Nutrient Management and CAFO Program

Delaware Department of Agriculture

Lauren Torres
DDA

- Ag Compliance Lab
- Aglands Use Planning & Preservation
- Delaware Forest Service
- Delaware Harness Racing Commission
- Food Products Inspection
- Nutrient Management
- Plant Industries
- Pesticides
- Poultry & Animal Health
- Delaware Standardbred Breeders Fund
- Thoroughbred Racing Commission
- Weights & Measures
Nutrient Management

- Nutrient Management Law established in 1999

- Affected audience
  - Persons applying Nutrients to 10 acres or more
  - Persons owning animal units or more

- Purpose: To formulate a systematic and economically viable nutrient management program that will both maintain agricultural profitability and improve water quality in Delaware

- Primary Requirements
  - Become certified with the Nutrient Management Program and annual training with University of Delaware Cooperative Extension
  - Maintain Certification with Continuing Education
  - Establish and follow a Nutrient Management or Animal Waste Management Plan
  - File an Annual Report each year
Who is affected?

Industries where Nutrients are Applied to 10 or More Acres of Land

Agriculture

Golf Courses

Lawn Care Companies

Turf, recreational facilities, etc.
Who is affected?

- 8 Beef Cattle
- 7 Saddle-Horses
- 32 Brood Sows
- 40 Sheep
- 3,200 Broilers
- 8 Animal Units
Other requirements of the Law/Regulations

- Winter Nutrient Application ban between December 7th and February 15th and/or on frozen or snow covered ground.
- Outdoor stockpiling of poultry manure in the production area is limited to 14 days without cover.
- Established Outdoor Temporarily Field Staging of poultry manure guidelines.
90 day Field Staging

- 6 feet high in a conical shape
- 100 feet from roads and surface water
- 200 feet from houses and domestic wells
- 300 feet from public supply wells
- Not consist of more than 5% crust out
- Consider the highest, most practical site possible
- Remove top 1-2” soil
Pile crusts over and rainwater is able to shed off
Cost Share Programs

• Nutrient Management Planning
  - 15,155 acres in the Inland Bays watersheds participated in nutrient management planning cost share program in 2012

• Manure Relocation
  - 8,045 tons of poultry manure removed from the Inland Bays watersheds in 2012
Nutrient Management Commission

- 7 full time farmers
  - One Grain
  - One Vegetable
  - One Dairy
  - One Swine
  - Two Poultry
  - One Equine
- One Nutrient Applicator
- One Nutrient Consultant
- One Nursery Professional
- One Golf Course/Lawn Care Professional
- Two Environmental Advocacy Groups
- One Public Citizen
NRCS 590 Standard (Nutrient Management)

- N Leaching Index (LI) Per field or management unit based on predominate soil type
  - Low, Medium, High - Should follow UD N-timing recommendations
  - Very High or predominant soil type has excellent ground water recharge - Manure application is still allowed as close to planting as possible. 4 R’s must be followed - Right Place, Right Amount, Right Time, & Right Source
    - Additional tests such as a PSNT required if additional application rate later in the season would exceed UD recommendation

- P Site Index - Very High, establishes point at which no more P can be applied
  - Was already established in DE, but based on 3 year crop removal rate to be consistent with NM Law.
  - New: No P applications will be allowed on fields with Very High P Site Index Rating except starter P.
EPA designated Delaware’s NPDES authority to DNREC. NPDES CAFO program is administered through DNREC with the assistance of Dept. of Agriculture.
CAFO Program Details

- 53 farms applied for CAFO permits in the Inland Bay area

- 10,841 acres controlled by these CAFOs in the watershed
What Farms are CAFO's?

