Using IPM- Five thoughts on Cultural Controls
Nicole Sanchez   Jan 2020

In an Integrated Pest Management (IPM) approach to gardening, cultural controls include a wide range of gardening activities associated with the care of plants- the plant “culture”. Thinking of their gardens in terms of plant culture may be new to many home gardeners, but most of the practices contained under this umbrella are not new. Many are familiar- but with a tweak making them more effective at pest or plant disease management. This week, we’ll examine some common cultural controls.

**Watering Methods.** In a drought prone area like the Klamath Basin, using drip and soaker hoses instead of overhead watering is a common approach to water conservation in home gardens. Water delivery method also plays a role in disease management. Three things are necessary for plant disease to take hold: the pathogen (disease), host (the plant), and proper environmental conditions. Each disease has different temperature and moisture ranges in which it can infect a plant- these specific environmental conditions will make susceptible plants even more prone to disease. Home gardeners can foster an environment less friendly to disease by avoiding water sitting on leaves whenever possible. Avoiding drought stress through adequate watering is also considered a cultural control.

**Plant Selection.** Choosing the right plant cultivar- not just the right plant-for the job is a huge component of cultural controls. A historic example dates back to Thomas Jefferson’s time when a variety of wheat, resistant to the pest Hessian wheat fly, was discovered. In vegetable growing, proper cultivar selection is key. Tomatoes grown in greenhouses and high tunnels must be chosen carefully: some varieties have trouble dropping the blossom under cover, resulting in strange shapes on tomato bottoms. Vegetable gardeners in the Klamath Basin should select varieties with shortened growing times (low number of days to maturity) to fit the short growing season- or be prepared to start seeds indoors. 2020 will see the introduction of downy mildew-resistant impatiens to the market- an example of using plant selection to manage disease. Examples from ornamental and woody plants abound.

**Plant Placement.** Disease moves quickly among closely spaced groups of people, and the same can be true for plants. Good air movement through the plant canopy helps dry out wet leaves (see above) and minimizes habitat for insects and rodents. Poor air movement can happen when plants are spaced too closely to each other or when landscaping is planted too close up against the home- a common mistake. As plants mature, insect and disease problems start in the protected microclimate created by a thicket of shrubbery encroaching on the home. It can be tempting to space plants too closely at planting. Following suggested recommendations, whether for vegetable seeds or hedge shrubs, accommodates the mature size of the plant.

**Cover crops.** It is possible to achieve a variety of goals using cover crops: pollinator habitat, nitrogen fixation, reducing soil erosion, weed suppression. To do so effectively will require some research and/ or trial and error- this is not a “one-size fits all” tool. OSU’s Extension catalog contains five publications on cover crops, including one for home gardeners: [https://catalog.extension.oregonstate.edu/topic/agriculture/cover-crops](https://catalog.extension.oregonstate.edu/topic/agriculture/cover-crops). Correct plant selection, and a realistic understanding of what is possible with cover crops, are important here. Hint: a single species of cover crop cannot achieve all of the things.
Weed management. Included in this category- no kidding! Is hand pulling and hoeing of weeds. The IPM arsenal includes many other options, each of which might be appropriate for a range of, but not all, gardening circumstances. Flame weeders are popular among organic producers in less fire-prone areas. Tilling, whether via hand tools or mechanically, and mulch are also examples of cultural controls that are familiar to home gardeners. Landscape fabrics and heavy mulching between rows are far more efficient than hand weeding.

Each of the above examples barely scratch the surface: volumes of information exist, and more techniques are under development. Research continuously refines our knowledge, giving both home and commercial producers ways to apply IPM concepts very specifically. A classic field crop example consists of comparing yield of multiple plots, sown at differing seed concentrations. Up to a point, the more intensely planted, the higher the yield from the plot. After that point, overcrowding and resource competition result in lower yield or diminished return on additional seed investment.

Readers further researching IPM strategies will notice that different authors categorize specific strategies differently, or name IPM arsenals differently. The specific framework of categories is helpful, but less important than the reason for having a range of categories: the integrated part of IPM. The idea is a variety of tactics from different categories. Some of the most novel will emerge in next week’s topic, mechanical and physical controls.