Almond

Prunus dulcis

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

Although almond is not commercially cultivated to any great extent in Ontario, it is one of the most valuable crops and one of the largest users of managed honey bees in the world, most notably in California. It is a member of the same genus as stone fruits (cherry, plum, peach, apricot, nectarine), but differs in that the stone (nut) is the primary crop. Almond growing in Ontario is generally restricted to hobbyists and landscaping use, as the climate is too harsh and unpredictable for commercial production.

The flowers are self-incompatible, and require cross-pollination by insects with an appropriate pollenizer cultivar. There is a trend towards the development and use of self-compatible varieties, although the effect of self-pollen on yield, size, and flavour requires further investigation. For regular self-incompatible almonds, research has shown that the pollenizer trees must not be more than a few meters away for optimal fruit set, as honey bees tend to visit a single tree or cultivar during a foraging trip. However, it has also been found that most (90%) of honey bees in an almond orchard carry cross-pollen on their bodies. In the case of honey bees, much of this pollen acquisition may result from transfer between foragers within the hive.

In Ontario, early pollination is essential if the tree is to have a chance to produce mature fruit. Each flower contains only one pair of ovules so, unlike pome fruits, asymmetry of poorly pollinated fruit is less of a problem. However, poorly pollinated blossoms may drop.

The presence of toxic compounds such as amygdalin in almond nectar and pollen can have ill effects on pollinators if consumed in large doses. This is a particular problem for honey bees pollinating large almond monocultures in the US.

Both bumble bees and blue orchard bees have demonstrated potential for pollinating almond, although further research into their effectiveness for this particular crop is necessary. Wild bees and possibly flies are may also be valuable.

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