

Poultry Waste Management Regulation
Technical Advisory Committee
Meeting Minutes

June 5, 2008
9:30 - 4:00 PM

Albemarle Department of Fire Rescue, Charlottesville

Technical Advisory Committee Members and Staff Support:

Name	Affiliation	Present
Hobey Bauhan	Virginia Poultry Federation	Yes
Katie K. Frazier	Virginia Agribusiness Council	Yes
Wilmer Stoneman	Virginia Farm Bureau Federation	Yes
Bill McKinnon	Virginia Cattleman's Association	Yes
Mark Palmer	Virginia Association of Soil and Water Conservation Districts	No
Becky Barlow	Shenandoah Resource Conservation & Development	Yes
Scott P. Johnson	Dept .of Agriculture and Consumer Services	Yes
Danny Sutton	Tyson Foods, Inc.	No
Roger Phillips	Perdue Incorporated	No
John F. Davis	Camden Farms	Yes
Edward Mullins	Nottoway County Poultry Grower	Yes
Tom Thacker	Augusta County Poultry Grower	No
Mark Deavers	Deavers Lime & Litter LLC	Yes
Kristen Hughes	Chesapeake Bay Foundation	Yes
Jeff Kelble	Shenandoah RiverKeeper	Yes
Chuck Frederickson	James River Association	Yes
Emily Aleshire	Department of Conservation and Recreation	Yes
Russ Perkinson	Department of Conservation and Recreation	Yes
Betsy Bowles	Department of Environmental Quality	Yes
Neil Zahradka	Department of Environmental Quality	Yes
Gary Flory	Department of Environmental Quality	Yes

Others Present:

Name	Affiliation
Ellen Gilinsky	Department of Environmental Quality
Robert Peer	Department of Environmental Quality
Tony Banks	Virginia Farm Bureau Federation
Jack Frye	Department of Conservation and Recreation
Joe Garner	Department of Environmental Quality
Darrell Marshall	Department of Agriculture and Consumer Services
Tyler Carroll	Virginia Farm Bureau Federation
Donald Bishop	Cumberland County Poultry Grower
John Zirkle	Virginia Farm Bureau Board, Virginia Poultry Growers Coop, Inc.
George Ashman	Amelia County Poultry Grower
Bill Cole	Amelia County Poultry Grower
Will Sanderson	Cumberland County Poultry Grower

Poultry Waste Management Regulation
Technical Advisory Committee
Meeting Minutes

June 5, 2008
9:30 - 4:00 PM

Albemarle Department of Fire Rescue, Charlottesville

Ellen Gilinsky, the Director of the DEQ Water Division welcomed the attendees to the second meeting of the Poultry Waste Management Regulation Technical Advisory Committee. The members and staff support were asked to make introductions.

Betsy Bowles, the Animal Feeding Operations Program Coordinator for DEQ requested comments and final approval of the April 25, 2008 meeting minutes. One addition was noted and was inserted into the meeting minutes, the minutes were considered final with this addition.

Darrell Marshall, the Agricultural Stewardship Program Coordinator with the Virginia Department of Agricultural and Consumer Services, gave a presentation summarizing the existing Agriculture Stewardship Program.

Ms. Bowles explained the current permitting procedures and options that DEQ has with regards to poultry feeding operations.

Ms. Bowles presented a proposed regulatory mechanism by which the end-users could be regulated under the existing regulation and permit, if necessary. (see attached document)

The members of the TAC began to discuss their thoughts regarding the proposed regulatory mechanism. Overall the members seemed to be interested in this approach, depending heavily on the wording of the regulation and permitting requirements, the enforcement procedures and the documentation and information concerning poultry waste management required by DEQ.

Several of the members were interested with regards to enforcement and more specifically at what point would the end-user go from being covered under the technical regulation to being required to obtain coverage under the general permit under the proposed scenario. The DEQ staff will present more information to the TAC members regarding enforcement implications for the proposed regulatory mechanism scenario. Using a complaint driven mechanism similar to the Agriculture Stewardship Act (ASA) to address end-user technical regulation compliance issues that arise in the future is a possibility.

