

2005 Annual Report

of the Delaware Nutrient Management Commission

to Governor Ruth Ann Minner and the
143rd Delaware General Assembly

April 1, 2006



“Farming for cleaner water”

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Introduction

This report includes information about the Delaware Nutrient Management Commission’s activities in 2005 and reviews ongoing efforts to improve water quality. The 1999 Nutrient Management Law (3 Del. C. §2200 et al.) requires the Commission to annually report on nutrient management training activities, best management practices implemented, the number of acres under nutrient management plans and critical areas that will be targeted for action.

The Commission continues to make progress towards achieving established goals as this report represents progress for 2005. Priorities for implementing program goals include:

1. Provide continued educational opportunities for certification of nutrient handlers;

2. Provide optimal resources for nutrient planning, record keeping and other proven Best Management Practices (BMPs) relating to nutrients and water quality;
3. Promote and continue support of exporting excess poultry litter to farms or alternative use projects in need of nutrients;
4. Implementation of a concentrated animal feeding operation permitting program.

The Commission is continuing its efforts to improve the quality of Delaware’s waters while preserving the state’s valuable agricultural industries. It has met, and is on track, to meet the nutrient management deadlines established by 1999 legislation. January 2006 marked the fourth of five legal deadlines that will affect all Delaware farmers, golf courses and other nutrient handlers. All nutrient handlers had a certification deadline of January 2003; resulting in 2,170 certifications. The law also requires 20% increments for implementing mandatory nutrient management standards starting 2003. The remaining mandates continue to be phased in every January until we reach the full-implementation deadline of 2007. To date, 85% of Delaware cropland is enrolled or mandated into program requirements, 5% ahead of the deadline.

The following sections fulfill the reporting requirements to the Governor and the General Assembly as stated in the Nutrient Management Law. Additional information is included that represents measurable results and accountability for nutrient handlers. They include updates about topics such as research and demonstration, permits for certain farms, poultry company agreement, phosphorus management, program budget, internal audits, environmental stewardship and complaint resolutions.



This year’s Ag Week was held in Harrington and provided farmers and nutrient handlers opportunity to acquire continuing education credits.

Nutrient Management Training, Education and Certification

The Commission continues to view education as a priority for many nutrient management topics. As farmers and other nutrient handlers become more aware and educated on topics, they will demonstrate more accountability. The Commission has issued 2,170 certifications as outlined and can be individually viewed on the Program's website. (See contact information on Page 16.)

1. 638 Nutrient Generator certifications valid for three years;
2. 1,403 Private Nutrient Handler certifications valid for three years;
3. 48 Commercial Nutrient Handler certifications valid for one year;
4. 81 Nutrient Consultant certifications valid for one year.

The Commission continues to offer and coordinate certification classes, as required by law, for all levels of certification. The University of Delaware Cooperative Extension conducts most of these classes. Classes are offered for fulfilling the initial certification and continuing education requirements. The Law (3 Del. C. §2201 et al.) required that all nutrient handlers be certified by January 2003.

In order to become certified as a consultant or a commercial nutrient handler, one must pass an examination. Three examination sessions for nutrient consultants and five examinations for commercial nutrient handlers were offered in 2005, resulting in 21 (72%) passing scores and 8 (28%) failing scores. Nutrient consultant test questions are pulled from a databank of questions shared by Delaware, Maryland, Virginia and Pennsylvania for reciprocal purposes. The examinations for commercial nutrient handlers were generated by the University and Program Staff.

All certifications, except Nutrient Consultants, are issued over a three year period. Nearly one third of the expirations will occur May 1, 2006. During 2005, 33 continuing education classes were offered at 17 different locations. These classes were organized by the following associations:

1. University Cooperative Extension: 27 meetings with 1,413 individuals receiving credit;
2. Private agri-service companies: 3 meetings with 6 individuals receiving credit;
3. Others: 3 meetings with 38 individuals receiving credit.

Continuing education opportunities can be integrated with any meeting or gathering of nutrient handlers. One continuing education credit is equivalent to approximately 50 minutes and will be prorated in one-quarter credit increments. Credits are approved by providing the meeting or class agenda to the University of Delaware Research and Education Center or the State Nutrient Management Program prior to the event.

