

Squish or Share

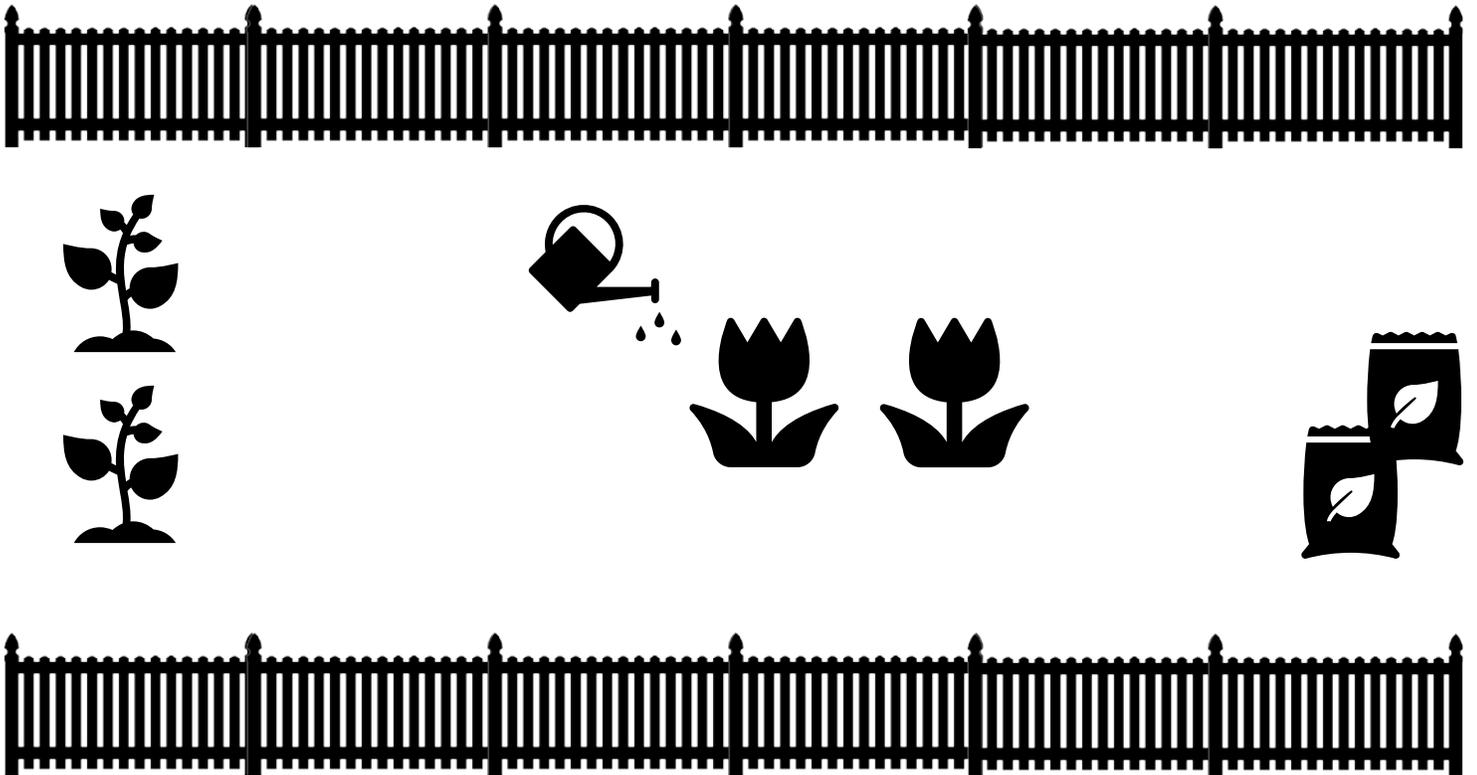
Beneficial insect identification game.

Handpicking is one of the most effective methods of organic pest control in the garden. One of the major limitations of this method is: knowing what insects contribute positively to the garden ecosystem, and those searching for a free meal. This game provides an interactive way to learn about the insects common to the garden and if they are considered pests or beneficial.

Instructions

- If the cards are not already printed, print them in color, double sided, ensuring to flip along the long end. Then, cut them along the borders on the information side. Laminate them for repeated use or print on card stock.

