

## OL 304 Assignment Four Discussion

### Online Learning: Vegetable Garden Care and Maintenance for Family Gardens and Community Gardens.

Center for Sustainable Development: <https://csd-i.org/vegetable-garden-care-family-gardens-community-gardens/>

This week we're going to study the complexities of soil and its impact on the successful production of nutritious garden crops for improving the overall health and nutrition of families.

#### Part 1: Soil

Soil is a living, breathing organism of sand, clay, organic material, insects, earthworms, microbes, nutrients, minerals, water and plant roots. Soil can suffer from being too acid, too wet, too dry and too sandy. Healthy soil is the source of everything that your plants need to grow -- except sunlight.

#### Soil restoration and conservation

Even desert soil can be brought to life with the addition of organic material (compost & manure).

The making of raised beds begins this the process of developing a healthy soil structure that can provide oxygen, store water, create a living environment for soil organisms, and a soft consistency of soil that encourages the rapid and easy growth of plant roots. Don't walk or let children or animals walk on your raised beds -- this will re-compact the soil. If plants are already growing in the soil, it's very difficult to fluff the soil up again until the next planting season. So protect your soft raised beds from feet.

Earthworms can be started in a worm bin and as they multiply can then be added to the garden beds to further increase soil quality by digesting organic material (creating nutrients that can be taken up by plants ) and by creating air passages that provide oxygen within the structure of the soil and hold water. It might take a season or two for degraded or poor quality soil to be brought up to a status of healthy soil. Earthworms:

- change organic material into nutrients that plants can use
- tunnel through the soil so that air can enter the soil
- improve soil structure and water drainage
- bring nutrients up from deep in the soil to supply food for plant roots

The living organisms in the soil -- the insects, earthworms, and microorganisms -- are a major component in the health of the soil and must be protected. Commercial insecticides can destroy these living organisms; so consider using natural sprays that are not poisonous for controlling unwanted pests.

Different sites of vegetable plants require specific nutrients from the soil, and can deplete a garden bed of these nutrients -- such as corn requiring nitrogen. If corn is planted in a different bed the following season, leguminous plants can be planted in the old corn bed and help replenish the nitrogen. Therefore, rotating crops from one bed to another can help rejuvenate and conserve soil quality.

Soil with plenty of air pockets, healthy living organisms, and a high percentage of organic material serves as a nutrient bank -- storing nutrients that are ready for plants to use.

#### Mulching

Mulching can be done with living plants that cover and protect the soil -- and can even add nitrogen if they are legumes. Dry mulch protects the soil and also decomposes slowly adding organic material to the top layers. Compost can be used as a mulch and will create a soft growing environment for your plants and provide organic material to the layers of soil below it. Mulch:

- keeps soil cool and moist
- keeps the soil protected from rain and wind so that soil isn't washed or blown away
- keeps the plants protected from being splashed with soil when it rains
- prevents unwanted weeds from growing between the plants
- adds organic material to the soil

#### Part 2: Composting

Composting. Organic matter in garden soil provides nutrients, structure and holds water. Vegetable matter such as leaves, kitchen waste and manure can be placed in a pile for 3-6 months for partial decomposition. Compost can be used as a mulch, top dressing, soil amendment, or as an organic fertilizer. Before planting mix of 3 to 4 inch layer of compost into newly reclaimed or poor soils. Mix a 1 to 3 inch layer of compost into annual garden beds at least once a year.

#### Why compost?

- Saves water by helping the soil holds moisture and reduces runoff
- Reduces the need for commercial fertilizer
- Adds nutrients and beneficial microbes improving plant growth
- Provides a slow release nutrients
- Increases soil organic matter
- Encourages healthy root structure
- Lightens clay soils and helps sandy soils hold water

- Attracts and feeds earthworms and other beneficial soil microorganisms
- Helps balance soil pH
- Helps control soil erosion
- Helps protect plants from drought
- Moderates soil temperature
- Reduces weeds when used as a mulch

There are some excellent descriptions on making compost in this week's resources. But basically, you should encourage your gardeners to get started making compost now. They should begin collecting plant materials and making a pile -- and then adding manure to the pile -- and then adding vegetable-based kitchen waste to the pile. The instructions in the resource books are simple. If they get started now -- within three months they can have fresh compost for their next planting cycle.

**Looking for organic material around the village.**

Discuss the importance of organic matter for the soil and the beds. In the first year, since they may not have compost, let them know that they can begin by spreading whatever chopped-up organic material they can find on top of beds. This can be leaves, manure, corn stalks, vegetable-based kitchen scraps. Explain how many freely available types of OM are available around the village for getting garden plot started.

Please move on to Assignment Four Homework.

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