



# FACT SHEET

## Requirements for Poultry Litter Use and Storage

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). As required by the Virginia Pollution Abatement Regulation and General Permit for Poultry Waste Management (9VAC25-630), 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 summarize the requirements and 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: animal feed or fuel), these uses may be subject to other laws or regulations. If poultry litter is to be used outside of Virginia, contact that state regarding their requirements.

### Storage Requirements

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:

- If litter is not stored under roof, 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.
- Do not store litter where the water table is less than 1 foot deep.
- If litter is stored in areas where the ground water table is less than 2 feet deep year round, 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 ( $1 \times 10^{-6}$  centimeters per second).
- Poultry litter must be protected from storm water runoff accumulating onto or under it.

### Application Timing

CROP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Corn												
Small Grain												
Hay or Pasture *												
Hay or Pasture **												
* Includes all cool-season grasses: fescue, orchardgrass (growth occurs in the cooler months of the spring & fall)												
** Includes all warm-season grasses: bermudagrass (growth occurs in the heat of the summer)												
	Poultry litter may be spread during these periods											
	Do not spread poultry litter during these shaded periods											

**Do not spread poultry litter more than 30 days prior to planting.**

Also see *Land Application Conditions & Setbacks* section on Page 4.

### Soil Samples

Where soil samples are necessary to utilize any of the methods described in this document the sample must be less than three (3) years old. A representative soil sample of each field is comprised of at least 20 cores randomly sampled throughout the field. Samples should be taken from the top 4 inches of soil where land is not tilled, or the top 6 inches of soil where land is tilled.

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## Application Rate

The poultry litter application rate can be determined using one of four options:

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### Option 1: Nutrient Management Plan

Poultry litter application rates based on a nutrient management plan can be used when the plan has been developed by a certified nutrient management planner in accordance with §10.1-104.2 of the Code of Virginia. For assistance in locating a nutrient management plan writer: contact DCR at 804-225-4533 or consult the Virginia Nutrient Management Certified Planner Directory, available at: [http://www.dcr.virginia.gov/soil\\_and\\_water/documents/nmdir.pdf](http://www.dcr.virginia.gov/soil_and_water/documents/nmdir.pdf)

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### Option 2: Standard Rate

Poultry litter may be applied to any crop at a rate of 1.5 tons per acre once every three years under the following conditions:

- 1) Nutrients have not been supplied by manure, biosolids, or other organic sources, other than pastured animals, to the proposed land application sites within the previous three years of the proposed land application date of poultry litter, and
  - 2) In the absence of current soil sample analyses and recommendations.
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### Option 3: Soil Test Recommendations

Litter application rates based on soil test recommendations can be used under the following conditions:

- 1) The soil sample has been taken in the last three years from the proposed field where litter will be applied.
- 2) Soil test recommendations have been provided by a laboratory whose procedures are in accordance with 4VAC5-15-150 A 2 f of the Department of Conservation and Recreation Nutrient Management Regulation. Recommendations from the following laboratories are approved by DCR:
  - ⇒ A&L Agricultural Lab (804) 743-9401
  - ⇒ Spectrum Analytical Lab 1-800-321-1562
  - ⇒ Virginia Tech Soil Testing Lab (540) 231-6305
- 3) Nutrients from the litter application do not exceed the nitrogen or phosphorus recommendations for the proposed crop or double crops. The recommendations are in accordance with 4VAC5-15-150 A 2 a of the DCR Nutrient Management Regulation. If the litter application rate is made to supply all of the future crop phosphorus needs, no additional phosphorus is to be applied during the rotation.

