Managing Fertilizer to Protect our Water Resources

December 2000

Abstract

Nutrients from fertilizers is one of the nonpoint sources of pollution that needs to be addressed in implementing the new *Water Quality Management Plan for Southeast Michigan*. There is some confusion over local governments' ability to control pollution from fertilizer and the regulatory role of the Michigan Department of Environmental Quality (MDEQ) and Michigan Department of Agriculture (MDA). This paper will describe fertilizer as a pollutant source, clarify local governments' capabilities regarding reducing this pollutant source, outline options to reduce the impacts of fertilizer through education and regulation, and recommend ways to resolve these issues.

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Purpose

One of the primary elements of the new *Water Quality Management Plan for Southeast Michigan* (Plan) is nonpoint source pollution. The Plan acknowledges that pollutant loadings from nonpoint sources is a factor in the impairment of our region's water resources. Nutrients from fertilizers is one of the nonpoint sources of pollution that needs to be addressed in implementing the Plan.

However, there is some confusion over local governments' ability to control pollution from fertilizer and the regulatory role of the Michigan Department of Environmental Quality (MDEQ) and Michigan Department of Agriculture (MDA). The purpose of this paper is to:

- describe fertilizer as a pollutant source,
- clarify local governments' capabilities regarding reducing this pollutant source,
- outline options to reduce the potential negative environmental impacts of fertilizer through education and regulation, and
- recommend ways to resolve these issues.

Summary of Problem

In the past, nutrients were controlled as part of the point source control program. Although controlling point sources has been beneficial, this practice alone has not protected our water resources. Even with a strong point source program, there are still too many nutrients in our water resources. As a result, pollutant loadings from nonpoint sources needs to be reduced.

For example, a recent study indicates fertilizer from lawns is a primary contributor of phosphorus to our urban waterbodies. This study of a residential area conducted by the United States Geological Survey (USGS) in Madison, Wisconsin, determined that over 60 percent of the total phosphorus in their study area was from lawns[1]. This illustrates the need to address this pollutant source as part of the watershed planning process in order to assure that we can attain designated uses.

Local Government Responsibilities

Local governments have some responsibility for their jurisdiction's water quality as well as their contributions to use impairment. Most recently, this is evident in new federal and state programs to address storm water. Over 120 communities in Southeast Michigan will be required to permit their storm water through either a federal or state program.

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[1] RJ. Waschbusch, W.R. Selbig, and R.T. Bannerman. *Sources of Phosphorus in Stormwater and Street Dirt from Two Urban Residential Basins in Madison, Wisconsin*, *1994-95*. USGS Report 99-4021.

Most of the communities in the Rouge River Watershed have chosen to apply for the Michigan General Storm Water Permit (General Permit) to cover federal Phase II NPDES Storm Water requirements. Under the General Permit, local communities must — as part of the watershed planning process and storm water pollution prevention initiative — identify pollutant sources to their water resources and implement practices to reduce pollutant loadings to the maximum extent practicable.

Many Rouge River communities that chose the state voluntary permit have received their certificates of coverage and have initiated the planning process. During their subwatershed management plan development, communities identified phosphorus from fertilizers as a significant pollutant source. However, they were unsure about their authority to implement programs to reduce pollutant loadings. Communities felt that although they had the ability to educate their citizens concerning fertilizer, they had limited authority to regulate this source.

Regulation and education are the two primary mechanisms utilized to limit pollutant loadings to the water resource. However, these mechanisms vary significantly between residential sources and farming operations. The following analysis provides detailed information on regulation and education distinguishing between farming and developed areas.

Using Regulations to Reduce the Impacts of Fertilizer

Opportunities to regulate fertilizer use vary greatly between farming operations and developed areas. In developed areas, local communities can establish ordinances to regulate fertilizer usage (e.g., how much to apply, where to apply, when to apply fertilizer). However, these ordinances cannot preempt requirements that are the responsibility of the Michigan Department of Agriculture. On the other hand, local governments have limited authority to regulate farming operations. Farmers are encouraged to follow Generally Accepted Agricultural Management Practices (GAAMPs), as outlined in Michigan's Right to Farm Law. Local governments can only implement an ordinance that includes farming operations if they have proved adverse impacts to the environment or public health exists even with conformance of GAAMPs. Such an ordinance including farming operations is subject to approval by the Commission of Agriculture.

