

Delaware Nutrient Management Commission

ANNUAL REPORT

2018



DELAWARE NUTRIENT MANAGEMENT COMMISSION ANNUAL REPORT 2018

The Nutrient Management Program has completed its 19th year since the passage of the Nutrient Management Law in 1999. The law was enacted to address agriculture's influence on water quality in Delaware.

The mission of the Nutrient Management Program as laid out in the Law is: "To manage those activities involving the generation and application of nutrients in order to help improve and protect the quality of Delaware's ground and surface waters, sustain and promote a profitable agricultural community, and to help meet or exceed federally mandated water quality standards, in the interest of the overall public welfare."

This Annual Report to the Governor highlights the activities of the program during 2018.



NUTRIENT MANAGEMENT ANNUAL REPORTS

The Nutrient Management Law requires anyone operating under a nutrient management plan or animal waste management plan to submit an annual implementation report for each calendar year. These reports detail all organic and inorganic nutrient handling activities that occurred from January 1 through December 31.

During 2018, 1,542 annual reports were mailed to agricultural, golf course and lawn care operations throughout Delaware. Annual reports were also mailed to farmers that live in neighboring states who till ground and raise livestock and/or poultry on farms located in Delaware.

Farmers and other regulated facilities who submit the nutrient management annual report ensure an accurate representation of nutrient handling activities within Delaware. The accuracy of the information provided on these annual reports is vital to ensure all farmers and hired applicators are following the recommendations outlined in their nutrient management plans. The data from the annual report is important because it helps the Nutrient Management Program advocate on behalf of Delaware nutrient handling operations.



Nutrient Management Planning

A nutrient management plan is a farmer's "business plan" for nutrients. The more efficiently fertilizers are used on the farm; the

less nutrients escape to waterways. A plan is developed by a certified nutrient consultant and includes contents such as maps, soil analysis, manure analysis, crop yield goals and nutrient application rates.

The Commission depends on private and public nutrient consultants to develop nutrient management plans. In 2018, 197 farms

representing 82,612 acres were reimbursed at a capped rate. The Kent and Sussex Conservation Districts assisted Delaware farmers by writing nutrient management plans totaling 3,853 acres. These acres represent an obligation for at least 3 years of nutrient management planning. The total acreage covered by nutrient management planning during 2018,

including those farms approved during 2016 and 2017, was a total of 291,901 acres.

Nutrient Management Plan Audits

Each year program staff performs audits on a number of facilities required to operate with a nutrient management plan, records and certification. This process helps to ensure that plans meet the intent of the nutrient management laws and regulations. During 2018, program staff audited nutrient management plans for 103 agricultural operations and concentrated animal feeding operations.

Nutrient Management Relocation



The Relocation Program provides financial reimbursement to farmers, brokers and trucking businesses for the transportation cost of relocating litter-manure from Delaware farms to alternative use projects or other farms for land application. The Relocation Program provides farmers with the option to move the litter-manure themselves or to hire a broker. The application process validates eligible senders, receivers, truckers and alternative use projects.



Poultry litter continues to be transported for land application throughout Delaware and to adjacent states, Maryland, New Jersey, Pennsylvania and Virginia. Locations in Delaware and Pennsylvania operate alternative use projects and are essential for managing poultry manure produced in excess of farmer needs in Sussex County. In 2018, 35,189 tons of poultry litter-manure was relocated, for a twelve-year total of more than 1,040,808 tons. During 2018, over 28 percent of the litter-manure went to alternative use projects such as the Perdue Agribusiness fertilizer plant in Blades, DE and mushroom growers in Pennsylvania.

28% of litter went to alternative use projects



FY 2018 Relocation Summary

<i>RELOCATION</i>	<i>TONNAGE</i>
Delaware Relocation Projects with Financial Assistance	35,189
Farm to Farm within Delaware	13,664
Farm to Farm Exported from Delaware	11,784
Farm to Farm Alternative Use: Perdue Agribusiness	4,826
Farm to Alternative Use: Mushrooms	4,915

MILFORD FARMERS RECEIVE ENVIRONMENTAL STEWARDSHIP AWARD

Poultry farmers John and Linda Brown were recognized during Delaware Ag Week for their efforts to improve water quality and reduce nutrient runoff with the 2018 Delaware Environmental Stewardship Award.



