Horticulture Irrigation Planner Tool

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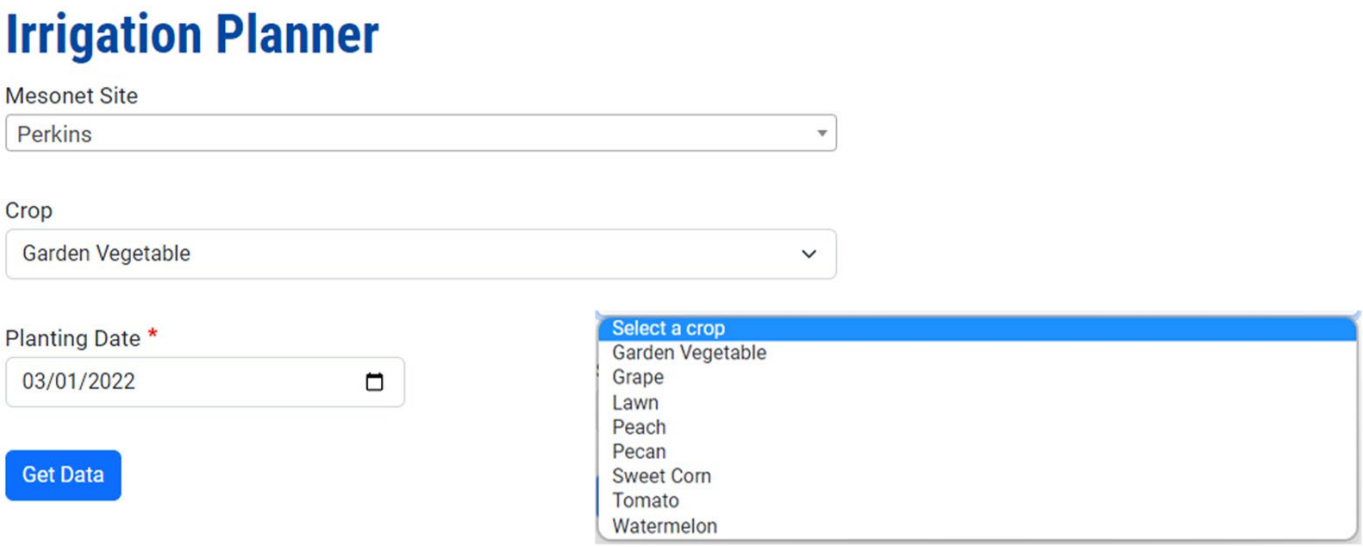
The Horticulture Irrigation Planner tool is a simple subtraction method of keeping track of plant water needs. It takes into account accumulated rainfall amounts and subtracts an estimated daily water use referred to as the evapotranspiration (ET) level.

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 Garden Vegetables (for general use), Grape, Lawn, Pecan, Peach, Sweet Corn, Tomato, and Watermelon. It is shown in the red column in the table found on the following page.

By comparing ET values for the period since the last rainfall or irrigation and factoring in soil water holding capacity, growers 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.



For each crop selected, some additional information is needed before the data can be generated. For Garden Vegetable and Tomato, a planting date must be provided. The user can elect to use the default planting date or enter a specific date. For perennial crops such as Grape, Turf, Peach, or Pecan a season start date is used instead of a planting date. For Lawn, the user must also select either warm or cool season, and for Peach an additional selection of early, mid, or late season is required. For Sweet Corn and Watermelon, in addition to planting date, the days to maturity are needed (leave the default value unless the number for your specific variety is known). The season is also needed for Watermelon.

The following table shows the irrigation planner for Vegetable Garden, planted at Perkins on March 1, 2022.

Save Print

Irrigation Planner Results for Perkins					
Last Irrigation Date	Evapotranspiration (in.)	Accumulated Evapotranspiration (in.)	Rainfall (in.)	Accumulated Rainfall (in.)	Water Balance (in.)
2022-10-27	0.07	0.07	0.00	0.00	-0.07
2022-10-26	0.06	0.12	0.00	0.00	-0.12
2022-10-25	0.06	0.18	0.65	0.65	0.47
2022-10-24	0.04	0.23	0.98	1.63	1.40
2022-10-23	0.14	0.36	0.00	1.63	1.26
2022-10-22	0.17	0.53	0.00	1.63	1.10
2022-10-21	0.14	0.67	0.00	1.63	0.96
2022-10-20	0.06	0.73	0.00	1.63	0.90
2022-10-19	0.06	0.78	0.00	1.63	0.85

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 27th, and you last irrigated the garden on October 19th, the water balance would be a positive 0.85 inches (blue text at the bottom of the Water Balance column). This is because the recent rains (shown in the Rainfall column shaded blue), exceeded the ET needs (shown in the Evaporation column shaded red). In this case, irrigation would not be warranted. The save and print button allows a PDF of the table 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. There is a “trigger point” or time to irrigate when the water balance column reaches a specific value shown in red text (value will also be negative). The following table is an example of these trigger points. This table is given as an example and may not be valid for your unique situation.

Crop	Sandy Soils or Water Sensitive Plants	Loam Soils	Clay Soils
Garden Vegetable	**-0.50**	**-1.00**	**-0.80**
Sweet Corn	**-0.75**	**-1.00**	**-0.80**
Tomato	**-0.50**	**-1.00**	**-0.80**
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**

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 on 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.

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