

# Guidelines For The Use Of Poultry Manure In Crop Production

Rutgers Cooperative Extension

NEW BRUNSWICK, NJ —

The utilization of poultry manure for crop production is a sound and acceptable agricultural practice when used in a proper manner. Suggested rates, methods and timing of application must be followed in order to minimize or prevent environmental problems — mainly excessive odors, nitrate and phosphate contamination of surface and ground waters.

These guidelines will be useful in helping farmers use manure efficiently in their crop production programs and simultaneously avoid environmental problems such as odors, leaching and runoff.

- Manure will not be stockpiled in the field unless specific provisions are made to keep manure dry and prevent runoff or leaching or effluent from the stockpile. Manure over 60% moisture will not be stockpiled.

- Manure will not be spread on ground that is frozen, snow covered or too wet to be plowed within the time limits that follow.

- A manure free vegetative buffer zone of not less than 25 feet will be maintained along or around defined drainage channels and sinkholes on slopes less than 6%. On slopes greater than 6%, the vegetative buffer should be 4x% slopex100 feet. Where a vegetative buffer is not established, manure will not be spread closer than 50 feet from defined drainage

Estimated moisture and/or dry matter content of poultry manure based on volume weight.

Net Weight of One Gallon of Manure, lb.	Percentage	
	Moisture	Dry Matter
8.00	70	30
7.63	65	35
7.26	60	40
6.85	55	45
6.43	50	50
6.02	45	55
5.60	40	60

channel or sinkholes on slopes less than 6%. Without a vegetative buffer on slopes greater than 6%, the distance will be 8x% slopex100 feet. For example, the buffer zone for a 10% slope would be: 8x0.10x100 feet = 80 feet.

- Manure containing less than 60% moisture and spread on land which will be tilled must be incorporated within 48 hours by: a) moldboard plowing, b) chisel plowing followed by disking, or c) other methods which at least achieve the results equal to a or b.
- Manure containing less than 60% moisture may be spread on the surface of pasture or hayland, having more than a 75% vegetative cover.

- Manure containing 60% or more moisture shall only be spread on cropland to be tilled and must be soil incorporated the same day by: a) moldboard plowing, b) chisel plowing followed by dis-

king, or c) other methods which at least achieve the results equal to a or b.

- The maximum tons of manure where manure is to serve as the only source of nitrogen shall be according to the recommendation of the New Jersey Agricultural Experiment Station found in the latest edition of Commercial Vegetable Production Recommendation (E001), Commercial Tree Fruit Production Recommendation (E002) and Field Crop Production Recommendation (E003) for the crop and yield desired. The rate shall be reduced accordingly if other additional sources of N are used.

The following formula shall be used in determining the application rate:

Wet Tons Manure per Acre = Recommended Nitrogen/Acre for Crop (% Nitrogen in Wet Manure) (2000x.65) (1).

Manure may be spread on no-till corn land at 1/2 the recommended rate during March, April or May.

On land with a vegetative cover where manure will be surface applied the maximum annual rate shall be the recommended rate, but in no case more than 6 tons per acre to be split applications in which neither application shall be greater than 3 tons per acre and at least 3 months apart.

(1) 2000x.65 = 65% availability in first year.

- Land slope shall not exceed 8%, except when injected or plow furrow application is made and then land slope shall not exceed 10%.

- The above slope or rates may be modified if application is made according to an approved Conservation Plan, developed by the Soil Conservation District for control of runoff and erosion, that has been implemented.

The soil loss tolerance "T" shall not be exceeded on field receiving poultry manure.

### Estimating Poultry Manure Moisture

Weigh a one gallon can and record the weight. Overfill the one gallon container with poultry manure as it comes from the poultry house. Settle the manure in the container by dropping the container lightly on a table. Rake off the top of the container so the container is level full of manure. Weigh the filled container and record the weight. Subtract the weight of the empty container from the weight of the filled container and record the difference or net weight of the manure.

Use table below to convert net weight of manure to percentage moisture in the manure. Example: if net weight of manure is 6.43 lbs., it contains approximately 50 percent moisture.

Tons of poultry manure recommended to supply nitrogen for growing 4 tons/acre of grass hay based on moisture and nitrogen content of the manure to be used.

Nitrogen Content of Wet Manure, %	Moisture Content of Manure, %									
	40	45	50	55	60	65	70	75	80	
1.50	4.9	5.5	6.1	6.7	7.3	7.9	8.5	9.1	9.7	
1.55	4.7	5.3	5.9	6.5	7.0	7.6	8.2	8.8	9.4	
1.60	4.6	5.1	5.7	6.3	6.8	7.4	8.0	8.5	9.1	
1.65	4.4	5.0	5.5	6.1	6.6	7.2	7.7	8.3	8.8	
1.70	4.3	4.8	5.4	5.9	6.4	7.0	7.5	8.0	8.6	
1.75	4.2	4.7	5.2	5.7	6.2	6.8	7.3	7.8	8.3	
1.80	4.0	4.6	5.1	5.6	6.1	6.6	7.1	7.6	8.1	
1.85	3.9	4.4	4.9	5.4	5.9	6.4	6.9	7.4	7.9	
1.90	3.8	4.3	4.8	5.3	5.7	6.2	6.7	7.2	7.7	
1.95	3.7	4.2	4.7	5.1	5.6	6.1	6.5	7.0	7.5	
2.00	3.6	4.1	4.6	5.0	5.5	5.9	6.4	6.8	7.3	
2.05	3.6	4.0	4.4	4.9	5.3	5.8	6.2	6.7	7.1	
2.10	3.5	3.9	4.3	4.8	5.2	5.6	6.1	6.5	6.9	
2.15	3.4	3.8	4.2	4.6	5.1	5.5	5.9	6.3	6.8	
2.20	3.3	3.7	4.1	4.6	5.0	5.4	5.8	6.2	6.6	

Tons of poultry manure to supply the preplant nitrogen requirement for a 50-60 bushels/acre wheat of a 60-70 bushel/acre barley crop based on moisture and nitrogen content of the manure to be used.