The Brown's L&J Farm is located in Harrington, where they raise chickens for Perdue Farm's Coleman Organic division. Certified organic, the poultry houses have an attached area where the birds can spend the daylight hours and the houses are equipped with windows to let in natural light. Being environmentally friendly, the Browns harness solar energy to power the farm and utilize an electric car; woods provide a barrier against noise and odors; runoff is treated by a series of storm-water ponds; and all the houses and the manure shed have concrete pads, which are kept very clean. L&J Farm is a perfect example of a beautiful, neighbor-friendly farm.

The Environmental Stewardship Awards were presented to the Browns and three other runner-ups by Nutrient Management Administrator Chris Brosch. Each year, the Commission partners with Delaware's poultry integrators -Allen Harim Foods, Amick Farms, Mountaire Farms and Perdue Farms- to sponsor the Environmental Stewardship Awards.

"Each of the companies nominates a Delaware poultry grower that excels in preserving and enhancing environmental quality on their farms," Brosch said. "These farmers practice excellent manure management, proper composting of mortalities and accurate record keeping. They also use enhanced conservation practices on the farm as a whole."

Runners-up were:

Chad and Joanna Carpenter of East Piney Grove Farm have been raising chickens since 2010. The couple grows for Mountaire Farms, with a capacity of 300,000 birds. The Carpenters have installed heavy use pads,



fenced off the composter to keep vultures and foxes away from the composted mortalities and redesigned the drainage swales to prevent runoff from going into nearby tax ditches. They also have planted a vegetative buffer of trees to help with odors.



Ken and Nicole Wilkins of Felton, grow for Amick on a newer, picture-perfect farm that they named the "Funny Farm." In 2015, they built three poultry houses on their homestead, along with a manure shed and channel composter. The storm water engineering includes a large storm-water pond to treat runoff from the production area. A screen of trees has been planted to assist in containing odors. Fly traps are used throughout the farm and near the composter to reduce these pests.

Carol Johnson of Bridgeville, who grows for Allen Harim, raises 90,000 chickens and tills twenty-five acres on Loockerman Farm. The farm has two manure structures, has heavy use pads



installed on the poultry houses, and utilizes solar energy to help power the poultry operation. In addition, cover crops are utilized as a conservation practice on the cropland. Ms. Johnson has been a 4-H leader for more than 25 years.

The Browns received \$1,000, a plaque and sign for their farm. The runners-up received \$500, plaques and signs.

Past recipients of the Environmental Stewardship Award include: Randy and Jordan McCloskey (2017); Ted Layton and Scott Willey (2016); Chris Lesniowski of Marydel (2015); Georgie Cartanza of Little Creek (2014); Connie Carmean of Laurel (2013); Marilyn and Lee Ellers, Sparrow's Song Farm, Houston (2012); Douglas and Deborah Vanderwende, Locust Grove Farm, Greenwood (2011); Frank Robinson and family, Dead Broke Farm, Harrington (2010); Mary Bryan, Laurel (2009); Joe Bauer, Harrington (2008); Scott Peterman, Milford (2007); and Guy and Nancy Phillips, Georgetown (2006).

Nutrient Management Training, Education and Certification

The University of Delaware Cooperative Extension offers initial nutrient management certification training three times annually to individuals who apply nutrients to ten or more acres of Delaware land or have a commercial livestock operation. These training sessions are led by University of Delaware Cooperative Extension, with assistance from the Delaware Department of Agriculture. The certification sessions provide the latest information and tools to encourage the adoption of best management practices to reduce the risk of nutrient loss to water. Since its inception in 2001, the University of Delaware Cooperative Extension has provided

state-mandated certification training to over 3,700 individuals and certified more than 3,300 individuals. In 2018, the University of Delaware Cooperative Extension offered 16 initial certification sessions and 5 required examination sessions. In 2018, 75 individuals were newly certified.



