Manure Treatment Technologies Subgroup Update

Manure Treatment Subgroup Members

- Marel Raub, Chesapeake Bay Commission
- Glenn Carpenter, USDA
- Peter Hughes, Red Barn Ag
- Ted Tesler, PA Dept. of Env. Protection
- Beth McGee, Chesapeake Bay Foundation
- Dwight Dotterer, MD Dept. of Agriculture
- Kristen Hughes Evans, Sustainable Chesapeake

Chesapeake Bay Program guidance and support by Mark Dubin and Emma Giese

Manure Treatment Subgroup Tasks

The goal of this temporary subgroup is to recommend a framework for an expert review panel to develop BMPs for new manure treatment technologies for the Ag Workgroup's approval:

- Identify technologies for review;
- Prioritize order of review;
- Recommend experts who should be invited to participate in review panels; and
- Suggest guidelines for the review process.

Focus Area for Manure Treatment Technologies
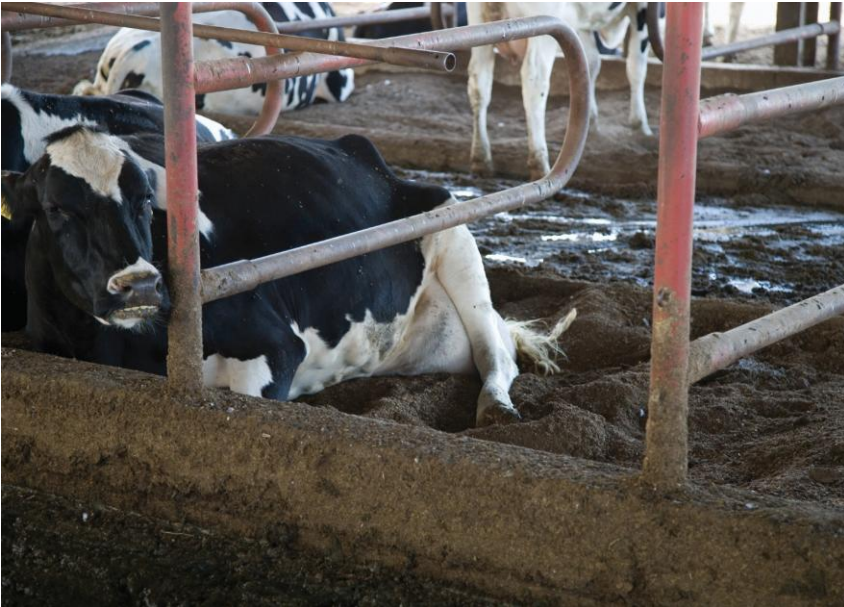
After Excretion   Before Land Application

Photos courtsey of NRCS

Focus on General Technology Categories (Rather than Patented Technologies)

Meetings to Date and Planned

- First meeting: November 4, 2013 – established focus of work, drafted list of technologies, proposed survey to CBP ag workgroup members to solicit recommendations for additional technologies and recommendation for priority rankings.

- Second meeting: December 2, 2013 – reviewed survey results, drafted priority recommendations, planned next steps.

- Third meeting: Planned for December 17, 2013 – conference call with Bay modeling staff to review how Bay model handles manure, fertilizer, transportation, and amendments for reducing ammonia volatilization.

Survey Results

(Based on 20 responses, subgroup recommendations not included)

Manure Treatment	Priority Average Score*
Liquid/solid separation	2.70
Anaerobic digestion	2.42
Composting	2.21
Phosphorus removal	2.11
Treatments for reducing ammonia volatilization and phosphorus solubility	2.10
Thermochemical treatment	2.10
Pelletizing	1.94
Aerobic/liquid manure digester	1.85
Biological N removal	1.60
Enzyme digestion	1.56

*Average priority score based on assigned values as follows: 3 = High; 2 = Medium; 1 = Low priority. Average score = sum of total values/# assigned priority values.

Additional Technologies Recommended

- Baled poultry litter (a business plan is being developed for a shared baler by poultry growers in WV).

- Fluidized co-digestion

- Constructed wetlands

- Several mentioned feed management

- Improving crop uptake

- System changes, such as shifting from liquid system to dry pack system (increased composting and improved storage/timing of manure application)

DRAFT Manure Treatment Subgroup Recommendations for Priority Ranking

I. High Priority Technologies:

- Microbial digestion (e.g. anaerobic, aerobic)
- Thermochemical (e.g. combustion, gasification, pyrolysis)
- Liquid/solid separation
- Composting
- Chemical/biological treatments that remove phosphorus or reduce phosphorus solubility and/or reduce ammonia volatilization.

DRAFT Manure Treatment Subgroup Recommendations for Priority Ranking

II. Other Technologies for Future Consideration:

- Pelletizing
- Baled poultry litter
- Biological N removal
- Enzyme digestion
- Constructed wetlands

Feedback from Ag Workgroup?

- Additional technology recommendations.

- Are there other people we should be consulting with before we finalize this technology list?

Next Steps

- Draft a workplan.

- Suggest guidelines.

- Recommend experts.

- Finalize priority list.

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