



Practical Pest Management

*A workshop provided by Growing Places Volunteers
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The first step towards building a healthy vegetable garden is regular maintenance. By keeping your vegetable beds clear of debris and clutter, you can make your garden less hospitable to pests. Clean up after yourselves, promptly remove dead or diseased plants and dispose of them carefully. Do not compost plants that may contain larvae or eggs or that have been killed by disease. At the end of the growing season, cut back foliage and leave the beds clear to make it more difficult for insects to overwinter.

Leaf Miner

The larval stage of leaf miner flies does the damage, as the tiny larvae burrow through leaf tissue.

These tunnels are clearly visible in leaves and there may also be small clusters of white eggs visible on underside of leaves

Spinach, beets, chard are favorites.

Remedies

Destroy egg masses (usually in groups of 4 or 8) by rubbing them off leaves, cut off infected portions of leaf if not too badly damaged or remove entire leaves if leaf is severely infected. Destroy infected leaves as the mature larvae will pupate, drop to soil and hatch out to begin the cycle again.

Flea Beetle

Tiny black beetles that jump around when disturbed, moving much like fleas. The beetles feed on leaves, producing a scattered array of many small holes. They can destroy young seedlings when infestation is great.

Brassicas are a favorite target.

Remedies

Apply row covers immediately after seeding areas of susceptible plants. Remove the covers when crop flowers if pollination is necessary for crop.

Spray with solution of garlic. Spraying a solution of kaolin clay may deter feeding by coating the leaves. Keep crop well watered and use bio-control sprays like Neem if infestation is great.

Squash Vine Borer

The larval stage of the moth hatches from red-brown eggs laid on the stem of squashes near the base of the plant. The cream-colored caterpillar feeds on the inner parts of stem eventually causing noticeable wilting.

All squashes and relatives are susceptible with exception of Waltham Butternut Squash.

Remedies

Locate entry point in stem by searching for holes surrounded by yellow sawdust-like material. Kill caterpillar by slitting stem with knife and sliding knife blade up the stem until larva is located and destroyed. Cover the slit with an inch of soil and keep moist which will encourage rooting. Alternately, illuminate the stem with flashlight at night, the larva's silhouette should be visible, enabling you to stick it with a pin and kill it.

Cabbage Worm – several varieties

Green caterpillar - larval stage of cabbage butterfly

Cabbage Looper - larval stage of a moth

Cross striped larvae - larval stage of moth, caterpillars are often found in large clusters

All of these cabbage worms consume leaves of Brassicas including broccoli, Brussels sprouts, and cabbage. Damage consists of skeletonized leaves or bits removed from leaf edges.

Remedies

Hand-pick and drop caterpillars into soapy water. Dust leaves with Bt (*Bacillus thuringiensis*), which kills these caterpillars when they ingest the bacterium. The bacterium is not harmful to humans or domestic animals.

Mexican Bean Beetle

Looks like a tan or yellow lady bug with black spots. The larvae are yellow and fuzzy; both feed on leaves and pods.

Yellow egg masses can be found on undersides of leaves.

All bean varieties affected

Remedies

Use row covers at time of planting.

Handpick both adults and larvae and drop into soapy water. Rub off the egg masses.

Spraying a solution of kaolin clay onto the leaves can deter feeding. Spray insecticidal soap directly onto beetles and larvae. Check undersides of leaves for beetles, larvae and eggs.

Cucumber Beetle

Yellow-and-black-striped beetle.

Larvae are white but usually not seen as they feed on roots. Adults emerge as seedlings begin to grow and they begin feeding; can destroy young seedlings.

Host plants are cucumbers, summer squash, watermelon.

Cucumber Beetles can transmit bacterial wilt.

Remedies

Use row cover after seeding. Secure the edges by burying an inch deep in soil. Remove when flowers begin to bloom or roll back to pollinate with a small paint brush.

Spray solution of kaolin clay, especially on underside leaves. Hand-pick beetles and drop them into soapy water.

Japanese Beetle

Metallic colored adult beetles, C shaped larvae with brown heads live in soil and feed on grass roots.

Beetles chew leaves of many plants leaving only the leaf veins; they also feed on corn silks preventing pollination and thus kernel formation.

Remedies

Hand pick in early morning when beetles are lethargic and drop into soap solution.

Use insecticidal soap, sprayed directly on beetles.

Cut Worm

Cut worms are the larvae of moth and are laid as eggs near potential food. Cut worms chews around base of main shoot causing it to fall over and may consume the plant totally. C shape caterpillar of moth present in soil, varying in color from grey to brown.

Most vegetable varieties, especially seedling stage. Highly destructive pest.

Remedies

Use collars made from the cardboard rolls at the center of paper towels or toilet paper. Place collar over plants at seedling stage and push into the soil to serve as a mechanical barrier.

Regularly scratch soil around felled plant. Destroy any caterpillars. Alternatively, use flashlight at night when caterpillars are feeding. Hand-pick and drop into soapy solution.

Aphids (cabbage)

Aphid are tiny pear shaped insects, grey or black in color. In this case they are found on Brassicas. They suck juices from leaves eventually leaving curled, yellow leaves and a malnourished and damaged plant.

