Bug farming

Silkworm moth

(This form of insect-rearing does not exist in Canada—it occurs primarily in China, Japan, and France)

The silkworm moth (Bombyx mori) is a domesticated moth raised to produce silk. Its caterpillar, the silkworm, produces a large amount of syrupy fluid that, when it hardens, transforms into a silk filament. The caterpillar uses this thread to weave a cocoon. The raising of caterpillars for the production of silk fibre is called sericulture.

To get the silk, you must first kill the caterpillars (chrysalids) without damaging the cocoons. The cocoons are suffocated, then soaked in boiling water to soften them. Each cocoon produces a thread called a bave. The ends of several baves are joined together to form a thread. This is how the cocoons are unwound.

Silk is extremely soft to the touch, light, supple, lustrous, and absorbent. It protects against cold and heat, is elastic, and keeps its shape well.

Bumblebee

Bumblebees are excellent pollinators. They like to forage near their nests, they work quickly, and are not afraid to forage in confined spaces. This is why they are useful in greenhouses. Their large bodies allow them to harvest a great deal of pollen.

Bumblebees are raised for the pollination of crops in greenhouses and fields. Their hives have four sections, each containing a small colony of bumblebees.

Alfalfa leafcutter bee

This solitary bee is raised for the pollination of alfalfa and the resulting production of seeds. Dairy cattle that feed on alfalfa produce more milk than with any other forage crop. To cultivate alfalfa, dairy farmers must first buy seeds.

The cocoons or pupae (intermediate stage between the larva and adult) of the bee are placed in alfalfa fields. The bees that emerge begin immediately to pollinate the alfalfa that surrounds them.

Ladybug

Used by gardeners as a form of biological warfare against plant pests such as aphids and cochineals, ladybugs can effectively replace certain pesticides.

Ladybugs are sold in specialty garden stores, or by mail. Ladybugs are generally sent through the post in their larval stage.

Trichogramma

This tiny (0.5mm) stingless wasp is used to fight certain species of moth pests such as the corn borer moth, which in its caterpillar stage destroys corn stalks. Trichogrammas are also used to fight against

the cabbage white moth (a small white moth with black spots on its wings). The female trichogramma lays its eggs on the eggs of the pest moths. The larvae of the trichogramma then feed on the contents of the pest's eggs. Trichogrammas are raised industrially in biofactories and placed in cold rooms for several months. They are sold and released as soon as moth pests begin appearing among crops.

Cricket

Crickets are raised to feed insectivorous animals, such as reptiles, trapdoor spiders, and scorpions. They are raised in tubs and are sold in pet shops or by mail. They are also used as fishing lures. Crickets are also raised for human consumption, even in Canada (the Insectarium in Montreal offers tastings). Crickets are rich in protein and taste like hazelnuts.

The grasshopper and the locust

Like crickets, these insects are raised to feed pets (reptiles, scorpions, tarantulas, and praying mantises), but also serve as food for millions of human beings. Grasshoppers and locusts are the most highly-consumed insects in the world. They are collected primarily in the wild, but they are also raised on a semi-industrial basis. In Africa and the Middle East, the dry season frequently brings invasions of migrating locusts, which ravage cereal crops. These insects are an abundant food resource, often helping populations in these regions to survive famine. Grasshoppers and locusts are also considered delicacies in several parts of the world, including Canada.

Some other insects raised by people

- praying mantis (pet)
- cockroach (pet food, human consumption, and laboratory research for the development of insecticides)
- mealworm (pet food, composting, and human consumption)
- fly (pet food)
- stick insect (pet)

- Mediterranean fruit fly (raised by the millions, the flies are sterilized then released into nature, where they mate with wild flies, thus preventing them from reproducing)
- Hymenoptera Spalangia and Hymenoptera Muscidifurax (small wasps that lay their eggs on the pupae of houseflies, helping to control the numbers of flies in barns).

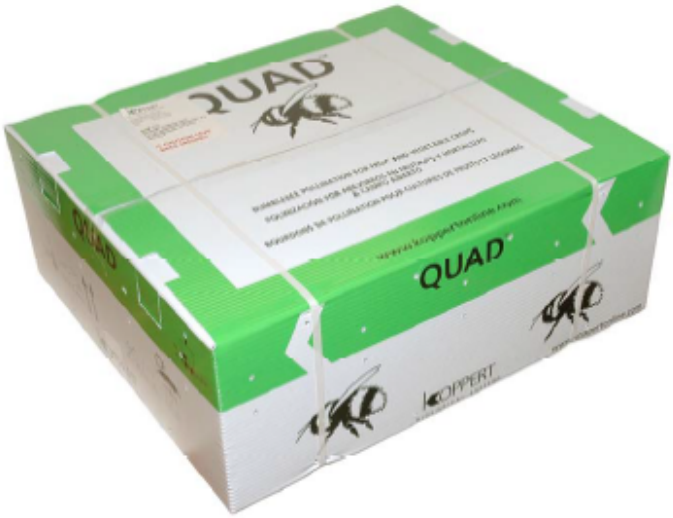
Silkworm Moth (*Bombix mori)*

These silkworm caterpillars are spinning their cocoons.

