



Water Conservation Suggestions for your Home Vegetable Garden

By UC Master Gardeners of Trinity County

Planting Strategies

If you anticipate a dry season, plant shorter season crops and fewer crops.

Plant in blocks, rather than rows. This creates shade for roots and reduces evaporation.

Control weeds, they are competing with the vegetables for the water supply.

Use containers or plant vertically to reduce the soil area that needs irrigation.

Hydro-Zones: Group plants with similar water needs (i.e. families) together on the same soaker hose. Cucumber and zucchinis and squash, for example, require similar water applications.

Provide windbreaks to reduce evaporation of moisture from soil and plants.

Amend your soil with organic matter to increase the water holding capacity.

Practice efficient irrigation

Drip or trickle irrigation is ideal in the vegetable garden, reducing water usage by about 50%. The soaker hose is probably the least expensive and easiest to use in a vegetable garden setting. Known as a "leaky pipe", it is a hose that allows water to seep out all along its length at a slow rate. They typically run, at low pressure, for only 10 to 15 minutes per irrigation. There are also tubes with holes for the water to drip out. Another option is a simple 'hose bubbler' which is a hose end attachment to irrigate the base of a plant.

Check soil moisture regularly to avoid over-application. Squeeze soil in your hand; if it sticks together, it is moist and irrigation should be delayed. If the soil has dried out to a depth of 2-4 inches, plan to water. This is especially important if using mulch, where water can be held in the soil for longer periods of time.

Place soaker hoses or drip irrigation under mulch used in the vegetable garden.

Know the critical watering periods for vegetables and you can target the timing and amount of water to add. As a rule of thumb, water is most critical during the first few weeks of development, immediately after transplanting, and during flowering and fruit production. The critical watering periods for selected vegetables follow:

- **Asparagus** - Spear production, fern development.
- **Cole crops: broccoli, cabbage, and cauliflower** - The quality of cole crops is significantly reduced if the plants get dry anytime during the growing season. Water use is highest and most critical during head development.
- **Beans** - Beans have the highest water use of common garden vegetable, using $\frac{1}{4}$ to over $\frac{1}{2}$ inch of water per day (depending on temperature and wind). Blossoms drop with inadequate moisture levels and pods fail to fill. On warm, windy days, blossom drop is common. For the observant gardener, a subtle change in plant color indicates a need for irrigation. When moisture levels are adequate, the bean plant is a bright, dark grass green. As plants experience water stress, leaves take on a slight grayish cast. Water is needed at this point to prevent blossom drop.
- **Carrot and other root crops** - For quality produce, these crops require a constant supply of moisture. They are intolerant of dry soils. Cracking, knobby and hot flavor root crops are symptoms of water stress.

- **Corn** - Water demand for sweet corn is most critical during tasseling, silking, and ear development. Yield is directly related to quantities of water, nitrogen and spacing. Water stress delays the silking period, but not tasseling. Under mild water stress the crop may tassel and shed pollen before silks are ready for pollination. The lack of pollination may reduce yields or even eliminate ear production.
- **Lettuce and other leaf vegetables** - Water demand is most critical during head (leaf) development. For quality produce these crops require a constant supply of moisture. They are intolerant of dry soils.
- **Onion family** – Members of the onion family have an inefficient rooting system making irrigation management a key factor in produce quality. They require a constant supply of moisture and are intolerant of dry soils.
- **Peas** - Water demand is most critical during pod filling
- **Potatoes** - If potatoes become overly dry during tuber development, tubers will be knobby.
- **Tomato family: tomatoes, peppers and eggplant** -- Water demand is most critical during flowering and fruiting. Blossom-end-rot (a black sunken area on the bottom of the fruit) is a symptom of too much or too little water. The tomato family has a lower water requirement than many vegetables and plants are often over-watered in the typical home garden.
- **Vine crops: cucumbers, summer and winter squash, and assorted melons** - Water demand is most critical during flowering and fruiting. Vine crops use less water than many vegetables and are often over-watered in the typical home garden.

Water during early morning, when wind is low and temperatures are cool.

Rain Barrels can collect and store rainwater from rooftops for garden use. It's important to note that the water is not potable, since it can contain bacteria and other disease-causing organisms from birds, metals from your roof and roofing material. If you use it on vegetables, avoid overhead irrigation – drip irrigation is better. Do not use it to wash fruits or vegetables prior to consumption.

Mulching minimizes evaporation of water from the soil surface, reducing irrigation need by around 50%. In the vegetable garden, use an organic mulch to a depth of 1-3 inches, depending upon the particle size of the mulching material. The larger the particle, the thicker the depth of mulch that should be applied. Mulch only after the soil has warmed sufficiently. Do not use wood or bark chips in a garden setting that requires annual soil preparation. The chips will interfere with future seedbed preparation.

Grass clippings make excellent mulch for the vegetable garden. Apply fresh clippings in thin layers (up to ¼ inch thick) and allow each layer to dry before adding more. The clippings quickly dry down and additional layers can be added weekly. Do not place fresh clippings in thick piles, as they will mat, decay and smell foul. Do not use clippings from lawns that have been treated with herbicides or other pesticides in the past month. A couple of sheets of newspaper may be used under the clippings to help control weeds. Do not apply newspapers more than a couple of sheets thick, or a soil carbon to nitrogen imbalance may occur. Do not use glossy print materials, their inks may not be soy based like newspapers.

Black or colored plastic mulch conserves moisture and also increases soil temperatures. They are used on tomatoes, peppers, eggplants and the vine crop family (cucumbers, summer and winter squash, melons). Lay down plastic early in the season so plant growth shades the plastic from extreme summer temperatures. Do not apply plastic in mid-summer. Do not use plastic on other crops.

Adapted from materials from Colorado State University Extension.