Development of New Mapping Technology



In 2018, the Delaware Department of Agriculture, and Department of Technology and Information (DTI) developed new mapping technology to assist nutrient management consultants in writing complete and accurate plans.

Regulations in place since 2006 required aerial photos be included in all nutrient management plans along with well locations, soil information, field boundaries, roads and lanes, surface water bodies, irrigation, and any physical best management practices (BMPs). Under the new Standard Operating Procedures for auditing plan implementation it became clear that many plans were missing at least one element in the mapping. Much of the often missing data was publicly available, but not in a central location. The Department's Jimmy Kroon and U.S. Geological Surveys Mark Nardi assisted with DTI to put together the pilot project which centralized the data and hosted it on a web portal. DTI eliminated the need for specialized

computer hardware or expensive software for crop consultants. The Nutrient Management Program plans to roll out this project in the 2019 season to select consultants as beta-testers. After necessary adjustments are made to accommodate their comments, a finished product will be unveiled as a first-of-its-kind planning tool for farmers. This will help to protect water quality not only from nutrients, but any of the chemicals that are regulated under agricultural use.



Delaware's Agricultural Progress in Meeting Chesapeake Bay TMDL Goals

By Chris Brosch and Jennifer Volk

What is the Chesapeake Bay TMDL?

Delaware is committed to protecting and improving the Chesapeake Bay and tributary waters and is working to meet the Chesapeake Bay Program's restoration goals. In 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay Total Maximum Daily Load (TMDL), a comprehensive cleanup plan to restore the health of the Bay and its local streams, creeks and rivers. The TMDL set watershed-

wide pollution reductions of 25 percent nitrogen (N), 24 percent phosphorus (P) and 20 percent sediment by 2025.

Watershed Implementation Plans (WIPs) detail how and when the jurisdictions (six Bay states and the District of Columbia) will meet their pollution reduction targets. Phase I & II WIPs (developed in 2010 and 2012, respectively) described actions that the states needed to take by 2017 and will need to take by 2025 to achieve the goals of the Bay TMDL. Phase III WIPs (to be completed in 2019) will provide information on actions states intend to implement by 2025 to meet the Bay TMDL restoration goals.

How does Delaware's Phase III WIP Affect Me?

Phase III WIPs will specify states' conservation actions needed to achieve the 2025 pollution reduction goals. Example commitments include providing technical assistance for conservation plans, offering incentives for relocating poultry litter, providing cost-share for nutrient management planning, verifying voluntary measures, and pursuing policy actions. Phase III WIPs will also detail best management practices (BMPs) that not only improve water quality but also provide other benefits such as improving wildlife habitats, conserving land and encouraging stewardship.

Delaware's Phase III WIP is instead encouraging farmers to focus on cover crops and nutrient management in addition to 30 other practices already identified in the Phase II WIP. Delaware's Phase II WIP identified 40 BMPs that can reduce the movement of Nitrogen and Phosphate. Goals for planting riparian forest buffers were reduced, but improved estimates of effectiveness of BMPs surrounding the Soil Health Initiative have compensated. The Phase III WIP also includes information on cost-share incentives to encourage these practices.

You're Making a Difference!

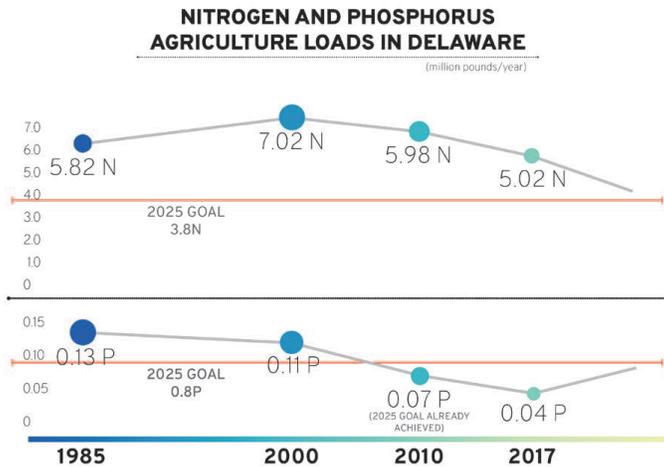


Fig 1. Delaware has already achieved target phosphorus loads due to BMPs.

