



DOWLING COMMUNITY GARDEN

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Dealing with Insects and Diseases

To minimize problems with insects and diseases, start with healthy soil that will give plants what they need to thrive. The best defense is prevention: use growing techniques that encourage healthy plants, and practice good garden sanitation.

When plants show symptoms, identify the insect or disease that is causing the problem and use the least-harmful method for dealing with that specific problem.

Keep a record of your garden from year to year. You will then know when certain insects or diseases may be problems and can take steps to prevent or minimize damage to your plants the following year.

References

Ellis, Barbara; Bradley, Fern Marshall, ed. *The Organic Gardener's Handbook of Natural Insect and Disease Control*. Rodale Press, 1996.

Coleman, Eliot. *The New Organic Grower*. Chelsea Green Publishing, 1995.

Katharine Widin. "User-Friendly Pest Control". *Northern Gardener*, March/April 2005.

For more information

Pleasant, Barbara. *Gardener's Guide to Plant Diseases: Earth Safe Remedies*. Storey Publishing, 1995.

Riotte, Louise. *Carrots Love Tomatoes: Secrets of Companion Planting for Successful Gardening*. Storey Publishing, 1998.

Useful web sites

Insect and disease resistant vegetables:
<http://www.uwex.edu/ces/wihort/fruitveg-gies/VeggiePubs.htm>

Recipes for making non-toxic remedies:
<http://www.firststrays.com/remedies.htm>
<http://www.ghorganics.com/page15.html>

Organic gardening:
www.organicgardening.com

Give your Plants a Healthy Start

Start seedlings in clean containers, and use a soilless starting mix. Choose healthy transplants for your garden. Plant disease-resistant varieties; some plants have been bred to have, or found to naturally have, insect and disease resistance.

Make sure your garden soil has the right components for your plants (see Dowling Community Garden's publication "Improving Your Soil", available for download at the web site.) Allow adequate spacing so your plants get enough nutrients and good air circulation. Provide growing conditions specific to your crop – sun or shade, wet or dry, correct pH range – so they aren't stressed; stressed plants are more susceptible to problems with insects and disease.

Clean up your garden debris in the fall to minimize places where insects will over-winter. Hoe around your plants to disturb the soil where insects dwell. Remove diseased plants from your garden; do not compost them.

Growing Tips for Healthier Plants

PLAN YOUR GARDEN PLANTINGS. *Rotate your garden plants* so you aren't growing crops in the same place where they had problems the year before. Use *companion planting* when designing your garden layout; some strong-smelling plants can help repel insects. Plant *trap crops* that will attract pest insects away from your desired plantings.

Encourage natural predators Attract beneficial insects to your garden by planting flowers or other plants that they use for food. Insect predators include spiders, lacewings, ladybugs, praying mantids, wasps. Birds will also consume harmful insects.

CHECK YOUR PLANTS. Check plants regularly for signs of insects or disease. Look for insect eggs on leaf and stem undersides, and crush them. Cultivate soil to destroy eggs. Remove or treat diseased plants promptly.

HANDLE PLANTS CAREFULLY to avoid spreading diseases; damaged stems or torn leaves are open to infection. Don't handle plants when they are wet. Cut fruits or flowers with a sharp knife or scissors to avoid tugging on the plant.

KEEP WEEDS UNDER CONTROL. Some weeds encourage insects, or are hosts for diseases. Weeds rob your garden of nutrients needed by your plants.

Preventive Barriers

These prevent insects from getting to your plants. Here are some common insect barriers:

ROW COVERS. These light-weight fabrics cover your plants yet allow light and water to get through. They work well for plants that do not require pollination to set fruit (or cover plants until flowers begin to form, then remove). Use row covers to control leaf miners, flea beetles, cabbage moth caterpillars and other flying insects or their larva. You must use the covers when you plant your crop, *before* you have a problem with insects.

