



Bumble bees

Bombus spp.



Bumble bee colonies are much smaller than those of honey bees, but the bees are strong and robust.



A *Bombus impatiens* colony (photo by Stephen Marshall)

Bumble bees are active under cooler and damper conditions than honey bees. They do not produce significant quantities of honey, and nectar is stored only temporarily because mated queens are the only colony members who overwinter.

In the wild, the mated queen emerges in the spring, finds a suitable nesting site, and raises the first brood of workers by herself. The queen then remains in the nest and focuses on egg-laying. Workers take over foraging, cell-building, and tending the young. When the colony reaches sufficient size, the next generation of reproductive queens and males is produced and mating occurs. At this point, the mated queens disperse and social structure of the original colony begins to break down. The founding queen dies in the fall, and only the young, newly mated queens hibernate over the winter. In the spring, the process begins again.

A commercial bumble bee industry (using the common eastern bumble bee, *Bombus impatiens*) is now fully established in Ontario, especially for the pollination of greenhouse crops. Due to wise regulations against importation of bumble bees from outside their native range, other species are not available. Commercial bumble bee providers have manipulated the bumble bee colony life cycle using indoor rearing and husbandry to make mature colonies continuously available to customers throughout the entire greenhouse growing season.

Bumble bees have either been used successfully or show promise for commercial pollination in several outdoor crops. This includes tree fruits that bloom in early spring when it is still too cold for honey bees, and crops that require "buzz" pollination (see box). So far, the greatest commercial success with bumble bee pollination has been in greenhouse tomatoes and sweet peppers. Unlike honey bees, bumble bees are quite willing to forage in the still and humid greenhouse air and do not become disoriented in greenhouse conditions.

BUZZ POLLINATED PLANTS have poricidal anthers, which require the pollen to be shaken out through holes like a salt shaker. A visiting bee must grab the base of the anthers in its jaws, disengage its flight muscles from its wings (a feat that cannot be performed by honey bees), and then rapidly vibrate these muscles. The result is a sharp buzzing sound and vigorous shaking of the flower. Blueberry and tomato are two crops that require buzz pollination.



See **Vendors – Managed Pollinators** under [More Information](#).



Commercial bumble bee hives for pollination of greenhouse-grown crops

References

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