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Rearing Insects Indoors

Why rear insects? Because rearing insects is fun. Observing insects indoors can help you gather information on their life cycles and habits. You can even do scientific experiments with them. If you wish, you can grow insects for fish bait or as food for pet birds, toads, and lizards.

Several kinds of insects are easily reared at home or in the classroom. An insect is suitable if it grows and reproduces easily indoors; of course, it should not be destructive in case it accidentally escapes. Preferred insects include mealworms, milkweed bugs, wax worms, crickets, and flour beetles. Cockroaches can be raised easily too, but they move fast, sometimes escape, and then become a nuisance.

To start your insect colony, collect your own specimens, or purchase them from pet shops and scientific supply houses. Most college biology departments have insect colonies and they might be willing to share some.

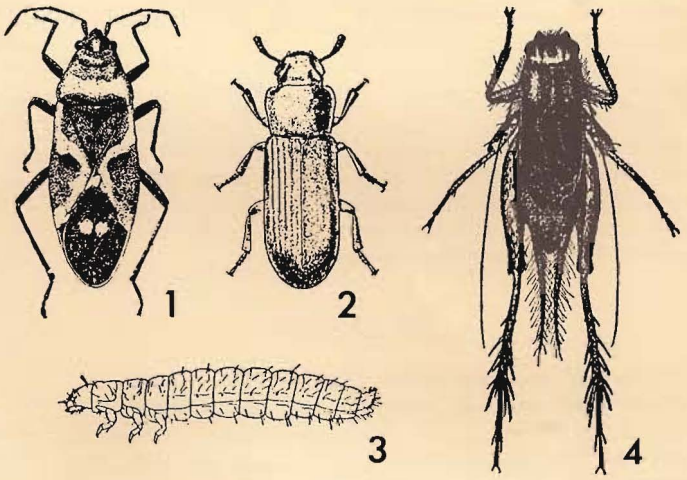
The only equipment you'll need is a rearing container, a tight-fitting cover, and the insect's food. Some insects need one or two other items, but they are easy to make or inexpensive to buy. Good rearing containers are wide-mouth jars, gallon jugs, or terrariums. Glass is best because you can easily watch the activity inside and it is easy to clean. Cover the container with a small sheet of glass or a piece of old bed sheet held down by a rubber band. Nylon window screen works well also. Choose your cover by the amount of humidity the insects need: glass holds moisture in; a screen or cloth lets it out. Most insects need a little drinking water. Fill a small vial with water and plug it with a cotton wick; then lay the vial on its side and the insects will drink from the wet cotton. Incidentally, a ring of vaseline around the inside top of the container deters climbing insects from scaling the walls when the cover is off.

Most insects raised indoors grow best if the temperature is 75-80°F, some like it even warmer. Place a lightbulb or lamp above or beside the container if you need more heat. Leave it on 8-10 hours a day or longer. Because of the possibilities of diseases or cannibalism, do not crowd your colony. Remove excess insects or divide colonies that get too large. Periodically you will want to start a new colony to give it a fresh habitat and retain its vigor.

Following are several candidate insects and some techniques that keep them healthy, reproductive, and long living.

Milkweed Bugs

The large milkweed bug, *Oncopeltus fasciatus*, is a true bug that feeds by sucking the juices from milkweed seeds. It is beneficial because it helps keep milkweed in check. An especially good insect to rear, the milkweed bug is also attractive and highly resistant to diseases.



The adult bug is orange-red and black (Fig. 1); the female lays its yellow eggs in clusters of 10 to 50. If kept at 70-80°F, the bright red nymphs hatch in about 1 week. At first the size of a pinhead, they grow rapidly and then develop stubby wings as they mature. Like all insect young, they molt by shedding their outer skin, or exoskeleton. After five molts the wings become functional, though the adults seldom fly in captivity. You can tell the female from the male by comparing the underside of the abdomen. Counting from where the thorax joins the abdomen, if both the second and fourth segment have two black spots it is a female. The male has no spots on the second segment, and the fourth segment has a narrow black band. The whole life cycle takes nearly 1 month when reared at 75-80°F and longer if cooler.