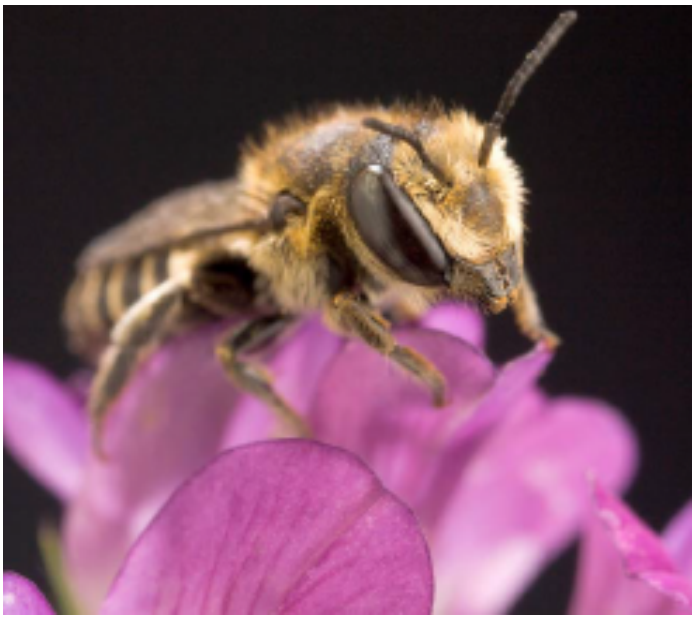
Silkworm moth, cocoon, and caterpillar

Bumblebee

This bumblebee hive has four sections. Each one contains a small colony of bees.



