



Water Conservation in the Vegetable Garden

Regardless of whether the region experiences a dry summer or not this year, practicing water conservation in the garden is beneficial to both the homeowner and the environment. Consider that while over 70% of the Earth's surface is covered with water, less than 3% is freshwater and available for human use. The amount that people currently use is greater than is being replenished by rainfall. Conserving water in the garden means more water available for humans and wildlife, as well as energy and money savings.

Concerned gardeners can plant more drought-tolerant ornamentals in the landscape (see http://www.umassgreeninfo.org/fact_sheets/plantculture.html for more information), or let the lawn go dormant for the summer, but what do they do about the vegetable garden, where refraining from watering is not an option?

Fruits and vegetables are 75% to 90% water and require regular irrigation, but there are steps gardeners can take to reduce the amount of water they use and apply it more efficiently.

Improve the Soil

- One way to positively impact water conservation in the vegetable garden is to incorporate organic matter into the soil each year. Organic matter improves water holding capacity of sandy soils and keeps clayey soils (which have a tendency to become compacted) permeable to water. Optimally, gardeners should aim to reach and maintain 4 to 5 percent organic matter in the vegetable garden. How to do this? Periodically working in aged animal manure or compost, leaf mold, untreated lawn clippings, or planting and tilling in a cover crop like alfalfa, soybeans, oats, winter rye, or buckwheat are all ways to increase the amount of organic matter present.

Think Outside the Row

- Changing the way in which the vegetable garden is designed and planted can reduce watering. While germinating seeds and new transplants require frequent watering, arranging plants in blocks rather than single rows can conserve water as plants grow. The leaves of plants grouped in blocks or wide rows shade a larger area of soil than do plants in a line. This shading slows evaporation, making less frequent watering possible. Shading also prevents development of weed seedlings which compete with vegetables for water resources. A wide swath of plants means less wasted water when using overhead irrigation since more of the water falls onto a planted area, rather than on pathways between individual rows.
- Protect developing plants from losing water to the wind. Create windbreaks, temporary or permanent, and use row covers over plants to retain soil moisture in windy sites.
- Once the soil has warmed up, mulching around plants retains soil moisture and cuts down on the appearance of water pilfering weeds. Apply a 2 to 3 inch layer of mulch (such as straw, shredded leaves, newspaper, and untreated grass clippings) around plants. More

is not necessarily better; too thick a mulch layer may actually prevent water from reaching plant roots.

Practice Conscientious Watering

- Being conscious of how and when the garden needs to be irrigated will help gardeners move toward conserving water. Vegetable plants should be watered according to need, not necessarily according to a set schedule. Just as one might check a houseplant for watering needs by poking a finger in the pot soil, examine the garden soil—if the top 2 inches are dry, it's time to water.
- Too much water can be detrimental to vegetables, creating an environment favorable for disease and pests like slugs and snails, but plants do require adequate moisture during critical times in their life cycle: during the first few weeks of development, immediately after transplanting, and during development of the edible plant parts.
- Instead of frequent shallow sprinklings, which can result in poor root development and consequently less drought resistance, give vegetables one or two long soakings per week (as needed).
- Make time spent irrigating worthwhile: apply water during cooler morning hours when it is less likely to evaporate, and direct water to the base of the plant, where it is needed—a plant can only use water that comes in contact with its roots, not its leaves.
- By changing the water delivery system from a hose or sprinkler to drip irrigation or soaker hoses, the garden's need for water can be reduced up to 50%. Overhead watering spreads water to pathways and areas not used by plants whereas drip irrigation directs water to where it is needed.
- Regardless of how water gets to the garden, be vigilant about fixing any leaks and drips at spigots, watering heads, and hose connections.

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