

The Leafcutting Bee — Alfalfa's Premier Pollinator

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Successful alfalfa seed production requires a pollinator. The three major pollinators used in commercial alfalfa seed production in North America are the alfalfa leafcutting bee, the alkali bee, and the honey bee.

The alfalfa leafcutting bee, *Megachile rotundata*, is often considered the "best" alfalfa pollinator for reasons outlined below. Even at an annual cost of \$150-200 per acre, it is the pollinator of choice in many alfalfa seed production areas.

However, there are a number of insects, diseases and other pest problems unique to the leafcutter bee which can negatively impact this pollinator.

A Manageable, Proficient Pollinator

The alfalfa leafcutting bee is a very efficient pollinator of alfalfa. This bee aggressively works the flowers, causing them to trip and release pollen which the bee collects and transfers from flower to flower.

The leafcutter bee's four to six weeks of pollination life allows plenty of time for large numbers of flowers to be pollinated, resulting in high yields of seed. One female can pollinate up to 10,000 flowers, yielding up to 1/4 pound of seed.

Controlling where the bees will pol-

inate is accomplished by placement of bees in or near a target alfalfa field which has plenty of desirable bloom. They will quickly nest in trailer-mounted, man-made domiciles, making movement between fields possible.

Since the alfalfa leafcutting bee prefers to work close to its nest, it will not leave the field if conditions are good. Also, alfalfa bloom is by far its favorite source of pollen and nectar, so competition from other crops or weeds is not a problem.

Threats To Leafcutter Health

There are many parasite and predator problems that attack the alfalfa leafcutting bee. These include parasitic wasps and predacious beetles. However, the alfalfa leafcutting bee is very sensitive to insecticides, and few insecticides have been found that provide control of alfalfa seed insect pests with minimal losses to the leafcutter bee.

There are also a number of diseases that infect the alfalfa leafcutting bee. The worst disease is a fungus called chalkbrood that attacks the larval stage of the bee. Some birds can also cause significant loss by feeding on the adult bees. These pests can all be held to manageable levels by use of cultural, chemical, or biological control methods.

Determining Larval Health Through X-Ray Photography

Accurately determining the numbers of leafcutter bees available for pollination is accomplished through quality evaluation of the bee larvae during the winter. Bees on hand are first evaluated to determine actual numbers of live larvae. If more bees are needed, they are purchased in the larval form. Each larva is encased in its own cell constructed primarily of leaf material. A particular cell must be cut open to evaluate whether healthy or dead larvae are inside.

Another method is by X-ray, which will show what is inside the cell without manually cutting it open. The X-ray method is faster and easier when

looking at hundreds of cells in a single sample of a particular lot of bees. The X-ray will reveal live larvae, dead larvae, immature larvae, parasites, and pollen balls.

Knowing the number of live larvae in a sample makes it possible to calculate how many bees can be expected from a particular lot.

Summary

The alfalfa leafcutter is the pollinator of choice in many alfalfa seed production areas.

There are many factors which impact the health of leafcutter bees, but the use of X-ray photography can allow growers to accurately determine how many healthy pollinators will emerge from a lot of cells.

Dairy Graziers Not Exempt From Expansion

COLUMBUS, Ohio — Switching to intensive grazing could delay the need for dairy farmers to expand, but not forever, said Tom Noyes, dairy agent at the Wayne County office of Ohio State University Extension.

Changing from a conventional dairy to intensive grazing has the potential to increase a dairy farmer's profit per cow by \$30 to \$50. For a 100-cow dairy, this could

mean a \$5,000 per year increase in income that could maintain a dairy farmer's current standard of living for five to 10 years.

But, if profit per cow is not improved in other ways, cost of living increases eventually will overcome the financial benefits of grazing, and dairy graziers will have to consider expanding their herd, Noyes said.

To maintain a standard of living, dairy farm profits must grow by 60 percent over 10 years. Even with improved genetics, adoption of new technology and increased efficiency, the increase in net profit often cannot keep up with inflation.

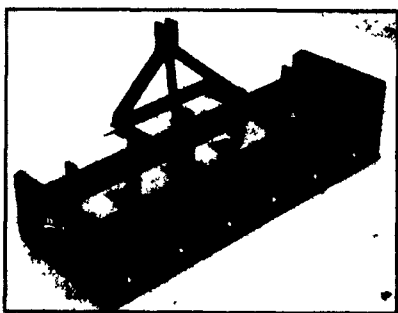
"Unless dairy farmers can find some way to increase profit per cow every year, they will eventually need to expand," Noyes said. "If dairy producers adopted management intensive grazing because they think it will prevent their need to expand, then they are mistaken."

Expanding a grazing operation should be easier than expanding a conventional dairy, if a grazer has pasture space available, he said. A grazing system requires less housing, so adding cows can be done inexpensively.

Spring is the best time for dairy graziers to expand their herd because that's when the most grass is available in pastures.

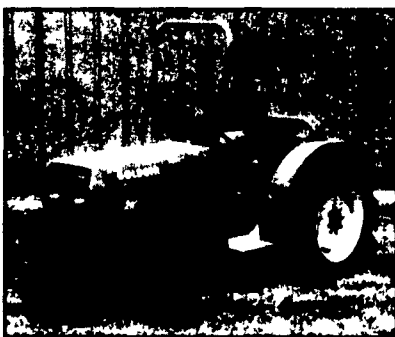
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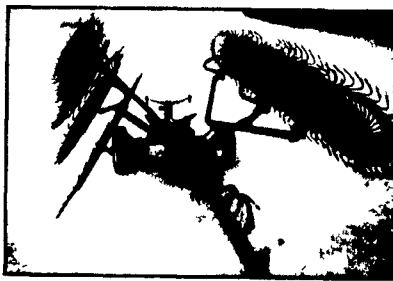
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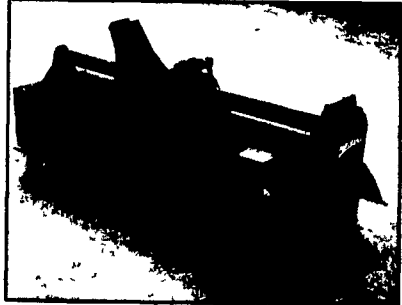
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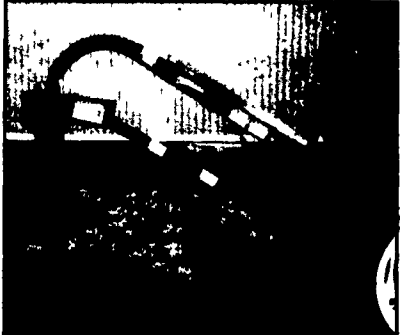
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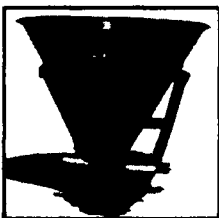
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