Pest & Disease Control

In our Master Gardener Plant Clinics and Demonstration Gardens throughout King County we are often asked about controlling pests in home gardens without the use of pesticides. This Tip Sheet lists several cultural practices that can reduce pest populations to acceptable levels and recommends several WSU resources which go into more depth on cultural, chemical and biological controls by specific pest, disease and plant.

Pest and Disease Resistance

Keep the guidance of "right plant, right place" in mind; a plant growing in the wrong conditions will be more susceptible to both pests and diseases. Don't over-fertilize; that won't help the plant and may cause an excessive amount of tender new growth that attracts aphids and other pests. Look for plant varieties that are known to do well in Puget Sound and may be resistant to some pests and diseases. For annual vegetables, remember that we have a long but cool growing season.

Chemical-Free Control Methods

Screening out insects is an old method that is now much easier with floating row covers (FRC). FRCs, sold under several different trade names, are indispensable tools for the vegetable gardener wishing to avoid the use of chemicals. Pests such as leaf miners, carrot rust fly, cabbage maggot, cabbage looper, onion maggot, and flea beetle can be deterred with row covers. Extending the growing season by conserving heat is another benefit of row covers. More information can be found in WSU publication FS089E, "How to Install a Floating Row Cover," available free at pubs.extension.wsu.edu

Crop Rotation is one of the oldest and most effective methods of pest control. Crop rotation by plant family is used to reduce damage from some insect pests, such as nematodes, mites, and maggots; to limit the development of some diseases, such as Verticillium wilt and Phytophthora root rot; and to manage soil fertility. WSU recommends a 5- to 7-year crop rotation by plant family if possible. A 3-year rotation is considered minimum. Plant families include brassicas (e.g., cabbage, kale, turnips), nightshades (e.g., tomatoes, peppers, potatoes), alliums (e.g., onions, garlic, leeks), cucurbits (e.g., squash, cucumbers, melons), and legumes (e.g., peas, beans). More information can be found on pages 20-21 of WSU publication EM057E, "Home Vegetable Gardening in Washington", available free at pubs.extension.wsu.edu. Some of the pests and diseases that crop rotation can deter are described in vegetable-specific WSU publications. These are listed in our "Gardening Publications" Tip Sheet.

Hand Removal is a labor-intensive but effective way to control insects large enough to be seen. Cabbage worms can often be spotted and many caterpillars are easy to grab. You will need to be able to identify which caterpillars are truly harmful to plants. All caterpillars eat

plant material, but some eat only a little. Make certain that what you are destroying is a pest. Cutworms and slugs can be captured at night if you patrol your garden with a flashlight. Hand removal will cause you to look at plants closely and will soon make you familiar with all the insects in your garden, bad ones and good ones. Aphids can often be dislodged with a strong spray of water.

Trapping works as well. Lay a board or an overturned cantaloupe skin in the garden and check it each morning and evening for slugs. A bucket of sudsy water will drown trapped or hand-picked pests.

Sanitation is an important pest control technique. Eliminate weeds in and near your garden. Get rid of "volunteers," those tomato, squash and other seedlings that come up from last year's planting. Clean up and compost crop residues as soon as the crop is harvested. Many plant diseases and some insect pests overwinter on dead plant material that wasn't removed. Don't compost diseased materials as many home compost bins or piles don't get hot enough to reliably kill disease organisms or weed seeds. Don't leave old pots in the garden to serve as hiding places for unwanted guests.

Beneficial Insects such as ladybugs, ground beetles, lacewings and others can reduce pest populations. Encourage beneficials by limiting or eliminating pesticide use, providing native habitat, planting bee-friendly flowers, and reducing lawn size. More information is available in WSU publication EM067E, "Beneficial Insects, Spiders, and Other Mini-Creatures in Your Garden," available free at pubs.extension.wsu.edu

Cultural, chemical and biological controls by specific pest, disease and crop can be found online at:

hortsense.cahnrs.wsu.edu & pestsense.cahnrs.wsu.edu
WSU Extension *Hortsense* and *Pestsense:* advice on plant disease and pest problems. Includes information on weeds and Washington-registered pesticides

pnwhandbooks.org
Pacific Northwest plant disease, insect and weed management handbooks online. Sponsored by WSU, Oregon State U. and U. of Idaho

Additional Master Gardener Tip Sheets, including "Gardening Websites" and "Gardening Publications" are available at kingcountymg.org Also see WSU's "Gardening in Washington State" at mastergardener.wsu.edu/resources/gardening-in-washington-state and free downloads of WSU gardening publications at pubs.extension.wsu.edu

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