

Getting Started With **MM2020**



Getting Started

You will need the Xcel spreadsheet program software from Microsoft, either Xcel 2007 or Xcel 97-2003, to operate this Xcel-based irrigation scheduling worksheet. Mud files (field files generated by the program) from either version of Xcel are not compatible with the other Xcel version. For more information about Moismis2020 see BSEN-IRR-10-01, An Overview of Moisture Management and Irrigation Scheduling 2020 (MM2020).

Download Moismis2020 v3.671 from <http://www.aces.edu/anr/irrigation/managing.php> . Also download MOISMISHLP.HLP from this same location. Save both these files into the same folder on your computer (folder title suggestion "Irrigation Scheduling").

Each time you open Moismis2020, you will be prompted to enable macros. Select "Enable this content" and "OK" to do this so that program macros will operate.

Daily Inputs

Basic pivot, traveler, or sub-surface drip irrigation system, crop, and soil Setup Data must be entered ONCE at the beginning of the season. Moismis 2020 can schedule irrigation for Cotton, 110 Day Corn, 120 Day Corn, Peanuts, 130 Day Peanuts, or 150 Day Peanuts.

All the soil data you need for using this program can be found in your county Natural Resources Conservation Services (NRCS) soil survey. You may also be able to access the NRCS WEB Soil Survey at <http://websoilsurvey.nrcs.usda.gov/app/>. Soil texture is found in the "Engineering Properties and

Classifications” table; Minimum and maximum soil moisture holding capacities (inch/inch) can be found in the “Physical and Chemical Properties of Soils” table. All of this soil data will also be on the NRCS Soil Interpretation Record (BLUE SHEET) for each soil in the field. Remember to use soil information for the location you chose for soil sensor installation. The local NRCS office can help identify these.

Daily Inputs

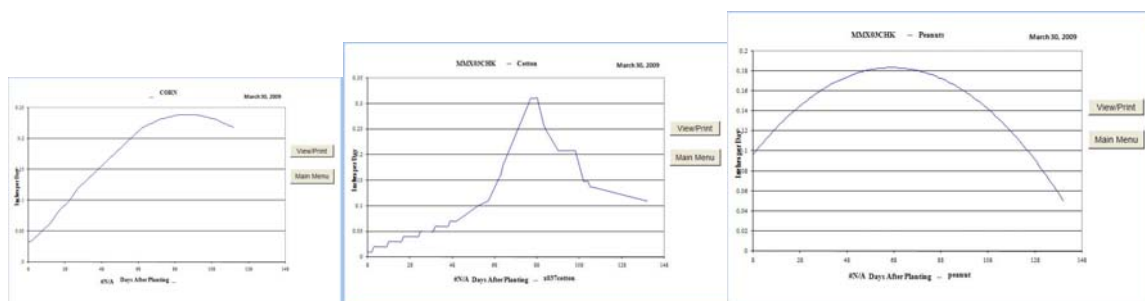
For the **Daily Data inputs of rainfall and irrigation**, you will need an easily- read rain gauge with a 1 inch+ opening with about ¼” of mineral oil inside (to prevent evaporation of rainfall between gauge readings). Place this gauge in a location where water from the irrigation system will not “add” to the actual field rainfall amount collected in the gauge. If you are using sprinkler irrigation (pivot or traveler), place a second rain gauge under the sprinkler system to check application amount.

For the **Daily Date input of soil moisture tension (SMT)**, you will need soil moisture tension sensors installed in a representative soil area of the field. Electric resistance sensors with portable handheld meters have proven more reliable in farmer situations for program input than tensiometers. Follow sensor manufacturer installation directions. Set one 9” deep and one 18” deep, within a foot of each other for each sensor “station” and within the crop row to avoid vehicle traffic. With corn and cotton, you will want to “flag” the location with appropriate markers to help you locate the station for reading.

Try to install sensors within 30 days of planting, if possible, but as soon thereafter as you can. A single station of one 9” sensor and one 18” sensor may be all you need, but the actual number of soil sensor stations will depend on soil types present in your field. Try to identify a single dominant soil type from the field soil map for a single sensor station.