To play, display a card one at a time to a player. Have the player either Squish the bug by slapping the card, or sharing the garden with them by having them push the card into the garden (displayed on the bottom of the page). After each attempt, read the information on the back of the card. In subsequent rounds, have the player also name the insect¹.



¹ Source: Images, Bugwood.org; Information, <http://idl.entomology.cornell.edu/factsheets/>

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Aphids

Aphids may damage many plants including fruits, vegetables, and ornamental trees and shrubs. The major damage is caused by the aphids sucking the juices from the stems and leaves causing a reduction in vigor, curling distortion, and reduction in yield. Some species inject saliva into the plant tissue as they feed and may transmit viral diseases from one plant to another.

Squish

Multicolored Asian Lady Beetle

Despite its annoyance for homeowners, *H. axyridis* preys upon many species of injurious soft-bodied insects such as aphids, scales, and psyllids and is thus considered beneficial to growers and agriculturalists.

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Flea Beetles

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Adult flea beetles feed on the leaves of cabbage, tomato, tobacco, potato, cucumber, melon, grape, spinach, eggplant and related crops. In most cases different kinds of flea beetles attack only closely related plants, but some are general feeders. The adults chew many holes in the leaves, and a heavily infested plant may look as if small shots had been fired into it. Feeding attacks occur at the cotyledon stage, seedling stage, and/or mature plant. The foliage may be so badly eaten on many garden plants that the plants die.

Spongy (Gypsy) Moth

Squish

The gypsy moth is one of the most important forest pests in the Northeast. The caterpillars feed on leaves of forest, shade, ornamental and fruit trees, and shrubs. A single defoliation can kill some evergreens, but usually two or more defoliations are needed to kill hardwoods.



Colorado Potato Beetle

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Larvae and adults feed on the foliage of potato, eggplant, tomato, and pepper plants. They may reach large numbers and strip all the foliage from the plant as well as spoil the fruit by eating into it. They are especially destructive to small plantings.

Squash Vine Borer

Squish

The larvae bore into the stems of squashes, pumpkins, gourds, cucumbers and muskmelons. Winter squash (in particular Hubbard), pumpkins, and zucchini are quite susceptible to borer damage. Infested vines at first exhibit wilting, and later may be completely girdled, causing the leaves and stem beyond the point of attack to rot. This pest often causes damage in home gardens. It has been considered a sporadic pest in commercial plantings of cucurbits, with more damage observed in some years. The problem often goes undetected until the larvae begin to feed within the vines of squash and pumpkins in July and August. Larval feeding destroys the vascular system, causing the vines to wilt and die. If damage has been seen in the garden in the past, it is possible more problems can be expected.



Yellow Jacket

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Despite their sting, they are actually a doubly beneficial native insect. They both control many harmful insects, such as crane flies, flies and caterpillars, and are a pollinator. Their nests resemble a large gray, coarsely textured football or a giant egg and are constructed of a paper maché-like material. The nests are less common than Polistes nests and may be found under eaves and hidden in shrubbery or on tree branches. An active nest may contain over 200 adults. The nests are seasonal.

Dragonflies

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Adult dragonflies can be seen actively hunting flying insects, but tend to be more common closer to water. The adults hunt for insect prey using their large eyes and scoop it up with their spiny legs, all while flying. Many small midges, gnats, and mosquitos are eaten, but generally not enough to fully control their populations. Sometimes larger prey are captured, such as butterflies.



Hover Flies

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Hover Flies are also known as Syrphid Flies or Flower Flies. They may be brightly colored, and many resemble wasps and bees hovering over flowers. However, these flies do not sting. The larvae of most species are predaceous, feeding on aphids or the young of termites, ants, or bees.

Lightning bugs; Fireflies

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The Fireflies or Lightning bugs are neither flies nor bugs, but are beetles. During the early summer the adults fly about in the evenings and are conspicuous by their blinking yellow light. The larvae are beneficial by feeding on various smaller insects, slugs, and snails.



Slugs

Slugs are shell-less terrestrial gastropod mollusk that are a sporadic pest and are favored by cool and moist conditions, especially where crop residues are left on the soil surface. Slugs tend to be a problem later in the growing season along tree lines and hedgerows and in weedy patches within the field. Slugs leave large holes in the leaves with the veins intact, and can be a contaminant in the heads when they squeeze between the leaves.