Start the colony by collecting large nymphs or adults by hand from milkweed plants along roadsides in late summer (August-September). Best time is when the milkweed pods turn brown and begin to shed their seeds. Collect numerous seed pods for food; remove the seeds from the white downey tufts and store in a dry place until needed.

To rear the bugs, put them in the rearing container with paper toweling on the bottom and cover the container with a piece of window screen held down with a rubber band. Add some seeds for food and replenish as needed. Keep a piece of wet cotton or a wick-and-vial in the jar for drinking water. Replace the soiled paper occasionally when it gets too dirty. This should give you generation after generation of insects.

Flour Beetles

The confused flour beetle, *Tribolium confusum*, is one of the easiest insects to rear indoors. However, they are small and may require a hand lens for close-up study (Figs. 2, 3).

All the four stages of the insect live in flour or other grains. The female beetles lay their eggs in the flour and the small whitish larvae emerge and shed their skins 6-11 times before growing up fully. In time the small white pupae slowly turn to brownish beetles less than 1/8-inch long. The adults live long; some last from 6 months to 3 years. Their life cycle is about 40 days long when grown at 80°F and 75 percent relative humidity.

Rearing simply requires putting some white flour in the rearing vessel and adding the insects. Whole wheat flour and cornmeal are also suitable foods. Place 2-6 inches of flour in the container and add the insects. Disturb them as little as possible because they emit a slightly disagreeable odor when stirred up. Be sure to thin the colony if it gets too crowded.

Meal Worms

The yellow meal worm, *Tenebrio molitor*, is often used for pet food and can be purchased in pet shops. The adult is a hard-shelled beetle, and the female lays about 275 eggs in her lifetime. Small tough-skinned larvae hatch from the eggs and grow to about 1-inch long. These worms molt 9 to 20 times (which is a lot for insects) before they are fully grown. Larvae grow up in 5-6 months if the temperature is near 80°F. The quiescent pupal stage comes next, and later, the adult beetle. The adult lives about 2-3 months. After your colony gets going, you'll have all four insect stages at the same time.

Meal worms eat many foods, but wheat bran with a little dry brewer's yeast added makes a staple diet. They will grow on wheat bran alone, but the yeast (available at health food stores) makes bigger larvae. Put 3-6 inches of food in the bottom of the rearing container. Humidity is important, so put a few slices of potato or carrot on top of the food, and replace them when dried up. Be sure to maintain the right humidity because too little will prevent growth and too much will make the food moldy. Also add a piece or two of crumpled paper toweling for the insects to crawl on and for the larvae to pupate. Thin the colony when crowded or the adults will eat the eggs.

Crickets

Many kinds of crickets can be reared indoors. The black field cricket, *Nemobius fasciatus*, (Fig. 4), and the straw-colored house cricket, *Acheta domesticus*, are excellent subjects and easy to collect under rocks or in the house. Fish-bait dealers and pet shops sell them.

The male cricket makes the familiar chirping sound. You can tell the female by her long, sword-like egg laying apparatus. The female lays her eggs in sand and the nymphs appear 3-4 weeks later. At 80°F the nymphs become adults in about 2 months; at 90°F they grow twice as fast.

Grow your crickets in a large glass container with a screen cover. Place 3-4 inches of dry sand in the bottom and put three small shallow cups (about 1/2 in. high) on the sand. (Sea shells or inverted lids from small jars work well.) To one cup, add water and a cotton ball so the crickets won't drown. Keep it wet. To the second, add slightly moist (not wet) sand for the eggs. Place small bits of food in the third cup, not on the sand. Crickets eat almost anything edible, but very small nymphs prefer soft food such as banana, apple, or lettuce. Dry dog food is good food for the larger crickets. Add some crumpled paper for hiding places. Discard dirty food and clean the jar occasionally to keep it free of mold.

Well, now you have several different insects to rear. You might try some others or even discover new ways to rear the ones you have. Or, you might experiment with your colony. For example, separate your insect into two colonies, and then keep one at 70°F and the other at 80°F. Notice the different times they take to grow. Make up your own experiments. So, give it a try, insect rearing truly can be fun!

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