



## Pennsylvania's Nutrient Management Act: Progress, Challenges, and Future Directions

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### Introduction

Pennsylvania's leadership in conservation policy was marked almost a decade ago by passage of a law requiring farms above a certain animal density threshold to manage their nutrients. The Nutrient Management Act—Act 6 of 1993—took effect in 1997. After five years of implementation, the act required review of the density-based criteria for defining Concentrated Animal Operations (CAOs). The State Conservation Commission, which has responsibility for implementing the act, is now conducting an overall update of the regulations while it reviews these criteria. Legislative hearings were held during spring 2001 and discussion of the act and its rules continue. Changes to the state's nutrient management policies will likely occur in the near future.

Effective participation will require interested parties to follow policy developments closely. We encourage them to learn more, stay abreast of developments, and take advantage of opportunities to influence the outcomes.

This paper presents the results of an analysis of issues related to state nutrient management policy in terms of achievements, shortcomings, and future policy directions. It is based on personal interviews conducted during summer 2002 with 30 knowledgeable people from an

array of organizations and agencies. Categories of representatives include farmers, agribusiness, government agencies, environmental interest groups, consultants, education, and the public. From a statewide perspective, we believe the findings are both comprehensive and balanced; however, we wish to alert the reader to limitations. First, county-level conclusions are more reflective of south-central Pennsylvania since this is where interviews of county-level agencies were

conducted. Second, while we intended to reflect all stakeholder views, we were not exhaustive. Some stakeholders, such as farms importing manure, were not interviewed.

Those interested in additional findings and lessons learned should read the full report, available upon request from the authors or at the following Web site: <http://agenvpolicy.aers.psu.edu>.

### Goals of the Nutrient Management Act

Interviewees were asked to state the goal (or goals) of Act 6 in their own words and then asked their opinion about whether the goals had been met. A wide range of goals were stated, including:

- Protect water quality
- Balance nutrients at the farm-level with crop needs
- Provide assurance that agricultural nutrients were properly managed
- Protect the environment without putting farmers out of business
- Create practical and understandable regulations
- Create a level regulatory "playing field" through preemption

The answer to the question "Were the NMA goals reached?" varied widely. Table 1 generally categorizes the goals

**Table 1. Summary of Answers About Goals Being Reached.**

Goal	Have We Reached the Goal?
Protect water quality	Some progress, but how much?
Provide assurance that agricultural nutrients were properly managed	Some progress, yet major problems still exist.
Create practical and understandable regulations	Not reached.
Protect the environment without putting farmers out of business	Achieved, but some concerns about the future.
Balance nutrients at the farm-level with crop needs	Some progress, yet major problems exist.
Create a level regulatory "playing field" through preemption	Some progress, yet major problems exist.

and the degree to which respondents felt the goal was reached.

**Protect Water Quality.** The majority of interviewees identified water quality as a goal. Most believed progress was being made, but the goal was not reached. Reasons for not reaching this goal included the program focuses on large farms and overlooks smaller farms contributing to water quality problems; and the program's focus on nitrogen and not phosphorus. Other reasons not directly related to program rules included the difficulty of measuring water quality changes and lag-times in water quality improvements; the difficulty of tracing improvements back to the act's requirements; a lack of understanding about the contribution of sources other than agriculture; and conflicting water quality trend information.

**Most interviewees believed the Nutrient Management Act program has been successful.**

#### **Provide Assurance That Agricultural Nutrients Are Properly Managed.**

There were mixed responses among the several interviewees who identified this goal. Several believed the act provides assurance that nutrients are managed properly. They pointed out that the act is an enforceable law, there is a high compliance rate among the regulated community, and a number of farms have voluntarily developed and implemented plans under the program. Several believed the act has not reached this goal. They raised concerns about enforcement of the act, that the majority of CAO manure is exported to smaller farms with no requirement to implement an approved Act 6 nutrient management plan, and that the vast majority of Pennsylvania farms are not covered under the act.

**Create Practical and Understandable Regulations.** A few interviewees identifying this goal believed it has not been reached even though many individuals worked hard through the Nutrient Management Advisory Board to create practical and clear rules. A few interviewees viewed the nutrient management plan-

ning process as too bureaucratic and believed time was wasted on technical details that may not reduce agricultural nutrients. In some cases, they felt the plans were too detailed and not implemented because the plans were impractical.

**Protect the Environment Without Putting Farmers Out of Business.** Overall, interviewees identifying this goal believed the program was meeting this goal. However, concerns were raised that funding may not be adequate in the future as Pennsylvania increases its emphasis on phosphorus.

