American Chestnut

Castanea dentata

Tree nuts are usually grown under warmer conditions than are found in Ontario, but there are several types of nuts native to the province that are of interest for local consumption or commercial development (beaked hazelnut, black walnut). There are some non-native commercial species that have been imported. Many nuts require long hot growing seasons, and because they are growing near the northern limit of hardiness, they can be a risky crop. Most are wind-pollinated and self-fruitful, although there are exceptions, and wild populations of at least some species appear to have mechanisms in place to encourage cross-fertilization, and produce higher quality nuts when cross-pollinated.

Pollination Recommendations

The chestnut was once an important tree in eastern deciduous forests, with the northern edge of its distribution in southern Ontario. After the chestnut blight was introduced in 1904, the species declined precipitously in the wild, and few trees remain in Ontario forests.

Chestnut is self-compatible, but still requires cross-pollination because the male and female flowers do not bloom at the same time on an individual tree. The flowers are in the form of catkins, and a variety of pollinators collect both nectar and pollen from the flowers. Unlike most other nut trees, the American chestnut is pollinated by insects. Wild trees generally cannot reproduce due to the isolation of individual trees, and artificial propagation is necessary to propagate the species. In the related Caucasian chestnut tree, *Castanea sativa,* pollination by honey bees can improve total nut yield. A stocking rate of 1.5 colonies per hectare has been recommended. Because chestnuts are functionally self-sterile (due to the asynchrony of male and female flowers), pollenizers of a different variety should be available at a rate of one-tenth to one-half of the production trees. The pollenizers and production cultivars can be planted in different rows to simplify the harvest.

References

- De Oliveira, D., Gomes, A., Ilharco, F.A., Manteigas, A.M., Pinto, J. & Ramalho, J. 2001. Importance of insect pollinators for the production of the chestnut *Castanea sativa*. *Acta Horticulturae* 561:269-273.
- Free, J.B. 1993. Insect Pollination of Crops, 2nd edition. Academic Press.
- Sokolov, V.B. & Chernyshov, M.P. 1980. Chestnut (*Castanea sativa*) of the Black Sea area of the Caucasus.*Pchelovodstvo* 1:22-23.
- Vossen, P. 2000. Chestnut culture in California. University of California, Division of Agriculture and Natural Resources, Publication #8010.