Nutrient Management Research and Demonstration

Research and demonstration projects are important in the effort to couple science with policy development. In many situations, the ideal scientific solution is not the more practical solutions in the field. Demonstration projects validate proven science in farm fields owned by Delaware farmers and provide balanced feedback for policy implementation.

Sixteen demonstration projects were implemented throughout the state for the purpose of improving current nutrient management best management practices during crop production. These projects were conducted by the University of Delaware Cooperative Extension and were located on eleven Delaware farms. The projects included:

1. Improving N management of corn;
2. Impact of poultry litter applications on corn yield and soil test levels;
3. Phosphorus fertilization of corn;
4. Using diagnostic tools to prevent over application of nitrogen fertilizer;

5. Value of slow-release N fertilizers for corn and winter wheat;
6. Nutrient removal rates by Delaware Crop;
7. Remote sensing as a tool for improving nutrient management.

Research projects were initiated in 2005 in response to the Commission's request for research and demonstration funding. \$160,000 was appropriated (one-time) with the General Assembly's intent that projects will be a collaborative effort of the Commission, Department of Agriculture and the Legislative Council Technical Advisory Office. A Commission grant program was established and a committee reviewed ten proposals. The committee obligated \$152,924 for the implementation of five projects that met the research priorities of the Commission. The five projects follow:

1. *Poultry Litter Revitalization: A Nutrient Management Opportunity*, University of Delaware. \$20,000 will evaluate litter revitalization strategies that will extend litter life, eliminate or reduce the need to remove and store caked litter, and reduce ammonia losses to the environment.
2. *Managing Temporary Storage of Poultry Litter in Delaware*, University of Delaware. \$35,789 will examine production size poultry litter piles and associated best management practice for minimizing nutrient losses during temporary outdoor storage. The projects will evaluate the storage duration, cover types and alternative pile bases in areas of temporary storage.
3. *Effective Setbacks for Controlling Nutrient Runoff Losses from Land-applied Poultry Litter*, Delaware State University. \$45,265 will be dedicated to measuring the effectiveness of poultry litter application setbacks. A 100-foot setback, winter cover crop and litter/soil incorporation practices will be evaluated for nutrient runoff.
4. *Advancing Nutrient Management In Delaware: Accurate Nutrient Budgets and Prioritized Best Management Practices*, University of Delaware. \$28,122 will fund an accurate, up-to-date nutrient balance for the state which will account for practices such as Phytase use in poultry feed, the Perdue AgriRecycle plant, the Nutrient Relocation Program and more. Additionally, a farm-scale nutrient balance software program will be developed along with a systematic best management practice rating scale for measuring the effectiveness in nutrient reduction.
5. *Utilization of Poultry Litter as Activated Carbon Sources*, Delaware State University. \$23,748 will be used to explore optimal carbonization and activation conditions for converting Delaware source poultry litter to activated carbon. Activated carbon is a common and powerful adsorbent used to filter impurities from liquid and gas waste streams. This project is an exploration for further alternative uses.



Proper handling and storage of poultry litter continues to be a priority for Research and Demonstration.