Poultry Waste Management Regulation
Technical Advisory Committee
Meeting Minutes

June 5, 2008
9:30 - 4:00 PM

Albemarle Department of Fire Rescue, Charlottesville

A request was made by the TAC members as to what information DEQ would like to have documented regarding poultry waste transfer and utilization. A list was provided to the members during the meeting (see table below).

Transfer Record Information:	Land Application and Storage Record Information:
Name of Source and Recipient (end-user and/or broker)	Watershed where waste will be land applied (mechanism to be determined)
Address of Source and Recipient (end-user and/or broker)	Application site identification (maps)
Permit number of Source, if applicable	Number of poultry waste land application acres
Date of transfer	Crop the poultry waste was applied to
Tons of poultry waste transferred	Dates of land application of poultry waste
Poultry waste nutrient analysis (current and representative)	Number of tons per acre applied
	Whether the Fact sheet or an nmp will be used to determine appropriate rates, methods, and timing of poultry waste applications
	Soil analysis, if applicable

A discussion ensued concerning the requirement of soil tests completed by the end-user for the land application sites where poultry waste would be utilized. Many of the members were in favor of a minimal requirement of soil tests; however, some members voiced opinions that in some scenarios a soil test may not be necessary when coupled with a prescribed maximum application rate.

The proposed regulatory mechanism for end-users included the option of utilizing the DEQ Poultry Litter Storage and Utilization Fact Sheet which has been in use since 2000 as an educational tool (see attached). The members overall agreed that the fact sheet should be simplified to facilitate better understanding hence greater compliance. The fact sheet would need to be revised in order to include the requirements regarding the waste storage, nutrient utilization, recordkeeping and reporting. The addition of an educational component to assist in getting the information concerning the requirements out to end-users was mentioned.

Russ Perkinson, the Assistant Division Director of Non-Point Source Programs with the Virginia Department of Conservation and Recreation, was asked to explain the components of the tiered version of the draft revisions of the Fact Sheet that was written in response to the Off-site poultry waste stakeholder group meetings. (see attachment)

Poultry Waste Management Regulation
Technical Advisory Committee
Meeting Minutes

June 5, 2008
9:30 - 4:00 PM

Albemarle Department of Fire Rescue, Charlottesville

The technical advisory committee made no final recommendations to staff regarding the regulatory mechanism, end-user requirements, or the information that DEQ would like to obtain from the poultry waste end-users. These items will be discussed further at the next meeting.

Public Participation

Time was allotted for the public to make comments to the committee. Five citizens signed up to address the technical advisory committee.

Mr. George Ashman who has been raising birds for 30 years remarked on how practices have improved over the years. Mr. Ashman stated that runoff from a rain event after the land application of poultry waste to crop fields has the opportunity to flow through buffers and forested land before getting to running tributaries unlike the runoff from parking lots.

Mr. Bill Cole stated that the physical address and possibly the name of the end-user could be easily given. He stated that farmers try to protect the environment.

Mr. Donald Bishop stated that the proposed anaerobic digester project which would utilize poultry litter from area poultry farms as feedstock is going to be pursued.

Mr. Will Sanderson stated that farmers are the best stewards, and that things have come a long way with regards to farming practices. He asked that the TAC group be careful not to over regulate the farmers.

Mr. John Zirkle a representative from the Virginia Farm Bureau Board and the Virginia Poultry Growers Cooperative. He asked that the TAC members not regulate the poultry growers to the point where they will not be able to farm. Mr. Zirkle will not put down more than 2 tons per acre or crop removal when he land applies the litter for the end-user.

Set Next Meeting Location and Date

The next meeting is scheduled for August 13, 2008 at 10:00 AM in the Community Meeting Room of the Monticello Fire Rescue building located at 25 Mill Creek Drive in Charlottesville, VA.