**Balance Nutrients at the Farm-level with Crop Needs.** There were mixed responses among the several interviewees who identified this goal. A few individuals consider the goal met because CAO farms have written and are moving toward implementing plans as required under the act. However, a few believed the goal was not met since most farms aren't covered under the act; CAOs are exporting manure to smaller farms with no nutrient management plans and may be overapplying nutrients; the act does not place any restrictions on the use of commercial fertilizer; and enforcement is lacking.

**Create Uniform Statewide Regulations.** Several interviewees believed that the act leveled the "playing field" by developing statewide specific elements and criteria for nutrient management plans. Interviewers readily offered the reasons why preemption is needed in Pennsylvania for farmers to efficiently operate in a state with so many local government units. One indicated that this goal was not being achieved by describing numerous instances of local ordinances on nutrients and related issues.

#### **Views Toward Current Issues**

Interviewees were asked to express their opinions about the following major issues raised during 2001 state legislative hearings:

**Preemption of Local Ordinances.** *The NMA preempts local governments from enacting manure storage, handling, or land application ordinances or regulations that are more stringent than the state requirements. Local governments may enact requirements that are "consistent with" the act's requirements.* The majority of interviewees supported the

current preemption requirement. Several opposed preemption based on the belief that local people have a better understanding of their environment and values and could respond more effectively than state government to nutrient management and water quality issues.

**Definition of a Concentrated Animal Operation (CAO).** *CAOs are defined as agricultural operations where the animal density exceeds 2,000 pounds of live animal weight per acre of land suitable to spread manure. Suitable land can be owned or rented.* The majority of interviewees agreed the CAO definition is appropriate, but several acknowledged the implementation challenges of using the density-based definition. A few interviewees believed a definition based on animal units or numbers may be easier for farmers to understand since it is consistent with federal regulations and easier to enforce.

**Exclusion of Nonproduction Animals.** *The Nutrient Management Act does not apply to farms that operate solely for maintaining and boarding animals (such as horse-boarding facilities).* Although there was mixed support, several interviewees believed the exclusion is appropriate. Several others mentioned it was unclear how much these operations contribute to water quality problems and recommended more investigation before including these operations in the program.

**Manure Export.** *CAOs may export manure off the farm to a known landowner for agricultural application or other use, a broker, or an open market system as part of the nutrient management plan.* Most interviewees support manure export off CAO farms, but believed additional tracking of where the manure is going and assurance that it is being applied properly is needed.

**Phosphorus Management.** *Currently, the nutrient application rates are based on nitrogen (N), meaning nutrient application is not to exceed the amount of available N necessary to achieve expected crop yield.* The majority of interviewees acknowledged the need for phosphorus to be added to the nutrient management program, but were concerned with farm financial impacts. Several interviewees considered the current N-based requirement appropriate.

**On-Site Status Reviews.** *On-site status reviews are required for all CAOs annually. In most counties the conservation districts are responsible for the review.* Most interviewees expressed support for increased monitoring and enforcement of NMA requirements, but there was mixed support for annual CAO inspections. Several interviewees questioned the quality and effectiveness of on-site reviews, while others saw the reviews as critical for program credibility. A few considered reviews important for justifying public subsidies for nutrient management planning and implementation.

**Erosion and Sediment (E&S) Control Plans.** *Every Pennsylvania farm that plows and tills is required to develop, implement, and maintain an E&S plan. A conservation plan may meet this requirement. Act 6 nutrient management plan requirements do not include verification that an E&S control plan (or a conservation plan) exists on the farm.* Most interviewees viewed E&S control plans as critical to nutrient management and support verification that the plan exists. However, several were uncertain about what a conservation plan should include since agencies use different terminology, standards, and requirements.

**Technical Assistance.** *Conservation districts, USDA-NRCS personnel, and private consultants provide technical assistance to CAOs.* There were mixed and uncertain responses about availability of technical assistance. Additionally, several interviewees were concerned about the quality and/or variability of assistance across the state.

**Financial Assistance.** *CAO operations and volunteers developing and implementing Act 6 plans may apply for financial assistance under the Plan Development Incentive Program, the Nutrient Management Grant Program, or receive low-interest loans under the Agri-Link program.* Interviewees gave mixed and uncertain responses concerning the appropriateness of current levels of financial assistance.

## Lessons Learned

Most interviewees believed the Nutrient Management Act program has been successful. Inclusiveness, leadership, education, and funding were viewed as key to success and need to continue. However, most identified at least one barrier that has limited success.

