

Poultry Litter Use

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State of the Science

- Poultry Litter Studies in Mid-Atlantic

Bosch @ Virginia Tech

Abdalla @ Penn State

Ribaudo et. al. @ USDA/ERS

- Poultry Litter Studies in Arkansas and Georgia

Findings:

- Land Application as Crop Fertilizer is Usually Best Use

- Location Specific

MD Has Lots of Farmland Nearby

AR Farmland 100+ Miles Away



Uses for Poultry Litter in Maryland

Study by Lichtenberg, Parker and Lynch

Funded by DBED

Goal: Assess Supply and Demand for Poultry Litter on Eastern Shore

Publication: Available at <http://www.arec.umd.edu/PolicyCenter>



Land Application for Fertilizer

- **Current # 1 Use**
- **2 Scenarios for Farm Location**
 - **Space Evenly Throughout County (Best Case)**
 - **Transport Approximately 1 mile**
 - **Place All Production in Center of County (Worst Case)**
 - **Transport Approximately 9 miles**
- **Transportation out-of-county approximately \$10/ton**
- **Value Between \$4/ton and \$23/ton (Net clean out, testing and application costs).**



Alternative Uses of Poultry Litter

Use	Current Use	Potential	Value (at farm)
Pelletize	60,000 tons	150,000 tons	\$8.50/ton
Compost	<10,000 tons	15,000 tons	\$1/ton - \$4.40/ton
Forest Fertilization	--	23,750 tons	\$6/ton - \$13/ton
Energy Conversion	--	??	Negative
Cogeneration	--	80,000 tons	\$0*

* Up to \$5.70/ton Implicit Value if Energy Tax Credits Secured.



Land Application for Fertilizer (Current)

- **Use UMD Data on Soil Testing and P-Index**
- **Use 1998 Manure Nutrient Content Data (Pre-Phytase)**
- **Some Land N-Based and Some Land P-Based**
- **Using Current Cropping Patterns, Estimate Enough Corn Land in All but 5 Counties to Take County Litter Production (Caroline, Somerset, Wicomico, Worcester, Sussex)**



Land Application for Fertilizer (Current)

Poultry Litter Production and Crop Land Capacity

	Total Litter Generated	Surplus Capacity	Excess Requiring Out-of-County Transport
Maryland			
<i>Upper Eastern Shore</i>			
Caroline	46,247		5,533
Kent	4,745	66,352	
Queen Anne's	13,668	71,182	
Talbot	15,940	46,932	
<i>Lower Eastern Shore</i>			
Dorchester	26,192	12,182	
Somerset	55,795		35,749
Wicomico	101,134		60,469
Worcester	74,960		8,902
Delaware			
Kent	52,680	18,039	
Sussex	288,120		107,843
Virginia			
Accomack	26,919	15,233	
Total Delmarva	706,399	218,496	229,921



Land Application for Fertilizer (Future 40%)

- Assume All Land P-Based**
- Allow Phytase to Reduce P-Content by 40% (Future Reductions)**
- Using Current Cropping Patterns, Estimate Enough Corn Land in All but 5 Counties to Take County Litter Production (Caroline, Somerset, Wicomico, Worcester, Sussex)**



Land Application for Fertilizer (Future 40%)

Poultry Litter Production and Crop Land Capacity

	Total Litter Generated	Surplus Capacity	Excess Requiring Out-of-County Transport
Maryland			
<i>Upper Eastern Shore</i>			
Caroline	46,247		8,504
Kent	4,745	58,936	
Queen Anne's	13,668	64,991	
Talbot	15,940	42,345	
<i>Lower Eastern Shore</i>			
Dorchester	26,192	11,076	
Somerset	55,795		36,327
Wicomico	101,134		61,640
Worcester	74,960		10,806
Delaware			
Kent	52,680	18,963	
Sussex	288,120		105,488
Virginia			
Accomack	26,919	12,299	
Total Delmarva	706,399	222,764	208,610



Findings

- **Enough Crop Land on Shore to Take all Poultry Litter**
- **Enough Alternative Uses to Take County Excess**
- **Should Not Spend Time and Money to Promote Low Value Uses**



Impacts of WQIA

Impact on Poultry Operations Dependent Upon Market for Poultry Litter

- Education on Poultry Litter Value
 - Nutrient Management Planning
- Assist in Development of Market
 - Poultry Litter Transport Pilot Project
 - Nutrient Management Planning
 - Equipment Cost Share
 - Manure Spreader Tax Credit
 - Information (Clearing House, Brokerage, ...)



Assessment of WQIA

NM Plans Provide Educational Opportunity to All Growers

NM Plans Promote Further Use of Manures

Impact of Regulating Small Growers Uncertain

Small in Size

No Information on Relative Pollution Potential



Future Concerns and Work

Address Dairies, Horses and Other Animal Operations

Promote Market for Land Application

Explore expansion of pelletizing

Explore expansion of composting