Attachments:

1. The DEQ Proposed Regulatory Mechanism document
2. The current DEQ Poultry Litter Storage and Utilization Fact Sheet (3 pages)
3. Draft revised tier version of a DEQ Poultry Litter Storage and Utilization Fact Sheet

Proposed Regulatory Mechanism for End-Users of Poultry Waste

Technical Requirements:

Add language to the existing Poultry Waste Management Regulation 9VAC25-630 to include technical requirements for end-users of poultry waste. The addition of the technical requirements is considered a technical regulation. A technical regulation is not a permit-by-rule.

If the technical regulation is followed then the entity is considered to be in compliance. This is the way we currently regulate the brokers and the commercial processors, without requiring permits for each entity. However, if the end-user does not comply with the technical regulation, they could be required to obtain coverage under the general VPA permit for Poultry Waste Management. (see below)

The technical requirements would include language regarding waste storage, nutrient utilization, recordkeeping and reporting requirements. The option of using the "fact sheet" approach or a nutrient management plan is possible.

The Agency would have the option to perform inspections.

Permit Requirements:

Add language to the existing Poultry Waste Management General Permit for the end-user. The end-user would be required to obtain coverage under the general VPA permit for Poultry Waste Management, if the requirements stated in the technical regulation are not followed.

Required permit components would include waste storage, nutrient utilization, recordkeeping and reporting.

The Agency would perform inspections.



Poultry Litter Storage and Utilization Fact Sheet

Use poultry litter in a manner consistent with this fact sheet or as specified in a nutrient management plan prepared by a Virginia certified Nutrient Management Planner. If poultry litter is sold or given away for land application outside of Virginia, follow this fact sheet or the receiving state's regulations, whichever is most restrictive. If litter is to be used for purposes other than land application to crops (e.g. composting or animal feeding), these uses may be subject to other state laws or regulations. State regulations require that each person who receives litter from a poultry grower or a litter broker must receive a copy of the latest nutrient analysis for that litter. Apply poultry litter so that the nitrogen needs of the crop are not exceeded. For fields which soil test very high (VH) in phosphorus, apply litter based on crop removal of phosphorus for a two-year rotation, as long as nitrogen is not over-applied to the crop following the litter application. Do not apply additional phosphorus to these fields, from any source, during the two year rotation. In all other cases, litter may be applied on fields to supply nutrients based on soil test recommendations. Apply poultry litter as close as possible to planting times or to an actively growing crop or cover crop to ensure proper nutrient utilization and to minimize loss to the environment.

Litter Storage

Litter that is not immediately land applied must be stored properly. If poultry litter needs to be stored prior to use, follow these criteria:

- A litter storage area that provides adequate storage capacity and does not pose undue environmental risk to water quality should be pre-determined prior to receiving a shipment of poultry litter.
- Storage sites for litter may be utilized if the slope is not greater than 7% and the site is 100 feet from surface water, intermittent drainage, wells, sinkholes, and rock outcrops. If stored outside longer than 14 days, the litter must be covered with an impermeable barrier that will resist wind, and be protected from storm water running onto or under it. When applying or using litter, be sure to remove all residue from the storage area and the surrounding ground. Proper cleanup means no waste and protects water quality!
- Store litter in areas where the ground water table is at least 2 feet deep year round. If storage is desired where the water table is as shallow as 1 foot, install an impermeable barrier under the litter. Construct impermeable barriers using at least 12 inches of compacted clay, at least 4 inches of reinforced concrete, or another material of similar structural integrity which has a minimum permeability rating of 0.0014 inches per hour (1×10^{-6} centimeters per second). Do not store litter where the water table is less than one foot deep, even when using an impermeable barrier.

Soil Samples

To determine the proper litter application rate (and to use poultry litter to obtain the best economic benefit), soil sample fields where poultry litter will be applied.

- Soil samples should be taken in late summer or fall. Do not take soil samples immediately after applying lime or fertilizer; wait several months for best results. Send samples well in advance of the need for recommendations.
- Contact your local Virginia Cooperative Extension Service office for soil sampling materials and instructions on proper sampling methods.

