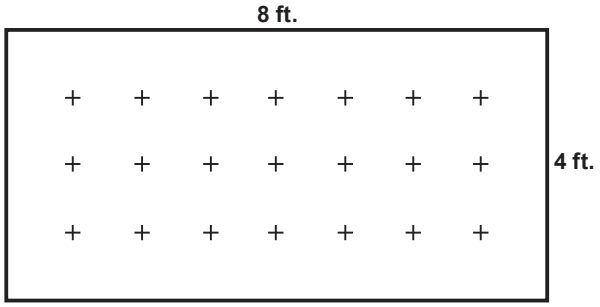
University of California
Agriculture and Natural Resources | UCCE Master Gardener Program

How Much Water Does My Food Garden Need?



Example:

Bed is 4 x 8 feet or 32 square feet

+ = 1/2 gallon per hour drip emitter on 1 foot center

21 emitters in bed

For vegetables in the summer, we recommend applying about 1 inch of water over the surface area of the garden bed per week. That is equivalent to 0.623 gallons per sq ft.

Using that rate, a 32 sq ft bed requires 20 gallons of water per week.
(32 sq ft x 0.623 gallons per sq ft = 20 gallons per week).

During shorter and cooler spring or fall days, we recommend using about half that amount. These are averages; plant water demand varies depending on season and the evapotranspiration (ET) rate.

In the summer when plants are full size, we recommend watering every day.
20 gallons per week is 2.9 gallons per day - (20 gallons/7 days per week = 2.9 gallons per day per 32 sq ft bed)

With twenty-one 1/2-gallon/hour emitters in the bed, 10.5 gallons are applied per hour.

In this example, you need 2.9 gallons per day. So this bed needs 17 minutes of water a day.
(2.9 gal /10.5 gal per hour = 0.28 of an hour) (0.28 x 60 minutes = 17 minutes to apply 2.9 gallons)

If you have 25 gallons a day available, how many square feet can you water per week? Answer: 280 sq ft
(25 gallons x 7 days = 175 gallons per week - 175 gal/week divided by 0.623 gal/sq ft = 280 sq ft.)

If you have 25 gallons a day available, how many 4 x 8 beds can you water per week? Answer: 8.75 beds
(175 gal per week/20 gal per week per bed = 8.75 beds)

For more information about food gardening in a drought, see the following documents prepared by the Sonoma County Master Gardener Food Gardening Specialists:

Food Gardening with Less Water, http://ucanr.edu/sites/scmg/files/183770.pdf

A More In-Depth Look at Food Gardening with Less Water, http://ucanr.edu/sites/scmg/files/185638.pdf

Drought-Resistant Crops and Varieties, http://ucanr.edu/sites/scmg/files/183771.pdf

For help with your garden problems, call the Master Gardener hotline at 565-2608 or visit the Master Gardener information desk in the University of California Cooperative Extension office (133 Aviation Blvd., # 109, Santa Rosa), or ask a Master Gardener at your local farmers market or the Sonoma County Fair or other event. See our website at http://ucanr.edu/sites/scmg/ for additional publications.

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By E.de Peyster, Food Gardening Specialist,
Master Gardeners of Sonoma County

HOW MUCH WATER DOES MY FOOD GARDEN NEED?

INDIVIDUAL WORKSHEET

The purpose of this worksheet is to determine how much water an individual gardenerôs drip irrigated garden requires. Daily watering is recommended during the hot, dry Sonoma County summer.

PLUG IN YOUR OWN NUMBERS:

1. HOW LARGE IS MY FOOD GARDEN?

   ____ ft (length) x ____ ft (width) = ____ sq ft

2. HOW MUCH WATER DOES MY FOOD GARDEN REQUIRE?

   ____ sq ft garden x 0.623 per sq ft[1] = ____ gallons per week

   ____ gallons per week / 7 days = ____ gallons per day

3. HOW MUCH WATER DOES MY DRIP SYSTEM DELIVER?

   Number of emitters: ____ x Rate of water (Gallons Per Hour - GPH) delivered by each emitter: ____ = _____ Total GPH applied

4. HOW LONG SHOULD MY DRIP SYSTEM RUN?

   ____ gallons water needed per day (result of step 2) / ____ GPH applied (result of step 3) = ____% x 60 minutes = _____ minutes of watering per day

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5. IF I KNOW THE AMOUNT OF MY AVAILABLE WATER, HOW MANY SQUARE FEET CAN I WATER PER WEEK?

   _____ gallons of available water/day x 7 days = _____ gallons per week / 0.623 gallons/sq ft = _____ sq ft of garden

[1] Summer average of 1 inch of applied water/wk/sq ft = 0.623 gallons of water/wk/sq ft