

Chapter 4:

Caring for your growing garden

(part 1)

Now that your garden is planted, you can focus on keeping it healthy. Maintenance can be the most time-consuming part of vegetable gardening, but it is good for your plants - and good for you too! In this chapter you will learn about watering, and protecting young, tender plants as they begin to grow. You will also learn about improving soil health, and ways to maximize your space through vertical gardening techniques.

Watering

Plants need water to be healthy and productive. In the Pacific Northwest, vegetable gardens need regular watering in the summer because we get so little rainfall during the warmer months. As you plan your garden, think about how you will give your plants the water they need.

Sandy, clay, and loamy soil types absorb water differently. Water moves through sandy soil about twice as fast as it moves through clay soil, so it takes longer to water clay soil. Loamy soil lies between these two extremes—it holds onto water *and* drains well, making it the best soil for growing plants.

No matter what soil type you have, your watering should be deep and infrequent. In general, watering two or three times a week is enough. Seedbeds and new transplants are exceptions - they need water every day or two. If you are not sure if the soil is moist enough, you can use your hands to feel for moisture below the first inch or two of soil. If it feels like a wrung-out sponge, it is just right!

TOPICS IN THIS CHAPTER

Watering
Protecting young plants
Vertical gardening
Improving and protecting soil health
Worksheet



You can also check your watering by filling a jar or yogurt container with garden soil and placing it near plants before you water them. If the soil at the bottom of the container is still bone-dry after you water, you will need to keep going so that the water reaches the roots of your plants. Aim for plant roots instead of leaves when you water.

Methods of watering

Watering for containers

Container plants lose moisture quickly. They'll need to be monitored, and most likely watered every day in the heat of summer. Also, think about how far away your containers are from the water source.

There are three basic watering methods: hand watering with a hose or watering can; soaker hoses and drip irrigation systems; and portable sprinklers. The method you choose will depend on the size of your garden, your budget, and your available time.

Hand watering with a hose or watering can delivers water directly to plants' roots and cuts down on waste. Water deeply, but gently. Remember, hand watering

takes time. Be careful to water all parts of your beds where plants are growing.

For leaf lettuce and other greens growing close together, it is okay to get water on the leaves. Aim your hose upward so the water falls down on the bed like a gentle rain. Water until the soil stays "shiny" for 10 to 15 seconds after watering. This tells you that the soil has soaked up as much water as it can.

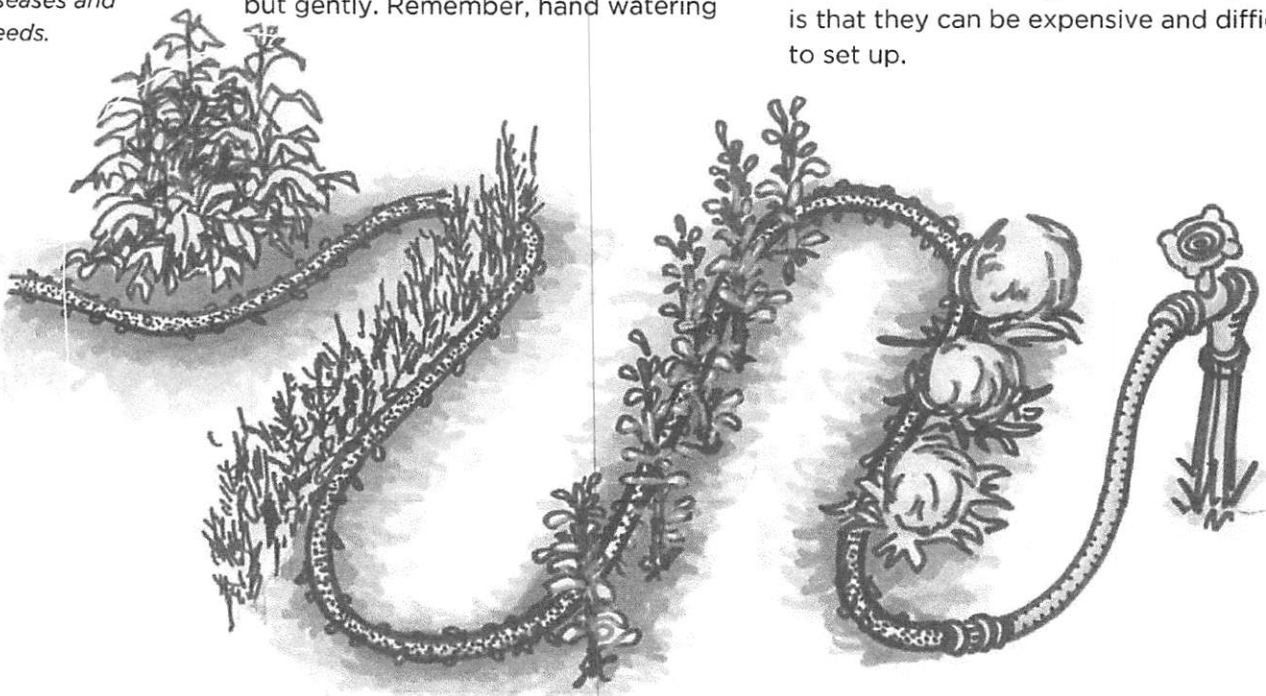
For all other crops, especially cucumbers and tomatoes, keep the leaves dry when you water. Water gently at the base of the plant and avoid blasting the soil, seeds, or roots with a heavy stream of water.

