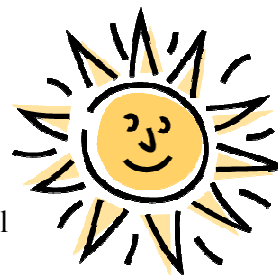


Summer Sun can be used to Kill Weeds and Soil Pests

Take advantage of the summer sunlight to help reduce weeds, diseases and pests in your soil with a process called solarization. All you need is some thin, transparent plastic sheeting, some sunny days and a little patience, for the process can take 8 to 10 weeks. During June through August, the sunlight is powerful enough to solarize soil. Solarization is like the cleansing process that takes place in a compost pile. When the soil temperature rises under the plastic, microorganisms that prefer warmer temperatures flourish and attack many of the harmful organisms.



Solarization can be especially useful in helping to kill many weeds and unwanted vegetation before making new garden beds. It also works to reduce the number of weeds between raised garden beds or in problem areas in yards. It has also been used successfully to reduce pathogens, nematodes and weeds in the upper soil layers before planting garden beds or young fruit trees. Preparation is necessary before laying the plastic down on the soil surface.

Work up your garden bed and get it ready for planting, then solarize. Then take care not to disturb the soil after solarization, as the weed and pathogen-killing heat from the sun only penetrates a few inches. Here are the steps of the process:

First, cut or mow all weeds down and remove debris and large clods. Rototill or turn over your soil. Rake the soil to a smooth surface, as air pockets or other irregularities on the soil surface inhibit maximum heating.

Next, wet down the soil. The moisture causes the organisms to be more susceptible to the heat and helps the heat penetrate deeper into the soil. Then lay down your plastic sheeting. Clear polyethylene plastic about 1 to 4 millimeters thick works best for solarizing soil. Cut the plastic to fit the area you want to solarize.

Anchor down the plastic by burying the edges of the tarp in the soil. Leave the plastic on for at least eight to ten weeks, preferably during the long, hot days of summer. The process works best during July or August, but can be started in June, or extended into September.

The clear plastic captures radiant heat energy from the sun, thereby causing physical, chemical and biological changes in the soil. Solarization reduces populations of weeds, disease-causing organisms, harmful invertebrates and insect pests in the top 3 to 6 inches of soil without using pesticides or herbicides. Solarization also increases populations of warmth loving beneficial soil organisms.

Researchers at the University of California have studied the effects of solarization. They found that solarization killed weeds like barnyard grass, Bermuda grass, nightshade, chickweed, thistle, pigweed, velvet leaf and lambsquarters. The process also killed many fungi, nematodes, weed seeds and other pest and disease organisms in the upper layer of soil.

For starters, try solarizing one garden bed per year, thereby reducing weeds and pathogens in a “summer fallow” rotation process, just as farmers do. The success of solarization depends on the intensity of sunlight, soil moisture, weather and length of time the plastic is left on the soil. Besides controlling pest organisms, University of California researchers found that plants grew better than they expected in solarized soil. They speculate the treatment might increase the availability of some plant nutrients and beneficial microorganisms in the soil.

This article adapted from Cooperative State Research, Education and Extension Service, USDA. Please contact the Farm Advisor’s office at cdcalaveras@ucdavis.edu or 754-6477 with your agricultural questions. Talk to a certified Master Gardener every Wednesday, 10:00-12:00, 754-2880. To speak with a Master Gardener in Tuolumne County, please call 209 533-5696.