

Vary the amount and frequency of irrigation according to each variety of vegetable you grow. In the home garden, it is usually best to adjust irrigation to meet the needs of shallow-rooted crops. If their needs are met, the medium- and deep-rooted crops automatically get enough water. This same rule applies where the topsoil is shallow—only 1 or 2 feet (30 or 60 cm) of soil is available for root growth. Shallow-rooted crops have main root systems in the top 1 to 2 feet (30 to 60 cm) of soil. Examples are cabbage, cauliflower, lettuce, celery, sweet corn, onion, white potato, and radish. Moderately deep-rooted crops are those with the main root system in the top 1 to 4 feet (30 or 120 cm) of soil. Examples are snap bean, carrot, cucumber, eggplant, peas, pepper, and summer squash. For deep-rooted crops, the main root system is in the top 1 to 6 feet (30 to 180 cm) of soil. Examples are asparagus, globe artichoke, cantaloupe, pumpkin, tomato, and watermelon. (The maximum rooting depths given here are the potential rooting depths under ideal soil conditions.)

Irrigate your vegetable garden about one or two times a week in summer. Wet the soil to a depth of at least 18 inches (45 cm) at each watering. If you only keep the surface of the soil moist, most of the water evaporates to the air.

Do not waste water. There are simple ways to measure how much water you give your garden. If you use a garden hose, turn it on to the force you commonly use and time it to find out how many minutes it takes to fill a 1-gallon (3.79 liters) can. This gives you the rate of water flow per minute. One gallon of water wets 1 square foot (0.093 sq m) of

ground to a depth of 1.6 inches (4 cm). If you use a sprinkler system, place some empty cans under the sprinkler spray at various spots. Keep track of the length of time the sprinklers are on and then measure the depth of the water in the cans when you turn off the water. Average the various depths to determine how much water is being applied to the garden at each sprinkling.

Furrow irrigation, unlike sprinklers, has the advantage of not wetting the leaves. Water on plant foliage sometimes increases the incidence of plant diseases. If you plan to use furrow irrigation, use raised beds that are 5 or 6 inches (15 cm) high and 32 to 40 inches (80 to 100 cm) apart from center to center. Rake the tops of the beds flat and make them 18 inches (45 cm) wide. Locate the seed rows about 3 inches (7.5 cm) from each edge of the flattened bed top. Raised beds are also good for winter crops because they allow excess rain water to drain off. Apply irrigation water in furrows placed between the beds. If you use the furrow irrigation method, you need to apply more water to wet the soil to the necessary depth of 2 feet (60 cm) than if you use sprinklers.

Drip irrigation is a relatively new method that offers several advantages to home gardeners: water is placed more accurately in the root zone; water is applied at a slow rate so there is little or no waste; the furrows are dry so you can work in the garden while irrigation is in process; less water is required; and little or no management is required while irrigating. The disadvantages are the added costs of the drip irrigation equipment and occasional problems of plugging of the tiny drip orifices. However, the advantages outweigh the disadvantages, and a drip irrigation system, when correctly installed and maintained, can be very helpful to the serious gardener.

Soaker hoses are a form of drip irrigation and can be used to advantage if rows are short (20 to 25 feet [6 to 7.5 m]) and the soil is level. For longer rows or on sloping soil, soaker hoses cannot be expected to provide as uniform an irrigation as that provided by a true drip system.