State Approaches to Reducing Agricultural Nutrient Impacts on Water Quality in the United States

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Research Methods

- 50 state review of laws, regulations, policies, programs, incentives that require or encourage reduction of non-point water quality impacts from agricultural nutrients.
- State-based approaches that result from state government action.

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<th>Type of approach</th>
<th>Definition</th>
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<td>1. Statewide reduction strategies</td>
<td>A comprehensive planning effort or program to address nutrient reduction from a coordinated statewide perspective.</td>
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<td>2. Nutrient management plans</td>
<td>Written plans for managing the amount, source, placement and timing of plant nutrients and soil amendments.</td>
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<td>3. Conservation programs</td>
<td>Programs that encourage or require farmers to adopt conservation practices on the land.</td>
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<td>4. Applicator certification</td>
<td>Knowledge standards for individuals who apply agricultural nutrients on the land.</td>
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<td>5. Application restrictions</td>
<td>Limitations on how, when or where agricultural nutrients may be applied to land.</td>
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<td>6. Informational tools</td>
<td>Tools to assist with determining the proper conditions for utilizing agricultural nutrients.</td>
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<td>7. External partnerships</td>
<td>Efforts to collaborate with private and non-profit partners on nutrient reduction activities.</td>
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Nutrient Management Plans

• Voluntary NMPs
• Mandatory NMPs
  • Maryland: Required for all farms grossing +$2500 a year or livestock producers with +8,000 lbs. live animal weight.
• Certification for NMP writers
• Recordkeeping requirements
• Periodic revisions

Conservation Programs

Maryland Agricultural Water Quality Cost-Share Program

• Applies to farmers in areas with large amounts of agricultural runoff.
• Funds for installing cover crops, waste treatment lagoons, fencing, riparian buffers, filter strips, grassed waterways, terraces, wetland restoration
• Eligibility is dependent upon potential of water quality improvement and economic return to the operator.
Conservation Programs

Minnesota Buffer Law
• Perennial rooted vegetative buffer required for lands adjacent to waters identified in buffer protection zone map.
  • 16.5 to 50 feet, depending upon type of water.
• Farmers may use approved alternate practices to substitute for buffer requirement.
• Complaint and enforcement process with penalties for non-compliance.
• Cost sharing available.

Applicator Certification

Applicators for hire
• Indiana: must pass examination on planning, storage, equipment, transportation, techniques, environmental concerns.

Farmer applicators
• Ohio: educational program or test on proper time, place, amount, application, storage and handling if applying on more than 50 acres of agricultural production land.
Application Restrictions

Indiana Fertilizer Use Rule

• Applications of +10 cubic yards or +4,000 gallons of commercial fertilizer or manure for agricultural crops.
• Staging requirements, application setbacks, restrictions for highly erodible land, frozen or snow covered ground, monitoring requirements.

Informational tools

Wisconsin Runoff Risk Advisory Forecast

• Map of state color coded with high to low risk over 3 day period.

Washington Application Risk Management System

• Precipitation forecasts at regional and field levels.
• To be used in conjunction with NMP to determine runoff risks and setbacks.
External Partnerships

Illinois Nutrient Research and Education Council

- Guided by council of farmers, agribusinesses, environmental, agencies, research stations
- Pollution research, education programs, project installations financed by $1/ton fee on fertilizer.

Initial Conclusions

More activity in states with significant water resources and/or higher rainfall.

- Great Lakes, Chesapeake Bay, Mississippi River

Most common responses thus far are costly:

- Conservation practices
- Nutrient Management Plans
  - Are NMPs subject to judicial scrutiny?
Initial Conclusions

Few solutions include monitoring and assessment components.

- Need for data.
- Monitoring and assessment occurring independent of laws, regulations, programs.

National landscape is outwardly disjointed.

- Scattered among different agencies.
- External not collaborating with internal.
- Independent of statewide or watershed planning.