

# Crop Irrigation Planner Tool

[mesonet.org](https://mesonet.org) / Agriculture / Crops / Most Crops / Irrigation Planner

The Irrigation Planner tool is a simple subtraction method of keeping track of plant water needs. It takes into account accumulated rainfall amounts and subtracts an accumulated crop specific evapotranspiration (ET) level.

ET is a weather-based estimate of daily water loss from a plant canopy through the combined process of evaporation (from soil and plant surfaces) and plant transpiration.

An estimated daily crop ET is calculated for Alfalfa, Corn, Cotton, Grass hay, Peanut, Sorghum, Soybean, Commercial turfgrass, and Wheat. For each crop a coefficient adjusted for physiological plant age is used to determine the crop specific ET.

By comparing ET values for the time since the last rainfall or irrigation and factoring in soil water holding capacity, producers can decide when to irrigate and how much water needs to be applied.

Once the Irrigation Planner is opened, the user has the option of selecting a Mesonet site, and then selecting a crop. There is a different list of horticulture crops under the Horticulture icon. Default planting dates and days to maturity are available for most crops. These values can be user adjusted for each specific situation.

The selection tool is different for alfalfa, grass hay, soybeans, and commercial turfgrass. For soybeans, the option to select a different maturity group is available. When a maturity group is changed, it automatically changes the default planting date and days to maturity. For alfalfa, the user must select either before or after first cutting. Grass hay is similar, but you must also select either warm or cool season. For commercial turfgrass, just the selection of warm or cool season is required.

## Irrigation Planner

Mesonet Site

Mangum

Crop

Wheat

Planting Date \*

10/01/2022

Get Data

Select a crop

Select a crop

Alfalfa  
Corn  
Cotton  
Grass Hay  
Peanut  
Sorghum  
Soybean  
Turfgrass  
Wheat

The following table shows the irrigation planner for wheat, planted at Mangum on Oct. 1, 2022.

## Irrigation Planner Results

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Irrigation Planner Results for Mangum					
Last Irrigation Date	Evapotranspiration (in.)	Accumulated Evapotranspiration (in.)	Rainfall (in.)	Accumulated Rainfall (in.)	Water Balance (in.)
2022-10-19	0.08	0.08	0.00	0.00	-0.08
2022-10-18	0.06	0.15	0.00	0.00	-0.15
2022-10-17	0.08	0.22	0.00	0.00	-0.22
2022-10-16	0.06	0.29	0.58	0.58	0.29
2022-10-15	0.12	0.41	0.00	0.58	0.17
2022-10-14	0.13	0.53	0.00	0.58	0.05
2022-10-13	0.10	0.63	0.00	0.58	-0.05
2022-10-12	0.12	0.75	0.00	0.58	-0.17
2022-10-11	0.10	0.85	0.01	0.59	-0.26
2022-10-10	0.04	0.90	0.04	0.63	-0.27
2022-10-09	0.06	0.95	0.12	0.75	-0.20

To schedule irrigation events using the tool, move down the first column to the date of the last irrigation. Next move across to the last column entitled water balance. For example, if today was October 19<sup>th</sup>, and you last irrigated the garden on October 11<sup>th</sup>, the water balance would be a negative 0.26 inches (red text at the bottom of the Water Balance column). During rainy periods, it is likely that the water balance column will show a positive number (blue) and irrigation would usually not be warranted. The save and print button allows a PDF to be created for later use.

Determining when to initiate irrigation is a complicated issue. Different soil types, crops, forecasts, equipment, and environmental conditions can modify the amount or timing of irrigation.

This simple tool is a good way to keep track of accumulated rainfall since planting at the selected Mesonet site. It also gives an estimate of the accumulated ET, and the resulting water balance values. It does not incorporate soil type, rainfall in a location different than the selected Mesonet tower, or the “trigger point” or “maximum allowable depletion (MAD)” of a particular crop planted. Therefore, this tool should be used as a guide in conjunction with other tools and user experiences. Additional irrigation information is available through [OSU Fact Sheets](https://extension.okstate.edu/fact-sheets/) – <https://extension.okstate.edu/fact-sheets/>.

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**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, 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](mailto:operator@mesonet.org).

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