Poultry
- Large 125,000 birds or more
- Medium 27,500-124,999 birds

Large
- L: 2500H, 10,000P
- M: 750H, 3,000P

Medium
- L: 30,000L, 5,000D
- M: 10,000L, 1,500D

Designated
- L: 10,000
- M: 3,000

Livestock
- L: 1,000C, 700D, 1,000V
- M: 300C, 200D, 300V

Livestock (horse)
- L: 500
- M: 150
Farm Requirements

Good Housekeeping
Farm Requirements

Maintain Lanes & Grassy Swales
Farm Requirements

HUAP Cleanliness
Farm Requirements

Good Composting Practices
Farm Requirements

Roof Gutters*

Keep area as neat as possible

Maintaining Composting Area

*Roof Gutters are not required by the permit, but are used as a BMP in some cases.
Farm Requirements

Maintaining Feed Storage Area
Paperwork Requirements

- NOI
- AWMP/NMP
- Manure Storage & Export Log
- Annual Report
- Manure Analysis
**Notice of Intent (NOI) for CAFO NPDES Permit Coverage**

**Farmer’s Contact Information**

| Name of applicant, operator, or person managing operation: |
| Farm or Business Name: |
| Address: |
| City: | State: | Zip Code: |
| Telephone: ( ) | Fax: ( ) | Email: |

**Owner’s Contact Information**

| Owner’s Name: |
| Address: |
| City: | State: | Zip Code: |
| Telephone: ( ) | Fax: ( ) |

**Operation Data**

| Watershed ID/Receiving Stream/Water-body: |
| Latitude of Farm: | Longitude of Farm: |
| Animal Type and Quantity: |
| Poultry: | Dairy: | Beef: | Horse: | Other: (specify) |

**Annual Budget**

- of intended manure disposal identifying the following:

**I certify under penalty of law that this NOI is completed to the best of my knowledge. I agree to prepare and implement a nutrient management plan in accordance with the requirements of a general or individual CAFO permit. I certify as the owner or manager of the above facility and take primary responsibility for the actions and management of the facility.**

| Signature |
| Name Printed |
| Date |
Comprehensive Nutrient Management Plan With Land  
(Nutrient Management Plan)

Plan Developed For: 

Owner/Operator Name: 
Address:  
Line 1  
Line 2  
City, State Zip  
Phone:  
Fax:  
E-mail:  

Form No:  
Tracts:  
Production / LT Area:  
Watershed:  

Type of Operation:  
Capacity:  

Signature  
Certified Conservation Planner  
Date  

Signature  
Certified Nutrient Management Specialist  
or Delaware Certified Consultant Number  
Date  

Signature  
Certified Manure and Wastewater Handling and Storage Specialist  
Date  

Owner/Operator: As the owner/operator and decision maker of this CNMP, I certify that I have been involved in the development of this plan. I agree that I fully understand the content and requirements of this plan. It is my intention to implement this plan as required by Section 2220, Title 3 of the Delaware Code, Chapter 22. I agree to notify the Delaware Nutrient Management Commission and NRCS of any changes in the plan or of any circumstances beyond my control that prevent me from implementation and fulfilling its intent. I am aware that I am responsible for operation, maintenance, and recordkeeping, and submitting an annual report to the Delaware Nutrient Management Commission.

Nutrient Generator Number: 

Unless the farming operation referenced in this plan increases animal units by 25%, this plan is valid until  

Signature  
Date  

Updated AWMP  
or  
NMP
## Manure Management Records

<table>
<thead>
<tr>
<th>Date</th>
<th>Farm Name</th>
<th>House Number</th>
<th>Animal Capacity</th>
<th>Type of Manure</th>
<th>Number of Loads (in approx. tons, lbs., g äl)</th>
<th>Manure Destination</th>
<th>Notes (Weather, Soil Conditions)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>
# Nutrient Management Annual Report

## CAFO Nutrient Management Annual Report – 2012

The CAFO Nutrient Management Annual Report represents nutrient handling information from the previous calendar year, i.e. 2012. This report is due no later than March 1, 2013. (Note: Please complete items 1-12, sign & date)

### 1. PARTICIPATION INFORMATION

<table>
<thead>
<tr>
<th>Applicant Name:</th>
<th>Mail Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>City:</td>
<td>State:</td>
</tr>
<tr>
<td>Zip:</td>
<td></td>
</tr>
<tr>
<td>Telephone Number:</td>
<td>Fax:</td>
</tr>
<tr>
<td>Farm/Business Name:</td>
<td>Name &amp; Number of NM Certification Holder in the Operation:</td>
</tr>
</tbody>
</table>

