ANIMAL WASTE MANAGEMENT SYSTEMS (AWMS) EXPERT PANEL

SEPTEMBER 19, 2016

IDENTITY AND EXPERTISE OF PANEL MEMBERS

Table 1 – AWMS BMP expert panel membership and support

Name	Affiliation	Role
Shawn Hawkins	University of Tennessee	Chair
Doug Hamilton	Oklahoma State University	Member
Jonathan Moyle	University of Maryland Extension	Member
Pete Vanderstappen	USDA-NRCS-Pennsylvania	Member
Mark Risse	University of Georgia	Member
Bridgett McIntosh	Virginia Tech	Member
Support:		
Jeremy Hanson	Virginia Tech, CBPO	Coordinator
Ashley Toy	EPA Region 3	Regulatory Point of Contact
Matt Johnston	University of Maryland, CBPO	CBP modeling team rep
Greg Albrecht	NYS Dept. of Ag and Markets	WTWG rep

Additional technical support provided by Mark Dubin (University of Maryland, AgWG Coordinator), Jeff Sweeney (EPA, CBPO Modeling Team), and Brian Benham (Virginia Tech).

PRACTICE NAME(S)

Animal Waste Management System (AWMS)

DEFINITION OF THE PRACTICE

Proposed Phase 6.0 definition: Practices designed for collection, transfer, and storage of wastes generated from the confined portion of animal operations. Reduced storage and handling loss is conserved in the manure and available for land application or export from the farm.

Relevant NRCS CP standards: Waste Storage Facility (313), Waste Treatment Lagoon (359)

Components: Animal type. Model farm before and after AWMS performance will be estimated for all major animal types in the Phase 6 Watershed Model (broilers, pullets, turkeys, layers, dairy, beef,

other cattle, swine, and equine). The benefits of an improved AWMS, over the baseline condition, will vary based on improvements over the baseline condition. The BMP will also be available for minor animal types (sheep, goats, etc.).

This BMP applies to manure generated within the "barnyard" and can also be combined with other BMPs that apply to manure generated in the "barnyard," such as Dairy Precision Feeding. Note the term "barnyard" refers to the modeling concept of where manure is generated during confinement, not a physical barnyard. Storage and handling practices provide the operator with greater flexibility to apply, transport, or utilize their manure in other ways that further protect environmental resources.

Qualifying Practice Conditions

Minimum amount of storage: None. Current Phase 5.3.2 definition calls for 6 months of storage, which reflects the assumption that "emptying events" will occur twice per year, but some operations, for example small dairies, will empty their storage more often or haul daily. The panel's recommendations at this time do not include a minimum storage duration.

Practice Model Simulation Description

Type of reduction: Land input load reduction. When an improved AWMS is implemented less manure (and associated nutrients) are assumed to be lost due to storage and handling. That load is then retained for subsequent spread and field application according to model procedures.
Frequency: Cumulative.
Credit duration: 15 years

Table 2 – Preliminary recommendations for recoverability factors, by animal type

Animal Type	**RECOMMENDED RECOVERABILITY FACTORS**		**Applicable animal type in Watershed Model**
	Before AWMS BMP	**After AWMS BMP**	
Beef cows	-	-	N/A
Confined Heifers	60	99	Beef
Fattened cattle	60	99	
Milk cows & calves	75	95	Dairy/Other Cattle
Hogs, breeding	90	99	Hogs for breeding
Hogs, slaughter	90	99	Hogs for slaughter
Chickens, layers	90	99	Layers

Chickens, pullets	90	99	Pullets
Chickens, broilers	90	99	Broilers
Turkeys, breeding	90	99	Turkeys
Turkeys, slaughter			
Equine	63.5*	90.875*	Horses
Small ruminants	63.5*	90.875*	Sheep and lambs/Goats

*Same as beta-3; panel does not have preliminary recommendation for this animal type at this time but will in its full report.

LAND USES TO WHICH THE PRACTICE IS APPLIED

Phase 6 Ag land use: Feed

UNIT OF MEASURE

Unit: Animal units; animal count; systems

Note: Animal type should also be specified, otherwise the BMP effect is proportionally distributed according to model procedures across animals in that given county.

LOCATIONS WITHIN THE CHESAPEAKE BAY WATERSHED WHERE THIS PRACTICE IS APPLICABLE

AWMSs are applicable throughout the watershed anywhere animal manure is collected and stored. While specific differences exist between the states, the AWMS is intended to apply for BMPs (CPSs) listed above and reported by any of the states.

POTENTIAL METHODS TO ESTIMATE HISTORIC IMPLEMENTATION UNITS

To date most BMP submissions from the jurisdictions to the CBP come from NRCS cost-share data. While that aggregated data lacks the specificity that the panel would desire for reporting (e.g., animal type, animal count) it can continue to serve as the source of historic implementation.

POTENTIAL FOR PANEL ADJUSTMENTS IN FINAL REPORT

NRCS (2003) provided recoverability estimates based on pre- and "post-Comprehensive Nutrient Management Plan (CNMP)" conditions. This reference defines the baseline scenario using "manure

recoverability factors and nutrient recovery parameters that are expected to generally represent conditions in about 1997, prior to implementation of CNMPs and most State and local regulations." By using these recoverability factors as a baseline in the Phase 6 Watershed Model, the baseline conditions in the absence of an improved AWMS, typically implemented along with a CNMP, represents basic handling practices that are reasonably applied during and after the calibration period. The panel's recommendations update the NRCS (2003) baseline and post-CNMP estimates based on the panel's best professional judgment in consideration of representative (model) farms in the Chesapeake Bay region.

The AWMS panel is moving rapidly to develop its full recommendations report. The panel is focused on critically evaluating the current recoverability factors estimated by NRCS (2003), which includes defining "model farms" more applicable to the Chesapeake Bay region than what may be provided for the various regions and representative farms described by NRCS (2003). At this time the panel has greater overall confidence in the preliminary baseline and post-AWMS values for poultry and swine. There is medium confidence in the baseline values for beef and dairy, and somewhat greater confidence in the post-AWMS values for those animal types.

References

USDA NRCS. 2003. Costs associated with development and implementation of comprehensive nutrient management plans, part 1—Nutrient management, land treatment, manure and wastewater handling and storage, and recordkeeping. Issued June 2003. Available online at http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_012131.pdf