

Planting Butternut in Ontario

The Endangered Species Act (ESA 2007) allows Butternut seed to be freely collected and grown and the seedlings planted (note this is not true for all species at risk). Those seedlings are not protected by the ESA 2007 unless they were *planted as a condition of an ESA Permit or Regulation*. Visit www.ontario.ca/speciesatrisk/ or contact MNRF at **1-800-667-1940** to learn more about how the ESA affects butternut and you.

We encourage people to plant butternut but there are challenges. Butternut canker, the main threat, can kill many trees within the first 10 years, especially if they are stressed by poor planting, poor tending or a poor site. Refer to the planting details below. Note that some growers advertise that they have 'resistant' trees, but there is as yet no proven genetic tolerance to the canker although researchers are hopeful that it exists.

Collecting Seed – Ensure you collect from a butternut – it is similar to black walnut and butternut hybrids (www.fgca.net). Seeds may fall prematurely in the summer due to winds, drought or insects, but mature seed falls with the first heavy frost. The seed is oblong, 50 mm long with a yellow-green pulpy husk over a large nut. The husk turns brown-black with fall frosts. The inner, hard, brown nut has sharp ridges ending in a sharp point. Before collecting, cut a sample to ensure that the seed is mature - that the nut 'meat' fills the cavity and is white and firm (not milky). Collect after 10% have fallen and before animal predation is high. Shake or knock seed down (gently) with a pole or with a throw bag and line aimed over limbs. In large trees a climber can knock seed down with a pole. Occasionally, squirrel caches can be raided. The husk tissue stains - avoid contact with skin and clothing. Collectable seed is not produced every year. Lack of flowering, frosts or extreme rains and winds, insects and seed predation mean a collectable crop occurs every 3 to 5 years. And unlike some species butternut seed cannot be easily stored for more than a year. Loss of the mature pollen and seed producing butternut trees are being lost due to cutting, development and the canker and this is greatly reducing seed availability for natural regeneration and planting efforts.

Sowing the seed - Butternut is an aggressive rooter. Plant it where it will stay, or plant in pots and transplant it within a year. Sow the seed immediately after collection an inch or 2 deep in the ground or in pots. Don't let the seed dry out or heat up. Squirrel predation is a problem until the seed germinates in the spring. Use chicken wire over the seed or keep the pots in a rodent proof area. The seed requires a cold dormant winter period to germinate.

Stock Selection - Butternut is usually grown as a 1 year old seedling; bareroot or sometimes as potted stock. 2 year old potted stock is sometimes available. A 1 year old bareroot seedling has a taproot not too large to plant well; they are usually 20 to 40 cm tall and the diameter of a pencil (depends on seed source, quality and nursery practices). Hybrids are common in southern Ontario and produce seed more frequently than native butternut.

Ask any supplier for proof that their stock is not grown from hybrid seed. The FGCA's Recovery Program and partners such as the Rideau Valley Conservation Authority are collecting seed from vigorous native trees where DNA tests have been done to rule out hybridity, and where the chance of pollination from an exotic or hybrid tree is very low (e.g. trees found in natural areas with no hybrids within several hundred metres).

Seed source - this is important for any planted tree. To ensure the trees will be adapted to the local climate, ask the seedling supplier where the seed is from so you can determine if it will be adapted to your site. Hopefully it will also be from a healthier tree. Ontario Tree Seed Zones can help guide you but note that climate change projections for Ontario mean that you should consider seed from a more southern rather than a local zone. Go to www.fgca.net.

Site Selection - Butternut needs full overhead sunlight. The best soil is deep, moist, well-drained, fine to medium textured and limestone-based. Drier, shallow soils may suffice in full sunlight if you can water them in the first 5 years. Seedlings grow better when they are protected from prevailing winds (NW). They initially grow well in smaller, protected openings such as forest openings larger than 3X the height of surrounding trees. They can also do well in fence lines and forest edges due to more sunlight and protection from surrounding trees.

Density and Other Species - Butternut rarely occurs in a pure stand. Plant less than 200 butternut seedlings per hectare in a mix with local native species of similar or slower growth rates to help slow canker infection and spread. Plant at least 3 metres from other trees, to avoid light competition and reduce humidity which can accelerate canker infection.

Site Preparation - Fall mowing of vegetation that can shade seedlings makes spring planting easier and can reduce rodent populations. In heavy soils, soil cultivation (a ploughed row) may help with the planting. Band or spot spraying with herbicides or use of mulch can reduce competing vegetation and promote early growth.

Planting - Plant seedlings in the spring before they leaf out. Keep bareroot stock cool and shaded until planted. Dig a hole that allows the roots to be placed well. Prune roots that are damaged or excessively long using a sharp tool. Butternut's aggressive root system does not always transplant well; the tops may dieback but they often resprout.

Tending & Protecting - Control vegetation that is competing for light, moisture and space around the base of the seedlings, until they grow above this competition, generally in 5 years. Mowing, spraying and mulching work well. Some vegetation helps moderate heat and wind effects. Butternut's deep-rooting can allow it to establish quickly on good sites. Watering is only necessary in serious droughts or on droughty soils. Stakes help mark seedling locations to prevent tending operation damage and aid in monitoring. Tree guards protect the lower stem from rodents but should be monitored yearly to prevent growth interference (avoid tubes that rodents can build nests in). Deer browsing can be a problem and occasionally kills young trees. Often though, the sapling will resprout. Planting many butternut helps ensure some will survive. Consider tall wire cages for a few trees.

Thinning - As they grow a thinning can be done to remove trees that are competing with the butternut.

Monitoring - In the first 5 years assess plantings twice yearly to plan tending operations. Note tree survival, and in later years, assess the growth and watch for canker infections. Consider carefully pruning any storm breakage or removing badly cankered trees. Share your information with the FGCA or a local butternut recovery program so we can all learn more about this species.