

## GROW YOUR OWN: PESTS & DISEASES

### PESTS AND DISEASES

Vegetables in the garden and grown in containers can be attacked by various types of insects and diseases.

#### PREVENTION

The best way to prevent pests and disease from affecting your plants is to keep them healthy. Like us, plants can fight disease if they are healthy and well fed. Healthy plants are able to recover from damage from pests and diseases better than plants experiencing water or nutrient stress (hungry and thirsty).

There are some things you can do to help prevent diseases developing.

Drainage: Your garden or container should be well drained. If you have waterlogged soil your plants might get a root rotting fungus. Good drainage helps good growth of the plant roots and the entire plant.

Crop Rotation: Make sure you don't plant the same type of plant in the same spot (or container). This is a good way to prevent and manage diseases that attack plants that are related to each other. Next time you plant in the same spot, choose a plant from a different family. This reduces the chance that plant diseases will build up.

<b>Tomato family</b>	Tomato	Eggplant	Hawaiian Chili Pepper	
<b>Cabbage family</b>	Lettuce	Collard or Kale	Other Chinese cabbages	Choi sum or Bok choi
<b>Bean family</b>	Pole or bush bean			
<b>Others</b>	Green onion	Basil	(not related to each other)	

Visit this website for more information about preventing and controlling plant diseases  
<http://www.ctahr.hawaii.edu/oc/freepubs/pdf/PD-14.pdf>

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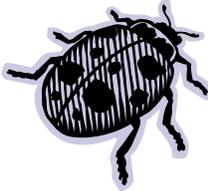
## PESTS

Check your plants every week to look for leaf and fruit-feeding insects as well as the occurrence of diseases.



A few bugs and small amounts of disease probably won't hurt your plant, but when the damage starts to look serious try some of these tips:

### LADY BUG



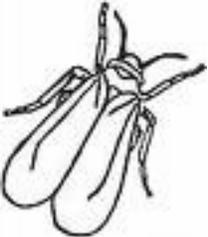
Some insects actually help us by eating or destroying other insect 'pests'. Encourage ladybugs if you see them.

If you only see a few large pests on your plants, try picking them off by hand (e.g. caterpillars, snails) and getting rid of them.

### CATERPILLAR



### WHITEFLY



For smaller insects try spraying with a hosepipe or spray bottle filled with water to knock them off (e.g. aphids, whiteflies).

### APHID



**For these and other insects, try one of the home-made spray recipes below**

## RECIPES FOR HOME MADE BUG SPRAY

#### For mites and other insects:

Mix two tablespoons of hot pepper sauce or cayenne pepper with a few drops of dish soap into a quart of water. Let the mixture stand overnight, then stir and pour into a spray bottle and apply. Shake container frequently during application.

#### For soft-bodied insects:

Mix one tablespoon canola oil and a few drops of dish soap into a quart of water. Shake well and pour into a spray bottle. Spray plant from above, and from below to get the underside of the leaves. The oil smothers the insects.

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## DISEASES

Diseases affect home garden vegetable plants. The diseases become a problem when conditions around the garden suit them. You can reduce the losses from disease by a combination of prevention methods:

- Select adapted, disease-resistant varieties (choose local seeds).
- Use transplants that are free from disease (choose transplants carefully - see Lesson 2: Plants and Planting).
- Don't grow the same vegetable in the same place each year - rotate the areas/buckets (see first page - crop rotation)
- Control weeds that compete with vegetables or might shelter plant diseases (see next page - weeds).
- Control insects that may carry disease (home-made sprays).
- Remove and destroy diseased plant material.
- Remove dead plants soon after harvest.
- Keep your garden tools clean.

### HOME-MADE SPRAY FOR FUNGUS

Mix two tablespoons of baking soda into a quart of water. Pour into a spray container and spray affected areas. Repeat this process every few days until the problem ends.

## ASK THE EXPERTS

Identifying plant pests and diseases often needs help from an expert. If these simple solutions haven't worked for you, pick up the phone and call the Master Gardener hotline at:



Oahu: (808) 453-6055 (9am-noon, M-F) [OahuMg@ctahr.hawaii.edu](mailto:OahuMg@ctahr.hawaii.edu)  
Maui: (808) 244-3242 (9am-noon, M, Tu, Th) [MauiMg@ctahr.hawaii.edu](mailto:MauiMg@ctahr.hawaii.edu)  
Kauai: (808) 274-3471 (1-4:30pm, M-F) [rebesu@hawaii.edu](mailto:rebesu@hawaii.edu)  
East Hawaii: (808)981-5199 (9am-noon, M, Tu, F) [himga@hawaii.edu](mailto:himga@hawaii.edu)  
West Hawaii: (808)322-4892 (9am-noon, Th) [KonaMg@ctahr.hawaii.edu](mailto:KonaMg@ctahr.hawaii.edu)

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## WEEDS

All you need to know about weeds is:

“POOP” and “One year seeding, seven years weeding”

“POOP” - **P**lant **O**ut **O**f **P**lace. A weed is a plant growing where you don't want it. If you plant in rows or in marked spaces, you know where your food plants are supposed to be. Any other plants are weeds and will compete with your food plants for space, light, water and nutrients.

**Pull them out** (roots and all).

“One year seeding, seven years weeding” - if you leave weeds in your garden and allow them to ‘go to seed’, they will drop enough seeds to keep you busy weeding for the next seven years. If you remove the weeds before they form a seed head, you can prevent that weed from spreading and causing you extra work. If you can't pull out the weed, at least cut off the flowering head.



Mulching - Mulch is any material that is used to cover the soil for beneficial purposes. Compost can be used as a mulch. Garden supply stores also carry both local and imported mulch products. Mulch will stop weeds germinating and growing by blocking light.

## BOTTOM LINE

Enjoy your garden. Try not to worry about the pests and diseases.

If you create the right environment for healthy productive plants in a healthy productive soil, you can minimize your pest and disease problems.

If something doesn't work out, pull it up and replant with something else.

Both inorganic & organic mulches have numerous benefits. Organic mulches e.g. grass clippings, straw, bark chips, newspaper. Inorganic mulches e.g. stones and plastic.

**THANK YOU FOR JOINING OUR CLASSES & HAPPY GARDENING!**

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