Delaware farmers have been implementing BMPs for over 30 years, and pollution prevention efforts are paying off. As of 2017, Delaware achieved 40% Nitrogen and 180% Phosphorus of required reductions since 1985 (Figure 1). Even though farmers have doubled production since 1985, they effectively maintained the N and P levels during this 30-year period¹. This shows that Delaware farmers' accelerated rate of BMP installation is keeping up with production.

1. Keisman, J.L.D., Devereux, O.H., LaMotte, A.E., Sekellick, A.J., and Blomquist, J.D., 2018, *Manure and fertilizer inputs to land in the Chesapeake Bay watershed, 1950–2012: U.S. Geological Survey Scientific Investigations Report 2018–5022*, 37 p., <https://doi.org/10.3133/sir20185022>.

What Can I Do to Help?

Submit Your Annual Reports and Increase Cover Crops

To help meet the TMDL goals, Delaware has a new protocol for auditing nutrient management practices and a planned new initiative to increase cover crops. Delaware's Department of Agriculture (DDA) Nutrient Management Program inspection protocol is the most robust verification system in the Bay watershed. All Delaware farms have nutrient management plans and require farmers to file annual reports. In the reports, farmers note their acres of nutrient management activities. Farmers also list nutrient/manure transfer details. This information is vital to Delaware's nutrient management verification

program. After receiving the reports, Delaware inspects 18 percent of farms reporting nutrient management to calculate a compliance rate. Submitting your annual report is vital!

We also encourages farmers to increase the installation of cover crops, which can trap leftover nutrients during the off-season while providing other benefits (see below). To help enroll and establish cover crops (small grain or mixed cover) on every eligible acre, DDA is launching a new cost-share program in combination with USDA NRCS-sponsored cover crop programs. Cost share reduces the expense of essential inputs such as seed, fuel, time and mechanical equipment. Farmers currently apply for as much as \$50/acre to grow mixed stands of soil-conditioning plants and up to \$30/acre for small grains that will trap leftover nutrients for the winter and help fertilize crops in the growing season.

Benefits of Cover Crops

- Protect soil from water runoff
- Protect soil from erosion by harsh winter winds and rains
- Reduce or suppress weed growth
- Manage certain insect pests and plant pathogens
- Decomposing plants add organic matter to soil
- Organic matter improves soil structure
- Provide ideal conditions/habitats/food for earthworms and other beneficial soil organisms
- Roots increase soil aeration and water infiltration
- Reduce soil crusting and soil compaction
- Return mineral and nutrients to the soil (nutrient cycling).
- Legumes add nitrogen to the soil
- Reduce nitrogen leaching