**Inclusiveness was key to passing the act, but the implementation process is viewed by some as noninclusive.** Several interviewees saw the original coalition among government agencies, environment, public and agricultural interest groups, and the agricultural industry as key to the Nutrient Management Act's initial success when passed in 1993. However, a few interviewees viewed the rule-making process that followed as imbalanced. They suggested better representation of environmental and public interest groups in the Nutrient Management Advisory Board.

**Farmer stewardship was key, but some are fearful or unaware.** Several interviewees viewed farmers as stewards of the land who want to protect water resources. The agricultural community's acceptance and support of the act was identified as a key factor. However, several believed a small segment of the agricultural community has been fearful or unaware of the program's requirements.

**Education was viewed as critical, but some groups have been overlooked.** Conservation districts, Penn State Cooperative Extension, and industry personnel were seen as instrumental in educating farmers about the act's requirements and available financial and technical assistance. Several interviewees identified a lack of education to small farmers, Amish and Mennonite farmers, and the general public as a barrier.

**Local implementation and public participation were key, but sometimes perceived by the public to be uneven or too friendly to agriculture.** A majority of interviewees believed local implementation of the Nutrient Management Act was a key factor of success. Conservation districts were identified as essential to working with the regulated community. Yet, a few interviewees identified the districts' tradition of working with farmers, its voluntary approach, and limited resources as barriers.

**A mandatory program was seen as key, but the credibility of the self-regulating program is being questioned.** Several interviewees considered Pennsylvania's regulatory approach useful in highlighting the seriousness of nutrient pollution and to get the program started. Yet a number of interviewees viewed the self-regulating nature of the program as a threat to its long-run credibility.

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**Science was critical, but has resulted in a complex program.** The CAO density-based definition was based on science, but it is a challenge to implement. The current program is complex from both a nutrient management planning and regulatory viewpoint. A few interviewees believed the detail in nutrient management plans is too great. There is concern that by focusing on details of only a portion of the total water quality problem (manure) the big picture and other parts of the problem are lost.

## Priority Actions for the Future

The interview closed with the broad question, "Where can energies and action for change be best focused?"

**Educate All Parties.** Several interviewees said more education would lead to a more successful nutrient management program. Audiences include the public, farmers, and the educators themselves.

**Reduce Inequities.** A few interviewees stated that all manure-generating farms and all land receiving manure should develop and implement a nutrient management plan.

**Increase Agency Enforcement and Oversight.** A few interviewees suggested changes to the requirements under the act by increasing agency oversight, monitoring, and record-keeping.

**Overall, many of the individuals interviewed expressed a feeling of pride in relation to Pennsylvania's leadership among states in nutrient management policy.**

**Improve Working Relationships.** Several interviewees suggested actions to improve working relations among those developing and implementing the nutrient management program. The development of a work group inclusive of all stakeholders was suggested.

**Change Selected Program Requirements.** Suggestions included simplifying

nutrient management, restricting cow access to streams, and addressing odor, fly, and water-use issues.

**Evaluate Progress.** A few interviewees suggested a need to track progress and develop clear measurable goals at the farm level.

**Invest in Research.** For a few, the answer for a more successful nutrient management program is new technology. These interviewees believe there is a need for more research and development of effective technologies that are financially and environmentally sustainable.

#### Shaping Nutrient Policy in Pennsylvania

Overall, many of the individuals interviewed expressed a feeling of pride in relation to Pennsylvania's leadership among states in nutrient management policy.

We hope the results of the analysis will be used by citizens and public decision-makers in deliberating the issues,

options, and future policy directions for nutrient management in the Commonwealth. Improvements in policy come about through exchange of facts and perspectives about issues and solutions, effective participation by all interested and affected parties, and careful consideration from public decision-makers.

It is not yet clear how and when changes to Pennsylvania's Nutrient Management Act will occur. Effective participation will require interested parties to follow the developments closely. Stay informed and involved:

- Tell other farmers, neighbors, and community members that the Nutrient Management Act regulations are currently under review.
- Encourage others to learn about issues described here and to participate in the discussions.
- Read the minutes from the Nutrient Management Advisory Board meetings on the Web at <http://panutrientmgmt.cas.psu.edu/> (Click on "SCC/NMAB Activities")
- Find out if groups that you are part of are following developments, and are planning to participate in the public comment process once revised regulations are proposed.
- Learn more about the issues. Visit Penn State's Nutrient and Water Policy Update: <http://agenvpolicy.aers.psu.edu> for the full report "Pennsylvania's Nutrient Management Act: Progress, Challenges, and Future Directions."

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#### On the Web at <http://extension.aers.psu.edu/FarmEcPubs.asp>

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