Soaker hoses and drip irrigation

systems are less wasteful than overhead watering with a sprinkler. A drip system slowly places water right over the plant roots. Soaker hoses and emitter drip lines have tiny holes that let water seep or drip slowly along the length of the hose.

Emitter-type drip systems deliver water to individual plants. You can change an emitter system anytime during the growing season as you add or remove plants. A disadvantage of emitter systems is that they can be expensive and difficult to set up.

Soaker hoses and drip irrigation systems place water directly at plant roots. They help reduce diseases and weeds.



Soaker hoses and drip irrigation systems help reduce leaf diseases because they keep water off leaves. They cut down on weeds by watering plant roots and not bare soil.

A typical drip system runs for one to two hours, once or twice a week. Be careful not to overwater. The surface may look dry even if the soil underneath is still wet. If in doubt, check the soil.

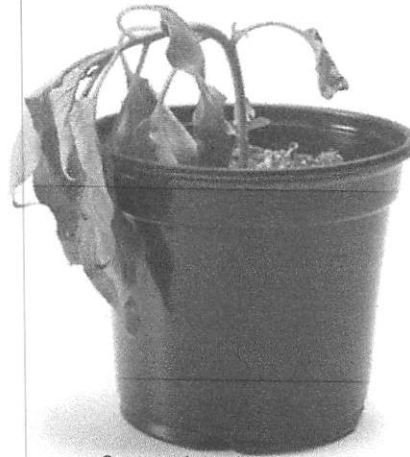
Portable overhead sprinklers take less of the gardener's time than other watering methods—you can just turn them on and walk away. But sprinklers wet plant leaves, so they can cause leaf diseases. They also waste water by watering paths and other bare spots in the garden, encouraging weeds to grow.

If you use an oscillating or rotating sprinkler, raise it above the tallest plants so that the plants do not block the flow of water. If you run more than one sprinkler at once, place sprinklers so their patterns overlap to make sure all your plants get water. If water runs off into your paths, you need to water at a slower rate. Overhead sprinklers lose water to evaporation and wind, so avoid using them in windy weather.

How often to water

No matter how you water your garden, the goal is to water the roots of your plants at about the same rate that the soil dries out. Take into account your soil, your plants, and recent weather as you think about how much and how often to water your garden. Clay soil holds much more water than sandy soil. Larger plants use more water than seedlings, but shallow roots mean seedlings dry out fast. Hot, windy weather also dries the soil.

Watch your plants to figure out when to water. If your plants begin to wilt, you have waited too long.



Courtesy of www.istockphoto.com

Do not wait for plants to wilt before you water them.

Different plants, different watering needs

Germinating seeds and seedlings need to stay moist all the time, but be careful not to wash them away. Water them with a gentle spray every day or two. In hot weather, you may need to water twice a day.

