

AWM Program Guidance Use in Michigan

Use “Help” – “About” to verify Version number and current Database



At the “Start” tab:

The partnership agencies, institutions, and organizations that comprise the Michigan Agriculture Environmental Assurance Program (MAEAP) have agreed to follow Midwest Plan Service (MWPS) manure characteristics where “book values” are used. This includes analysis for CNMP development and design of collection, transfer, and storage facilities. MWPS-18, Section I, Manure Characteristics 2000 is the reference source to be used in Michigan for manure production, wastewater and bedding book values. As such, use the MWPS data base in AWM for planning, designing, or evaluating new or existing manure and/or wastewater storage facilities in Michigan. The AWM training video available through the Livestock and Poultry Environmental Learning Center (LPELC) assumes the use of NRCS-2006 data base which is the ASAE manure production numbers. The LPELC training video references the NRCS Agriculture Waste Management Field Handbook (AWMFH) and Livestock & Poultry Environmental Stewardship (LPES) Curriculum for book value inputs. The AWMFH and LPES Curriculum provide additional information and education on agriculture practices and manure management options, but remember that MWPS “book values” are to be used in Michigan.

- Be sure to use the “**MWPS**” from the pull down menu in the “Data Source” field as required by DEQ permits, MAEAP-CNMP criteria, and NRCS criteria.
- 2-Operating periods – use for pasture situations or animals moved off-site part of the year.

Key to a successful AWM experience – Make sure you have ALL your numbers decided on BEFORE running the program. Animals, weights, 125%-increase in animal numbers, bedding, extra water, runoff areas, etc. USE these **SAME** numbers in the CNMP.



On the “Climate” tab:

Note that when there is a free water surface storage, select the Options for Evaluating Monthly Net Prec - Evap to "Always set net value to prec-evap." The AWM training video from LPELC does not mention the use of these buttons.

- In the, “Options of Evaluating Monthly Net Prec-Evap” box, use middle selection “**Always set net value to prec-evap**”. Unless, however, you are evaluating a structure that may develop a significant crust i.e. organic (sawdust etc.) bedded dairy, piston pumped to a slurry store, or a slatted floor pit in an outside lot, then you might want to use “Ignore evap value, and use prec. only”.



In the “Animals” tab:

- Calf volumes refer to ON-MILK (weights 100 to 200). For weights above this, add identifying them as a young heifer group.



In the “Additions” tab:

- Don’t forget to use the helpful calculation box in the data entry rows for wash water and flush water.
- In plate cooler water from a dairy that is directed to a storage could be added here as an “Additional Waste Stream”.
- Also for a dairy, if they are using sprinkles in the housing in the summer, it needs to be included here as an “Additional Waste Stream”
- For a large dairy, milk from the treated cow barn or hospital that is directed to a manure pit or storage could be entered here.
- The bedding input is per location for all the animals designated at the location. Side calculations may be needed for the lbs/day required input. MWPS-18; Table 12 provides density of various bedding materials in lbs per cu.ft.



In the “Runoff” tab:

The AWM training video from LPELC references the National NRCS Engineering Field Handbook, Chapter 2, Estimating Runoff, for users to find curve numbers. Hydrologic groups for Michigan soils may be found at the NRCS-Michigan Engineering website ([National Engineering Handbook](#) – click “Chapter 2 - Estimating Runoff” under Part 650 - Engineering Field Handbook, NRCS-Michigan Published Amendments)

- AWM **cannot** separate the runoff volumes. A separate AWM run is required for each drainage area.
- For pervious drainage areas – Use EFM2, Hydrology sheets, or the OHIO engineering program to calculate the curve number to be used. Cross out all other information on the printout.
- The SINGLE BIGGEST ERROR in AWM usage is miscalculating contributing run-off areas.



“Lagoon” Terminology:

“Lagoon” is a term commonly used in Michigan to describe a pond-type manure and/or wastewater storage facility. From a technical perspective, a “lagoon” is designed to treat the manure and/or wastewater to reduce the organic and nitrogen content of the waste. The waste storage facilities used in Michigan are designed to just temporarily store the manure and/or wastewater until it can be applied to cropland; not treatment is intended. Michigan’s colder climate severely limits the anaerobic treatment processes of lagoons to the point where it is not practical to install them in the state. NRCS does not even include the Waste Treatment Lagoon practice standard in the Michigan Field Office Technical Guide. As such, DO NOT use the Lagoon options in AWM for planning, designing, or evaluating new or existing manure and/or wastewater storage facilities in Michigan.



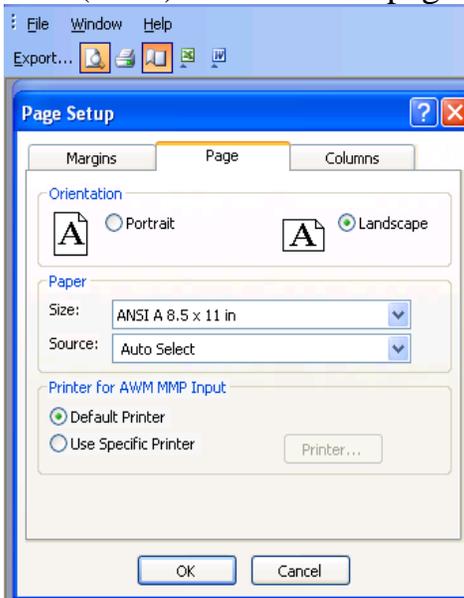
In the “Design” tab:

The AWM training video from LPELC discusses dimension-related input parameters for lagoon design. These same input parameters (sideslope ratio, freeboard, bottom dimensions, total depth, and Max. Storage Volume Method) are the same inputs needed for planning, designing, or evaluating new or existing manure and/or wastewater storage facilities in Michigan

- Withdrawal months are assumed at the end of the month. Ex. Selecting April and October is for a storage period of November, December, January, February, March, April (6 months).
- For a storage pond, you can add anticipated silage leachate volumes (1 ft³ leachate per ton silage) under the “permanent additional storage” entry. Remember... the leachate will mainly occur in late October/early November and this is in our winter storage period.
- You could also use the “permanent additional storage” entry for waste pumped from an existing pond that did not have the required 6 months storage as a CAFO. Call NRCS Engineering staff for additional input before you attempt this alone.
- **DO NOT USE BACKSPACE KEY TO CHANGE CERTAIN KEY VALUES IN THE DESIGN SCREEN.** The program continually calculates on every keystroke. If you are changing the depth from 12 to 9, highlight and change. Using backspace will cause a recalculation for 1 foot depth and then possible a division by zero error that could kick you out with a runtime error.
- When designing a compacted clay liner; laboratory permeability is required for the liner design screen. The maximum allowable specific discharge input in accordance with CPS 313 is 0.028 ft/day.
- Remember per CPS 313, page 3 “Design Storage Volume” requires in a “tank fabricated structure” 6 inches of permanent additional storage for residual solids unless a sump or other device that allows for complete emptying is included in the design.

Printing and Exporting Reports:

- AWM to MMP output page is landscape. You may have to select the page setup icon (book) to format the page for viewing and printing.



- After printing the AWM Management Plan, DOCUMENT (hand write) any assumptions made that are not clear on the printout.
- The AWM MMP Input report can be converted to a word document Refer to page-83 of the AWM 2.3 User Guide for exporting a report.

Determining Storage Volume of an Existing Facility:

- Please refer to page 70 of the AWM 2.3 User Guide for directions on how to size an existing storage using the AWM program.