Remedies

Spray aphids with a stream of water to dislodge and crush them, or spray them with insecticidal soap.

Squash Bug

Adults brown or grey with a hard shell, sometimes with orange and brown stripes on abdomens. Feed on leaves by sucking juices and leaving dots on leaf surfaces where feeding, nymphs which hatch from eggs are active feeders as well. Prolific pests. Shiny copper colored egg masses are deposited in rows near veins of underside of leaves.

All squash, however, yellow summer squash, butternut and acorn are not usually affected.

Remedies

Hand pick adults and nymphs, and drop into soap solution. Destroy egg masses by crushing.

Install row covers immediately after planting, remove when flowering or hand pollinate. Spray insecticidal soap directly on adults and nymphs.

Wireworm

Wireworms have a hard shell, and are a thin worm-like larvae, varying in color from yellow to brown

They cause devastating damage to root vegetables by boring into them, especially carrots and potatoes.

Remedies

Make traps from slices of potato buried 2-4 inches deep in soil with stick marking location. Position at 3 foot intervals along rows of susceptible plants, remove, destroy and replace with fresh bait every few days.

Tomato Hornworm

Hornworms are the larval stage of a moth. They are 3-4 inches long and are usually pale green, with 7 white and black v-shaped markings.

The larvae eat leaves and fruit of tomato plants as well as peppers. A single Hornworm can devastate a plant. Their green accordion-like droppings are visible on leaves.

Remedies

Hand-pick and destroy by dropping into soapy water. Do not remove Hornworms with white oval shaped eggs on their backs since these eggs are laid by a parasitic moth and the wasp larvae will kill the caterpillar.

Dust foliage with Bt. This bacterium will kill caterpillars when ingested.

Cabbage Maggot

Cabbage Maggots are the larval stage of a fly. They feed on the roots of Brassicas causing wilting and yellowing and eventual death of plant. Plants will wither and pull out of the ground easily since the roots are eaten away. They smell foul and are covered in larvae.

Remedies

Place maggot mats made of 6 inch squares of cardboard or tar paper around seedling at planting to prevent fly from laying eggs at base of plant.

Slugs

This member of the mollusk family can be black, brown or grey. It overwinters as an adult emerging in early spring. As the weather warms, slugs become more active, especially during wet weather. They are less active during dry hot conditions.

Slugs feed at night, spending daytime under rocks or pieces of wood. They can be devastating to leafy crops and also tomato and strawberry fruits

Remedies

Hand pick after 10 at night, checking undersides of leaves

Set trap-boards near crop, which will serve as shelter during day. Check early morning by turning over board, and crushing any slugs found there. Baiting slugs with saucers of beer is also effective.

Place scratchy material around plants, e.g. crushed egg shells, and pine needles

Lay down copper strips or galvanized flashing as barriers

Early Blight

Early blight is a soil born fungus, *Alternaria solani*. It manifests itself as dark spots on older leaves which appear as concentric circles. These circles enlarge and the leaves eventually wilt and drop off. The lower leaves are first to be affected because spores splash up from soil onto lower leaves

Mainly affects tomatoes and potatoes. Tomato fruit may suffer sunscald due to lack of shade from loss of leaves.

Remedies

When setting out tomato seedlings mulch with grass clippings or other material to prevent spores from splashing onto leaves.

Clean up well at end of season removing all plant debris, as spores overwinter in fruits of tomatoes and potato tubers. Do not compost any affected plants.

Avoid overhead watering – soaker hoses work well for tomato plants by watering from below.

If you have had problems with early blight grow your tomatoes in another area of garden next season.

Late Blight

This highly contagious fungus, *Phytophthora infestans*, grows best when nights are cool and days are warm and humid. The spores are wind born and infection begins on leaves and stems. Grey spots appear that have a greasy look, and enlarge until leaves and stems die off. The entire plant will quickly become affected and will collapse.

Late blight affects both tomato and potato plants.

Remedies

Check plants every other day for symptoms. If Late blight occurs in your garden, remove plant entirely placing in bag and putting into trash. Do not compost. Keep foliage dry by placing a clear plastic tent over tomato plants to protect plant from rain.

Powdery Mildew

This fungus produces a white coating on leaves of affected plants; the spores germinate on dry leaf surfaces when humidity is high. It affects beans, peas, lettuce, squash, cucumbers and melons.

Remedies

Remove infected leaves immediately. Spray leaves with a solution of 1 part milk and 9 parts water to slow the spread. Or spray affected leaves with potassium bicarbonate solutions.

Clean up at end of season since spores over winter in plant debris and are spread by wind. Spray susceptible crops with water during the day since wet foliage helps prevent spore germination. If Powdery Mildew is a constant problem, use Neem spray early in the growing season as a preventative.

Cucumber Wilt

Cucumber wilt is spread by the cucumber beetle. It is a bacterium which blocks water-conducting tissues of cucumber plants, causing wilt and eventual death of plant.

Remedies

Remove and destroy infected plants as soon as possible. Control outbreaks of cucumber beetle using methods described on previous pages.