Animal Waste Management Systems

Phase 6 Expert Panel

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Presentation overview

- Opening “Big Picture” Comments
- Revisiting the amount “available for runoff” concept
- Maintaining AWMS credit as animal numbers change
- Current storage capacity design standards
  - Daily haul as a sidebar
- Changes in production or management
- Associated “BMPs” impacting storage

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Opening Comments

1) *In 2016, is an AWMS a BMP or an integral part of any confined animal operations?*

2) A re-/alternative use focus by this and "Technologies" panel is good/appropriate *but we are likely 10-20+ years from broad implementation of non-land application technologies. AWMSs designed to support proper agronomic use of manures are needed to meet Bay TMDL goals in 11years.*

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"Amount of animal waste available for runoff" concept

- Original BMP-all animal waste have potential for runoff
- Circa 2003, changed to a percent of total (different for dairy and poultry) based on some protection from loss
- 2009 BMP study continued this approach but reduced percent available for runoff (dairy ~15% and poultry ~5%?)
- That is a lot of manure available for runoff (esp. for dairy)
- Technologies for recovery/reuse with "elimination" of confinement area manure runoff are needed.

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Maintaining credit as animal numbers increase

- Verification issue? -needs to be part of BMP description
- *"Everyone knows they are going to keep adding cows"*
  - *Unattributed senior conservation expert*
- More cows = more manure = need for more storage or re-use and more frequent emptying of storage structure
  - Results in more winter application
  - Increased risk of overflow/failure
  - Increased nutrient loss
  - Common issue; have observed 2-5 times actual vs. design cows
- Need threshold (% increase?) for manure above design capacity that requires AWMS update to continue crediting

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Current storage capacity standards for land applied manure - **Dairy**

- Current standards: design based on a) farmer request; b) 4 month minimum; c) 180-210 day maximum
- Concurrently, standard recommendation - no winter application
  - MD restricts winter application with defined exceptions
  - Most states provide guidelines/recommendations
- Research: High N & P losses from winter (fall?) application
- How is winter/fall application of manure handled in Ph. 6?
- Should efficiencies be different for different storage times?
- Should a 360 day storage cost-share program/incentives be recommended until viable re-use alternatives are available?

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Storage for “dry” poultry litter

- Current storage is for ~6 months of “crust out”
  - Credit should only be for crust-out amount
  - Mortality composting in storage structures (common) reduces space for crust-out storage
- Need AWMS BMP for stockpiling full clean-outs
  - EPA/states have requirements for uncovered stockpiling
  - Increasing times between clean-outs means more P (and N) comes out of house for use - on available land or transport
    - N:P ratio in litter is further from plant need
      - Related issue: In-house composting makes ratio worse and creates substantial ammonia emission event
    - Acres needed for P based use following a full clean-out is greater than in past just due to longer clean-out period

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Daily Haul (or <30d storage?)

- Daily haul still common on small dairies in some states
- Some states allow daily haul under NMP
- Should minimum AWMS storage be 4 months (or more) and some negative efficiency (increased losses?) be applied to daily haul (or <30d storage)?
- Should a 75-100% cost share program be established for 4 months storage on all dairies?
  - Need private cost share program for Plain Sect
- Should a “date-certain” be recommended for all dairies to have at least 4 (6?) months storage?

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Needed: An AWMS for “backgrounding” beef

- Backgrounding (name varies within region): Taking feeder calves to 1,000+ lb. animals before sending west for finishing on corn
- Usually done on pasture with once or twice daily feeding of high energy/protein supplement at centralized “feeding troughs”
- Expanding rapidly in our region (trying to estimate numbers)
- Feeding area is “feedlot-like” with manure and feed accumulation
- We have recommended concrete pad with or without cover allowing manure collection and grass filter for runoff
- Backgrounding nor BMP to manage feeding area currently recognized
- Perhaps beyond charge of Panel but increasing animal waste issue

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“Dry pack” barns: Extra manure storage and barnyard runoff reduction

- Open sided, covered “barn” with 4 ft “jersey walls” except at entrance, with mulch or sawdust base replaced after clean-out
- Direct cows to “barn” before/after milking, not loafing area
- Cows are “happier and healthier”
- Farmers like and are adopting widely in VA (and elsewhere?)
- Manure-mulch “self-compost”-are good manure/soil amendment
- If barnyard fenced to minimize “sacrifice”/loafing lot, reduces or eliminates need for loafing lot management and allows re-use of most animal waste.
- Cost-shared by NRCS; only CBP BMP is loafing lot management.
- Captures additional manure that needs to be properly used
- Perhaps not w/i EP charge but increases manure capture/re-use

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Dry Pack Barn for ~ 300 cow herd

Closing Comments

- Major update/revision of AWMS BMP needed
- Changing storage as confined animal numbers increase is critical
- Need to expand storage; BMP credit should reflect/encourage this
  - Six month minimum needed and 12 months desirable
  - Storage, transport and/or use plans needed for full clean-out of poultry houses
- Changes in production, management and BMP options need to be considered in AWMS BMPs
- Items such as backgrounding, dry pack barns, poultry house clean out timing need to be assessed by CBP if not this EP
- **Thanks in advance for all your hard work on the Expert Panel!!!**

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