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Irrigation update and crop water use 7/21 – 7/27

Corn is currently at peak water use, with the most critical period occurring between VT (tasseling) and R3 (early grain fill). This window often aligns with the hottest part of the summer, when transpiration demand exceeds the plant's water uptake, increasing the risk of water deficiency. Ensuring adequate soil moisture during this time is essential to avoid delayed silk emergence, poor pollination and yield or quality loss. Weekly water use for corn is around 1.50-1.55 inches and often exceeds rainfall in dry areas.

Soybeans are most sensitive to water stress during the R3 to R6 stages (pod development through seed fill). Stress during these stages can lead to flower and pod abortion, leaf drop, and reduced yield potential. Leaf flipping, exposing the silvery-green underside, is an early symptom of stress. Water use for soybeans is around 1.50-1.55 inches per week. For efficient irrigation, apply enough water to meet five to six days of crop water use, typically, 1 to 1.25 inches per irrigation. Be sure to adjust for recent rainfall and leave room in the soil profile to capture future precipitation.

For more information, please refer to the peak water use article. Irrigation Scheduling Tools can help estimate crop water needs and decide timing and application.

Estimated weekly crop water use for field crops in Michigan (in/week) Week of July 21 - 27				
Crop	**Growth stage**	**Constantine**	**Entrican**	**Hart**
	Reference ET	1.42	1.40	1.31
Corn	V10	1.08	1.06	1.00
	V12	1.42	1.40	1.31
	V16, VT, Silk, Blister, Dough, Begin Dent	1.56	1.54	1.44
Soybeans	R1 Beginning Bloom	1.42	1.40	1.31
	R2 Full Bloom	1.56	1.54	1.44
	R3 Begin Pod / R4 Full pod	1.56	1.54	1.44

The table above presents estimated crop water use for various field crops across three locations in Michigan. This data helps irrigation management decisions by showcasing potential crop evapotranspiration, calculated based on reference evapotranspiration and crop coefficients for each crop growth stage. It is crucial to note that crop water use values vary across regions due to differences in weather conditions, growth stages, agronomic practices and soil properties. When using these values for irrigation scheduling, be mindful that they assume all applied irrigation water will be utilized by the plants without any loss.

Additionally, these values do not account for any precipitation that may occur during the week of calculation. Reference evapotranspiration data was obtained from Enviroweather, which also offers a model for determining potential crop evapotranspiration. To access this tool, visit Enviroweather, click on "Crops," select your crop and use the potential evapotranspiration tool by choosing your nearest weather station, the latest date of interest and other crop information.