Calculating Litter Application Rate

When soils test very high (VH) in phosphorus, do the following calculations to obtain the proper litter application rate:

1. Determine the N and P₂O₅ requirements (pounds per acre) for the crop from the table below. Determine N need for the current crop (do not forget to credit N from previous legume crops), and P₂O₅ removal for the two-year crop rotation.
2. Divide the N and P₂O₅ requirements by the N and P₂O₅ content of the litter (Pounds per ton from the litter analysis). Remember, use available nitrogen, not total nitrogen. This will give you the amount of litter needed by the crop for each nutrient in tons per acre.
3. If the P₂O₅ application rate is less than the N application rate, then the P₂O₅ rate is the total amount that can be applied. Additional nitrogen will have to be supplied through supplemental applications of commercial nitrogen.
4. If the P₂O₅ application rate is more than the N application rate, then use the nitrogen application rate. The remaining P₂O₅ can be applied to other crops in the rotation.

Typical Crop Nutrient Removal

Crop (Unit Yield)	Per Unit of Yield			Average Acre Yield	Removal for Given Yield (lb/acre)		
	N	P ₂ O ₅	K ₂ O		N	P ₂ O ₅	K ₂ O
Alfalfa (ton) ¹	45	10	45	4	180	40	180
Barley Grain (bu) ³	1.25	0.375	0.25	80	100	30	20
Barley Silage (ton) ³	12.5	5	10	8	100	40	80
Corn Grain (bu)	1.1	0.35	0.27	120	130	42	32
Corn Silage (ton)	7.65	4.7	8.3	17	130	80	141
Cotton seed & lint (lbs)	0.04	0.013	0.01	1500	60	20	15
Grain Sorghum (bu)	1	0.41	0.25	100	100	41	25
Hay (ton) ²	53.3	18	52	3	160	54	156
Hay/Pasture (ton) ²	60	19	52	2	120	38	104
Pasture					60	30	60
Rye Silage (ton) ³	16.6	6.67	21.8	6	100	40	131
Soybeans (bu) ¹	3.75	0.88	1.42	40	150	35	57
Wheat (bu) ³	1.25	0.56	0.61	80	100	45	49

¹Legumes fix all their required nitrogen. However, they also have the capability to utilize nitrogen as indicated.

²Use hay rate if two or more cuttings occur. Use hay/pasture rate if only one cutting occurs and animals are then pastured.

³Apply no more than 40 lbs plant available nitrogen per acre in the fall.

To adjust crop removal for your yield, average the highest three yields from the last five years of yield data and multiply this figure by the per unit value for the crop.

Example:

A field in a corn/wheat/beans rotation tests very high (VH) in Phosphorus, so we calculate to determine the proper application rate of poultry litter.

P₂O₅ Crop Removal for 2 year rotation:

1 st Crop		2 nd Crop		3 rd Crop		Crop	P ₂ O ₅ Litter Content	Litter application
Corn	+	Wheat	+	Soybeans	=	Removal	(from analysis)	rate for P ₂ O ₅
42		45		35		122 lbs/ac ÷	65 lbs/ton	= 1.87 tons/ac

N Requirement for current crop: Corn = 130 lbs/ac

	N credit from beans		N Litter Content		
Crop Need	(0.5 lb N x 40 bu)	Net N Required	(from analysis)	Litter application rate for N	
130 lbs/ac	- 20 lbs/ac	= 110 lbs/ac	÷ 37 lbs/ton	= 2.97 tons/ac	

Based on these calculations, the litter application rate allowed in this example is 1.87 tons/ac (the P₂O₅ rate). At this rate, the litter will not supply the total N needs of the corn crop. 1.87 tons litter X 37 lbs N/ton = 69 lbs N/ac, which is 41 lbs N/ac below crop need. The remaining 41 lbs/ac N required by the corn crop could be applied, for example, at sidedress time. It is always wise to perform a pre-sidedress nitrate test (PSNT) when using organic sources of nutrients. Check with your regional DCR office or local Extension office for additional help in determining the proper application rate.

