



# **GROWING YOUR GARDEN**

## **Pests and Plant Diseases: Gardening guide**

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**Every gardener will come in contact with pests and diseases throughout their gardening career.** Pests are a part of the natural world and can provide many learning opportunities so be sure to bring your students out to see the pests and how they impact your plants. Do not apply chemical pest control products to your Learning Garden. In small scale growing there are easier solutions and most pesticides are highly toxic to humans as well as bugs.

**Avoiding Pests and Disease:** Healthy plants have their own internal pest and disease prevention tools. Plants will most commonly attract diseases or pests when they are stressed by too much or too little water. Check your soil moisture regularly to track the effectiveness of your watering strategy.

**Identifying Pests:** During the growth of your garden, keep an eye out for any obvious bite marks or colonies of bugs. Be sure to check the underside of leaves and along plant stems. Identifying the bite marks and the plants they occur on may be all you need to identify the pest. Other pests will be most obviously identified by their increasing numbers.

**Identifying Disease:** Diseases are often much more challenging to identify but are much less likely to occur. Diseases will typically impact plants in the form of discolored leaves, drooping leaves, or stunted growth. If you think a plant has a disease, first check the soil moisture in your garden and pay close attention for a few days. More often than not, watering issues are misdiagnosed as disease.

**What should you do if you think you have a pest or disease issue? *\*Do not apply chemical products!\**** Send several photos of your plant's pest, bite mark, discoloration, or droopy leaves to your local Big Green staff. They often will know immediately what the issue is and how to best take action. Big Green staff will find a solution using Good Agricultural Practices, taking into account student safety in the edible garden. Feel free to do your own online research, but be conservative when taking action, and always let your Garden Educators know what techniques and products you use.

**Be sure to rotate your crops between each year:** Keep track of where you planted different crops in your garden so that the following year you can rotate your garden plans. Diseases are usually plant specific and can live in the soil of your garden for a few years, so you will avoid most growth of plant diseases by simply changing the plants that grow in each garden annually.

# Garden Pests

The following list outlines some common garden pests and how to identify them.

## Aphids

Aphids attack almost all vegetables, including potatoes. There are winged and non-winged aphid types. They suck the juice from the plants and some transmit viral diseases to plants. They impact all plants except squash.



## Flea Beetles

There are many species of flea beetles. Those most common on vegetables are black, 1/16- to 1/8-inch long adult beetles that may have light-colored stripes. They jump and fly when disturbed. The adults eat tiny, pin-sized holes in leaves of eggplant, radish, bean, potato, tomato, and peppers. Pits may be eaten into the leaves which later turn brown

## Cabbage Worm

Cabbage worm adults are white or yellow/white butterfly larvae with small light black spots on the wings. They first appear mid-April and they continue to be a problem until mid-September.

They attack cabbages, broccoli, cauliflowers, collard greens and kale. They fly during the day and lay eggs on the undersides of leaves. The eggs hatch into velvet-green larvae that feed on the upper surface of the leaf, leaving the midribs intact. The bright green pupa is attached to the lower surface of the leaf by a silky thread. The pest overwinters as pupae in crop debris.



# Plant Diseases

The following list outlines some common plant diseases and how to identify them.

## Blight

Early Blight is caused by a fungal pathogen called *Alternaria solani*. The most obvious symptom is the “bulls-eye” patterned spots that develop on older leaves towards the bottom of tomato, pepper, eggplant, or potato plants. Blight can also cause stem lesions and fruit rot. The best way to prevent blight is to avoid long periods of wetness on the surface of the leaves by watering in the morning or using drip irrigation and by rotating your crops from year to year.



## Downy Mildew

Downy mildew most commonly damages brassicas, cucurbits, onions, and leafy greens such as spinach, lettuce, collards, cabbage, basil, and squash.

Symptoms of downy mildew vary with the host and the environmental conditions. The first symptom is usually the appearance of pale green spots on the upper leaf surface. These areas soon become yellow

and irregular in shape, bounded by the leaf veins.

## Powdery Mildew

Powdery mildew, caused primarily by the fungus *Erysiphe cichoracearum*, may attack all vine crops and other vegetables. The cucurbit crops most commonly affected are cucumber, gourd, muskmelon (cantaloupe), pumpkin, and squash. Powdery mildew first appears around midsummer and will persist into the fall. All foliar tissues can become infected. A major symptom is the appearance of small, circular, talcum-like spots that gradually expand on vines and leaves



## **GARLIC CHILI SPRAY**

Here is a great homemade, non-toxic pesticide from [www.no-dig-vegetablegarden.com](http://www.no-dig-vegetablegarden.com)

Steep the following ingredients in the sun using an old container for a day (beware – it will be strong)

- Chop 2-3 garlic bulbs
- Chop 6 large or 12 small hot chili peppers
- 7 cups water.

Filter liquid and pour into a spray bottle for application. Be sure to experiment with your spray before applying widely and check for results or any damage to young plants. Uses for this natural garden pest control are extensive. It will deter ants, aphids, caterpillars, grubs, bugs and just about any little invade selective and mind the beneficial garden insects like ladybugs, lacewings, and bees.