

PROTECTING ORNAMENTAL PLANTS FROM LEAFCUTTING BEE DAMAGE

FACTSHEET



Alfalfa Leafcutting Bee
(*Megachile rotundata*).

The alfalfa leafcutting bee (*Megachile rotundata* Fabricius), which is commonly referred to as the “Leafcutter”, is a very important pollinator and the only bee species in Canada that can effectively pollinate alfalfa for seed production. In some alfalfa seed producing areas of Manitoba, leafcutting bee damage to ornamental plants in yard sites can be a problem. . The alfalfa leafcutting bee, as well as the other native leafcutting bee species belonging to the genus *Megachile* cut pieces of leaves and/or flower petals to construct its brood nests.

In most cases the damage caused by the leafcutting bees is not severe, but when the damage is allowed to occur over several years and/or a large population of bees invade the yard site, the extent of damage caused to even large perennials can be significant.

LEAFCUTTING BEES

There are approximately 22 native species of leafcutting bees found in Western Canada. Although considered excellent pollinators, due to fluctuating population and destruction of habitat, the alfalfa leafcutting bee was introduced into Canada to help stabilize production in the alfalfa seed industry. This species of leafcutting bee was introduced for a number of reasons; it does not fly very far therefore it will stay on the crop targeted for pollination, it will readily accept man-made materials as nests or dwellings, and it is highly gregarious (prefers to live in large groups).

In Manitoba, there are approximately 180 producers raising more than 1 billion leafcutting bees for the pollination of alfalfa. The alfalfa leafcutting bee has also been used in Manitoba to pollinate other crops such as birdsfoot trefoil, buckwheat and hybrid canola. Although it is not native to North America, the alfalfa leafcutting bee is now considered endemic to Manitoba and in some areas it is considered an important part of the native fauna.

Most leafcutting bees are black with either white or silver coloured bands. The underside of the female's abdomen has a dense brush of hairs called the scopa, which is used for carrying pollen. Males are usually smaller, do not have a scopa and in many cases have hairier faces than the females. The bees range in size, but are usually 1 to 2 cm (0.4 to 0.8 in) long. The alfalfa leafcutting bee is approximately 0.8 to 1.25 cm long and the females have a silvery-grey scopa, whereas most of the native species are larger and the females have golden, tan, or black scopas.

Unlike honeybees, leafcutting bees do not operate as a colony and are considered “solitary bees”. Each female constructs her own nest and forages independently. Most leafcutting bees use pre-existing structures such as holes in trees, buildings, fence posts, and hollow plant stems as nesting sites. The females are responsible for maintaining the nest, such as collecting plant material, pollen, and nectar for the brood cells. Each female alfalfa leafcutting bee uses about 15 leaf or flower pieces to construct a brood cell. After the first cell is completed, the female starts building the next cell directly on top of the first one. Once the tunnel is filled with cells, the female will plug it using additional pieces of leaf material (10 – 50 pieces).

Leafcutting bees in Manitoba generally only have one generation per year, and like most leafcutting bees, the alfalfa leafcutting bee will survive the winter as a mature larva in its brood cell (i.e. cocoon) and emerge as an adult the following year. In the spring the alfalfa leafcutting bee cells are placed into incubators and incubated for approximately 20 -24 days. The development of the bees can be controlled so that the adult bees can be released into the fields when the alfalfa goes into bloom. In Manitoba, adult leafcutting bees are generally active between mid-late June to mid-late August and live for approximately 6 to 8 weeks.

It is normal for a small portion of the released bees to leave the area intended for pollination. In some cases, if the field has insufficient forage to sustain the bee population or the field is heavily stocked with bees and there is a high degree of competition for nest area, this may induce the bees to migrate off the field at a much higher rate than normal. In these cases, large numbers of alfalfa leafcutting bees may move into neighbouring yard sites, and if there is suitable forage for cell building, damage to those plants can be severe.

DAMAGE

The damage caused by leafcutting bees to ornamental plants can vary from a light defoliation of the plants to a complete stripping of all the leaves and flower petals. The degree of damage to the plant is often influenced by the size of the plant, amount of suitable forage in the area as well as the attractiveness of the plant material for brood cell construction. Most plants belonging to the Rose family (*Rosaceae*) such as roses, raspberries, saskatoons, plums, potentillas, strawberries and apples are highly attractive to leafcutting bees and are considered an excellent source of forage. As an example, native or cultivated rose bushes are often completely stripped of leaves and flower petals when leafcutting bees have identified them as a primary source of cell building material.

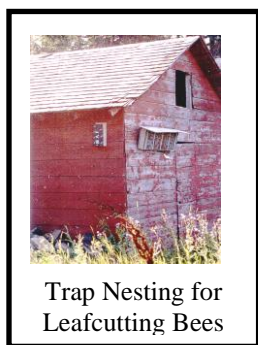


Other ornamental plants that are commonly defoliated by leafcutting bees include lilacs, caraganas, begonias, pansies, petunias and impatiens. In addition, small saplings of many deciduous trees are also vulnerable to leafcutting bee damage.

In addition to the damage caused by defoliation, the leafcutting bee will occasionally nest in the stems of some plants such as roses and raspberries. Leafcutting bees can also be a nuisance when nesting in the soffits of houses, especially near doorways or windows.

CONTROL

In most cases, the best control for damage caused by leafcutting bees is to recognize the problem as early as possible and take the necessary action to minimize the damage and prevent the bees from establishing a nesting population in the yard site. If the problem of defoliation is caused by alfalfa leafcutting bees migrating from a nearby alfalfa field, contact the leafcutting bee producer who is pollinating the field and inform him/her of the situation. In some cases, the producer may be able to manipulate the bees so that they stay in the alfalfa field instead of foraging in the yard site. This may involve moving the bees and the shelters away from the yard site and further into the field. It may also be necessary to change the foraging behaviour of the bees by exchanging the bees in the shelters closest to the yard site with the bees from shelters that are the furthest from the yard site.



In cases where the leafcutting bees have been nesting in the yard site for several years, relocating the bees will be more difficult. Setting out nesting material (which may be provided by the leafcutting bee producer) as close as possible to where the bees are nesting in the yard site will help to draw the bees away from the old nesting sites. If at all possible, blocking the entrances of the old nesting tunnels will help to persuade the bees to seek new nesting locations. This works best when it is done before the bees have completed their first brood cell. Once the leafcutting bees have begun using the nesting material, during the evening, the nest can either be taken to the field, replaced with a new nest or put into a plastic bag, placed in the freezer overnight to kill the bees and returned to the trap site the following morning.

In order to prevent further damage to high value plants, cover the plants using screen netting or cheesecloth during the time when the bees are the most active. There are no chemical insecticides registered for the control of leafcutting bees. For more information on protecting ornamental plants from leafcutting bee damage, contact the Provincial Apiculture office 204-945-4825 or rhlafrenie@gov.mb.ca.



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