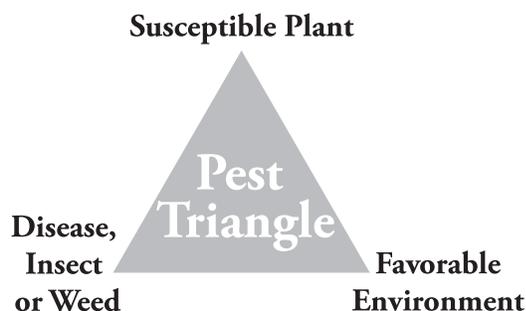


Integrated Pest Management (IPM)

begins by observing and considering all factors in your garden, and identifying probable issues before deciding on a course of action. Sometimes the environment is favorable to fungus growth and could be changed with less frequent, but deeper watering. Or, pests might love (or hate) a certain plant, and would leave if that plant were removed (or added). The pest triangle illustrates that answers to problems in your garden depend on understanding the system, and treating the cause, not just a symptom. Pests need three things to thrive:



Weeds: A weed is simply a plant that is out of place! They compete with your vegetables for sun, water, and nutrients. Primary weed control methods include prevention, hand weeding, mulching, solarization and herbicides **as a last resort!** Simply applying 3”– 4” of organic mulch in the garden can curb weeds by not allowing the sun to reach weed seeds. Do not compost weeds, especially if they have gone to seed. For more information on weeds: <http://ipm.ucdavis.edu/PMG/menu.homegarden.html>

Diseases: Disease pathogens are always present in the air and soil. Reduce favorable conditions by gathering and destroying leaves infected by disease or fungus, such as peach-leaf curl, roses with blackspot and hollyhocks with rust. Try planting disease resistant varieties, that are of proper age, and space your plants for good air circulation. Do not compost infected leaves or plants.

Insects: Healthy plants resist insects better. Plants grown slowly resist insects better, and plants spaced for good air circulation resist insects better. Strategies for various insects include: For **snails and slugs:** picking them out and squishing them; surround plants with (abraded) copper collars or Liquid-amber pods, or abrasives like egg shells or diatomaceous earth; lift vines up on cans; trellis foliage off of the ground; fence with aluminum screening . . .

Cabbage moths: cover Cole crops with spun-bonded-type roll covers.

Pest eggs: Wash both sides of plants leaves.

Aphids, mealybugs and scale: Strong blast from a water hose—support the plant as you spray it. Rub them off by hand.

Red spider mites: Hose off both sides of the leaves.

Tomato Worms (Tobacco horn worms): Hand pick adults (larval form). Follow their droppings to locate the worms, or sprinkle the plants with water to make the worms wiggle. They mature into large brown moths, and come from hard, brown, 2” pupae usually found 3’– 4” below the soil surface.

Beneficial insects and other biological controls: Parasitizing beneficials live and breed in **umbelliferae flowers** like anise, carrot, caraway, coriander, dill, fennel, and parsley; and **compositae flowers** like daisy, sunflower, black-eyed Susans, goldenrod, and strawflower. **Biological controls** include: Mustard flowers, which attract lacewings (for aphids, mealybugs, psyllids, thrips, mites, whiteflies, small caterpillars, leafhoppers, and insect eggs), parasitic wasps (for cabbage caterpillars and codling moths). Interplant French marigolds and nasturtiums to control white flies on tomatoes. Birds love sunflowers and insects! Interplanting beans in cucumbers repels cucumber beetles. Cucurbita lagenaria gourds work as trap plants for beetles. Potatoes repel squash bugs. Convergent lady bugs control aphids. For more information on natural enemies and biological controls, <http://www.ipm.ucdavis.edu/PMG/NE/index.html>

Pesticides: Health and safety of our food, the soil, and ground water supplies requires that we begin IPM with the least disruptive methods cited above, before moving to narrow spectrum pesticides that target a specific problem, or a “one spray kills all” approach that kills beneficial insects and soil organisms as well as your pests. Listing chemical and biological approaches from the least to most destructive would be: Insecticidal soaps, Insecticidal oils, Microbial insecticides, Entomophagous nematodes, and Botanical insecticides. Toxic insecticides should be avoided, such as Pyrethroids, Organophosphates, Carbaryl, Imidacloprid and Metaldehyde. For more information, see <http://www.ipm.ucdavis.edu>

Compiled by Randy Thomson, Master Gardener, 2011, from, *Grow L.A. Victory Garden Initiative, Vegetable Gardening, Handbook for Beginners*, Common Ground Program, L.A. County Master Gardeners, University of California Cooperative Extension, March, 2011.