

# The Importance of Pollination



Haskap must receive pollen from a genetically distinct plant in order to produce fruit.

## How Pollination Works

To produce a fruit, pollen needs to be moved from the male part of a flower (the anthers) to the female part (the stigma); this is pollination. However, pollination is only the first step in the process of fruit development; once a pollen grain lands on a stigma, it will germinate and a pollen tube will grow down the length of the stigma into the ovule where fertilization occurs. Although most flowers have male and female parts on the same flower, many fruit crops, Haskap included, must receive pollen from a *genetically distinct* plant in order to produce fruit. These plants are self-incompatible, and thus require

cross-pollination. For cross-pollination to yield fruit, not only does this pollen need to be from a different flower, it also needs to be from a different plant (and for many crops, from a different cultivar).

## Pollinating Haskap

Haskap is dependent on insect pollinators such as bees and flies for cross-pollination from one cultivar to another. The insects are drawn to the flowers by sight and smell; once the flower is located, they alight on the outside of the flower. If the visitor is a bee, it may be there for pollen, and it will collect it using hairs on its hind legs or the underside of its abdomen

(or use specialized pollen baskets on its hind legs, in the case of honey bees and bumble bees). Alternatively, it may be looking for nectar, in which case the insect will push its way down into the flower to the very base and sip up the sweet liquid that pools there, produced by the flower's nectaries. In Haskap, this nectar has a sugar concentration that averages between 50% and 63%. Either way, the insect will be dusted with pollen from the anthers, which protrude from the center of the flower. When the insect visits the next flower, some of the pollen will be transferred to the stigma. Since bees will often forage between rows of plants, proper distribution of cultivars can ensure that this pollen transfer is between genetically distinct plants, and fertilization will occur.



*Osmia lignaria* on a Haskap flower.



A bumble bee (*Bombus ternarius*) robbing nectar from a Haskap flower.

## Nectar Robbers

Some bees will cheat the system; rather than entering the flower the usual way, they will enter between the petals or chew a hole through the base of the flower, bypassing the anthers altogether. This process is called *nectar robbing*, and does not directly contribute to pollination. However, it may still be a beneficial process; by limiting the amount of nectar available to legitimately pollinating bees, it forces them to visit more flowers and can lead to better pollination.

## Pollination without Insects?

Some plants, such as sour cherry, can achieve some level of pollination via wind, however Haskap absolutely requires there to be insect pollinators

present. This can be proven by exclusion experiments; if you cover the flowers with a mesh bag that insects cannot get through, you will get no fruit developing from those flowers. Therefore, having pollinators in your orchard is an integral step in ensuring high fruit yield.

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Sweat bee (*Lasioglossom sp.*) on a Haskap flower.