

# How to Use Agweather's Garden Watering Advisor

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## 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 helps you grow healthier plants. These Irrigation Planners available on the Oklahoma Agweather Web site (<http://agweather.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 the "Horticulture" tab on the Agweather Web site (<http://agweather.mesonet.org>). Select the fruit or vegetable you want to water in the left hand column and click on "Irrigation Planner."

## Agweather Irrigation Planner:

Your plants' 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 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 for PECAN for Norman

Find your last irrigation date and the corresponding water balance.

Last Irrigation Date	Evapotranspiration (Inch)	Accumulated Evapotranspiration (Inch)	Rainfall (Inch)	Accumulated Rainfall (Inch)	Water Balance (Inch)
2009-08-30	0.16	2.70	0.00	2.77	0.07
2009-08-29	0.15	2.85	0.00	2.77	-0.08
2009-08-28	0.17	3.02	0.01	2.78	-0.24
2009-08-27	0.10	3.12	0.39	3.17	0.05
2009-08-26	0.23	3.35	0.30	3.47	0.12
2009-08-25	0.25	3.60	0.00	3.47	-0.13
2009-08-24	0.26	3.86	0.00	3.47	-0.39
2009-08-23	0.24	4.10	0.00	3.47	-0.63



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## Irrigation Planner: Water Balance “Trigger Points”

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

Numbers represent 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 slightly 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

In 1982, Oklahoma scientists recognized the need for a statewide weather network.

At OSU, agricultural scientists wanted to upgrade weather instruments at their research sites. Their goal was to expand the use of weather data in agricultural applications.

Meanwhile, scientists from OU and the Oklahoma Climatological Survey were helping to plan and implement a flood-warning system for Tulsa.

OSU and OU joined forces in 1987 when they realized that one statewide weather network would help both universities achieve their missions.

No other state or nation is known to have a network that boasts the capabilities of the Oklahoma Mesonet.

Agweather is one Web site that features data from the Oklahoma Mesonet. Agweather provides weather-related products for agri-

culture and natural resources.

Agweather can be found at <http://agweather.mesonet.org/>.

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