Please Report Your Best Management Practices

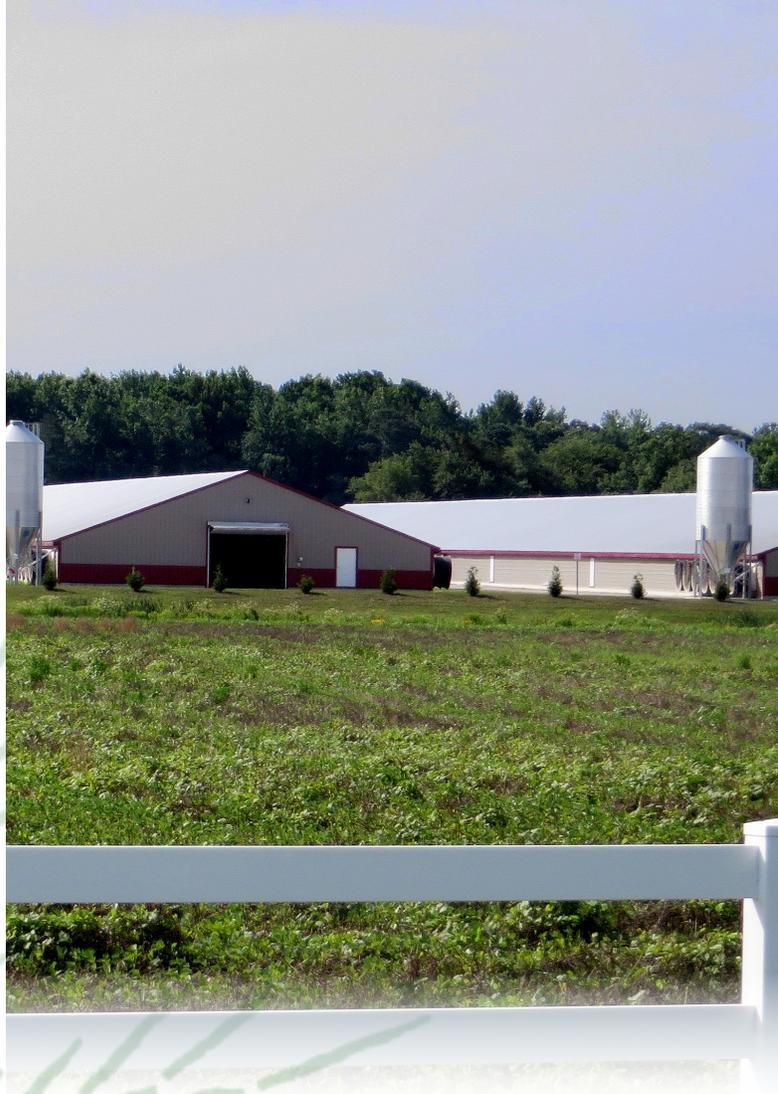
Delaware farmers are successfully using many BMPs in addition to nutrient management and cover crops. Please report your voluntary (not cost shared) practices to your nutrient management consultant so DDA can record that the practice exists and verify it is implemented correctly during your next inspection, Your report will help Delaware measure success, adjust priorities and ensure that BMPs are protecting agricultural profitability and local water quality.

RIGHT
RATE

RIGHT
SOURCE

RIGHT
TIME

RIGHT
PLACE



CAFO General Permit

In 2016, the first CAFO General Permit covering medium and large poultry farms as a group was approved by a joint Secretaries order from DDA and DNREC. General Permits allow for a more streamlined administration of similar size and type farms. The permits' focus is on limiting discharges of pollutants and allowing for enforcement actions if these limitations are exceeded. The General Permit language was developed utilizing the Delaware CAFO regulations, the 1999 Nutrient Management Law and the EPA Permit Writers' Manual. During 2016 and 2017, 134 farms were public noticed for the CAFO General Permit. During 2018, an additional 38 farms were public noticed. As of December 31, 2018, 172 farms have received coverage under the first of three General Permits.

NUTRIENT MANAGEMENT BUDGET

Program Operating Costs:	310,200	317,400	294,936
Personnel			
Federal Funds Section 319 (Clean Water Act)*	252,918	252,918	260,000
Travel	600	600	600
Contractual	15,500	15,500	14,900
Supplies	4,000	4,000	3,325
Information/Education/Certification	172,500	172,500	131,701
Nutrient Relocation Program	246,000	246,000	246,000
Federal Funds section 319 (Clean Water Act)*	189,043	189,043	200,000
Poultry Companies*	107,035	97,392	55,959
Nutrient Management Planning	411,800	411,800	411,800
Penalties Collected	0	0	0
TOTAL	1,638,678	1,656,338	1,619,221

Complaint Resolution



Complaints related to manure management and general nutrient handling practices are investigated and resolved by program staff. If the violation is deemed serious enough, the complaint can be upgraded from an informal complaint to a formal complaint. In such a case action is taken by the Commission in the form an administrative hearing.

