

# Growing Healthy Vegetables

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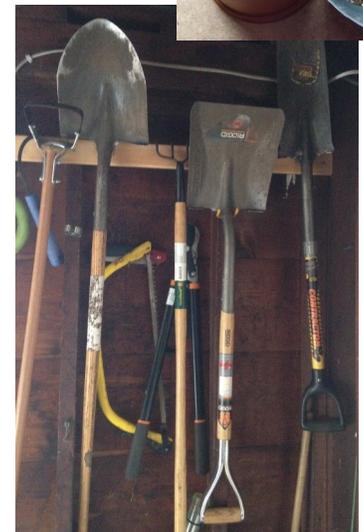
Spots, rots, wilts and other plant problems often appear in the vegetable garden. Below are a few strategies to keep plant disease at a tolerable level. Remember the goal is a good harvest of tasty vegetables. It is ok to tolerate low levels of plant disease.

Find information about growing healthy vegetables at [www.extension.umn.edu/garden/yard-garden/](http://www.extension.umn.edu/garden/yard-garden/)

## Start Out Right

### Seeds

- Look for disease resistant or tolerant varieties for disease problems you have seen in the past.
- Purchase seed from a reputable source.
- If saving your own seed, collect seed only from healthy plants.
- If you suspect seed may be contaminated, soak in 1:4 bleach solution for 1 minute and rinse in running water for 5 minutes just before planting.
- If starting seeds indoors, use new potting mix with new pots or pots cleaned with 10% bleach.
- Keep soil moist but not soggy. Provide good air movement around plants.
- If starting seeds in the garden wait until the soil is warm enough to plant.



### Pots, Trellises, and Tools

Remove all dirt and plant debris. Clean everything with 10% bleach solution before using in the garden.

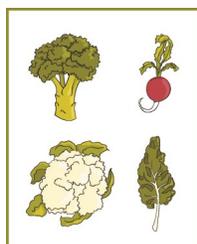
### Transplants

- Purchase healthy transplants from a local reputable grower.
- Inspect all transplants prior to purchase. Reject any plant with dark, discolored or soft sunken spots on leaves, stems or roots.

### Rotate Crops

Plant in a location where no member of the same plant family has been grown for 2-4 years.

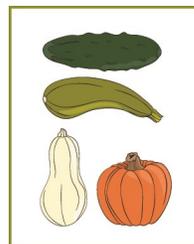
Cabbage family



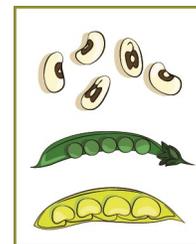
Tomato family



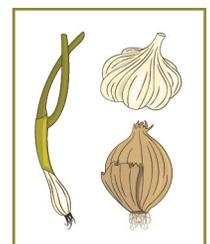
Squash family



Bean family



Onion family



## Managing Disease throughout the Season

### Scout for Problems

Diseases are easier to deal with if identified early. Once disease is severe, there is little that can be done.

- Examine plants once a week throughout the gardening season.
- Use the online diagnostic tool 'What's wrong with my plant?' [www.extension.umn.edu/garden/diagnose/](http://www.extension.umn.edu/garden/diagnose/) or send a sample to the UMN Plant Disease Clinic <http://pdc.umn.edu> to identify pest problems.



### Manage Moisture

- Fungi and bacteria thrive in humid conditions.
- Use drip irrigation or water with a sprinkler early in the day so that the plant dries quickly in the sun.
- Space plants for good air movement so plants dry quickly after rain or dew.
- Stake vining plants like cucumber, bean, and tomato.
- Mulch to completely cover the soil with plastic or organic mulch like straw or woodchips.
- Do not work in plants when leaves are wet. Fungi and bacteria easily spread under these conditions.

### Manage Weeds

- Weeds crowd the crop and increase humidity on leaves and fruit.
- Weeds steal nutrients and water from the plant, resulting in plant stress.
- Many pathogens can survive on weeds and then move into the crop.

### Remove Diseased Plant Material

- Completely remove plants infected with a virus or aster yellows.
- Pinch off leaves infected with leaf spots and remove them from the garden. Never remove more than 1/3 of a plant's leaves.
- Remove rotten fruit from the garden to prevent spread to developing fruit. Do not harvest rotten and ripe fruit together or rot may spread in the refrigerator.
- At the end of the growing season completely remove diseased plants.
- Diseased plant material can be composted if the compost pile gets hot (>148 °F) and the plants completely break down.
- If the garden is very large, bury plant debris to begin the decay process and rotate to a different plant family the following year.