Nutrient Management Relocation

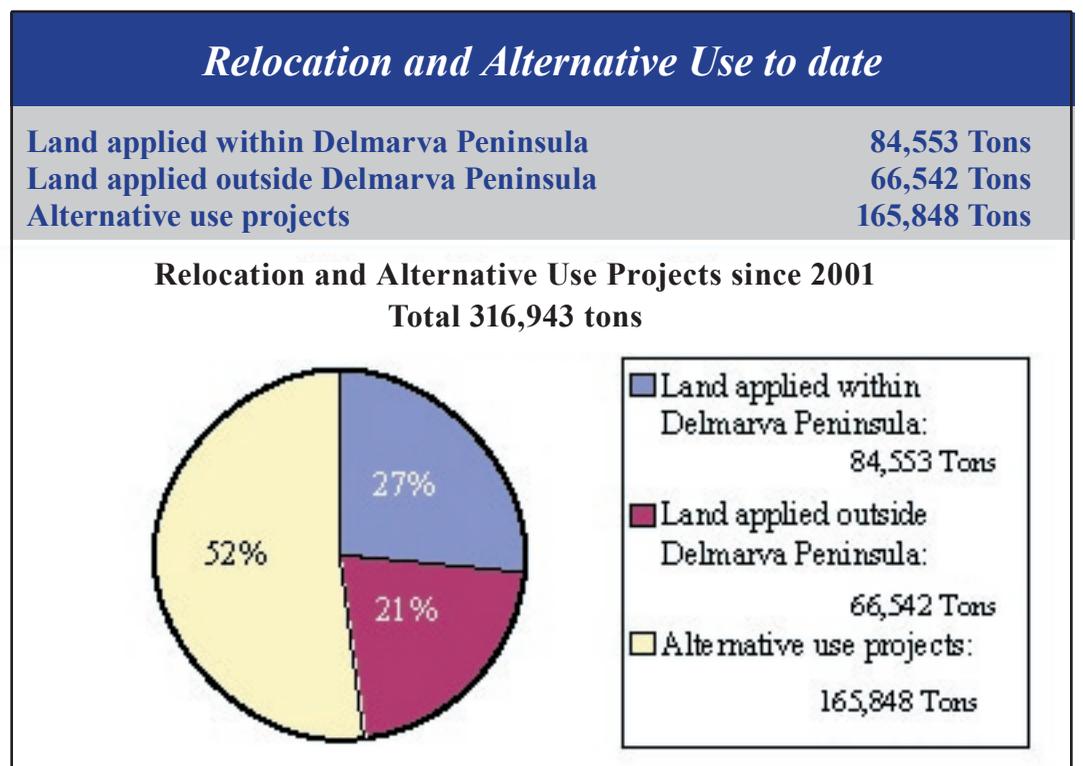
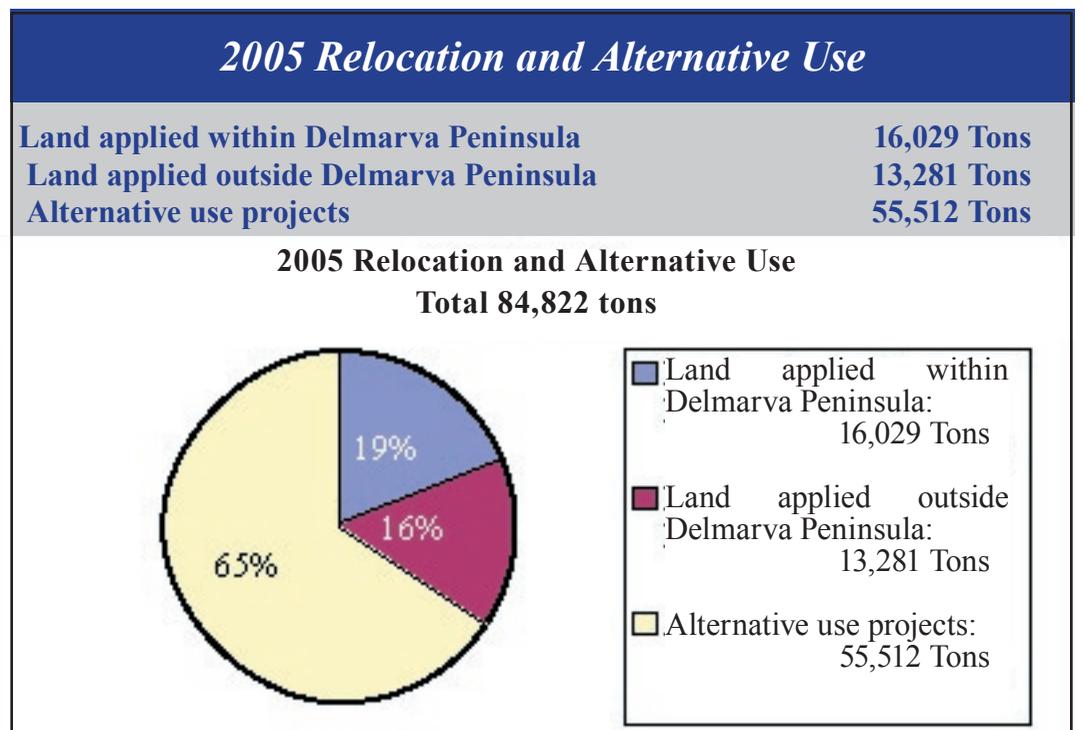
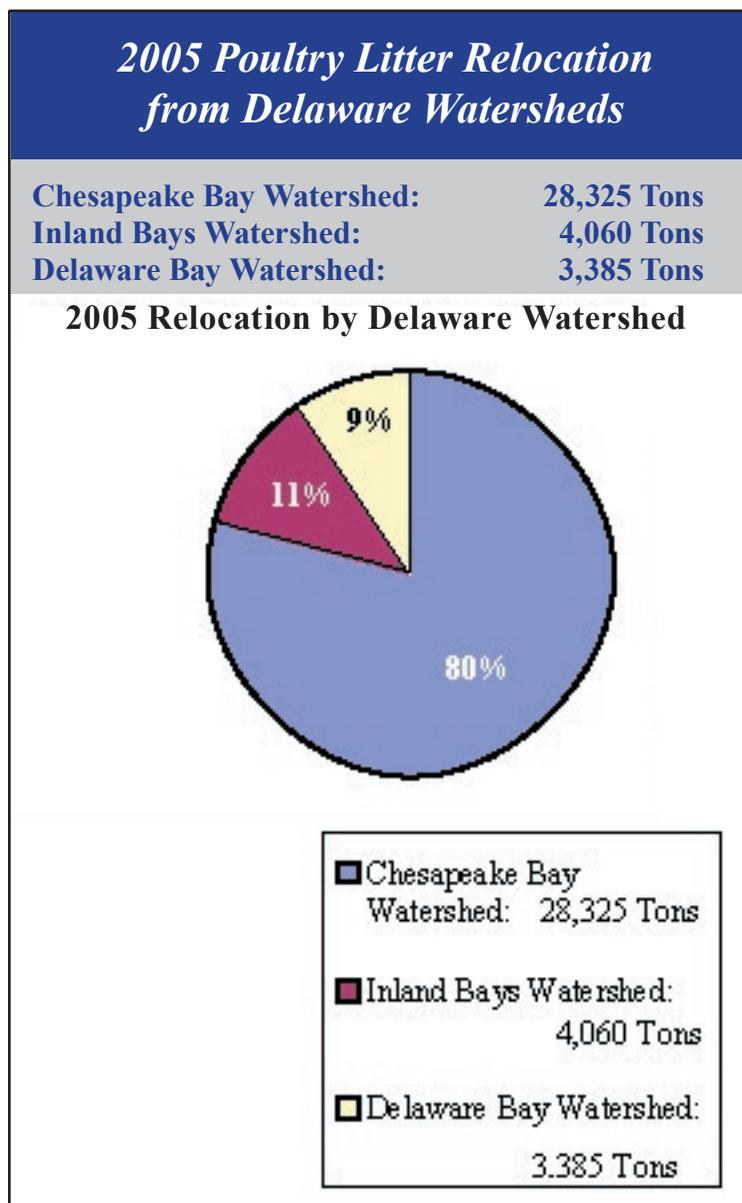
Many farmers are dealing with excess manure, namely poultry litter, and need to export the manure in order to balance crop nutrient demands. The Relocation Program is a partial solution to the excess litter generated in Delaware. Funds are available for farmers, brokers or trucking businesses to relocate excess poultry litter.