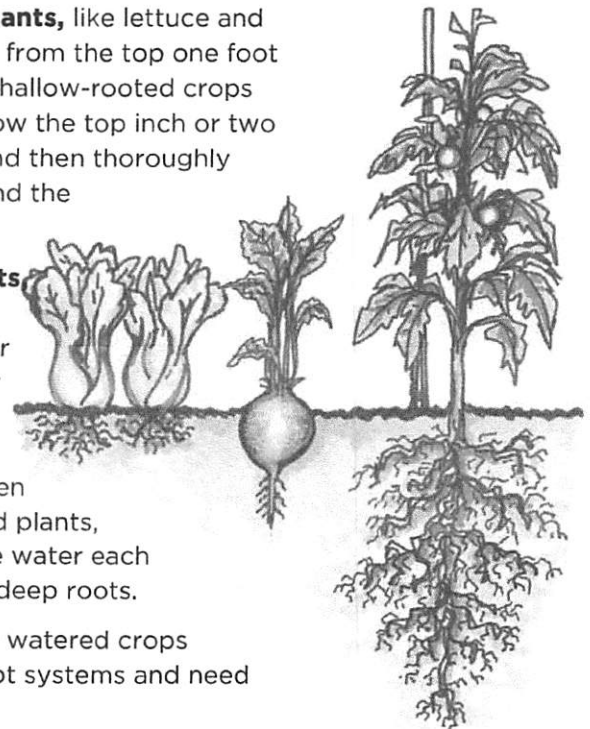
Developing plants need deep, infrequent watering to encourage root growth. Water at least six inches deep, and then let the top inch or two of soil dry out completely before watering again.

Shallow-rooted plants, like lettuce and onions, draw water from the top one foot of soil. Once your shallow-rooted crops are established, allow the top inch or two of soil to dry out and then thoroughly soak the area around the roots.

Deep-rooted plants, like tomatoes, parsnips, and winter squash, draw water from the top two feet of soil. They need water less often than shallow-rooted plants, but they need more water each time to reach their deep roots.

In general, properly watered crops develop healthy root systems and need

Deep-rooted crops and shallow-rooted crops have different watering needs.





Avoid overwatering. Mature plants need a deep watering only two to three times a week in hot weather.

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Common watering problems

Avoid these common watering problems:

Frequent, shallow watering. Plants develop roots near the soil surface. These plants are easily stressed by dry weather and disturbances from weeding.

Overwatering. Plants can drown when soil pores fill up with water, leaving no oxygen for plant roots. Too much water also leaches away nutrients and can cause pollution.

Waiting too long to water. Plants dry out very quickly in hot weather. Monitor your plants, and water them as soon as they look like they need it.

Protecting young plants

Extra care during the first few weeks of a newly planted garden pays off big later in the season.

Early protection. For the first few days after transplanting, protect young plants from wind and sun. Use newspaper or cardboard to shield the south side of transplants, where the sun is strongest. Use plastic bottles with the bottoms cut

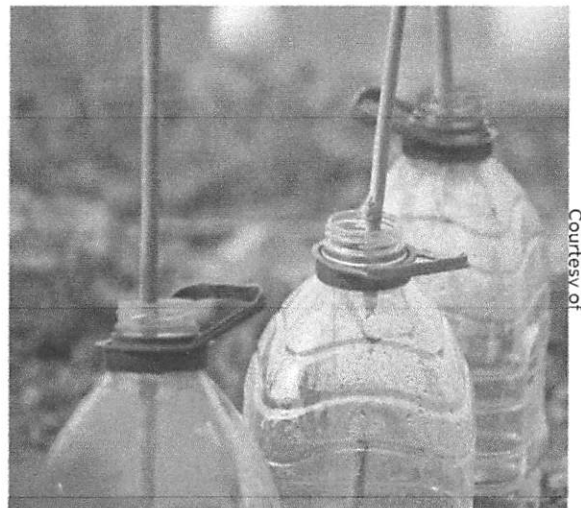
off to protect tender young plants from cold and from bird and insect damage.

Row covers. These covers can be used to protect both transplants and direct-sown seeds, and provide a few degrees of protection during a cold snap. Secure the edges to protect crops from insects, cats, and other uninvited garden visitors. You can bury the edges in the soil, or hold them in place with bricks, rocks, or landscape staples.

Row covers come in a variety of materials. You can drape greenhouse plastic, lightweight row cover fabric, or landscape fabric over metal or plastic tubing to form small, low tunnels. These materials will last several seasons. You can also use plastic sheeting, but it may last only one season.

