



Growing a Vegetable Garden

R.A. McNeilan

EM 8375 • Reprinted July 1992

Even in times of a water shortage, you can grow a vegetable garden if you use special water-efficient practices. You might also consider some of these practices if your area's water is normally in short supply or expensive—or both.

Flat is best

For efficient water conservation, prepare a soil surface for maximum water penetration. This means planting in a flat surface instead of any combination of raised mounds, beds, or ditches.

The "hill" referred to on a seed packet usually means a grouping of seeds rather than a raised area. A raised area, once it has dried, is very difficult to wet again. Water runs away from the root zone of the plant and is wasted.

Using fertilizers

Managing soil tilth to include additional organic matter will promote water penetration and retention. Organic material can include plant residue from garden plants, leaves, straw, manure, sawdust, bark, etc. Apply these additions annually.

Adequate fertility levels will help produce crops that require limited water. A fertilizer such as 5-10-10 at the rate of $\frac{1}{2}$ to $\frac{3}{4}$ cup per 10 feet of row will supply this fertility. Placing fertilizer in a band 2 inches below and 2 inches to the side of the seed will provide maximum efficiency. (The crop will get a better start, and weeds between the rows won't get as much encouragement.) Excess fertilizer can cause burning of the roots if soil moisture is low.

Omit some vegetables?

Consider omitting certain vegetables when water is in short supply:

- Poor-yield crops for space and water used: sweet corn, soybeans, peas.
- Poorly adapted crops in cool areas: okra, sweet potatoes, watermelons.
- Crops susceptible to severe attacks by insects or diseases, and difficult to count on for good production of edible vegetables: Brussels sprouts, turnips, and those vegetables attacked by curly-top in eastern Oregon.

Cultivating and weeding

A number of good gardening practices will help in conservation efforts. For example, don't plant in soils that are too cold—seeds won't grow satisfactorily, and water will not be properly absorbed.

From the start, weed control is very important in your garden. Weeds waste water, and they compete with vegetable plants for nutrients and sunlight. For maximum water use, maintain excellent weed control in your garden.

Cultivation of the soil should be shallow. Deep tillage or hoeing not only damages plant roots but also allows moisture to evaporate. Very shallow rototilling, or weed control with a scuffle or push hoe, will be more appropriate. (A scraping action with the scuffle hoe is best.)

Plastic mulches

Warm-season crops like tomatoes, peppers, and melons benefit from a plastic mulch. This type of mulch will greatly conserve moisture and help

speed maturity. Place a 2- to 2 $\frac{1}{2}$ -foot strip along the row with its edges buried with soil. Plant the transplant or seed through an X-cut in the plastic at the desired location.

Black plastic will prevent weed growth, conserve soil moisture, and warm the soil for faster crop maturity. Clear plastic also conserves moisture and will warm the soil more than black plastic. However, weeds may grow under clear plastic—so black is preferable for most gardening situations west of the Cascades.

Once the soil has warmed, you could use organic mulches like grass clippings or straw to conserve moisture and control weeds. Because these materials shade the ground (and thus reduce soil temperatures), plants may grow more slowly if you apply the mulch to the garden before the soil warms. You can use newspapers, but they're somewhat unsightly.

When you're deciding whether to use organic mulches, remember that many straws and hays can be a source of weed contamination for the garden. Bark and sawdust are weed-free materials.

Using water wisely

Root zones. When you use water, try to concentrate it in the plants' root zone. The less water you apply between the rows where roots can't use it, the less water you lose to evaporation. In addition, water from a sprinkler won't all reach the soil surface because of evaporation—a

Ray A. McNeilan, Extension agent (home and urban horticulture), Multnomah County, Oregon State University.



loss of up to 25%. Several techniques will help place the water in the root zone where it's needed:

1. For crops like squashes and cucumbers that are grown in a group, bury a juice or coffee can with the bottom at root level. Punch holes in the bottom of the can, so the water you pour in it will reach the roots with a minimum of loss.
2. You can irrigate individual plants like tomatoes, peppers, and eggplants in the same manner, using a slightly smaller can. Punch the holes in the can only on the side next to the plant.
3. A "trickle" or "drip" irrigation system permits water to ooze from a continuous soaker, or it emits water at a given location. You can buy kits with various components to supply water in this fashion at garden stores. Canvas soakers, or inverted sprinkler hoses near the plants, perform the same function. (These types of delivery can save you many gallons of water.)

Sprinkler irrigation. If you use this system, minimize water losses by:

1. using a sprinkler that will cover the garden only, not the surrounding area;
2. watering early in the morning when air is cool, wind is low, and water pressure is better on municipal systems; or
3. using a rate of application that permits all water to soak in and not run off the garden area.

Soak the soil. When you water, thoroughly soak the soil to a depth of 6 to 8 inches and do it less frequently. Depending on stage of growth and temperatures, a 5- to 7-day interval may be enough.

Try closer rows. A smaller area gardened more intensively will produce more vegetables in relation to water usage. You can grow quite a few vegetables much closer together than traditional 2¹/₂- to 3-foot rows. You can place radishes, onions, beets, carrots, etc., in rows as close as 1 foot apart. This way, you make better use of the water you apply in the root zone. In addition, a shaded soil loses less water by evaporation to the atmosphere.

Plant vegetables and flowers together. You could plant vegetables in some flower beds and borders. The watering schedule for the food crops

will be adequate for the perennial shrubs. Red cabbage, rhubarb, chard, leaf lettuce, and compact tomatoes are decorative as well as useful plants.

Container planting of vegetables will use more water than in-ground gardening. Containers dry much faster than garden beds and rows.

Use waste water? Some people have advocated using bath water on plants. Present health regulations, however, prohibit use of water containing soaps or detergents.

Note: Check with your health department before you use *any* waste water. Some areas have regulations prohibiting surface application of waste water.

Here's help. You can find additional water conservation ideas in gardening books such as *Ortho's Weather-Wise Gardening* (Western edition) and *Gardening Shortcuts*, available at most garden supply stores.



Extension Service, Oregon State University, Corvallis, O.E. Smith, director. This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.

Oregon State University Extension Service offers educational programs, activities, and material—without regard to race, color, national origin, sex, age, or disability—as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University Extension Service is an Equal Opportunity Employer.