Land Application Conditions & Setbacks

Do not spread litter when field conditions would encourage runoff (i.e. saturated, or snow or ice covered). Application of poultry litter on fields with slopes greater than 15% should be avoided. If pasture and hay fields with slopes greater than 15% are receiving applications of poultry litter, maintain a forage height of at least 3 inches in order to reduce runoff potential. To ensure proper nutrient utilization, apply poultry litter within 30 days of planting or according to the following poultry litter spreading schedule. Apply additional commercial fertilizer (especially nitrogen) as a split application from the poultry litter, either topdressed or sidedressed.

Do not spread litter within the following buffer areas:

- 100 feet from wells or springs
- 50 feet from surface water (25 feet if incorporated)
- 10 feet from agriculture drainage ditches
- 200 feet from neighboring occupied dwellings unless the occupant waives or reduces the buffer in writing
- 50 feet from sinkholes
- 50 feet from limestone outcroppings
- 25 feet from other rock outcroppings

Poultry Litter Spreading Schedule

CROP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
ALFALFA	■		□		■		□		■		□	
CORN	■		□		■		□		■		□	
COTTON	■		□		■		□		■		□	
SMALL GRAIN *	■		□		■		□		■		□	
SORGHUM	■		□		■		□		■		□	
SOYBEANS	■		□		■		□		■		□	
HAY/PASTURE **	■		□		■		□		■		□	



Do not spread during these periods.



Poultry litter may be applied during these times if soil conditions are acceptable.

* Apply no more than 40 lbs of plant available nitrogen per acre in the fall

** Except for Alfalfa and other warm season grasses.

Spreader Calibration

Calibrate spreading equipment at least once a year or when litter consistency is obviously different. A plastic tarp or sheet, a bucket, and scales are needed. Lay the tarp smoothly on a flat area. Drive the spreader at a normal speed over the tarp while allowing the litter to begin leaving the spreader at an even, normal rate. Collect all litter spread on the tarp and pour it into the bucket. Weigh the bucket with manure and subtract the empty bucket weight to determine pounds of litter applied to the tarp. Repeat this three times and calculate the average pounds of litter applied to the tarp. Determine the litter application per acre using the following calculation: (Pounds of litter on tarp) X (21.78) / (Area of tarp in ft²) = Tons/acre

Example: Ave. wt. of litter applied = 5.76 lbs. ⇒ $\frac{5.76 \times 21.78}{80 \text{ ft}^2} = 1.57 \text{ Tons/acre}$

Tarp or sheet area 8' X 10' = 80 ft²

The load/area method can also be used to calibrate your spreader if you know the capacity of the spreader (tons) and the area covered by a load.

Example: $\frac{\text{Spreader capacity (tons)} \times 43560(\text{ft}^2/\text{ac})}{\text{Spread Area (W' x L')}} \Rightarrow \frac{6 \text{ tons} \times 43560}{200' \times 650'} = 2 \text{ Tons/acre}$

Additional Information: For more information regarding litter application rate calculations or any other poultry litter management topics, contact your county Extension Service, the regional Department of Conservation and Recreation office or the regional DEQ office.



Poultry Litter Storage and Utilization Fact Sheet

You have received this fact sheet because you are the end user of poultry litter (dry poultry litter containing poultry manure and/or composted dead poultry). Pursuant to [Insert Code of Virginia or Administrative Code citation], poultry litter must be used in a manner consistent with this fact sheet or as specified in a nutrient management plan prepared by a Virginia certified Nutrient Management Planner.

This fact sheet is intended to specify best management practices for land application of poultry litter as a source of crop nutrients. If poultry litter is to be used for purposes other than land application to crops (for example: composting or animal feeding), these uses may be subject to other laws or regulations. If poultry litter is to be used outside of Virginia, follow the receiving state's regulations.

