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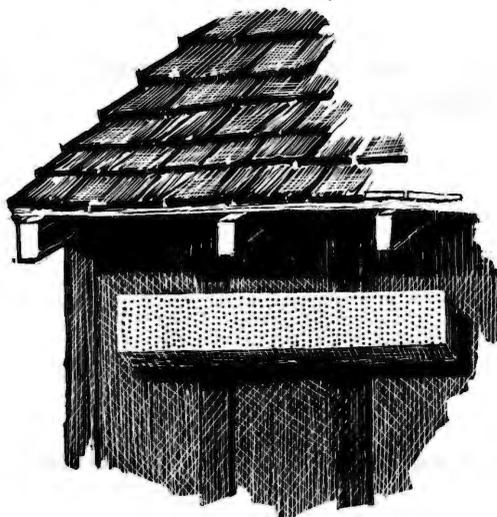


## TRAPPING ALFALFA LEAFCUTTER BEES FOR FUN AND PROFIT

The alfalfa leafcutter bee, *Megachile rotundata*, has become an important and effective pollinator of alfalfa raised for seed in Washington.

These small bees (about one-fourth the size of a honey bee) are an interesting subject for biological study and have been used in various ways as projects for school children, 4-H clubs, and FFA groups for a number of years.

For reasons not entirely known, leafcutters trap-nested away from cultivated fields are typically more healthy than those reared in the seed fields. Seed growers are often interested in obtaining such stocks to replenish their supplies of pollinators.



Drilled nest board attached to shed.

Established leafcutter bee dealers are currently obtaining \$25 to \$50 for well-filled nest boards, depending on the number of tunnels per board. Hobbyists who trap a few boards of bees usually receive \$5 to \$25 per full board for their contribution to the service. A relatively small investment of time and effort can provide good support for young people's projects. Observing the fascinating details of the bee's life cycle can provide even greater returns in enjoyment and knowledge of biology.

### Life Cycle of the Leafcutter Bee

The bee winters as a prepupa (mature larva) in a cell formed from cut leaf pieces. Bees left outdoors in nest structures during the winter begin to emerge about the first week of June. They require at least five months chilling at 35 degrees F. in order to complete emergence within a reasonable time. To induce the emergence of bees at a specific time and to reduce losses from predators, seed growers usually store their bee stocks at 35 to 38 degrees F. after renesting is completed and until time to prepare for emergence the following spring.

In late spring, the cells are incubated at 85 degrees F. and 60% relative humidity to time emergence to the blooming of the alfalfa. The first male bees begin to emerge 2 to 3 weeks after the start of incubation. Four or five days later, the bees are moved to shelters in the alfalfa fields. Female leafcutters mate and begin preparing their nest cells in holes drilled in boards a few days later.

They cut leaf pieces from alfalfa and other plants. Each nest cell is built from 12 to 20 leaf pieces. Starting at the bottom of the tunnel, the female stocks the first cell with a mixture of pollen and nectar, lays one egg on the surface of the food material, and seals the cell with circular leaf pieces. After she has filled most of the tunnel with cells (usually about 2 1/2 cells per inch), she plugs the entrance with 12 or more leaf discs.

About 4 weeks later, the first-generation bees start to emerge (usually mid-July in the warmest areas). This second group of adult bees usually represents about 10% to 20% of the progeny of the winter-generation bees. Nesting activity of these late-season bees may extend into September and October.

#### **Suggestions for Trapping**

Empty nest structures should be attached to a shed or other landmark structure and faced to the east or northeast. The most common nest material used in Washington is the drilled board. These usually contain 1,400 to 2,000

holes per board and the tunnels are often 2 1/2 to 3 1/2 inches deep and 13/64 or 7/32 inch in diameter. Your county Extension agent has an up-to-date listing of alfalfa leafcutter bee suppliers.

It is necessary to obtain permission from the landowner before placing empty nest structures on his property. Sometimes a fee will be charged. If you live in the Yakima Valley, Columbia Basin, or Gardena area, you can probably trap bees by simply placing nests on the side of your garage or other suitable location.

#### **More Information**

Washington State University provides basic information about the leafcutter bee in Agricultural Experiment Stations Circular 442; plans for incubation and cold storage facilities in Cooperative Extension Service E.M. 2909; suggestions on management in E.M. 2775; and control methods for parasites and predators of the bee in E.M. 2631.

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Use pesticides with care. Read the label on the container and follow the directions carefully.

Never smoke while applying insecticides and avoid breathing the spray or dust. Wear natural rubber gloves when handling pesticides. Wash hands and face carefully with soap and water after applying. If insecticides are spilled on the skin or clothing, remove contaminated clothing and wash exposed skin areas thoroughly.

Always store pesticides in their original containers, never in fruit jars or soft drink bottles, and be sure that labels remain on the original containers. Keep containers away from food or animal feed and out of the reach of children or irresponsible persons.