

Yard Watering Advisor

Evapotranspiration:

Knowing the daily evapotranspiration rate can help you determine the best time to water your lawn and landscape plants. Watering only when plants need it reduces water costs, conserves Oklahoma water resources, and helps you grow healthier plants. Evapotranspiration is an estimate of the water that evaporates from the soil surface ("evapo" in evapotranspiration) and the water a plant loses through transpiration ("transpiration" in evapotranspiration).



The evapotranspiration products available on the Oklahoma AgWeather web site (<http://agweather.mesonet.org>) are weather-based tools that estimate daily water loss from a plant canopy. Using weather data from the closest Oklahoma Mesonet tower, unique evapotranspiration rates are calculated for a wide variety of lawn and garden plants. These include warm-season grass (bermudagrass or zoysiagrass), cool-season grass (tall fescue, bluegrass, or rye grass), general garden vegetables, tomato, watermelon, grape, peach, and pecan.

Evapotranspiration charts provide daily evapotranspiration rates and accumulated evapotranspiration rates back to the planting of the crop or the beginning of the growing season. Included in the evapotranspiration chart is the daily rainfall and accumulated rainfall. This provides a season-long perspective of plant water needs and the amount of rain that has fallen to meet those needs. In Oklahoma, we typically see long periods when little or no rain falls to provide the water lawn and garden plants need.

Rainfall amounts reported are those collected at the nearest Oklahoma Mesonet tower and may not reflect rainfall received at your location. While a variation in rainfall amount might change when you water, it does not affect the accuracy of the evapotranspiration rates.

AgWeather Evapotranspiration Chart:

To use the evapotranspiration rates to irrigate you need to think backwards. The evapotranspiration chart (see image below) shows the evapotranspiration rate in inches of water for each day in the **red colored column**. The most current date is at the top of the chart, descending through past dates as you scroll down the table. The chart shows the Mesonet station code, Date, Number of Days (descending), daily

Station	Date	Number of Days	Evapotranspiration (inch)	Accumulated Evapotranspiration (inch)	Rainfall (inch)	Accumulated Rainfall (inch)	Water Balance (inch)
BIXB	2004-10-07	1	0.07	0.07	0.59	0.59	0.52
BIXB	2004-10-06	2	0.13	0.20	0.00	0.59	0.39
BIXB	2004-10-05	3	0.13	0.33	0.00	0.59	0.26
BIXB	2004-10-04	4	0.12	0.46	0.00	0.59	0.13
BIXB	2004-10-03	5	0.12	0.58	0.00	0.59	0.01
BIXB	2004-10-02	6	0.14	0.72	0.00	0.59	-0.13
BIXB	2004-10-01	7	0.11	0.83	0.14	0.73	-0.10
BIXB	2004-09-30	8	0.14	0.97	0.00	0.73	-0.24

Evapotranspiration, Accumulated Evapotranspiration, daily Rainfall amount (**blue colored column**), Accumulated Rainfall, and a Water Balance. The Water Balance column values come from subtracting the Accumulated Evapotranspiration from the Accumulated Rainfall. All evapotranspiration and rainfall amounts are in inches of water lost or gained.

The Water Balance column numbers are negative (**red**) when the water lost through accumulated evapotranspiration

exceeds the amount of accumulated rainfall. When the water gained in rainfall is higher than that lost from evapotranspiration, the Water Balance column numbers are positive (**blue**). It is time to water when the negative value reaches the amount of water you want to provide your plants. See page 2 for detailed instructions on how to schedule lawn and garden watering.

Using Evapotranspiration on OK AgWeather (<http://agweather.mesonet.org>):

Warm-season Lawn Grass (bermudagrass or zoysiagrass):

- Click on HORTICULTURE, then select Turf, then Evapotranspiration.
- Select nearest Mesonet Site location.
- For Grass Type, choose Warm-season.
- For Season Start Date, use the default date or select a date.
- Click on Get Turf Grass Data.
- Go down the Water Balance column until you reach a negative **-0.5** for high maintenance bermudagrass lawns or zoysiagrass, **-1.0** for moderate care bermudagrass, or **-1.5** for low maintenance bermudagrass areas and note the date. If your last watering occurred on or before this date, then it is time to water again.

Vegetables:

- Click on HORTICULTURE, then select Vegetable, next choose All Vegetables, then Evapotranspiration.
- Select nearest Mesonet Site location.
- Enter the Planting Date for the vegetable of interest.
- Click on Get Vegetable-General Data.
- Go down the Water Balance column until it shows a negative **-0.5** for water sensitive vegetables or vegetables in sandy soils or **-1.0** for most vegetables or vegetables in clay soils and note the date. If your last watering occurred on or before this date, then it is time to water again.

Watermelon:

- Click on HORTICULTURE, then select Vegetables, next choose Watermelon, then Evapotranspiration.
- Select nearest Mesonet Site location.
- Enter the Watermelon Relative Maturity for the watermelon variety you planted, Early-season, Mid-season, or Late-season. Or select the Relative Days to Maturity for the variety planted.
- Enter Planting Date.
- Click on Get Watermelon Data.
- Go down the Water Balance column until it shows a negative **-1.5** and note the date. If your last watering occurred on or before this date, then it is time to water again.

Peach:

- Click on HORTICULTURE, then select Fruit and Nut, next choose Peach, then Evapotranspiration.
- Select nearest Mesonet Site location.
- Enter the Peach Relative Maturity for the peach variety you grow, Early-season, Mid-season, or Late-season.
- For Season Start Date, use the default date or select a date close to peach blooming.
- Click on Get Peach Data.
- Go down the Water Balance column until it shows a negative **-2.0** and note the date. If your last watering occurred on or before this date, then it is time to water again.

Cool-season Lawn Grass (tall fescue, Kentucky bluegrass or perennial rye grass):

- Click on HORTICULTURE, then select Turf, then Evapotranspiration.
- Select nearest Mesonet Site location.
- For Grass Type, choose Cool-season.
- For Season Start Date, use the default date or select a date.
- Click on Get Turf Grass Data.
- Go down the Water Balance column until it shows a negative **-0.5** for high maintenance cool-season lawns or **-1.0** for lower maintenance turf areas and note the date. If your last watering occurred on or before this date, then it is time to water again.

Tomato:

- Click on HORTICULTURE, then select Vegetables, next choose Tomato, then Evapotranspiration.
- Select nearest Mesonet Site location.
- Enter the Planting Date (transplant date) for your tomatoes.
- Click on Get Tomato Data.
- Go down the Water Balance column until it shows a negative **-0.5** for caged and staked tomatoes or **-1.0** for ground-grown tomatoes and note the date. If your last watering occurred on or before this date, then it is time to water again.

Grape:

- Click on HORTICULTURE, then select Fruit and Nut, next choose Grape, then Evapotranspiration.
- Select nearest Mesonet Site location.
- For Season Start Date, use the default date or select a date close to when grape leaves appeared.
- Click on Get Grape Data.
- Go down the Water Balance column until it shows a negative **-1.5** and note the date. If your last watering occurred on or before this date, then it is time to water again.

Pecan:

- Click on HORTICULTURE, then select Fruit and Nut, next choose Pecan, then Evapotranspiration.
- Select nearest Mesonet Site location.
- For Season Start Date, use the default date or select a date close to when pecan leaves appeared.
- Click on Get Pecan Data.
- Go down the Water Balance column until it shows a negative **-3.0** and note the date. If your last watering occurred on or before this date, then it is time to water again.

