

Irrigation for Your Home Vegetable Garden

Dr. Leigh Whittinghill, Assistant Professor of Urban Agriculture

Vegetables require 1 inch of water per week. This should equal about 62 gallons for a 100 square foot bed. Some recommend that the water should be applied all at once to encourage deeper root growth.

How to Calculate How Much Water Equals 1 inch for Your Garden



1. Calculate that volume of water that equals 1 inch for your garden.

Length of bed x Width of bed = Area of your garden (square feet)

$$\frac{\text{Area of your garden}}{100 \text{ square feet}} \times 62 \text{ gallons} = \text{Gallons of water needed}$$

OR

Length of bed x Width of bed = Area of your garden (square feet)

Area of your garden x 0.083 ft (1 inch) = Cubic feet of water needed

$$\text{Cubic feet of water} \times \frac{7.48 \text{ gallons}}{1 \text{ cubic foot}} = \text{Gallons of water needed}$$

Length of your bed: _____
Width of your bed: _____
Area of your garden: _____
Gallons of water needed: _____

Length of your bed: _____
Width of your bed: _____
Area of your garden: _____
Cubic ft of water needed: _____
Gallons of water needed: _____

2. Determine how long to run your irrigation to supply this water.

Time how long it takes to fill a bucket of known volume with a hose.

$$\frac{\text{Gallons of water needed}}{\text{Volume of the bucket}} \times \text{Time to fill the bucket} = \text{Amount of time to run the hose}$$

Volume of bucket: _____
Time to fill bucket: _____
Amount of time to run hose: _____

OR

Set small containers such as tuna cans around the garden.
Time how long it takes to fill the containers.

Depth of container: _____

Time to fill container: _____

Amount of time to run sprinkler: _____

$$\frac{1 \text{ inch of water needed}}{\text{Depth of the container}} \times \text{Time to fill the container} = \text{Amount of time to run the sprinkler}$$

Keep a Log of How Much Water Your Garden Needs Each Week

Example Table:

Date	Rain Depth (in)	Rain in Forecast?	Irrigation Supplied (in)	Needed Water Remaining (in)
6/29	0.01	Yes	0	0.99 in
6/30	0.34	Yes	0	0.65
6/31	1.07	Yes	0	0

1. Record the date each day.
2. Record the amount of rain from either a rain gauge in your garden, or another accurate weather source. Setting up a rain gauge in your garden will give you the most accurate information for your location.
3. Determine if there is rain in the forecast. If there is a lot of rain in the forecast for the next couple of days, it may be wise to reduce the amount of irrigation supplied, or to wait to irrigate until after the rain.
4. Record the amount of irrigation supplied to the garden. This should be done in inches of depth. If the full amount needed is supplied, then this will be 1 inch. If not, you can use the following calculation to determine how many inches you have supplied.

$$\frac{\text{How long you ran the sprinkler}}{\text{Amount of time to run the sprinkler}} = \text{Water supplied (in)}$$

OR

$$\frac{\text{How long you ran the hose}}{\text{Time to fill the bucket}} \times \text{Volume of the bucket} = \text{Gallons of water supplied}$$

$$\frac{\text{Gallons of water supplied}}{\text{Gallons of water needed}} = \text{Inches of water supplied}$$

5. Subtract the rain depth and irrigation supplied from the water needed. At the beginning of the week, this will be the 1-inch water recommendation. After the first day of the week use the value from the previous day in the final column. Enter the amount in the final column for that day.

References

Home Vegetable Gardening in Kentucky. ID-128. University of Kentucky Cooperative Extension Service

Markham, B.L. 2014. The MiniFarming™ Bible: The Complete Guide to Self-Sufficiency on ¼ Acre. SkyHorse Publishing, New York, New York.