



Michigan Cherry Pollination



Cherries Need Pollination



Tart cherries require bee pollination to set a large marketable crop of cherries. Bee pollination directly impacts cherry yield: more flowers that are pollinated = more salable cherries. Montmorency tart cherries are self-fertile, meaning flowers can be pollinated with pollen from the same cultivar and do not require pollinizer varieties to be planted within orchard blocks. **Managed honeybees are used to pollinate cherries, but flowers are also visited by over 80 other species of wild bees.** All of these bee species visit cherry flowers to collect pollen and nectar to feed their young.

Integrated Crop Pollination: combining strategies to improve pollination

Most Michigan cherry growers rent honey bees to supplement wild bee pollination. Some growers also manage small populations of tunnel-nesting mason bees to supplement pollination. Based on recent data, researchers have found **wild bees are abundant and active pollinators in most MI cherry orchards.** Woodlots and fencerows located near orchards have trees, shrubs, and other flowering plants that can help support wild bees by providing food and shelter.

Cherry growers benefit from wild bees in the orchard, even when honey bees are rented for pollination. Different bee species visit flowers at different times of the day and are active at different times during the bloom season. **A diverse set of pollinators that are active in the orchard at bloom can help ensure consistent pollination.**



Most Michigan tart cherry growers rent honey bees for pollination during bloom. Photo: Katharina Ullmann.

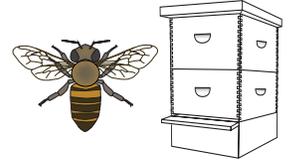


Cool, rainy, and windy spring weather conditions often lead to poor pollination and lower yields. However, many wild bees are active at temperatures 5-10 F lower than honey bees. Large-bodied bees such as bumble bees, are able to pollinate flowers under cool and windy conditions, as are wild mining bees and managed mason bees.

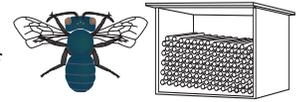
Left: A bumblebee visiting cherry flowers in northern Michigan. Large-bodied bees like bumblebees can pollinate cherries in cooler weather than honey bees. Photo: Emily May.

Meet the Pollinators

Honey Bees (*Apis mellifera*) can be managed or rented for cherry pollination and are the most abundant pollinators in MI cherries. Honey bee colonies provide many active pollinators per hive; on any typical day in spring, a six-eight frame colony can have up to 15,000-20,000 pollinating bees. Hives are typically stocked at a rate of one to two hives per acre at the start of bloom, and hives are removed from orchards at petal fall.



Mason Bees (*Osmia* spp.) are managed bees used by some Michigan cherry growers. These solitary bees nest in wood boxes or cardboard tubes, and can fly under cooler and cloudier conditions than honey bees. Often mason bee cocoons are released into orchards just before bloom, and the tubes or boxes of bees are moved out of orchards when activity slows down. In fall, boxes and tubes are moved inside where cocoons are removed from tubes, cleaned of parasitic mites, and refrigerated over the winter. The use of mason bees in Michigan cherries is still relatively new, and management practices are still under development to scale up use of these bees in commercial orchards.



Wild Bees visit cherry flowers in many orchards, especially those near woodlots or other natural habitat. ICP researchers found more than 80 different wild bee species visiting Michigan cherry flowers.



Mining Bees (*Andrena* spp.) are the most common wild bee visitors to Michigan tart cherries. Mining bees are solitary, ground-nesting bees that are highly efficient cherry pollinators. Different species emerge in the spring and are active for 3-4 weeks.



Sweat Bees (*Halictus* and *Lasioglossum* spp.) are small to medium-sized, ground-nesting bees that are the second most common visitors to Michigan tart cherry flowers. Some species are solitary while others produce two or more overlapping generations within a growing season. Solitary species will be active for 3-4 weeks. Multi-generational species will be present for up to several months.



Bumble Bees (*Bombus* spp.) queens will be active during tart cherry bloom, but range from rare to fairly common depending on a particular orchard and its surrounding habitat. The success of these queens in building strong colonies over the course of the summer after cherry bloom will determine how many new queens are produced that can contribute to pollinating cherries the following season. Wild plants that flower in summer provide pollen and nectar to help support these growing colonies.

Three Practices to Support Bees

1 Provide more flowering plants on your farm

Maintain or incorporate more natural habitat that contains flowering plants around orchards. Consider using bee-attractive cover crops where permanent plantings are not suitable. Natural areas provide flowering resources and nesting sites that support wild bee pollinators. More diverse nutrition helps bees stay active and healthy.

2 Minimize pesticide risks to pollinators

Use integrated pest management (IPM) to make targeted pest management decisions. Avoid spraying during bloom. If sprays are needed, spray after dusk or before dawn when bees are not active in the orchard. Whenever possible, select pesticides that are less toxic to bees.

3 Communicate with your beekeeper

Good communication between beekeeper and grower can help maintain active and healthy bees, which are needed to produce a high quality crop. Both parties should set expectations prior to bloom.

Additional Resources

Integrated Crop Pollination
<http://projecticp.org>

Michigan Pollinator Initiative
<http://pollinators.msu.edu>

MSU Extension: Cherries
<http://cherries.msu.edu>

MSU Extension: Cherry Pollination
<http://bit.do/msucherrypoll>

PSU Extension: Solitary Mason Bees for Orchard Pollination
<http://bit.do/PSUmasonbees>

Minimizing Pesticide Risk to Bees in Fruit Crops
<http://bit.do/E3245>

Conserving Native Bees on Farmland
<http://bit.do/wildbeesMI>

Bees of the Great Lakes Region and Wildflowers to Support Them
<http://bit.do/greatlakesbees>