### 2. MANAGEMENT PLAN TYPE

- [ ] Nutrient Management Plan (CNMP with Land)
- [ ] Animal Waste Management Plan (CNMP No-Land)
- [ ] Implementation Date of Plan: 
- [ ] Expiration Date of Plan: 
- [ ] Total Acres Included in Plan: 

### 3. WATERSHED – Geographical Location(s) of Operations(s)

<table>
<thead>
<tr>
<th>% in Watershed</th>
<th>% in Watershed</th>
<th>% in Watershed</th>
<th>% in Watershed</th>
</tr>
</thead>
</table>

### 4. ANIMAL TYPE:

- [ ] Poultry
- [ ] Dairy
- [ ] Beef
- [ ] Horse
- [ ] Not Applicable

<table>
<thead>
<tr>
<th>Animal Type</th>
<th>Farm Capacity:</th>
<th># of Annual Flocks:</th>
<th>Name of Integrator:</th>
</tr>
</thead>
</table>

### 5. MANURE LAND APPLICATION:

- [ ] Poultry
- [ ] Dairy
- [ ] Beef
- [ ] Horse
- [ ] Not Applicable

<table>
<thead>
<tr>
<th>Manure Type</th>
<th>Tons or Gallons</th>
<th>Acres applied:</th>
<th>Acres applied:</th>
</tr>
</thead>
</table>

### 6. FERTILIZER APPLICATION:

- [ ] Not Applicable

<table>
<thead>
<tr>
<th>Fertilizer Type</th>
<th>Acres applied:</th>
<th>Crop:</th>
</tr>
</thead>
</table>

Complete the following if Organic fertilizers (manure) or Inorganic fertilizers (commercial) were land applied between December 7th & February 15th:

- [ ] YES – Applied fertilizer between December 7th & February 15th
  - [ ] Manure applied
  - [ ] Commercial fertilizer applied
- [ ] NO – Not Applicable

### 7. MANURE EXPORT – LAND APPLICATION:

<table>
<thead>
<tr>
<th>Manure Type</th>
<th>Amount Exported:</th>
<th>Name of Recipient(s):</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Units</th>
<th>Lbs.</th>
<th>Tons</th>
<th>Gal.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lbs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gal.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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![Image of a farm building and silos](image-url)
Annual Manure Analysis
Manure Application Setbacks

Setback Options:
1. **100’** from ditch bank
2. **35’** from ditch bank with permanent vegetated buffer strip

Alternative Compliance Options:
1. Soil P level BELOW UD FIV 150: 10’ setback w/Winter cover crop
2. Soil P level ABOVE UD FIV 150: 10’ setback consisting of a VEGETATIVE BUFFER & Winter cover crop
Environmental Stewardship

Perdue Farms: Doing The Right Thing

It isn’t very often that a poultry company takes out a full-page advertisement in most of the major newspapers in its product distribution area to announce an environmental program. But that is exactly what Perdue Farms did last fall when it informed its customers, neighbors and regulators of its strategy for moving nutrients off of the Delmarva Peninsula in the form of pelletized chicken litter. The over $12 million that it cost to build the Perdue AgriRecycle plant represents an investment in both the environment and the future of the poultry industry on the Eastern Shore. Perdue Farms has also invested $6 million in improvements to its processing plants’ wastewater treatment systems in the past two years. But Perdue’s strategy has not just been to take the lead in environmental protection; the company has also chosen to take its record to the public.

Perdue’s strategy has not just been to take the lead in environmental protection, the company has also chosen to take its record to the public.

John Clalda, vice president of environmental services for Perdue Farms, joined the company in 1995 after working for 22 years doing environmental work for the state of Maryland. When he started working for the company, Clalda said that his marching orders from Jim Perdue, chairman of Perdue Farms, was “to do the right thing.” At Perdue Farms, doing the right thing involves more than just capital investment. The education and outreach programs that the company has initiated are also an important part of its environmental programs. That’s because the perception of a company’s environmental practices can play as big a role in consumer buying decisions or regulatory activity as the reality of those practices.