#### **Example for Calculating Poultry Litter Rate based on Soil Test Recommendation:**

Litter Application Rate (Tons per acre)	=	Soil Test P Recommendation Litter P Analysis
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Corn crop needs: **120 lbs/acre Nitrogen** and soil test recommendation for **60 lbs/ac Phosphorus**

Poultry litter analysis: Available Nitrogen = **40 lbs/ton of litter**, P<sub>2</sub>O<sub>5</sub> = **50 lbs/ton of litter**

	1 <sup>st</sup> Crop	+	2 <sup>nd</sup> Crop	+	3 <sup>rd</sup> Crop	Options
Three (3) Crop Rotation:	Corn grain <b>60 lbs/ac P recommended</b> 1.2 tons litter	+	Wheat grain <b>60 lbs/ac P recommended</b> 1.2 tons litter	+	Soybeans <b>60 lbs/ac P recommended</b> 1.2 tons litter	<b>Apply 1.2 tons to each crop OR Apply only 3.0 tons litter to Corn (0.6 tons litter to Wheat or Soybeans)</b>

In this example, 1.2 tons of litter (60 ÷ 50) will provide the 60 lbs of phosphorus needed for each crop with the nitrogen needs supplemented by commercial fertilizer. Alternatively, applying 3.0 tons of litter to the corn crop provides 150 lbs (50x3) of phosphorus for the rotation without exceeding the 120 lbs of nitrogen (40x3) needed by the corn crop. Litter used on the wheat or beans cannot exceed the total phosphorus needs of the rotation.

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## Option 4: Phosphorous Crop Removal

Litter application rates based on phosphorus crop removal can be used when the soil test phosphorus levels do not exceed the values listed in Table 1. Table 2. is used to determine the pounds of P<sub>2</sub>O<sub>5</sub> removed per unit of harvested yield. As an example calculation using typical values, Table 3 represents litter rates calculated using a poultry litter analysis of: **40 lbs/ton N, 52 lbs/ton P<sub>2</sub>O<sub>5</sub>, and 53 lbs/ton K<sub>2</sub>O** along with average crop yields.

LITTER RATE CALCULATION		
Poultry Litter Rate	=	Yield per acre (tons or bushels) X P <sub>2</sub> O <sub>5</sub> removal per yield unit (lbs)
(Tons per acre)		Poultry Litter P <sub>2</sub> O <sub>5</sub> content (lbs per ton)

Table 1. Maximum Soil P	VPI & SU (Mehlich I)		A&L (Mehlich III)	
	P (lbs/acre)	P (ppm)	P (lbs/acre)	P (ppm)
REGION				
Eastern Shore and Lower Coastal Plain	270	135	506	253
Middle and Upper Coastal Plain and Piedmont	272	136	508	254
Ridge and Valley	324	162	562	281

Table 2. Phosphorus Removed		
Crops	LBS. P <sub>2</sub> O <sub>5</sub> Per Yield Unit (lbs)	
<b>Row Crops</b>	Grain - Bushels	Silage - Tons
Corn	0.38	4.2
Wheat	0.51	4.2
Barley	0.40	5.1
Rye	0.45	5.6
Soybeans	0.89	10.0
<b>Forages</b>	Hay - Tons	Pasture
Fescue or Orchardgrass	16.0	****
Bermudagrass	10.4	****

Table 3. Typical P <sub>2</sub> O <sub>5</sub> Removal Litter Rate			Poultry Litter Rate (tons/acre)	Nutrients supplied by Poultry Litter		
Crop	Yield (per Acre)	Nitrogen Needs of Crop (lbs/acre)		N (lbs)	P <sub>2</sub> O <sub>5</sub> (lbs)	K <sub>2</sub> O (lbs)
Corn grain	120 bushels	120	0.9	35	45	50
Corn silage	17 tons	130	1.3	50	70	70
Wheat grain	80 bushels	100	0.8	30	40	45
Barley grain	80 bushels	80	0.6	25	30	30
Barley silage	8.0 tons	80	0.8	30	40	45
Rye silage	6.0 tons	100	0.8	30	40	45
Soybeans (dc)	25 bushels	0	0.4	15	20	20
Hay	3 tons	80	1.0	40	50	55
Pasture	n/a	60	0.6	25	30	30

