

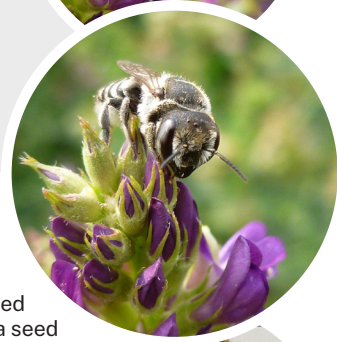
Alfalfa Leafcutting Bee

Megachile rotundata Fabricius
(HYMENOPTERA: Megachilidae)

Kingdom: **Animalia**
Phylum: **Arthropoda**
Class: **Insecta**
Order: **Hymenoptera**
Family: **Megachilidae**
Genus: ***Megachile***
Species: ***Megachile rotundata***

The alfalfa leafcutting bee is a vital pollinator for multiple cropping systems including alfalfa, canola, melons, and carrots. It is primarily used for pollination required during alfalfa seed production. The United States produces 17 million acres of alfalfa hay annually, making it the fourth most valuable field crop (\$8.8 billion in the United States). The hay is used as feed for livestock. The production of high-quality alfalfa seed is needed to support the alfalfa and livestock industries.

Alfalfa seed producers depend on pollination from the two bee species: the alfalfa leafcutting bee (*Megachile rotundata*) and the alkali bee (*Nomia melanderi*).



Alfalfa Leafcutting Bee Facts

- Native to southeastern Europe and southwestern Asia. Alfalfa leafcutting bees were introduced into north America in the 1930s.
- Solitary cavity-nesting bees that construct a nest for egg laying and larval development. Nest cells are usually made up of between 14 and 15 cut leaf pieces designed to surround a developing brood.
- Cut leaves are usually circular and range from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter. The cutting of the leaves rarely harms the plant.
- Sold by the gallon (gallon of bees) as loose cells or in polystyrene bee boards. A gallon of bees refers to approximately 10,000 individual nest cells.
- Release rates vary between 10 to 15 gallons per hectare in the United States.
- Brood (eggs, larvae, and pupae) is preyed upon by predatory and parasitic species and is host to numerous fungal pathogens, including the fungus that causes chalkbrood.
- Alfalfa leafcutting bees are one of the most heavily managed, non-*Apis* (honeybees) pollinator species in the world because of their pollination utility.
- Alfalfa leafcutting bee stocks can be purchased from commercial vendors or propagated in bee boards by growers within their own fields.
- During alfalfa seed production, alfalfa leafcutting bees can account for 20%–40% of all operating expenses.



Alfalfa Leafcutting Bee Images



Foraging female alfalfa leafcutting bee



Alfalfa leafcutting bee brood infested with parasites



Alfalfa leafcutting bee domicile



X-ray analysis of alfalfa leafcutting bee cells to examine for the presence of possible parasites, pathogens, and nest-destroying predators



Female alfalfa leafcutting bees on the left (note the fuzzy abdomen)

Male alfalfa leafcutting bee on the right (note the smaller size and two dots on the lower abdomen)

For more information about alfalfa leafcutting bees, please contact your local county Extension agents.

References

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