

This article about collecting Sugar Maple seed was written by Barb Boysen, expressly for Maple Leaves Forever. The principles and methods described are applicable to other species of native maples. Without locally sourced seed that is properly collected, treated and stored, our restoration plans and our genetic heritage are at risk.

Barb is the Co-ordinator of the Forest Gene Conservation Association in Peterborough.

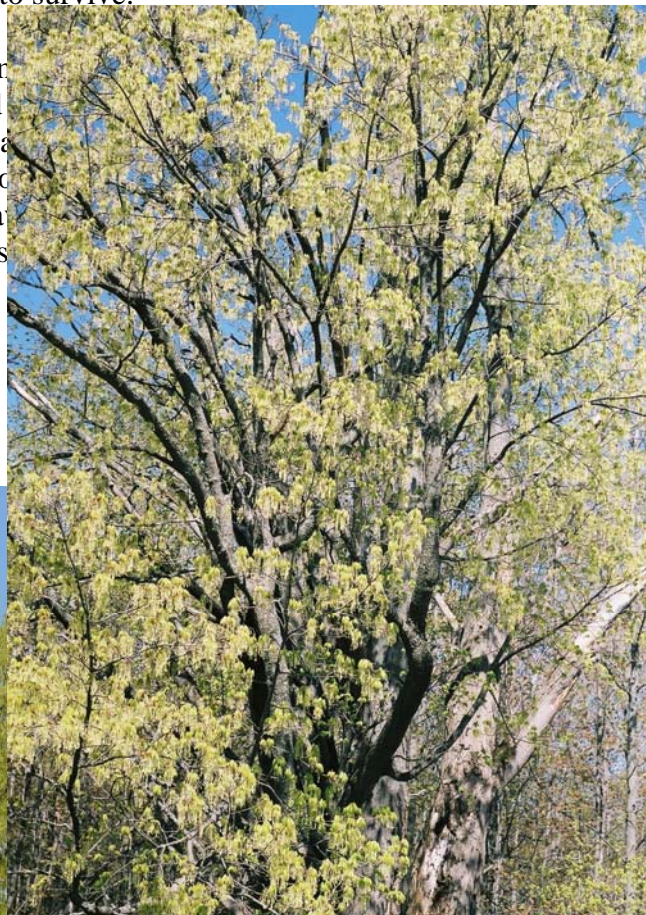
### Collecting Sugar Maple Seed

Future generations of sugar maples are dependent on seed produced by today's mature trees. Trees as young as 22 years can produce some seed but the better crops are produced by much older trees – and sugar maple can live for 400 years. In a heavy seed year millions of sugar maple seed can fall in one hectare of forest. As such, sugar maple regenerates very well on its own, and its tolerance to shade means young seedlings and saplings can subsist in the understory and respond well when some disturbance creates more light. Under similar conditions, red oak for example, would die out – it and many other species require more light at a younger age to survive.

Sugar maple can also regenerate vegetatively, for example by sprouting from a stump. And individual trees of particular interest can be cloned. The effect of narrowing the gene pool – not a good idea in a forest where when most parent trees produce seed are responsible for the future of maple forests. These bumper crops are produced on a regular basis. 2006 was such a year following almost 5 years of little seed.

There is generally no lack of sugar maple in our forests, though our urban areas, and predominantly agricultural areas could use some help. However, sugar maple is better adapted to shaded, moist regeneration sites, not the usually exposed, extreme planting sites of other species. As such any sugar maple planted with care – choosing a site with shade and deep soil – they become valuable. To plant a tree, you need quality, seed of

If you are interested in collecting sugar maple seed, it helps to know how it all starts – with the flowers in early spring (mid April to mid May in Ontario).



Early May 2006 – trees are covered in yellow flowers, potentially a bumper seed year.

Sugar maple flowers can be perfect – that is, have both male and female parts. But the flowers on one tree are mostly unisexual; either mostly male or mostly female. Females and males can be found at the top of the tree, but usually there are only males in the lower crown. Pollination is by wind.



Top - Mid May 2006, leaves just starting to flush.  
Left - sugar maple female flowers with seed starting to form– note samara tips emerging

Photo credit - Brian Swaile

The seed is a winged seed or samara – and comes in pairs with 2 seeds fused together; the wings hanging parallel to each other. (Parallel wings are diagnostic of sugar and its close relative black maple; the invasive exotic Norway maple has wings oriented horizontally)

After pollination, the female flowers set seed which then take approximately 16 weeks to mature. In late June almost full-sized seed can be seen. This is a good time to forecast the crop and decide if a good crop is developing. Light seed years do not well represent the full genetic diversity of the local stand, and often have poorer germination rates and produce less vigorous seedlings - not worth collecting.



Black maple seed and leaves fully formed; seed not yet mature, late June 2006 SW Ontario; Sugar maple develops in the same way.

Photo credit - Steve Bowers



Left - Sugar maple samara, late June 2006 – both seed appear to be developing.  
Right - But once cut open, you see only one has a developing seed (left side) that as yet only partially fills the seed cavity.  
This is normal for sugar maple.

Photo credits – Barb Boysen

Sugar (and black) maple seed matures in the fall, usually from late September to early October. At maturity the seed cavity will be completely filled with a bright green embryo (a plant in early stage of development) which consists of the radicle (the root), the cotyledons (first seed leaves) and the hypocotyl (stem between the root and the seed leaves). The wing will be yellowish-brown, and the seed coat will eventually turn brown as well.



Mature sugar maple samaras,  
early October, 2006, Guelph  
- note yellow-brown wings

Photo credit – Sean Fox

The mature seed may stay on the tree for several weeks, sometimes after leaf fall, which is when seed can be collected more efficiently.

Plan your collection efforts once you have determined that the seed is

- a. worth picking = there is a lot of seed on most maple trees in the area;
- b. is mature = wings are yellow-brown and you've cut several samples from the trees you are going to collect from, to make sure that at least one seed has a fully developed embryo that fills the seed cavity; and
- c. you plan to grow it or have a customer to sell it to.

Sugar Maple in mid October  
2006, Peterborough.

Most leaves have fallen leaving  
behind the mature seed – a  
bumper crop.

Photo credit – Barb Boysen



Collection options:

1. hand pick from the trees from the ground or using ladders
2. Spread tarps under the trees and collect after natural seed fall
3. Spread tarps and collect seed that falls after flailing the branches with bamboo poles.

If you are planning to sell the seed, check with the buyer before you collect to see how much they want, what source they want, how they want it packaged and when they want it. Some buyers may want you to remove leaves, twigs, and other debris. If you can not ship or deliver the seed right away, spread out the seed in thin layers on trays or tarps in a COOL, DRY area. Overheating and excess moisture will kill the seed or cause it to mold.

Trays or burlap bags are often used. The bags should not be filled with more than about 40 litres per bag or the seed will start to overheat. Prepare 2 labels for each container and place one inside, for example in the bag, and securely attach the other one on the outside. Minimum information to record on the label is the species, collection date, location of seed source, the amount and your contact information.

Remember - seed collectors have a tremendous influence on the genetic fitness and therefore the long term ecological, social & economic success of planted trees. Please collect wisely.