Delaware: (302) 698-4500	Kentucky: (502) 564-3410	Maryland: (800) 633-6101
North Carolina: (919) 733-3221	Tennessee: (615) 532-0109	West Virginia: (304) 558-2201

Soil Samples

For each field receiving applications of poultry litter, a soil sample must have been taken which is less than three (3) years old. The sample must meet the following criteria:

1. Soils in litter application fields must be analyzed for pH, phosphorus, potassium, calcium, and magnesium. A representative soil sample of each field will be comprised of at least 20 cores randomly sampled throughout the field. Soil sampling core depth will be from 0 – 4 inches for land which has not been tilled within the past three years, or 0 – 6 inches for land that has been tilled within the past three years. Soil pH will be maintained at appropriate agronomic levels to promote optimum crop growth and nutrient utilization.
2. As specified in the "Virginia Nutrient Management Standards and Criteria, Revised October 2005", soil test analysis will be performed by one of the laboratories listed below. Soil phosphorus levels must be determined using the Mehlich I or Mehlich III procedure.
 - A&L Agricultural Laboratories
 - Brookside Laboratories
 - Spectrum Analytical Laboratories
 - Virginia Tech Soil Testing Laboratory
 - Waters Agricultural Laboratories

The criteria specified in this fact sheet may only be used for poultry litter applications in fields where the soil test phosphorus level is **LESS THAN THE SOIL TEST LEVELS LISTED IN THE TABLE BELOW**. If the soil test level is **higher**, poultry litter may only be applied according to a nutrient management plan prepared by a Virginia certified nutrient management planner.

Soil Test Lab	Ridge and Valley	All Other VA Locations
A&L Agricultural Laboratories	281 ppm Phosphorus	254 ppm Phosphorus
Brookside Laboratories	1293 lbs/acre P ₂ O ₅	1168 lbs/acre P ₂ O ₅
Spectrum Analytical Laboratories	562 lbs/acre Phosphorus	508 lbs/acre Phosphorus
Virginia Tech Soil Testing Laboratory	324 lbs/acre Phosphorus	272 lbs/acre Phosphorus
Waters Agricultural Laboratories	324 lbs/acre Phosphorus	272 lbs/acre Phosphorus

Application Timing

Poultry litter applications shall be made at the times specified in the following table. Applications made outside of these time periods must be established by a nutrient management plan prepared by a Virginia certified nutrient management planner.

POULTRY LITTER SPREADING SCHEDULE												
CROP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Corn												
Small Grain												
Hay or Pasture* Fescue/Orchardgrass												
Hay or Pasture** Bermudagrass												

*Includes all cool-season grasses like fescue & orchardgrass, most growth occurs in the cooler months of spring and fall.
 **Includes all warm season grasses like bermudagrass, where most growth occurs in the heat of summer.

	Spread poultry litter at the rates specified.
	Do not spread poultry litter during these shaded times.
	Do not spread poultry litter more than 30 days prior to planting.

Storage

Poultry litter that is not immediately land applied must be stored properly. If poultry litter must be stored prior to use, the following criteria shall be followed:

- Poultry litter must be stackable and contain less than 40% moisture.
- Poultry litter stored for longer than 180 days must be under a roof.
- The slope at the storage site must not be greater than 7%.
- The storage site must be at least 100 feet from surface water, intermittent drainage, wells, sinkholes, and rock outcrops.
- If stored outside longer than 14 days, the litter must be covered with an impermeable barrier that will resist wind.
- Store litter in areas where the ground water table is at least 2 feet deep year round. If storage is desired where the water table is as shallow as 1 foot, install an impermeable barrier under the litter. Construct impermeable barriers using at least 12 inches of compacted clay, at least 4 inches of reinforced concrete, or another material of similar structural integrity which has a minimum permeability rating of 0.0014 inches per hour (1×10^{-6} centimeters per second).
- Do not store litter where the water table is less than 1 foot deep.
- Poultry litter must be protected from storm water runoff accumulating onto or under it.
- After using the stockpiled poultry litter, remove all residue from the storage area and the surrounding ground.

Application Rates – TIER I

The criteria specified in this portion of the fact sheet may only be used for poultry litter applications in fields where the soil test phosphorus level tests **MEDIUM+** or **LOWER** using the Virginia Tech soil fertility rating.

If the soil test level is higher, refer to the application rates for **TIER II**.

