapted to.
- To avoid maladapted seed eventually interbreeding with and contaminating nearby stands.

Seed Zone level is the most basic acceptable identity for a collection (see OMNR Tree Seed Zones 1996). Actual collection area, Township or County information gives the end user more flexibility, particularly in poor seed years, to match the collection source to potential planting sites, possibly in another seed zone. **Climate change** adaptation strategies such as assisted migration demand better documentation of source, to allow strategic movement, and then assessment of its performance, to either repeat its use, or not.

**2. Collect seed from high quality areas = healthy, vigorous specimens of good form:**

- To avoid poor genetic quality from stands which have been high graded (best trees removed, which often results in a poor quality residual stand).

**3. Collect from areas with a large number of individuals**

> 100 seed bearing trees for common, abundant species e.g. pines.  
> 5 for naturally rarer or scattered species, e.g. hickory.

- To reduce the risk of collecting inbred seed.
- To increase the amount of collectable seed per plant or per fruit; larger stands of target species reduce the risk of "selfing" and low vigour seedlings.
- To ensure broad genetic diversity within a collection, a buffer against **climate change**, and other pressures

**4. Collect from a variety of individuals throughout the stand (15 to 20 different plants):**

- To avoid collecting seed of closely related trees.
- To collect a representative sample of the genetic diversity of the stand.
- To ensure broad genetic diversity within a collection, a buffer against **climate change**, and other pressures

**5. Collect seed in a good seed year:**

- To ensure a large number of parents have contributed to the seed crop.
- To obtain more and higher quality seeds (more seed or cones per branch and more seeds per cone)
- To ensure broad genetic diversity within a collection, a buffer against **climate change**, and other pressures

If collecting from plantations:

**6a. Collect from mature plantations of adapted, known seed source, or**

**6b. Collect from mature plantations of proven performance (healthy, not maladapted)**

If collecting from species susceptible to a specific disease or insect:

**7. Collect from healthy individuals or those that have recovered from attack.**

- This will increase the probability that some seedlings will be genetically tolerant.

**8. Use handling and storage practices that maximize seed survival**

- Consult seed manuals and technical field guides
- Avoid artificial selection pressures which can reduce or skew adapted genetic diversity, i.e. seed that survives high temperatures in an overfilled bag may not survive planting pressures.

*Ontario's Natural Selections* is a seed source certification program administered by the Forest Gene Conservation Association. For more detail go to [www.fgca.net](http://www.fgca.net)

