

Biology of leaf cutter bees

Adult bee oviposits inside the cell over the top of the pollen mass to ensure immediate food availability for the hatching larva. The egg hatches in a time span of 4 to 5 days. Hatching larvae feed upon the pollen ball and matures in a time period of 20 days inside the cell. The mature grub turns into a pupa inside the cell and remains in pupation for a period of 7 to 8 days. The pupa initially appears pale yellowish white later gets pigmented towards end of the pupation. From the pupa, adult bee emerges out chewing away the transparent layer of cocoon in the cell. The longevity of female bees is 5 to 8 weeks.



Conservation of leaf cutter bees

Leaf cutter bees can be conserved by

- ✦ Providing nesting shelters in the form of cardboard blocks with holes, hollow bamboo stems, pithy stems etc.
- ✦ Identification of natural nesting sites of leaf cutting bees and conserving them *in-situ*.
- ✦ Planting flowering crops along the borders of main crop or maintaining hedgerows of agricultural fields to provide pollen source to the foraging bees.



Leaf Cutter Bees - Ways to conserve these pollinators



AMALA, U.
SHIVALINGASWAMY, T.M.
SHYLESHA, A.N.



2020



Published by:

ICAR-National Bureau of Agricultural Insect Resources
P.O. Box 2491, H.A. Farm Post, Hebbal, Bengaluru 560 024, India
Phone: +91 80 2341 4220 ✦ Fax: +91 80 2341 1961
Website: www.nbair.res.in Email: director.nbair@icar.gov.in
(ISO 9001: 2008 Certified Institution)

Conservation of leaf cutter bees

Leaf cutter bees

Leaf cutter bees are solitary in habit and construct their nests in the pre-existing cavities, hollow stems, dead woods and manmade holes. Unlike honeybees, they do not produce honey with no social forms and extremely gentle in handling. They are key pollinators of major crops like alfalfa, field bean, lucerne, pigeon pea, jute and pongamia. The major species of leaf cutter bees includes *Megachile lanata*, *M. anthracina*, *M. laticeps*, *M. disjuncta* and *Lithurgus* sp.

Nest construction behavior

Leaf cutter bees use leaf bits, bits of floral petals, soil particles and plant resins to construct their nests. The mated females search for pre-existing cavities or hollow spaces for construction of their nests. The leaf bits were used to construct the cell as well as line the cell. Some species of leaf cutter bees constructs their nests underground.



Foraging behavior

The adult female bee makes semicircular cuts in the leaves of plants using its strong mandibles and carries the leaf bits to its nest and makes the cell.



Pollen foraging behavior

The female bee forage for the pollen, brings them in its abdominal scopa, dislodges the pollen in its cell and creates a pollen bed inside the cell. Few species of leaf cutter bees mix the pollen with nectar to make a colloidal pollen mass for its immatures of feeding and development. The leaf cutter bees have a marked preference to forage upon the pollen of plants belonging to the family Fabaceae. When the bee lands on a papilionaceous flower, the membrane holding the keel petal breaks and the long reproductive structure pops right up and smacks the upper petal or the bee, releasing its yellow pollen. This process is called flower tripping.

Unique nesting site preferences of leaf cutter bees