Use lightweight fabrics that are called “floating row covers.” They can go directly over the new seedlings and transplants to protect them while they grow. To use a floating row cover, lay the fabric loosely over the bed to allow room for plants to grow. Remember to secure the edges.

Install row covers after sowing your seeds, after your seedlings come up, or after transplanting. Check underneath your row cover now and then to make sure you did not accidentally trap pests in with your plants.



Remove the bottoms from plastic bottles, then place the bottles over your seedlings to protect them from birds and cold temperatures.

Courtesy of



Row cover is a white fabric that protects crops from pests and cold weather.

Remove or loosen row covers to increase airflow if temperatures underneath get too hot. Also remove row covers when cucumbers, squash, or other plants that

produce fruit begin to bloom. That will let pollinating insects reach the flowers.

Vertical Gardening

Vertical gardening is the use of trellises, nets, strings, cages, or poles to support plants as they grow upward. Plants grown vertically take up much less space than plants grown on the ground.

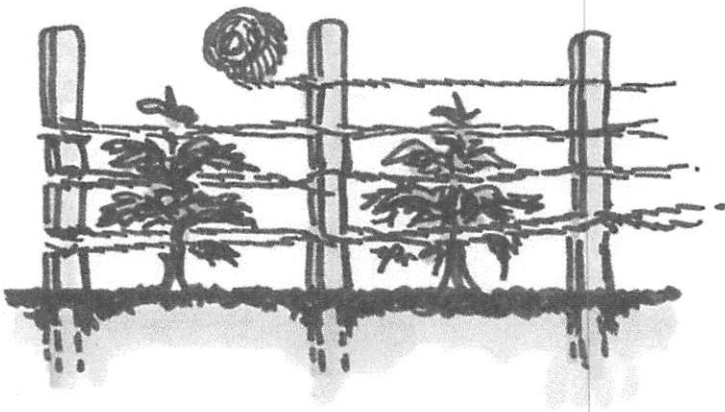
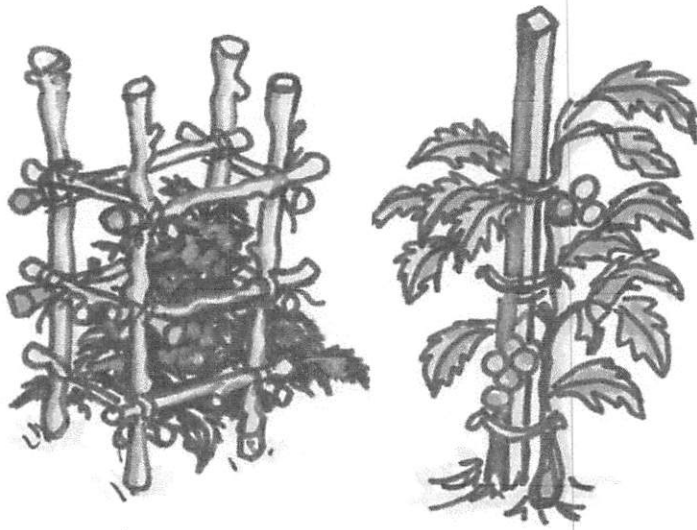
Good candidates for vertical gardening are vining and sprawling plants like cucumbers, tomatoes, melons, and pole beans. Some plants attach themselves to the support, but others need to be tied on. Install support structures at planting time to avoid accidentally damaging your plants. It is also easier to train plants onto a structure from the time they begin to grow.

You can buy tomato cages and other support structures at hardware stores and nurseries, but many gardeners save money by building their own out of materials they have on hand.

When trellising heavy fruits like squash and melons, tie old cloth or nylons under the fruit to support it and keep it

When trellising heavy fruits like squash and melons, tie old cloth or nylons under the fruits to support them and prevent them from dropping off the vine.





Tomato cages can be expensive. Make your own tomato supports with common materials like bamboo, wooden stakes, and twine.

from dropping off the vine.

Because vertically grown plants are more exposed, they dry out faster and need more water than when they are spread over the ground. Keep them well-watered.

When plants are grown vertically, they are often grown closer together. Soil under these plants should be deep and well-drained, so that plant roots can reach downward to find water and nutrients.

