

Follow planting directions for best yields

Planting a vegetable garden isn't a complicated or mysterious process. The planting directions printed on the back of seed packets include three basic principles that will improve your chances of success:

Plant vegetables at the right time

Planting seeds at the recommended time will reduce the risk of damage from frost or hot weather.

Plant vegetables at the right depth

Seeds planted too deeply take longer to come up, if they come up at all. Also, weeds may grow up first and crowd out vegetable plants. Conversely, shallow seeds may wash away or dry out before they sprout. Plant vegetables with small seeds (such as cabbage, carrots, radishes, and lettuce) $\frac{1}{2}$ inch deep. Plant vegetables with medium-sized seeds (such as beets and chard) $\frac{3}{4}$ inch deep. Plant large-seeded vegetables (such as beans, corn, and squash) 1 to $1\frac{1}{2}$ inches deep.

Plant vegetables the right distance apart

Correct spacing allows each plant to get its share of sunshine, water, and soil nutrients. If you plant seedlings too close to each other, the vegetables will not grow as large as they normally would. Excessive tops on radishes and other root crops result from crowding.



Watering vegetable gardens

Drip irrigation systems deliver water directly to plant roots, thus minimizing waste and depriving weeds of water.



Plants that receive the proper amount of water are likely to be healthy and productive. In Oregon, summer vegetable gardens require regular watering because of the extremely low rainfall during that season. When planning your garden, consider how you will meet the plants' water needs.

Soil type is important in watering. Water soaks into and drains through sandy soil about twice as fast as it does clay soil. Loam soil lies between these two extremes. Thus, it takes longer to water to a specified depth in clay soil.

Methods of watering

There are three basic watering methods: (1) hand watering with a hose or a watering can, (2) soaker hoses and drip irrigation systems, and (3) portable sprinklers. The method you choose will depend on the size of your garden, your budget, and your lifestyle.

Hand watering delivers water directly to the plants, thus eliminating waste. If you are hand watering, be sure to water deeply. Remember, this takes time. Do some spot checks to make sure you are delivering enough water, and be careful to give all areas of the garden adequate coverage.

Drip irrigation systems require an initial investment of time and money but, once installed, are more convenient and conserve water. You can set up a drip system to meet the needs of individual plants precisely and then alter it throughout the growing season as watering needs change.

As with any watering method, infrequent, deep watering is the goal. A typical drip system is run 1 or 2 hours once or twice a week. Avoid the tendency to overwater with drip systems; the surface may look dry while the rooting zone is wet. If in doubt, check the soil.

The pattern of soil wetting with drip irrigation is different for sandy and clay soils. In sandy soil, the water soaks straight in, wetting a narrow vertical band of soil. In clay soil, the water spreads more horizontally. Thus, drip emitters can be placed farther apart for clay soil than for sandy soil.

Sprinklers have the disadvantage of wasting water by watering paths and other bare spots in the garden. They also lose water to evaporation and wind drift. When using sprinklers, always water when there is little wind.

Because they wet the foliage, sprinklers also might promote the development of leaf diseases.

If using oscillating sprinklers, elevate them above the tallest plants so the water streams are not blocked. To make sure all of your plants are watered, place sprinklers so their patterns overlap. Runoff indicates you need to water at a slower rate.

How often to water

Regardless of the system you choose, the goal is the same: to deliver water to the roots of the plants at about the same rate that it is removed from soil by plants and evaporation. Consider your soil, your plants, and recent weather when determining how much and how often to water your garden. Sandy soil holds much less water than clay soils. Larger plants consume more water than seedlings. Hot, windy weather dries out soil.

Instead of developing a watering schedule based on calculations and charts, monitor your garden to determine your watering needs throughout the growing season. Different plants in your garden may have different needs:

- Germinating seeds and seedlings need to be kept uniformly moist without being washed away, so water them with a gentle spray every day or two.
- Developing plants need to be watered deeply, but less often, to encourage deep root growth. Water at least 6 inches deep and then let the surface inch or two completely dry out before watering again.
- Crops such as lettuce, beets, green beans, and chard draw water from the top foot or less of soil. Thoroughly soak the rooting zone and then don't water until the plants show signs of needing additional water such as turning a dark bluish green or wilting during the hottest part of the day.
- Corn, tomatoes, asparagus, and rhubarb have deep root systems that allow them to draw water from the top 2

feet of soil. Deep-rooted plants need water less frequently, but need more water to reach the rooting depth.

- As a general guideline, garden plants that have been watered properly, and therefore have developed deep roots, need a thorough watering every 5 to 7 days in hot weather.

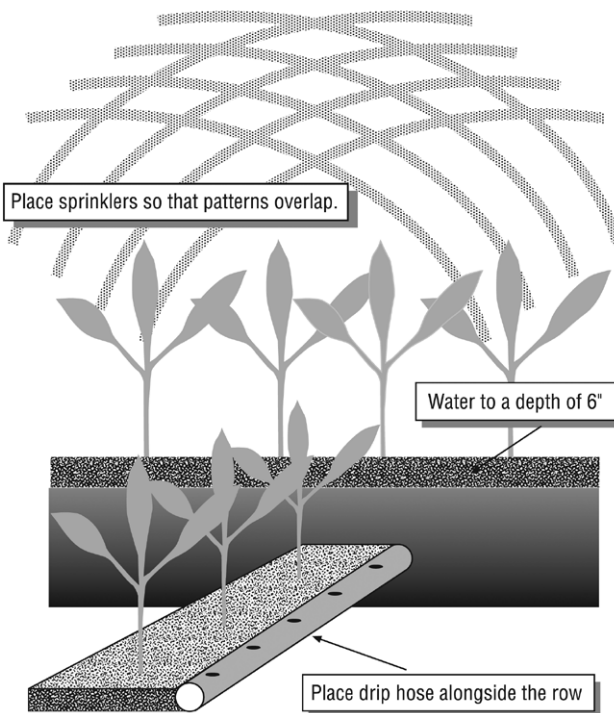


Common problems

Avoid these three common watering problems:

- Frequent, shallow watering promotes root development in the surface layers of the soil. Plants with shallow roots are very susceptible to drought stress and mechanical damage when weeding.
- Overwatering can drown plants by filling up soil pores with water, leaving little or no oxygen for plant roots. Also, excessive watering leaches away nutrients and can contribute to groundwater contamination.
- Postponing irrigation after plants show signs of needing water can damage plants very quickly in hot weather. Observe your plants every day or two and respond to their needs promptly.

Corn, tomatoes, asparagus, and rhubarb have deep root systems that draw water from the top 2 feet of soil. Water them deeply but less frequently. Lettuce, beets, and green beans draw water from the top foot or less of soil. Water them often.



For more information

Conserving Water in the Garden: Growing a Vegetable Garden (EM 8375)

Available in the OSU Extension catalog:

<http://extension.oregonstate.edu/catalog>