Regulating farming operations

Background

The Michigan Right to Farm Act, P.A. 93, was enacted in 1981 to provide farmers with protection from nuisance lawsuits. This law authorizes the Michigan Department of Agriculture (MDA) to develop and adopt GAAMPs for farms and farm operations in Michigan. These GAAMPs are voluntary and based on scientific research to promote environmental stewardship and help maintain a farmer's right to farm.

By utilizing these voluntary management practices, farmers benefit from the protection provided in the Right to Farm Act. While adherence to GAAMPs does not act as a complete barrier against lawsuits, it does provide a measure of protection from nuisance litigation. Following is a complete

list of GAAMPs for Michigan prepared by MDA:

- site selection and odor control,
- manure management/utilization,
- pesticide utilization/pest control,
- nutrient utilization,
- care of farm animals, and
- cranberry production.

GAAMP development and review process

GAAMPs are reviewed annually and may be revised as necessary by the Michigan Commission of Agriculture (Commission). The Commission appoints GAAMP committees to review each GAAMP and provide recommendations on possible changes to the GAAMP. The GAAMP committee is primarily made up of Michigan Department of Agriculture, Michigan Department of Environmental Quality, Michigan State University, Michigan Farm Bureau, Natural Resources Conservation Service, and other technical experts. Before formal review and adoption by the Commission, there is opportunity for public review and comment on the document.

Local governments are not usually represented during the GAAMP review or development process and were not included during the review of the nutrient utilization GAAMP. The exception was the recently set GAAMP on site selection and odor control.

Because local governments are an integral part of local land use issues and are held accountable for local environmental regulations, they should engage in both the development and review of GAAMPs. If a local community does not participate directly on the committee, it can comment during the public comment period.

GAAMP distribution and implementation

GAAMPs are not distributed directly to the farmer. Once a GAAMP is complete or revised, farmers can receive the information in any of the following ways: download it from the MDA Web site, request a copy from MDA, or request a copy from a local MSU Extension office.

Since GAAMPs are strictly voluntary, education of farmers is the primary implementation mechanism. This item is discussed more thoroughly under education (see p. 5).

Enforcement of GAAMPs

Again, local governments have limited authority to regulate farming operations. GAAMPs are voluntary. Therefore, implementation of GAAMPs is based primarily on education. However, farmers not implementing GAAMPs have increased potential for being subject to nuisance lawsuits and, thus, lose protection provided by the Right to Farm Act.

This does not mean that sources of water quality degradation on farms cannot be reduced through enforcement by MDEQ. This process for GAAMP conformance and instituting necessary enforcement action is described in a memorandum of understanding between MDEQ and MDA (Attachment A).

GAAMP conformance and enforcement process

Action by MDA and MDEQ is largely driven by citizen complaints, lake associations, local health departments, and township referrals. MDA investigates and addresses all environmental issues alleged in a complaint. MDA also informs the local government of the complaint. If the operation is not in compliance with the GAAMP and results in water quality degradation, MDA will attempt to bring the operation into conformance. Local government representatives can also accompany MDA on the final follow-up inspection. If MDA is unable to bring the operation into conformance and water degradation continues, MDA refers the problem to MDEQ. Follow-up and possible enforcement action is pursued using broader powers provided by state and federal laws. Between 1993 and October 2000, MDEQ settled 12 administrative actions and two litigated cases against agricultural producers who violated water quality laws.

Regulating developed areas

Background

The Natural Resources and Environmental Protection Act (Act 451 of 1994) stipulates that MDA is responsible for various aspects of regulating fertilizer. Their primary regulatory responsibilities include:

- ensuring proper labeling on the container,
- implementing fees to support activities such as environmental stewardship and inspections,
- licensing of the manufacturer or distributor,
- registering the product, and
- inspecting, sampling, and analyzing fertilizers to ensure compliance with the law.