Vertical plantings are tall, so they cast a shadow. Locate them on the north side of the garden to avoid shading your other plants. Plant shade-tolerant crops near

vertical ones to get the most use from your growing space. See the appendix on pages 152-153 for more vertical gardening ideas.

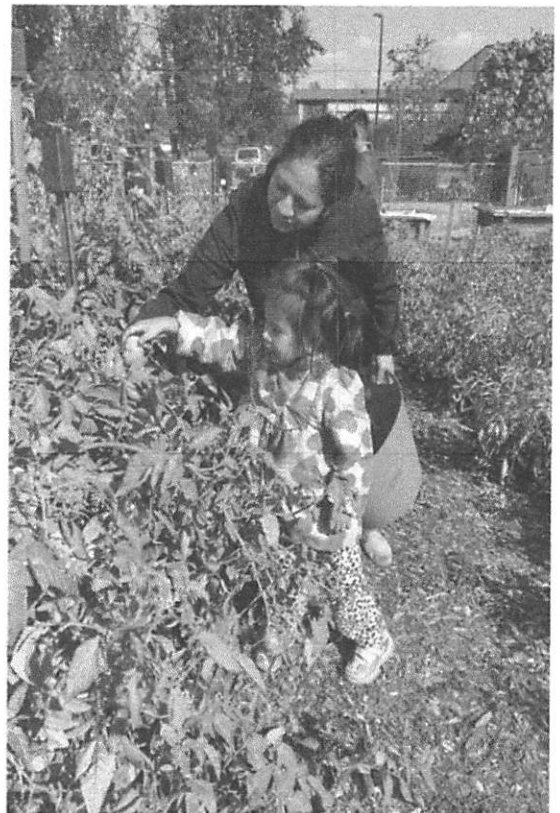
If you are using containers, you can maximize vertical space for climbing veggies and espalier fruit by placing the container next to something climbable (such as a railing, some string, or rebar posts).

Improving and protecting soil health

As you add more compost each year, you will see your soil improve. It will be more fertile, easier to dig, and will drain better. Your soil will keep improving as long as you protect it.

Protecting your soil in winter

If you are not growing a winter crop, you can use the fall and winter to improve your soil by mulching or growing a cover crop.



Vertical gardening allows for easier harvesting for both younger and older gardeners.



Spread mulch over the soil during the growing season or before winter to suppress weeds and protect roots.

Mulching. Mulch is any material that you spread on top of the soil to stop weeds and protect roots. Types of mulch include black or clear plastic, and organic materials like newspaper, cardboard, chopped leaves, straw, and compost. Organic mulches help improve the soil when they break down.

Spread a thick layer (four to six inches) of organic mulch over the beds and paths at the end of the growing season. The mulch will keep down winter and spring weeds, and prevent soil compaction during our long rainy season. In spring, you can mix the mulch into the beds if it has broken down into compost. If the mulch has not broken down over the winter, pull it off the beds before planting.

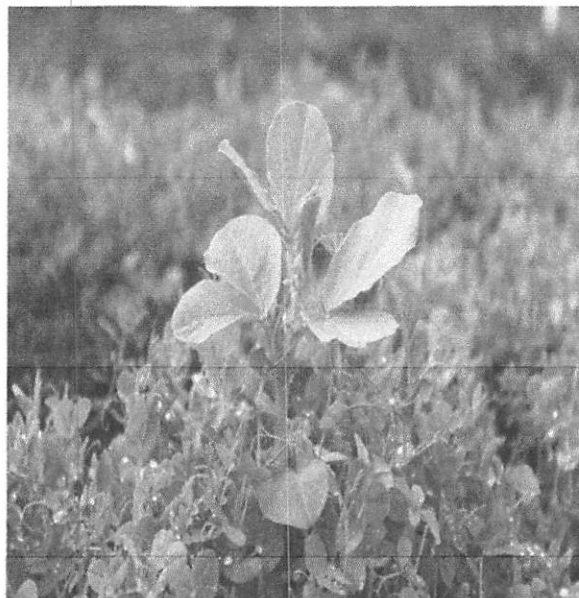
During the growing season, you can also spread mulch around the base of plants to keep water in the soil and prevent weeds from growing. Except for finished compost, do not let the mulch sit right up

against the plant stems.