Alfalfa Leafcutter Bee



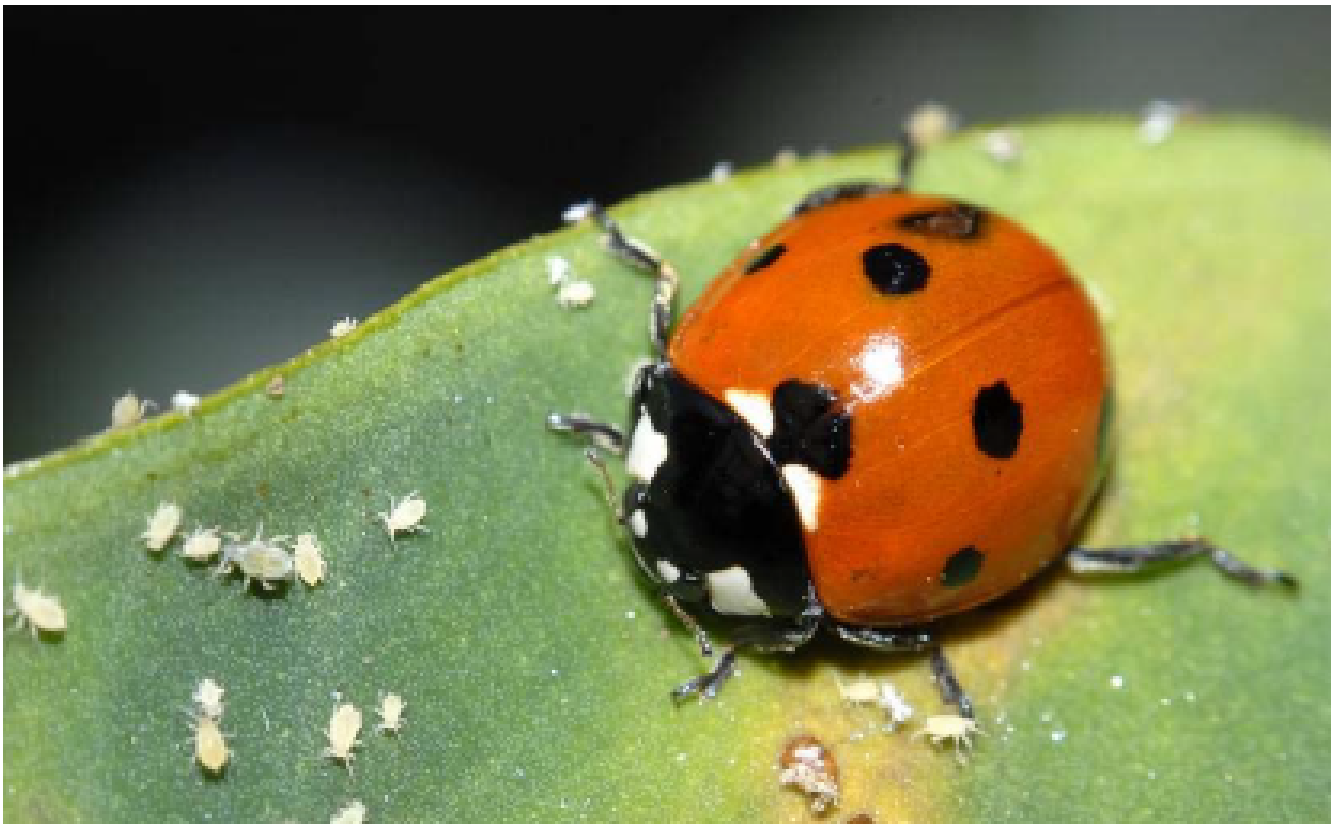
Saskatchewan Archives Board

Thousands of alfalfa leafcutter bee pupae have been put in this shed.

Saskatchewan Archives Board

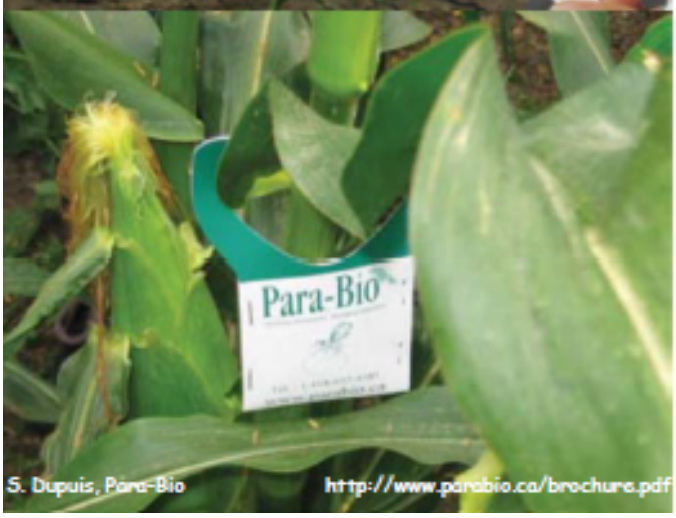
Each cocoon contains an alfalfa leafcutter bee pupa, the stage between larva and adult bee.

Ladybug



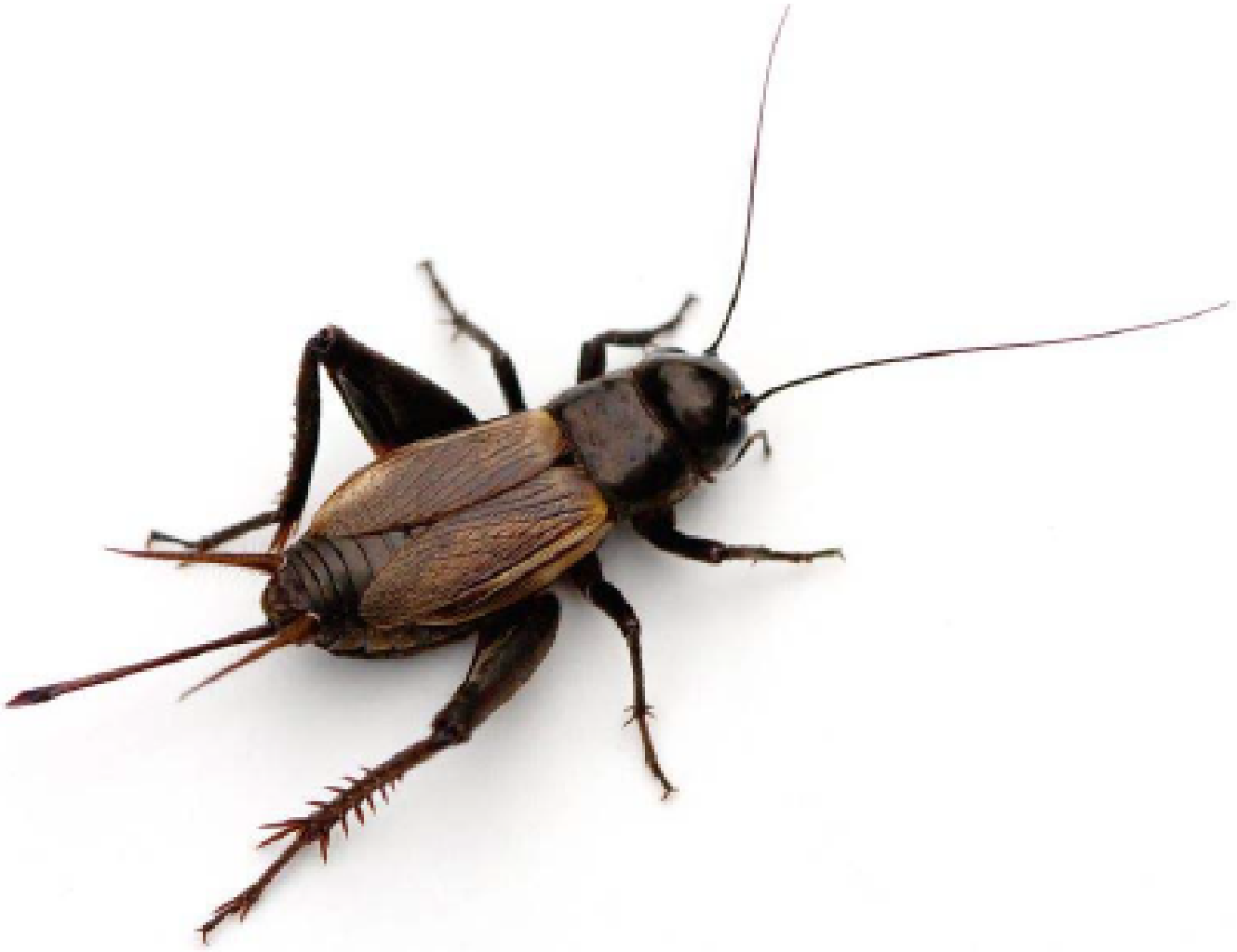
The ladybug is an insectivore, which means that it feeds on insects. It is particularly fond of aphids and can eat as many as 100 in a single day. Aphids are small pest insects that feed on plant sap.

