How to use the Irrigation Planner

article revised August 2012

Introduction

Watering fruits and vegetables can be a real guessing game. The Oklahoma Mesonet has designed an online tool to let you know when to water your plants based on your plant's water needs. By watering only when your plants need it, you reduce water costs, conserve Oklahoma's water resources and grow healthier plants. Irrigation Planners, available on the Oklahoma Mesonet website (www.mesonet. org), are weather-based tools that estimate daily water loss from a plant. Using weather data from the closest Oklahoma Mesonet tower, a unique table is calculated for a wide variety of garden plants, including: sweet corn, tomato, watermelon, grape, peach and pecan. For general use, there is an Irrigation Planner under "Garden Vegetable."

To access the Irrigation Planners click on Agriculture in the top menu of the Mesonet website. Scroll over Horticulture from the top submenu and select Garden Vegetable. This will take you to the Irrigation Planner. Once there, you can choose which fruit or vegetable you want to water.

Horticulture Irrigation Planner

Your plants' estimated water use is reported as evapotranspiration on the Irrigation Planner Table (see table below). The daily water use is shown in the red-colored column labeled "Evapotranspiration." Evapotranspiration is an estimate in inches of the water that evaporates from the soil surface ("evapo" in evapotranspiration) and the water a plant loses through its leaves, known as transpiration ("transpiration" in evapotranspiration). The next column shows the accumulated water loss and is labeled "Accumulated Evapotranspiration." The most current date is at the top of the table. Follow the table down to the "Last Irrigation Date" and then across the row to see the accumulated water loss, accumulated rainfall, and in the last column, the "Water Balance" for your plants.

Rainfall collected at the selected Oklahoma Mesonet site is in the blue-colored column, labeled "Rainfall." The next column shows the "Accumulated Rainfall."

The green-colored, farthest right column in the table shows the "Water Balance." This calculation is the difference between the water lost through evapotranspiration and the water replaced by rainfall. When the negative, red-colored "Water Balance" drops to a "trigger point," it is time to water. Watering "trigger points" are different for each fruit and vegetable, suggested "trigger points" are listed in the table on the back of this page. When the "Water Balance" reaches or is below the negative red-colored "trigger point" you have set for your garden, it is time to water. When the "Water Balance" is positive number, blue-colored, more rain has been received than water lost by your plants and from the soil surface.

Irrigation Planner

Share   Tweet

▷ NORMAN   ▷ GARDEN VEGETABLE   ▷ Choose Options

Irrigation Planner for Norman. Find your last irrigation date and the corresponding water balance.   Print Table

Last Irrigation Date	Evapotranspiration (inch)	Accumulated Evapotranspiration (inch)	Rainfall (inch)	Accumulated Rainfall (inch)	Water Balance (inch)
2012-08-13	0.30	0.30	0.00	0.00	-0.30
2012-08-12	0.35	0.65	0.02	0.02	-0.63
2012-08-11	0.30	0.95	0.00	0.02	-0.93
2012-08-10	0.36	1.31	0.00	0.02	-1.29
2012-08-09	0.40	1.71	0.00	0.02	-1.69
2012-08-08	0.30	2.00	0.00	0.02	-1.98

Irrigation Planner: Water Balance "Trigger Points"

Crop	Sandy Soils or Water Sensitive Plants	Loam Soils	Clay Soils
Garden Vegetable	-.50	-1.00	-.80
Sweet Corn	-.75	-1.00	-.80
Tomato	-.50	-1.00	-.80
Watermelon	-1.00	-1.50	-1.25
Grape	-1.00	-1.50	-1.25
Peach	-1.50	-2.50	-2.00
Pecan	-1.50	-2.50	-2.00

Numbers respresent inches of water. The watering "trigger points" listed are guidelines. Depending on your garden situation, you may need to revise these "trigger points" up or down based on your situation.

How much water should I apply?

The red-colored, negative "Water Balance" value shows the amount of water lost in inches over the days since you last watered.

Since sprinklers have a watering rate in inches per hour, you can divide the Irrigation Planner "Water Balance" by the sprinkler rate per hour to determine how many minutes and/or hours to run your sprinkler.

If you are using a hose-end sprinkler, it is advisable to add 25% additional water to offset water lost to evaporation when the sprinkler is running. Sprinkler evaporative water loss can be higher or lower, depending on how far it throws water into the air and how small the water droplets are. For automatic sprinkler systems, 15% additional water is adequate. Drip and weeping soaker hoses have a high efficiency rate, so no rate adjustment is needed.

Our Story

The Oklahoma Mesonet is a world-class network of environmental monitoring stations. The network was designed and implemented by scientists at the University of Oklahoma (OU) and at Oklahoma State University (OSU).

The Oklahoma Mesonet consists of 120 automated stations covering Oklahoma. There is at least one Mesonet station in each of Oklahoma's 77 counties.

At each site, the environment is measured by a set of instruments located on or near a 10-meter-tall tower. The measurements are packaged into "observations" every 5 minutes, then the observations are transmitted to a central facility every 5 minutes, 24 hours per day year-round.

For help with this or other Mesonet products, please call 405-325-3231, or email us at operator@mesonet.org.

Mesonet
Oklahoma's Weather Network