Growing a cover crop. Cover crops, also called “green manure,” are placeholder crops that you plant during the off-season and then cut down before planting a crop for harvest. Cover crops help build up soil nutrients and prevent erosion. Planting cover crops is an easy, inexpensive way to build better soil for gardening. Gardeners usually grow cover crops in fall and winter, and remove them in spring.

As they grow and cover the soil, cover crops help reduce the impact of heavy rains, which can compact garden soil or wash it away. The roots of cover crops loosen heavy soil and improve the movement of air and water in the soil. Legume cover crops, like field peas and vetch, add nitrogen to the soil. When you turn cover crops under, you are adding organic material to the soil and improving soil structure and fertility.

You can plant cover crops in your garden from about mid-August through early October. Austrian field peas, fava beans, and hairy vetch make good cover crops for the home garden. Seeds are available at most garden stores and in seed catalogs. Be sure to follow the instructions on your seed packet when



Legume cover crops like fava beans, field peas, and vetch add nitrogen to the soil.



Cover crops prevent erosion and build up soil nutrients during the winter months.

planting. Plant the seeds early enough so the cover crops are well established before cold weather arrives. If vegetable crops are still growing in your garden, you can sow your cover crop seeds between the rows.

In spring, when the soil dries out a bit but before the cover crop begins to flower, pull out the cover crop or cut it down to the ground. You can use the pulled cover crop to build a compost pile, or you can dig or till it into the soil. If you decide to dig or till in your cover crop, do it at least three weeks before planting so it has time to decompose.

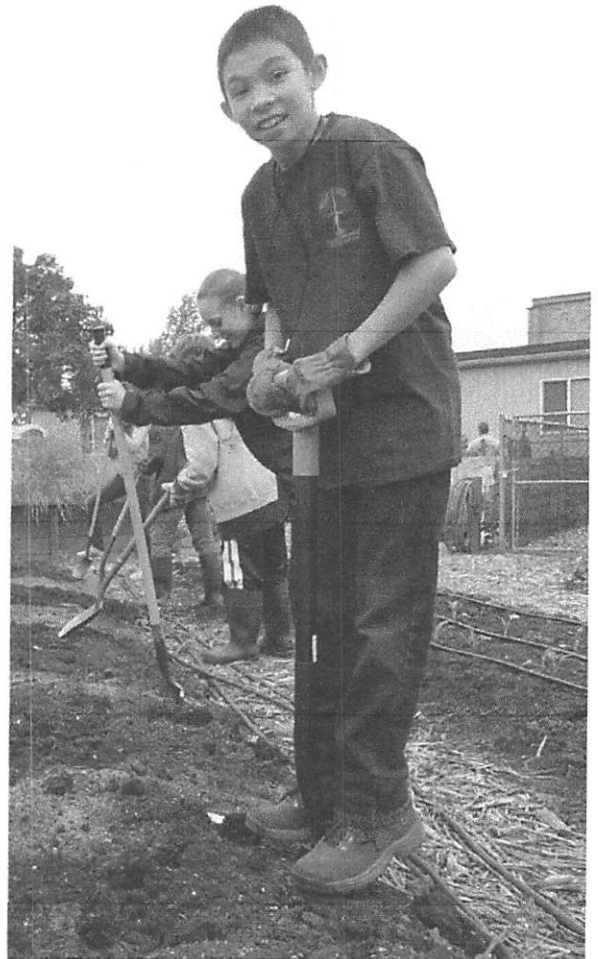
If you run out of time, you can add your pulled cover crop to your green waste bin instead. Growing a cover crop is good for your garden whether you mix it back in or not.