Trichogramma Wasps

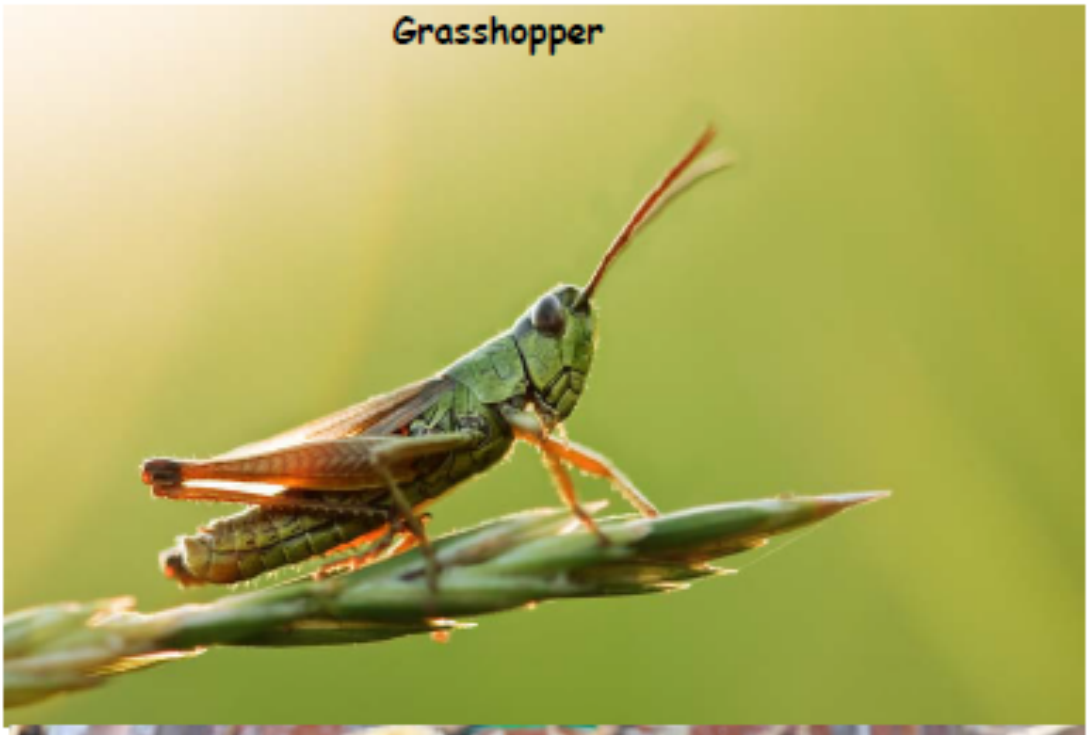


The female wasps lay heir eggs inside the corn borer's eggs. Trichogramma wasps are distributed to farmers as eggs. Each card has more than 8,000 eggs on it. Set directly on the corn plants, the cards are distributed evenly across the corn field.

Cricket



Grasshopper



This lesson plan was produced by the Canada Agriculture and Food Museum.

[View all of Ingenium's learning resources on our website.]