

BUILDING ON-FARM COMPOSTING CAPACITY TO PREVENT POLLUTION

Greg Evanylo
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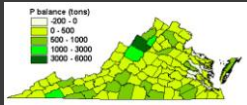


Environmental Drawbacks of Animal Agriculture

- NH₃ volatilization
- GHG emissions
- Pathogens
- Endocrine disrupting compounds (EDCs)
- Excessive soil P



<http://www.mawaterquality.org/budget>



On-farm Composting as a Potential Solution



- Process can reduce
 - NH₃ volatilization
 - Pathogens
 - GHG
 - EDC activity
- Renewable, locally-produced, value-added product for use on non-agricultural soils.

Mortality Handling Challenges

- ◉ Limited options (burial or incineration) for handling catastrophic mortalities permitted by VA state regulatory agencies.
- ◉ Bovine spongiform encephalopathy ("Mad cow disease") has virtually eliminated rendering due to requirement that nervous system tissue be removed for use in animal food or feed. (FDA 21 CFR Part 589.2001).



Issues and Opportunities

- ◉ Challenges
 - Generating high quality compost
 - Marketing
 - Compost value
 - Standards
 - Regulations
- ◉ Trans-disciplinary team
 - Virginia Cooperative Extension/Virginia Tech
 - Shenandoah RC&D
 - Virginia regulatory agencies
 - DEQ
 - DCR
 - VDACS
 - Virginia Dept of Transportation
 - USDA-NRCS
 - USEPA
 - Institute for Local Self Reliance
 - Private Consultant

Survey Identification of Needed Programs to Facilitate Change

- ◉ Composter needs
 - Technical training (recipe development, process control)
 - Equipment availability
 - Carbon feedstocks
 - Compost markets
- ◉ Consumers needs
 - Understanding compost quality, uses and value



On-farm Manure Composting Training

- Objectives: To promote on-farm manure composting.
- Methods:
 - Conduct on-farm and classroom composting training
 - Development of GIS tool to identify sources of C feedstock (public-private partnerships)
- Impacts: Increase in interest and number of poultry and livestock farmers composting.



Catastrophic Poultry and Large Animal Mortality (LAM) Composting



- Objective: To demonstrate and promote mortality composting
 - Poultry – in-house windrow
 - Large animal – static pile (on-farm and landfill)
- Outputs
 - On-farm and landfill demonstrations
 - Classroom and Adobe Connect training for farmers and agents
 - Multi-agency fact sheet
 - VCE numbered publication
 - Displays at on-farm meetings
 - Newsletters

Shenandoah Valley Mortality Composting Outcomes

- Action by DEQ
 - Regulations permit catastrophic poultry and LAM composting.
 - Developed mortality composting guidance documents.
 - Allow landfills to accept LAM.
- Action by NRCS
 - Added LAM composting to technical specifications.
 - Provided LAM composting training to their field staff.
- Additional Outcomes:
 - A farmer started a LAM hauling service and is evaluating starting a LAM composting enterprise.
 - Five Shenandoah Valley landfills began accepting LAM.



Revegetation of Disturbed Soils with Compost



- Objectives: To demonstrate value of compost as a soil amendment in disturbed soils.
- Methods: Conduct research-demos to compare compost with standard re-vegetation practices.
- Deliverables: Research presentations and publications
- Impacts: Compost agronomic, environmental and economic value is being quantified.

Training the Users and Trainers to Promote Compost Use



- Programs
 - Master Gardener training
 - Turf and landscape nutrient mgt certification program
 - Turf industry in-service
- Impacts: Dissemination of technically sound compost quality standards and use recommendations.

Compost Quality Assurance

- Virginia Tech provides technical assistance to:
 - VDACS - to ensure that compost products meet quality specifications and are labeled accurately for use.
 - VDOT - to ensure that compost meets appropriate specifications (e.g. USCC Seal of Testing Assurance)



Additional Compost Programs

- MAWP Composting School:
http://www.mawaterquality.org/industry_change/ma_composting_school.html
- Composting directory
 - Evanylo et al. 2009. Mid Atlantic composting directory.
<http://pubs.ext.vt.edu/452/452-230/452-230.html>



Conclusions

- Farms: Residual processing facilities to reduce unwise land application and disposal.
- Animal agriculture farms lend themselves to composting enterprises because farmers are accustomed to handling and processing waste.
- Once regulatory agencies understand the benefits of farms as waste recycling facilities, regulations can be tailored to promote the practice.
- Once consumers learn the value of compost in non-agricultural systems, its generation, purchase and use will increase.
- The amounts of waste residuals being composted, purchased and land-applied are increasing in Virginia and in the mid Atlantic region.