Squish

Tomato Hornworm

The tomato hornworm is a large, pale green caterpillar with white and black markings. It reaches 3 1/3 to 4 inches long, when mature. A brown form also occurs, but is usually less common. The name "hornworm" comes from the fact that these caterpillars have a projection or spike on one of the last abdominal segments. The adult, called a sphinx moth or hawk moth, is a medium to large, heavy-bodied, and has narrow front wings. The body is spindle-shaped, tapering at both ends, and the antennae are fairly thick. The adult is a mottled gray-brown color with yellow spots on the sides of the abdomen. The wing spread is 4 to 5 inches.

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Lacewings

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Lacewing adults are about three-quarters of an inch or less in length, with delicate, gauzy, green or brown wings. Some species have jewel-like golden eyes. The larvae are grayish brown, with sharp curved jaws that extend beyond the head. Larvae crawl along the leaf surface in search of aphids, scales, mealybugs, thrips, mites, and insect eggs. Full-grown larvae can consume 100 or more insects a day.

Parasitoid Wasps

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There are hundreds of species of parasitoid wasps that can be important in controlling populations of other insects. The most commonly noticed ones are Braconid and Ichneumonid wasps. Many other parasitoid wasp species are much smaller, only a few millimeters long. The wasps typically have a larval stage that feeds on the inside of the host insect, and the larvae slowly devour the host, which eventually dies. Some of the wasps emerge to pupate on the outside of the host, others develop into pupae inside and emerge from the host as adults.



Praying Mantids

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Adults and the immature (nymph) stages of the praying mantis look similar. These are highly predaceous insects that feeds on a variety of other insects. The mantids wait to ambush their prey with the front legs in an upraised position that gives them their name. Praying mantis egg cases may be found on tree twigs and in fields, and for some fun, you may wish to watch them hatch in your own garden next spring. Eggs cases may be gathered by cutting the twig you find them on, then tying the case to a branch in your garden. The young come tumbling out of their case by the hundreds in the spring. Praying mantids are cannibalistic and will eat one another. Only a few will survive under home garden conditions.

Ground Beetles

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The family Carabidae (Ground Beetles) has many hundreds of species that vary in size, shape and color. Most of these insects are somewhat flattened, dark brown or black, and shiny. They may be found under stones, logs, bark, debris or running about on the ground. Most of them hide during the day and feed at night. Nearly all are predaceous on other insects and many are beneficial by feeding on pest insects. There are also some Ground Beetles that feed on slugs and snails.



Centipedes

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Elongated, short-legged, flattened arthropods with 15 or more pairs of legs. There is one pair of legs per body segment and the antennae are prominent. There are several types of centipedes, some being venomous. Centipedes are predaceous, feeding on insects, spiders and other small animals. They do not cause damage to plants.

Carpenter Bees

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Carpenter bees of the genus *Xylocopa* are large black and yellow insects about one inch long that closely resemble bumblebees. The thorax is covered with yellowish hairs. The abdomen is mostly a shiny black, with few hairs (in contrast, bumblebees often have a band of yellow or orange hairs on the abdomen). Carpenter bees are pollinators of flowers, and therefore are considered beneficial.



Ants

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There are many types of ants. The most common species found in the Northeast include: carpenter ants, pavement ant, and odorous house ant. Additional species frequently found include: cornfield ants, yellow ants, acrobat ants, thief ants, little black ant, and pharaoh ant. Ants are generally beneficial, but a sudden convergence of ants in the garden, usually indicates the presence of aphids, mealybugs, or other sap-sucking insects that attack plants. Ants can even farm aphids rather than just getting rid of them.

Cucumber Beetle

Squish

Cucumber beetle adults over winter in protected locations such as in woodland litter and under soil. Early in the spring they feed on blossoms and leaves of cultivated and wild host plants. In New York they invade plantings of cucurbits in about mid-June just as the crop is emerging, and their numbers remain relatively high through mid-July. Once in cucurbits, the female beetles lay groups of eggs at the bases of plants. These eggs hatch and produce larvae that develop for 2 to 4 weeks on the roots, pupate in the soil, and appear as adults in early to mid-August.