The following table shows the Virginia Soil Fertility rating of MEDIUM+ soil test value for approved labs:

Soil Test Lab	MEDIUM+ Value
A&L Agricultural Laboratories	42 ppm Phosphorus
Brookside Laboratories	193 lbs/acre P ₂ O ₅
Spectrum Analytical Laboratories	84 lbs/acre Phosphorus
Virginia Tech Soil Testing Laboratory	31 lbs/acre Phosphorus
Waters Agricultural Laboratories	31 lbs/acre Phosphorus

Use the following rates for poultry litter application. These rates are based on an average poultry litter analysis of 64.86 lbs/ton TKN, 11.48 lbs/ton NH₄, 52.18 lbs/ton P₂O₅, and 53.36 lbs/ton K₂O. If the analysis you receive with your poultry litter varies significantly from this average, consult a Virginia certified nutrient management planner for recommendations.

For litter application rates higher than listed in this fact sheet, litter application rates shall be established by a nutrient management plan prepared by a Virginia certified nutrient management planner.

Crop	Poultry Litter to Apply	Nutrients supplied by Poultry Litter		
		Nitrogen	Phosphorus	Potassium
Corn	3.0 tons/acre/year	115	155	160
Hay	2.0 tons/acre/year	75	105	105
	OR 4.0 tons within a two year period, with no more than 3.0 tons applied in any one year	150	210	215
Small Grain	1.0 ton/acre (fall of planting year)	40	50	55
Pasture: Unmanaged	1.0 ton/acre/year	40	50	55
Pasture: Well-managed*	2.0 tons/acre/year	75	105	105
Pasture: Continuously grazed**	2.0 tons/acre within a two year period	75	105	105

*Well managed pastures have a minimum but even stand of grass at the time of application, weeds controlled, and animals are rotated to manage regrowth.

**Continuously grazed pastures have a stocking rate such that the pasture is always in a state of recovery, without being overgrazed.

- No poultry litter applications shall be made to 1) legume crops or 2) hay and pasture fields in which the stand consists of 25% or greater clover.
- Applications on other crops not listed shall not exceed the minimum nitrogen need as recommended in the Virginia Nutrient Management Standards & Criteria, Revised October 2005.
- Based on soil test recommendations, a supplemental application of additional nutrients may be needed to meet the total N-P₂O₅-K₂O recommendation, but is not required by this fact sheet.

Application Rates – TIER II

Use the following rates for poultry litter application. These rates are based on an average poultry litter analysis of 64.86 lbs/ton TKN, 11.48 lbs/ton NH₄, 52.18 lbs/ton P₂O₅, and 53.36 lbs/ton K₂O. If the analysis you receive with your poultry litter varies significantly from this average, consult a Virginia certified nutrient management planner for recommendations.

For litter application rates higher than listed in this fact sheet, rates shall be established by a nutrient management plan prepared by a Virginia certified nutrient management planner.

Crop	Yield (per Acre)	Nitrogen Needs of Crop (lbs/acre)	Poultry Litter Rate (tons/acre)	Nutrients supplied by Poultry Litter		
				Nitrogen (lbs)	Phosphorus (lbs)	Potassium (lbs)
Corn grain	120 bushels	120	0.9	35	45	50
Corn silage	17 tons	130	1.3	50	70	70
Barley grain	80 bushels	80	0.6	25	30	30
Barley silage	8.0 tons	80	0.8	30	40	45
Wheat grain	80 bushels	100	0.8	30	40	45
Rye silage	6.0 tons	100	0.8	30	40	45
Soybeans (dc)	25 bu	0	0.4	15	20	20
Hay	3 tons	80	1.0	40	50	55
Pasture	n/a	60	0.6	25	30	30

IMPORTANT: These litter rates may only supply a portion of the nutrient needs based on a soil test. If additional nutrients are needed, they must be supplied through supplemental applications of commercial fertilizer in order to meet the total nutrient needs of the crop.

Litter applications for successive crops in a rotation may be combined into one (1) application that meets the phosphorus needs for the entire rotation, not to exceed three (3) years. Nitrogen supplied by the applied litter must not exceed the Nitrogen needs of the crop to which it is applied.