The Relocation Program provides financial reimbursements for the transportation cost of relocating litter from a Delaware farm to an alternative use project or another farm for land application. In 2005, the Commission funded the transportation costs of relocating 35,770 tons. Perdue AgriRecycle processed 34,000 tons and transported 15,052 tons without cost assistance from the Commission. There is an application process that validates eligible senders, receivers, truckers and alternative use projects. Excess litter continues to be transported for land application throughout Delaware as well as Maryland, New Jersey and Virginia. Alternative use projects are also essential for managing excess poultry litter. The Nutrient Management Program relocates 6,460 tons of Delaware litter to mushroom producers in Pennsylvania.

The Perdue AgriRecycle pellet-fertilizer plant located in Blades, Delaware, continues to process excess poultry litter. In 2005, the plant processed a total of 56,600 tons, 34,100 tons being Delaware generated. Since July 2001, Perdue AgriRecycle has marketed and shipped out 131,000 tons. Also Perdue AgriRecycle relocated 15,052 tons of raw poultry litter to land owners for crop production without cost assistance through the Nutrient Relocation Program.



The Perdue AgriRecycle serves as an important alternative for excess litter. In 2005 they processed 56,000 tons of product, 34,000 generated in Delaware.





Relocating excess poultry litter is occurring across the state as many farms are limited to phosphorus based applications. The Commission annually expends \$546,000 of transportation funds provided by state general funds and federal funds distributed by DNREC Water Resources and Soil and Water Divisions.

Farmers and others wishing to participate in the relocation projects can register with the nutrient management matching service by contacting (302) 698-4500. The Relocation Program provides farmers with the option to move the litter themselves or hire a broker.

Nutrient Management Planning

Any business operation that applies nutrients to greater than ten acres or manages 8,000 pounds of animals will be affected by mandatory nutrient management. These people are randomly selected in 20% increments, which started in 2003 and will complete in 2007. They are affected by the following requirements:

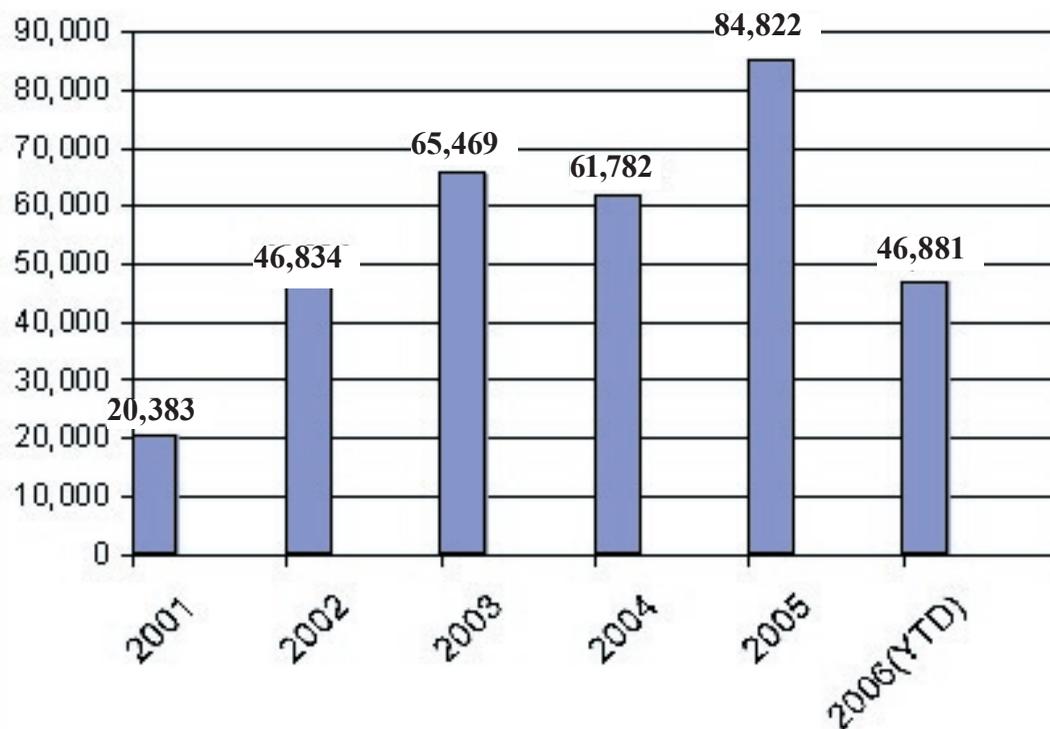
1. Development of a nutrient management plan or animal waste management plan. These plans can be developed by nutrient consultants located at Kent and Sussex Conservation Districts or by private consultants funded by the Commission;
2. Maintenance of nutrient handling records. Record keeping books have been developed and distributed to simplify requirements;
3. Submit annual report. A one page nutrient information form must be provided by March 1st, the year after mandatory nutrient planning;
4. Become certified. Certification deadline was January 1, 2003. Initial certification classes are offered two times a year throughout the state and the dates are posted on the website. (See contact information on Page 16.)