Dealing with Insects and Diseases continued

ALL-PURPOSE INSECT SPRAY

1 head garlic
1 small onion
1 tsp. powdered cayenne pepper
1 quart water
1 tb. liquid dish soap

Grind garlic and onion in blender or food processor until finely chopped. Add cayenne and water. Let steep for one hour, then strain through layers of cheesecloth or a fine-mesh strainer. Add dish soap and mix well. Put in pump sprayer; keep refrigerated when not in use. *Lasts about a week.*

(from *The Organic Gardener's Handbook of Natural Insect and Disease Control*, Rodale Press, 1996)

MILK SPRAY FOR POWDERY MILDEW

Powdery mildew is a common fungal disease that affects many types of plants. The fungus will coat leaves, stems and flowers and looks like a white fuzz or powder, usually starting on lower leaves.

1 cup of milk
9 cups of water

Mix and place in sprayer. Spray once or twice to control powdery mildew.

STERILIZING SOLUTION

Soak seed-starting plastic pots, and wash tomato cages and other garden structures with this bleach solution to kill disease spores.

1 part household chlorine bleach
9 parts water

Wear rubber gloves to protect your hands when using this solution, and dispose of properly.

OTHER BARRIERS. Abrasive materials like *wood ashes, sawdust or crushed seashells* work on soft-bodied insects like slugs or caterpillars. Use a 2" strip around garden beds or plants, and reapply after rain. *Aluminum foil* may be used as a "fence" for cutworms, or as a soil covering to help control aphids and leafhoppers on cabbage and peppers. Remove it when temperatures get hot to avoid damaging your plants. *Mulches* help prevent insects from emerging from infected soil, or getting to the plant's roots. Individual plant protectors may be made from *window screening* wrapped into a cone shape (remove the screening when your plant flowers if it requires cross pollination to set fruit.)

Problems with Insects

Reminder: No pesticides are allowed at Dowling Community Garden.

IDENTIFY THE INSECT. Research the insect and your specific crop to determine if you really need to do anything. Some insects cause little damage, or the damage is cosmetic. Trap bugs in a small jar to make identification easier. Consult organic gardening books (Rodale Press publishes many) or web sites.

DETERMINE THE BEST CONTROL FOR THE INSECT AND YOUR PLANT. Hand removing larger insects may be the best remedy, or spraying with water or a homemade vegetable/soap mix. You might find that sticky insect traps will work, or releasing beneficial insects. Some insect controls involve cutting into stems and removing bugs, or hilling dirt around vine stems to form more roots and increase survival chances. You will want to determine the best, most focused and least harmful solution to your specific problem.

Hand remove insects that are large or slow moving. Look for insect eggs on leaf and stem undersides. Crush bugs or drop them into a container of soapy water.

Sprays can help control bugs. A pressure spray of water damages soft-bodied insects. You can apply a spray of a weak vegetable/soap mix onto affected plants to repel insects; be sure to target insects directly. (Be careful about applying soap sprays in direct sunlight, and test the spray on a small part of plant foliage first to avoid damage.) This works best for leaf-eating insects, and may not be effective for all plants or situations.

Sticky traps attract insects, which get stuck in the sticky coating. (Warning: you may kill beneficial insects along with the problem ones.) You can coat cards of different colors with a mix of equal parts petroleum jelly and liquid dish soap. Attach to stakes or hang in the garden at plant height (but not touching plants); clean them off and reapply as needed. Use bright yellow cards to trap aphids, cucumber beetles, various flies; white cards for flea beetles.

Problems with Diseases

Reminder: No fungicides are allowed at Dowling Community Garden.

Disease organisms are carried in the air, soil, or are transmitted by insects. Row covers, mulches and other *barriers* help prevent disease-transmitting insects from getting near crops.

PRACTICE GARDEN SANITATION. Make sure plants have good air circulation; disease spores reproduce in warm, wet conditions. Wash your hands to prevent spreading diseases to your plants, and don't handle plants when they are wet. Make sure your tools and garden structures are clean and disease-free.

IDENTIFY THE DISEASE. Some diseases may be controlled by removing infected leaves immediately. Others require destroying the entire plant. Do not compost diseased plant material; remove from your garden and place in the trash.