Example: Three (3) Year Rotation

$$\begin{array}{rclcl}
 \text{1st Year} & + & \text{2nd Year} & + & \text{3rd Year} & = & \text{Litter Application Rate on 1st Crop} \\
 \text{Corn grain} & + & \text{Wheat grain} & + & \text{Soybeans} & = & \text{2.1 tons litter applied to Corn} \\
 \text{0.9 tons} & + & \text{0.8 tons} & + & \text{0.4 tons} & = & \text{(NO litter applied to Wheat or Soybeans)}
 \end{array}$$

In this example, 2.1 tons of litter will provide 80 lbs (35+30+15) of available Nitrogen to the Corn crop. The corn needs an additional 40 lbs (120-80) of Nitrogen that must be supplied by commercial fertilizer. The wheat must also be provided with commercial Nitrogen fertilizer when that crop is actively growing. Litter cannot be used on the wheat or beans because the phosphorus has been supplied in the litter applied to the corn.

Land Application Conditions & Setbacks

- Do not spread litter when fields are saturated or covered in snow or ice.
- If pasture and hay fields with slopes greater than 15% are receiving applications of poultry litter, maintain a forage height of at least 3 inches in order to reduce runoff potential. No litter shall be applied on slopes greater than 25%.
- Do not spread litter within the following setback areas:
 - 100 feet from wells or springs
 - 100 feet from surface water without a permanent vegetated buffer
 - 35 feet from surface water with a permanent vegetated buffer
 - 10 feet from agricultural drainage ditches
 - 50 feet from sinkholes
 - 50 feet from limestone outcroppings
 - 25 feet from other rock outcroppings
 - 200 feet from occupied dwellings (unless the occupant waives the buffer in writing)

Spreader Calibration

Spreader calibration is extremely important in order to determine the rate of poultry litter application. Calibrate spreading equipment at least once a year or when litter consistency is obviously different. Examples of two acceptable methods of calibration are detailed below:

Tarp Method

A plastic tarp or sheet, a bucket, and scales are needed.

- 1) Lay the tarp smoothly on a flat area.
- 2) Drive the spreader at a normal speed over the tarp while allowing the litter to begin leaving the spreader at an even, normal rate.
- 3) Collect all litter spread on the tarp and pour it into the bucket.
- 4) Weigh the bucket with manure and subtract the empty bucket weight to determine pounds of litter applied to the tarp.
- 5) Repeat steps 2-4 at least three (3) times and calculate the average pounds of litter applied to the tarp.
- 6) Determine the litter application per acre using the following calculation:

$$\frac{(\text{Pounds of litter on tarp}) \times (21.78)}{(\text{Area of tarp in ft}^2)} = \text{Tons litter/acre}$$

Example: Average weight of litter collected on tarp = 7.71 lbs.
Tarp or sheet area 8' X 10' = 80 ft²
 $\frac{7.71 \times 21.78}{80} = \boxed{2.1 \text{ Tons/acre}}$

Load/Area Method

This method may be used if you know the capacity of the spreader (tons) and the area covered by a load.

Example: $\frac{\text{Spreader capacity (tons)} \times 43560 \text{ (ft}^2\text{/ac)}}{\text{Spread area (Length' x Width')}} = \boxed{2.1 \text{ Tons/acre}}$
 $\frac{6 \text{ tons} \times 43560}{580' \times 215'}$

Recordkeeping

Poultry litter applied using the criteria outlined in this fact sheet must be documented. Use the attached "Manure Application Balance Summary" to record litter applications.

Additional Information

For more information regarding litter application rate calculations or any other poultry waste management issues, contact your county Extension Service, the regional Department of Conservation and Recreation office or the regional Department of Environmental Quality office.

Manure Application Balance Summary

County: _____

FSA Tract No.	Field No.	Crop	Acres	Tons/Acre	Total Tonnage	Application Date

Notes: This document does not qualify as a nutrient management plan.

1. Only crop fields with a phosphorus soil test level equal to or less than those identified in the Soil Test Lab Table in this fact sheet can receive litter applications using this procedure.
2. A copy of the soil test and map with field ID for each field receiving litter must be attached.
3. Soil tests must be less than three years old.