## Best Management Practices for Pollination in Ontario Crops



www.pollinator.ca/canpolin

## Hazelnut/Filbert

Corylus spp.



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**

There are several cultivated species of hazelnut, also known as filbert, and most are European in origin. The most commonly cultivated species is *Corylus avellana*, the European hazel. However, there are several species native to the New World that produce edible nuts, including American filbert (*C. americana*) and beaked hazelnut (*C. cornuta*). Hazelnuts bear flowers in the form of catkins, with male catkins and less conspicuous female flowers occurring separately. Both sexes are found on the same tree (*monoecy*) in most cases, although a few single-sex plants may occur. Beaked hazelnut, at least, is self-incompatible. For all species, growers typically plant two varieties together to facilitate pollination and nut set. European hazelnuts are wind-pollinated, but cross-pollination is preferred despite some level of self-compatibility in this species. Although it produces smaller nuts, the native species are the preferred choice in most parts of Ontario, as the cultivated European hazel is not as hardy.

## References

- DeGrandi-Hoffman, G. 2001. The pollination of almonds. American Bee Journal 141:655-657.
- 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 chest-nut *Castanea sativa*. *Acta Horticulturae* 561:269-273.
- Free, J.B. 1993. Insect Pollination of Crops, 2nd edition. Academic Press.
- Jackson, J.F. 1996. Gene flow in pollen in commercial almond orchards. Sexual Plant Reproduction 9:367-369.
- Kodad, O. & Company, R.S.I. 2008. Fruit quality in almond as related to the type of pollination in self-compatible genotypes. *Journal of the American Society for Horticultural Science*. 133:320-326.
- Martinez-Garcia, P., Ortega, E., & Dicenta, F. 2011. Self-pollination does not affect fruit set or fruit characteristics in almond (*Prunus dulcis*). *Plant Breeding* 130:367-371.
- McCarthy, B.C. & Quinn, J.A. 1989. Within- and among-tree variation in flower and fruit production in two species of Carya (Juglandaceae). American
  Journal of Botany 76:1015-1023.
- Ortega, E., Martinez-Garcia, P. J., & Dicenta, F. 2006. Influence of self-pollination in fruit quality of autogamous almonds. *Scientia Horticulturae* 109:293-296.
- Polito, V. S., Aradhya, M., Dangl, J., Grant, J., Pinney, K., Simon, C., Vaknin, Y., & Weinbaum, S. 2003. Walnut pollination dynamics: pollen flow and pollen loads in walnut orchards.. *HortScience* 38:741 (Abstract).
- Vossen, P. 2000. Chestnut culture in California. University of California, Division of Agriculture and Natural Resources, Publication #8010.