“Tina Cherrier, director of corporate communications for Perdue Farms, noted, “There is a lack of understanding of the agricultural life style among the average consumer in this country.” Consumers who are not familiar with agriculture can sometimes develop negative perceptions of common farming practices if they are presented in a negative light in the media. For example, prior to the opening of the Perdue AgriRecycle, facility there had been press reports linking the application of poultry litter on farm fields in the Chesapeake Bay drainage area with outbreaks of Pfiesteria. The lifecycle of the Pfiesteria organism is still not fully understood, and some recent research has called into question exactly which organisms have been responsible for fish kills. But, the damage in the forum of public opinion had been done; in some people’s minds, the poultry industry was responsible for Pfiesteria and the eutrophication of the Chesapeake Bay. According to Cherrier, the Perdue AgriRecycle plant was chosen as the subject of an advertising campaign, because “the plant is the most visible example of Perdue’s commitment to environmental stewardship.” The idea behind the ad was to educate the public about nutrient management and let them know what the company was doing. “Our ads have always had a humorous and self-deprecating quality, so this type of ad fits,” she said. Cherrier explained that this type of advertisement is called a corporate commitment ad. She went on to say, “We felt that what we spent on the ad was worth it to show our commitment, because we needed to publicize it.” Negative news stories are sometimes not followed up with positive stories about solutions to problems or clarification of causes. The advertisement provided Perdue Farms with a forum to give the positive side of the nutrient management issue.
Other Alternative Uses

Digesters

Composting Facilities
Common Poultry Manure Management

- Clean out schedules vary from 1-10 years
- Crust out after each flock (4-6 flocks/year)
- Windrowing
- Cutting Centers
- Litter Saving/Pulverizing
- Dragging
## Value of Manure

- **Manure:** $0-18/ton
- **MicroStart 3-2-3:** $210/ton
- **Commercial Fertilizer:** $94-$179 ($124.51)

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Average</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lbs/ton</td>
<td>Value $</td>
<td>lbs/ton</td>
</tr>
<tr>
<td>Total Nitrogen (N)</td>
<td>62</td>
<td>19.8</td>
<td>102</td>
</tr>
<tr>
<td>NO$_3$-N</td>
<td>1.2</td>
<td>8.8</td>
<td>0.07</td>
</tr>
<tr>
<td>NH$_4$-N</td>
<td>8.7</td>
<td>15.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Phosphorus (P$_2$O$_5$)</td>
<td>63</td>
<td>11.13</td>
<td>87</td>
</tr>
<tr>
<td>Potassium (K$_2$O)</td>
<td>54</td>
<td>10.8</td>
<td>73</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>58</td>
<td>201</td>
<td></td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>13.2</td>
<td>2.5</td>
<td>15.8</td>
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<tr>
<td>Sulfur (S)</td>
<td>13.6</td>
<td>13.15</td>
<td>24.8</td>
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<tr>
<td>Iron (Fe)</td>
<td>0.78</td>
<td>10.72</td>
<td>7.8</td>
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<tr>
<td>Zinc (Zn)</td>
<td>0.9</td>
<td>9.72</td>
<td>2</td>
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<tr>
<td>Copper (Cu)</td>
<td>1.14</td>
<td>15.42</td>
<td>2</td>
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<tr>
<td>Dry Matter</td>
<td>1480</td>
<td>1776</td>
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<tr>
<td>H$_2$O</td>
<td>520</td>
<td>1233</td>
<td></td>
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<tr>
<td>ECCE (Estimated)</td>
<td>100</td>
<td>1.00</td>
<td>160</td>
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<tr>
<td><strong>Totals:</strong></td>
<td></td>
<td>$94.24</td>
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</tbody>
</table>
Farming Considerations

• Inputs
  – Land Rent
  – Mortgage Payment
  – Equipment Payments
  – Seed
  – Fertilizer
  – Pesticide
  – Herbicide
  – Fungicide
  – Irrigation Cost
  – Labor
  – Fuel
  – Repairs
  – Self Employment Tax
  – Crop Insurance
  – Farm Insurance

  About $500/acre (dry land corn)

Variable Marketplace
  – Yield
    • Drought/flooding
    • Natural Disasters
    • Pests
  – Farmers do not have control over the price. Grain mills affect the price they are willing to pay on any given day.
  – Deductions for moisture content, and grain quality, test weight
“IT TURNS OUT THE POOP IS WORTH MORE THAN THE CHICKEN!”