### Notes for Table 2:

- \*\*\*\* divide **25** by the poultry litter P<sub>2</sub>O<sub>5</sub> content to calculate the litter application rate.
- For double crops, add removal for each crop.
- Additional crops - see Table 4-7 of the DCR Standards and Criteria at: <http://www.dcr.virginia.gov/documents/StandardsandCriteria.pdf>

### Example for Calculating Poultry Litter Rate based on P<sub>2</sub>O<sub>5</sub> removal:

Poultry litter analysis: Nitrogen = **40 lbs/ton**, P<sub>2</sub>O<sub>5</sub> = **52 lbs/ton**, K<sub>2</sub>O = **53 lbs/ton**  
 Crop yields: Corn grain = **120 bushels**, Wheat grain = **80 bushels**, Soybeans = **25 bushels**

Three (3) Crop Rotation:	1 <sup>st</sup> Crop	+	2 <sup>nd</sup> Crop	+	3 <sup>rd</sup> Crop	=	Litter Application Rate on 1 <sup>st</sup> Crop
	Corn grain	+	Wheat grain	+	Soybeans	=	<b>2.1 tons litter applied to Corn</b> (NO litter applied to Wheat or Soybeans)
	0.9 tons		0.8 tons		0.4 tons		

In this example, 2.1 tons of litter will provide 84 lbs of available Nitrogen to the Corn crop. The corn needs an additional 36 lbs (120-84) 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.

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## Land Application Conditions & Setbacks

- 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\*
  - 50 feet from limestone outcroppings
  - 25 feet from other rock outcroppings
  - 200 feet from occupied dwellings  
(unless the occupant signs a waiver of the buffer zone)
  - Litter shall not be applied in such a manner that it would discharge to sinkholes that may exist in the area.
- \* A vegetated buffer is a permanent strip of dense vegetation established parallel to the contours of and perpendicular to the dominant slope of the field.
- Poultry litter may be applied to frozen ground if all of the following conditions are met:
  - Slopes are not greater than 6%;
  - A minimum of a 200-foot vegetative or adequate crop residue buffer is maintained between the application area and all surface water courses;
  - Only those soils characterized by USDA as "well drained" with good infiltration are used; and
  - At least 60% uniform cover by vegetation or crop residue is present in order to reduce surface runoff and the potential for leaching of nutrients to ground water.

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## Recordkeeping

Land application of poultry litter must comply with the criteria outlined in this fact sheet. All records must be maintained for at least three (3) years from the date of the transaction and land application date.

The attached forms are provided to meet the recordkeeping requirements of the end-user.

(See "End-User Poultry Litter Transfer Record" & "Poultry Litter Land Application Recordkeeping Form")

The following items related to poultry litter transactions must be provided to the source of the litter by the end-user:

⇒ Recipient Name & Signature	⇒ Locality where litter will be utilized (nearest town/city and zip code)	⇒ Name of stream or waterbody nearest to utilization or storage site
⇒ Recipient Address		

The following items related to poultry litter transactions must be documented by the end-user:

⇒ Source name	⇒ Date litter was received	⇒ Locality where litter will be utilized (nearest town/city and zip code)
⇒ Source address	⇒ Amount of litter received	
⇒ Source permit number (if applicable)	⇒ Final use of poultry litter	⇒ Name of stream or waterbody nearest to utilization or storage site

The following items related to land application of poultry litter must be documented by the end-user:

⇒ Nutrient analysis of litter	⇒ Land application rate(s)	⇒ Method used to determine the litter application rate(s): (NMP, standard rate, soil test recommendations or phosphorus crop removal)
⇒ Maps identifying the application fields and storage sites	⇒ Land application date(s)	
	⇒ Crops planted	
	⇒ Soil test results (if obtained)	⇒ Nutrient management plan (if applicable)

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## Additional Information

This fact sheet provides basic information. For additional information regarding requirements for poultry litter management, please visit the DEQ website at <http://www.deq.virginia.gov/vpa/cafo.html>

You may also contact the Virginia DEQ toll free (in Virginia) at **1-800-592-5482**.