Protecting soil life

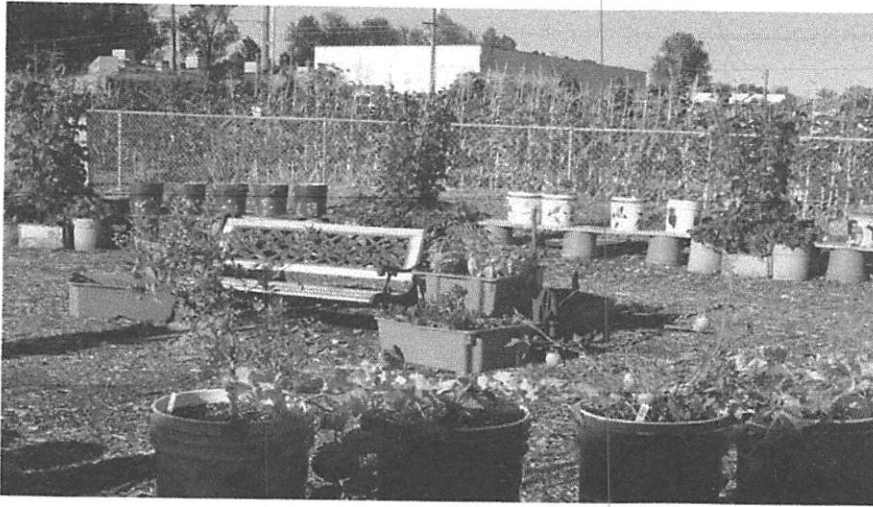
As you add compost over time, you will not need to dig or turn the soil as much. Your soil will begin to build an ecosystem of healthy fungi and bacteria, roots, fibers, plant debris, air pockets, and soil particles. This will help loosen the soil,

improve drainage, and increase air circulation in the soil.

Digging, tilling, or turning healthy garden soil can disturb the soil's natural structure and cause soil erosion and compaction. When you spread finished compost over a healthy, established garden bed, you can wiggle a digging fork in the soil to work in the compost instead of tilling or turning it under with a shovel. You can also lay finished compost on top of the bed and plant directly in it.



Once your beds are established, protect the soil by "wiggling" compost in with a shovel or digging fork instead of turning.



A wide variety of good containers for gardening

Container gardening: at the end of the season

Reusing potting soil can be a great way to cut down on the hassle and cost of purchasing new soil season after season. As long as you take the necessary precautions to ensure that your potting soil has an adequate amount of nutrients added back in, your soil can be used for many seasons. When preparing container gardens for the new growing season, it is a good practice to revitalize the soil each season by adding compost so that your plants will get the nutrients they need to reach their full maturity the next season.

Best practices for container gardening recommend that you empty out your pots at the end of the growing season. This gives you an opportunity to sift through the soil and remove any stowaway insects, weeds, or debris. It also offers you the opportunity to clean and dry your pots thoroughly to ensure that there are no residual bacteria, fungi, or viruses from the previous season.

Scrub your containers with eco-friendly dishwashing soap, let them dry, then wipe them out with a diluted solution (20:1) of hydrogen peroxide bleach. Rinsing with water may remove other materials like dirt and insect eggs, but it will not sterilize the pots.

To ensure that weed seeds, insect eggs, larva and pathogens have been destroyed, bake the soil in the sun.

This can be done by placing the soil in dark plastic bags and leaving them in the sun until they are very warm. Similarly to composting, the high temperatures act to kill the pests and seeds so they won't present a problem in the coming season.

Once you have baked the soil in the sun, tip out the spent soil onto a tarp or plastic sheet, then add about 15-25% (by volume) of rich compost or well-rotted manure; you could also add a few handfuls of straw to improve drainage, as well as mineral supplements and lime. Lift up the ends of the sheet and roll everything backwards and forwards to mix it up and improve aeration. You can safely renew spent soil three or four times before starting again from scratch.



Worksheet: Caring for your garden

Define: Vocabulary words for the week

Spend time as a group defining these gardening terms:

Watering methods:

Row cover:

Cloche:

Drip irrigation:

Soaker hose:

Reflection:

Have you seen any creative ways to conserve water in a garden?

Class activity: Trellis ideas

Make a list of some of the things that can be used to make trellises for vertical gardening.

Sketch some ideas for your garden site. *Reference page 152-153*

Review: Protecting young plants & caring for your garden

1. What are some ways you can protect young plants from harsh weather? *Reference page 74*

2. Is there anything different that you have done in the past to protect your plants?

3. What does mulching do for your garden? What mulching materials do you have available locally?

4. What does a cover crop do for your garden? Where can you get some locally?



Wrap Up for Week 4:

1. What are three things that you took away from this class?

2. What are some things that are still confusing?

Getting ready for next week:

- Bring in photos or live specimens of bugs and weeds from your garden.