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NEWS RELEASE FROM THE OFFICE OF:

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Soil Solarization

Effective control of nematodes, soilborne plant pathogens and weed pests is a serious challenge for home gardeners. Resistant varieties, crop rotation and pesticides are not always viable control options for gardeners with limited space.

Soil solarization is the easiest and simplest non-chemical alternative to control many of the soilborne diseases, insects and some weed seeds in a garden soil. Crown rots, root rots and wilts caused by certain plant pathogenic fungi and nematodes or complexes of these pathogens are often limiting factors in production of vegetables in the home garden. Rotation of crops in a home garden or selection of another garden site has satisfactorily prevented major problems, but when garden areas are planted year after year using neither rotation or alternative sites, they eventually become infested with one or more pathogens.

Pasteurization of garden soils by solar heat retained under a sealed clear polyethylene film is an excellent method to reduce soil pathogens. A clear polyethylene film is used to trap solar heat in the soil. Over a period of several weeks to a few months, soil temperatures become high enough to kill many of the damaging soil pests and weed seed.

The soil to be solarized must be worked up to seed-bed condition, cultivated until it's loose and friable. Make sure the soil moisture levels are adequate for working the soil before laying the plastic sheeting. If the soil is dry, water the areas to be solarized before laying the clear plastic, because moist soil pest are more sensitive to high

temperatures than a dry soil. When possible, lay a soaker hose or drip irrigation lines under the plastic to maintain moisture levels during soil solarization.

Use a clear, UV-stabilized plastic .5 to 4 mils thick. The material must be flexible enough to stretch across the soil surface. The edges of the sheets must be buried to a depth of 5 to 6 inches in the soil to prevent blowing or tearing of the tarp . White or black plastic does not transmit enough solar radiation to raise soil temperatures to lethal levels for many soil pests.

Long , hot sunny days are needed to reach the soil temperatures required to kill soilborne pests and weed seed. A tarping period of 4 to 6 weeks is needed to control nematodes and soilborne plant pathogens in the hot East Texas summers. The longer the soil is heated, the better results later. Leaving the plastic in place until the next planting time will have no detrimental effects on the soil. It will also reduce the chance of recontamination before planting. The plastic should be removed before planting any cool season crops that require lower soil temperatures for best growth.

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