Crop Adjustment

As you “scout” your field for crop progress, insect presence and general crop condition, notice number of leaves, silking, blooming, flowering, pegging, etc., as listed under “Crop Growth Stage” on the “Irrig&Rain” sheet of MoisMIS by calendar date. You will need to “Exit Macros” on the Main Menu to see the different individual Sheets in MoisMIS listed along the bottom of the computer monitor screen. If actual crop growth stage, i.e., number of leaves, does not match with what is listed on the “Irrig&Rain” sheet for that day, decide how many days MoisMIS is off (ahead or behind) and use this number (in multiples of 3). With this number, use the “**CropADJUST**” feature to correct Growth Stage in MoisMIS.



Any time you are out of the Macros looking at any of the individual MoisMIS sheets and want to return to the Macro Main Menu, just click the “MoisMIS” sheet, and then click “Begin MoisMIS Analysis”. Once you are at the Main Menu, to use “**CropADJUST**”, click “Enter Setup Data”. From the Data Entry screen, click on “Crop Sel & Adj”. On this “sub-window”, cursor over “Crop Adjustment +” and “Crop Adjustment -” to decide which button you need to click (+, lengthen season by 3 days for slow growth or -, shorten season by 3 days for fast growth). Click the appropriate button, then “OK” to get back to Main Menu.

From, click “Exit Macros” to look at the “Irrig&Rain” sheet to see your Crop Growth Stage correction. Use “CropADJUST” anytime during the season to match actual crop stage with crop stage on the irrigation report.

Program Output

The Daily Report is the whole reason for the MoisMIS 2020 program. ***This report for any day in the season (except a future day) gives soil moisture status and recommended irrigation amount and date up to five (5) days in the future.*** Once the report is viewed, the operator can choose to print it or return to the Main Menu.

View/Print Report		View/Print Raw Data		Change Report Date		Main Menu		
MMX03CHK Fld #: x03comchk		Daily Report for 5/22/2009		53 Days after planting on 3/30/2009				
CORN Approximate Growth Stage	Date	***** Soil Moisture Deficit *****				Soil Moisture Sensor Readings		Irrigation Call
		Rain	Irr	Program	Meter	9"	18"	
10 to 12 Leaf	5/15/2009			0.30	0.00			
	5/16/2009			0.45	0.00			
	5/17/2009			0.61	0.00			
	5/18/2009			0.77	0.00			
	5/19/2009	0.05	0	0.88	0.00	0	0	
	5/20/2009			1.04	0.00			IRR
13th Leaf	5/21/2009			1.21	0.00			IRR
	5/22/2009	0.02	0	1.36	0.00	0	0	IRR
	5/23/2009			1.53	0.00			IRR
	5/24/2009			1.71	0.00			IRR
9	5/25/2009			1.88	0.00			IRR
	5/26/2009			2.06	0.00			IRR
14th Leaf	5/27/2009			2.25	0.00			IRR
	5/28/2009			2.43	0.00			IRR
	5/29/2009			2.62	0.00			IRR
Days Crop Adjusted	0	Field Deficit Limit = 0.63			Check Soil Moisture Again 5/23/2009			
%Timer @	19.00	Irrigate to Apply 0.79			Begin 5/23/2009			

Finishing Up Each Day

Once you have entered Daily Data, viewed the Soil Moisture Deficit curve (recommended), and generated the Daily Report which tells you when to expect to begin the next irrigation, click “Save” from the Main Menu to save the “mud” file (by field number with all the information you have entered for you to download next time (using “Down load Existing Field”). ***This must be done before exiting MoisMIS 2020 to save the field file.*** Operator chooses where (the folder) on his/her computer to save mud files for later reference.

Please refer any questions to Ted Tyson (tysontw@auburn.edu) at Extension Biosystems Engineering, Auburn University, Auburn, AL (Telephone 1-334-844-3542)

Prepared by

Ted W. Tyson, *Extension Biosystems Engineer and Professor*, and Larry M. Curtis, *Professor-Emeritus*, Biosystems Engineering Department, Auburn University.

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