



Irrigation Fact Sheet #3
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Irrigation Scheduling Tools

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Irrigation scheduling provides information on the timing and amount of water to apply to meet crop needs. Checkbook irrigation scheduling and soil moisture monitoring are two common types of gathering information to improve irrigation scheduling decisions. Checkbook scheduling is discussed below.

Checkbook method of irrigation scheduling follows the concept that the soil in your field is like a bank checking account. Rainfall and irrigation applications are deposits into the checking account. Rainfall and irrigation may need to be reduced to reflect the effective amount added to soil moisture. Daily water removal from evaporation and transpiration (evapotranspiration or E.T.) from the field and crop would be considered withdrawals from the account. The soil has a maximum amount of water that can be held so water added beyond the soils water holding capacity is lost to the account. Irrigation applied at a rate exceeding the infiltration capacity will cause surface runoff and be lost to the soil water balance account.

Four different checkbook irrigation scheduling tools are available through Purdue or MSU Extension that will adapt to irrigation in the Michiana area.

Irrigation Scheduler is a simple computerized irrigation scheduling checkbook model from the Agronomy Department of Purdue University. This method can be used throughout Michigan and Indiana. Crop specific E.T. values are estimated from the daily high and low temperatures provided by the producer. **Irrigation Scheduler** is available from: www.agry.purdue.edu/irrigation/

Enviroweather computes daily estimate of potential E.T. and projects E.T. demands for 7 days at each of the 58 strategically located weather stations in Michigan calculating crop E.T. using wind, relative humidity, and net solar radiation in addition to temperature to estimate crop E.T. demands. Estimates are available from: from www.enviroweather.msu.edu Pick the station nearest to you, and then click on one of the categories listed near the top of the screen (eg. Field crops, Fruit), then click on Potential Evapo-transpiration. Estimate can be used in a simple form of irrigation scheduling. This system works well after crop canopy and full root zone are establish, before that potential E.T. must be adjusted. It will not take into account water lost out of the root zone if the soil water holding capacity is exceeded.

Irrigation Scheduling Checkbook Method – University of Minnesota is an Extension bulletin that explains basic concepts of irrigation scheduling and incorporates them into a paper system that provides support and recordkeeping. This method can be used in all of Michigan and Indiana. Crop specific E.T. values are taken from a table incorporating daily high temperature and stage of plant growth based on the number of weeks after emergence. The bulletin is available through the University of Minnesota or from the web link listed below select “Irrigation” on the left hand side: <http://www.msue.msu.edu/stjoseph>

Irrigation Scheduler V 4.0 is a product of the Enviro-Weather Program at MSU. This web based tool pulls data from a network of 58 strategically located Michigan weather stations. This method will provide results for all of Michigan and the upper tier counties in Indiana. Irrigation Scheduler V 4.0 uses a more accurate method for calculating crop E.T. using wind, relative humidity, and net solar radiation in addition to temperature to estimate crop E.T. demands. Irrigation Scheduler V 4.0 is available from: www.enviroweather.msu.edu.

Pick the station nearest to you, and then click on one of the categories listed near the top of the screen (eg. Field crops, Fruit). The scheduling tool is listed under the heading "water-use tools". If you want to use this method contact Steve Miller at mill1229@msu.edu.

MSU Excel Version of Scheduler was developed as a spreadsheet alternative to the web based Irrigation Scheduler V 4.0. It allows greater flexibility and adaptability to the computer savvy irrigator. This method will provide results for all of Michigan and the upper tier counties in Indiana. Reference crop E.T. can be taken from each of the Enviro-weather stations where the program will use crop specific coefficient to adjust for your crop stage of growth. The MSU Excel version of Scheduler is available from: <http://www.agweather.geo.msu.edu/mawn/irrigation/>

Irrigation scheduling is required to be in compliance with Generally Accepted Agricultural Management Practices: http://www.michigan.gov/mdard/0,1607,7-125-1567_1599_1605---,00.html. All of the above mentioned irrigation scheduling tools, plus other irrigation management information is available from: <http://www.msue.msu.edu/stjoseph> click the "irrigation" button on the left hand side.