Nitrogen Content of Wet Manure, %	Moisture Content of Manure, %									
	40	45	50	55	60	65	70	75	80	
1.50	1.4	1.6	1.8	1.9	2.1	2.3	2.5	2.6	2.8	
1.55	1.4	1.5	1.7	1.9	2.0	2.2	2.4	2.5	2.7	
1.60	1.3	1.5	1.6	1.8	2.0	2.1	2.3	2.5	2.6	
1.65	1.3	1.4	1.6	1.8	1.9	2.1	2.2	2.4	2.5	
1.70	1.2	1.4	1.5	1.7	1.9	2.0	2.2	2.3	2.5	
1.75	1.2	1.4	1.5	1.7	1.8	2.0	2.1	2.3	2.4	
1.80	1.2	1.3	1.5	1.6	1.8	1.9	2.0	2.2	2.3	
1.85	1.1	1.3	1.4	1.6	1.7	1.8	2.0	2.1	2.3	
1.90	1.1	1.2	1.4	1.5	1.7	1.8	1.9	2.1	2.2	
1.95	1.1	1.2	1.3	1.5	1.6	1.8	1.9	2.0	2.2	
2.00	1.1	1.2	1.3	1.4	1.6	1.7	1.8	2.0	2.1	
2.05	1.0	1.2	1.3	1.4	1.5	1.7	1.8	1.9	2.0	
2.10	1.0	1.1	1.3	1.4	1.5	1.6	1.8	1.9	2.0	
2.15	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8	2.0	
2.20	1.0	1.1	1.2	1.3	1.4	1.6	1.7	1.8	1.9	
2.25	0.9	1.1	1.2	1.3	1.4	1.5	1.6	1.8	1.9	

\*Double values listed in above table for spring topdressing application.

Tons of poultry manure recommended to supply nitrogen for growing 150 bushels/acre of grain corn based on moisture and nitrogen content of the manure to be used.

Nitrogen Content of Wet Manure, %	Moisture Content of Manure, %									
	40	45	50	55	60	65	70	75	80	
1.50	7.5	8.4	9.3	10.3	11.2	12.1	13.1	14.0	14.9	
1.55	7.2	8.1	9.0	9.9	10.8	11.7	12.6	13.5	14.5	
1.60	7.0	7.9	8.8	9.6	10.5	11.4	12.3	13.1	14.0	
1.65	6.8	7.6	8.5	9.3	10.2	11.0	11.9	12.7	13.6	
1.70	6.6	7.4	8.2	9.1	9.9	10.7	11.5	12.4	13.2	
1.75	6.4	7.2	8.0	8.8	9.3	10.4	11.2	12.0	12.8	
1.80	6.2	7.0	7.8	8.6	9.3	10.1	10.9	11.7	12.4	
1.85	6.1	6.8	7.6	8.3	9.1	9.8	10.6	11.4	12.1	
1.90	5.9	6.6	7.4	8.1	8.8	9.6	10.3	11.1	11.8	
1.95	5.7	6.5	7.2	7.9	8.6	9.3	10.1	10.8	11.5	
2.00	5.6	6.3	7.0	7.7	8.4	9.1	9.8	10.5	11.2	
2.05	5.5	6.1	6.8	7.5	8.2	8.9	9.6	10.2	10.9	
2.10	5.3	6.0	6.7	7.3	8.0	8.7	9.3	10.0	10.7	
2.15	5.2	5.9	6.5	7.2	7.8	8.5	9.1	9.8	10.4	
2.20	5.1	5.7	6.4	7.0	7.6	8.3	8.9	9.5	10.2	
2.25	5.0	5.6	6.2	6.8	7.5	8.1	8.7	9.3	10.0	

**Pork Prose**  
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### MILK REPLACERS

Anyone who has been in the farrowing business for more than a month or so will see pigs starve. Sometimes it happens because the sow has more pigs than nipples to feed them. Other times, two pigs compete for the same spot on the udder. The pig that wins the competition will grow. The pig that loses usually dies. And we've all seen newly weaned pigs go backwards -- for a lot of reasons. But the important one is that they don't eat.

Offering a concoction we call milk replacer can save many of these pigs. Unfortunately milk replacer costs money, it can be a mess, it takes time to fool with, and for all your efforts, the pigs may scour and die anyway. But the people making milk replacers know that a lot of bucks are lost with these starve-outs. So they've been working hard to overcome the normal headaches.

### MILK REPLACER COMPOSITION

Protein in the replacer normally

runs 22 to 30% and should be milk based. Plant proteins (like soy proteins) cause an allergic response in the gut wall of the pig. The younger the pig, the worse the response. There should be few if any plant products listed on the tag.

The fat content of sow's milk is about 30% on a dry matter basis. That's a little difficult to manage in a milk replacer -- but a minimum of 10% fat is apparently vital to good performance. It's not clear whether animal fat is superior to vegetable oil.

Lactose, or milk sugar, should be the main carbohydrate in a milk replacer since pigs can digest it easily. Look for whey on the tag. That's a good source of lactose.

Organic acids are starting to appear in some milk replacers. These replacers are easy to identify since "acid" or "acidified" will appear on the literature somewhere. Lowering the pH of the milk replacer makes good sense. The product won't spoil as quickly once reconstituted (3 to 4 days

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