During 2018, 35 informal complaints were received and resolved by program staff relating to manure management, livestock management, odor and nutrient management certification. The categories of complaints and operation types are as follows:

COMPLAINT CATEGORY		OPERATION TYPE	
Manure Management	49 %	Poultry	73 %
Odor	34 %	Horse	1 %
Mortality Management	17 %	Field Crop	27 %

Members of the Nutrient Management Commission

The Nutrient Management Law established a 19 member Commission that is charged to develop, review, approve and enforce regulations governing the land application of nutrients.

William Vanderwende, Commission Chairman, was appointed to the Commission by the Senate, and was named Chairman by the Governor. He can be reached at (302) 349-4423.

Larry Jester, was appointed by the Senate as a representative of the New Castle County grain industry. He can be reached at (302) 547-8462.

Mark Adkins was appointed by the Governor to represent swine farmers. He can be reached at (302) 732-3007.

Bob Palmer is the acting director of DNREC's Division of Watershed Stewardship. He can be reached at (302) 739-9921.

Brenna Goggin, is one of the representatives of an environmental group. She was appointed by the Senate Minority Leader. She can be reached at (302) 239-2334.

F. Kenneth Blessing, Jr. was appointed by the Senate to represent Kent County vegetable farmers. He can be reached at (302) 422-5746.

Wayne Hudson was appointed by the House Minority Leader as the Commercial Nutrient Applicator representative. He can be reached at (410) 543-3919.

Jim Elliott was appointed by the House of Representatives as an Environmental Advocacy Group representative. He can be reached at (302) 337-3653.

Laura Hill, was appointed by the House of Representatives to represent Sussex County poultry farmers. She can be reached at (302) 945-0725.

Jessica Inhof, was appointed by the Senate as a Nutrient Consultant. Jessica may be reached at (302) 540-8998.

Ken Horeis was appointed by the Speaker of the House of Representatives to represent the equine industry. He can be reached at (302) 270-2648.

Bud O'Neill was appointed by the Governor as a representative for the golf course/lawn care industry. He can be reached at (302) 653-8618.

Richard Sterling was appointed by the Governor as a representative of the commercial nursery industry. He can be reached at (302) 653-7060.

Scott Webb, was appointed by the House of Representatives to represent Kent County He can be reached at (302) 381-0402.

Jonny Nichols was appointed by the Governor as the Public Citizen. He can be reached at (302) 697-2200.

Michael T. Scuse, Secretary of the Delaware Department of Agriculture, is an ex-officio member of the Commission. He can be reached at (302) 698-4500.

Shawn Garvin, the Secretary of the Delaware Department of Natural Resources and Environmental Control, is an ex-officio member of the Commission. He can be reached at (302) 739-9000.

Jamie Mack is the Chief of Health Systems Protection in the Div. of Public Health. He represents the Department of Health and Social Services. He is an ex-officio member and can be reached at (302) 744-4832.

DELAWARE DEPARTMENT OF AGRICULTURE NUTRIENT MANAGEMENT PROGRAM

CHRIS BROSCH, Program Administrator
BOB COLEMAN, Environmental Coordinator
BROOKE WALLS, Environmental Scientist
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COUNTY CONSERVATION DISTRICTS

The Conservation Districts provide technical agricultural professionals who can assist in nutrient management strategies and recommendations. All nutrient consultants are certified and in most cases, certified crop advisors.

NEW CASTLE COUNTY (302) 832-3100
KENT COUNTY (302) 741-2600
SUSSEX COUNTY (302) 856-3990

UNIVERSITY OF DELAWARE

Several specialist from University of Delaware Extension provide certification training for the Nutrient Management Program. They also assist the program by providing technical recommendations and conducting research and demonstration projects on nutrient management practices. Specialist are located in each county to assist Delaware farmers.

NEW CASTLE COUNTY (302) 831-2667
KENT COUNTY (302) 730-4000 (main line)
SUSSEX COUNTY (302) 856-7303



DELAWARE DEPARTMENT OF
AGRICULTURE