



# Chesapeake Master Gardeners

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## The Teaching Garden (Elaine's Garden) NO-TILL SOIL AMENDMENTS DEMONSTRATION

### 1. ROOT CROPS

Taking a page from commercial farmers, this section has been planted with a root vegetable (carrot, beet, radish or turnip) to reduce soil compaction. The roots will not be harvested, but left in place to decompose thus providing compost. In addition, the action of the growth of the roots will serve to loosen the soil. After decomposition, space will be left to encourage the movement of water and micro-organisms. Turnips and daikon radishes have the additional advantage of being brassica (a plant genus that includes cabbage, turnip, Brussels sprout and mustard). Most brassicas produce compounds, called glucosinolates, which may contribute to the suppression of plant pests and pathogens.

### 2. BIOCHAR

Biochar is charcoal used as a soil amendment. It is produced by heating organic matter under a limited supply of oxygen (pyrolysis). The tiny pores in the carbon structure store water and provide shelter for micro-organisms causing moisture and nutrients to be held in the soil longer. It is necessary to "charge" the biochar prior to application by combining it with compost. If not "charged" the existing nutrients in the soil will migrate to the biochar making less available for plants. The final step is watering it well. Biochar can remain in the soil for thousands of years. A 50/50 mix of biochar and compost was applied to the top of the existing soil.

### 3. LASAGNA COMPOST or COMPOSTING IN PLACE

This simple layering system can be done on a large or small scale in bins, vegetable gardens, borders or anywhere compost is desired. Layers of "green" and "brown" matter are alternately added to the area. "Brown" matter includes cardboard, newspapers, sawdust, brown leaves, straw or wood chips. "Green" matter may be grass clippings, coffee grounds or vegetable scraps. The lasagna begins and ends with a "brown" layer, wetting the layers as they are added. This is a slow process which may take six months or longer to fully decompose.

### 4. CONVENTIONAL COMPOST

One way to amend soil in an existing garden is by top dressing the bed with an inch or two of compost each season. Top dressing is the addition of a product to the top of the bed without tilling. It will be pulled into the subsoil by watering and the activity of subsoil organisms. As compost breaks down, it will improve the soil structure and fertility. This is similar to the way soil is formed in nature.



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