Although nutrient planning practices are phased in over five years, many nutrient handlers have volunteered as early cooperators. Volunteer efforts and the mandates have resulted in the establishment of nutrient management plans for 112,477 acres during 2005. To date, 388,841 acres (85%) of agricultural crop land is managed under Commission approved nutrient management practices.

Planning and Implementation Costs

Funds for nutrient management planning and implementation are provided by State and Federal sources. The Commission expends an average of \$451,800 for the reimbursement of costs associated with developing a nutrient management plan by a private nutrient consultant. The Natural Resources Conservation Service (NRCS) obligated \$249,591 in FY 2005

Relocation Progress and Alternative Use since 2001 (in tons)

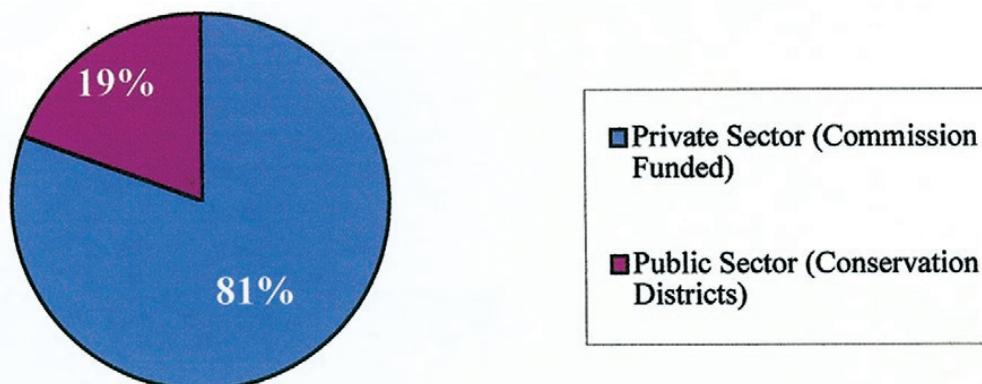


Nutrient Management Plan Development for 2005

Private Sector (Commission Funded)	90,838
Public Sector (Conservation Districts)	21,639

Nutrient Management Plan Development for 2005

Total 112,477 Acres

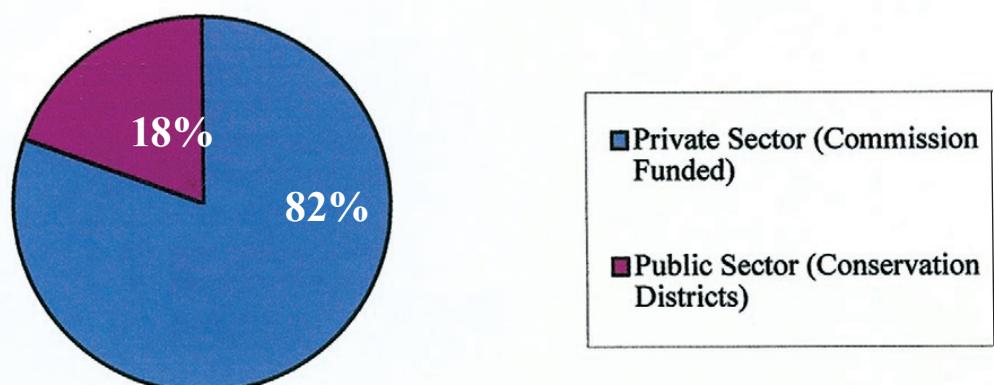


Acreage Managed Under a Current Nutrient Management Plan

Private Sector (Commission Funded)	333,370
Public Sector (Conservation Districts)	71,639

Nutrient Management Planning since 2001

Total 388,841 Acres



The current nutrient management planning represents crop years 2003, 2004 and 2005.