As long as they do not infringe on these activities, local governments can regulate fertilizer usage and application in their jurisdiction. One possible regulatory mechanism is a fertilizer ordinance.

Ordinance development

Local governments have the discretion to adopt a fertilizer ordinance to reduce the impacts of phosphorus on local waterways. However, this ordinance cannot include fertilizer issues that are regulated by MDA. For example, local governments cannot test fertilizers to ensure they contain the correct amounts of phosphorus, nitrogen, and potassium. However local governments can address the following in an ordinance:

- license applicators in the community,
- months that fertilizer can be applied,
- number of applications per year,
- rates of phosphorus, nitrogen and potassium allowed in the community, and
- prohibiting application within a certain distance from a waterbody, wetland, or floodplain.

The local jurisdiction can decide if the ordinance would be applicable to commercial lawn companies and/or individual homeowners.

Enforcement of the fertilizer ordinance

Without proper enforcement, a fertilizer ordinance will not reduce phosphorus loadings to the water resource. When deciding to enact a fertilizer ordinance, local communities must be committed to enforcing the ordinance. For those that choose to adopt an ordinance, one early issue is to determine whether the ordinance should focus on commercial applicators or be extended to property owners. To have an effective ordinance that is enforceable, it may be beneficial to have the ordinance cover commercial lawn services initially and expand the program to include landowners as resources permit. Again, this decision would be made by the local community based on such issues as available resources and the level of commercial lawn service in their community.

Using Education to Reduce the Impacts of Fertilizer

Regulations, ordinances, etc. are only one component of a program to reduce nutrient loadings to surface waters. Without informed stakeholders, the goal of achieving improved water quality through nutrient reductions is unlikely to succeed. Recognizing this, many organizations are working to reduce the impacts of fertilizer through education of both farmers and residential homeowners. This educational component is based on the concept that each citizen has the right to expect clean water from their upstream neighbor and are also expected to assure that their downstream neighbor is afforded the same courtesy.

Education and farm operations

MDA has initiated the Michigan Groundwater Stewardship Program. It is an educational program focusing on addressing risks to groundwater associated with pesticide and nitrogen fertilizer use. This educational component takes many of the recommendations in the GAAMPs and puts them in a more user friendly format. Examples of these educational programs include Farm *A* Syst and Field *A* Syst programs.

- Farm *A* Syst (FAS) identifies potential risks posed by farmstead operations. Fact sheets provide educational information and reference people to contact if questions arise.

- Field *A* Syst is designed to help individuals identify ways to reduce the risk of groundwater contamination associated with field applications of pesticides and nitrogen fertilizers.

In addition, MDA offers technical assistance directly to the landowner. Michigan State University Extension and the Natural Resource Conservation Service (NRCS) also provide technical assistance and educational materials for farm operations.

Education and developed areas

Organizations and communities across the state are working on educating their constituency on nonpoint source pollution, including fertilizer pollution. At the state level, MDA offers a companion program to their Farm *A* Syst Program called Home *A* Syst. This program assists homeowners in identifying ways to lower risks of contamination to groundwater and surface water.

One local example is the Southeast Oakland County Resource Recovery Authority's (SOCRRA) Healthy Lawn Care Program. This includes working with local retailers on point-of-sale education. One success has some of the smaller fertilizer retailers offering their stores as soil testing drop-off sites. As part of this program, residents can take a soil sample to the retailer who will send it to MSU Extension for evaluation. A soil evaluation will be sent directly to the landowner. In addition, this spring SOCRRA will be piloting a "slow-release fertilizer" sticker campaign, with funding from MDA.

Another local example is the Rouge River National Wet Weather Demonstration Project's (Rouge Project) Rouge Repair Kit, which is an educational booklet for residents on specific actions they can take to reduce nonpoint source pollution. In addition, the Rouge Project and Rouge Watershed communities are discussing possible outreach mechanisms including point-of-sale education with watershed retailers.

Other organizations offering education to local residents include local watershed councils, MSU Extension and NRCS.

Recommendations for Fertilizer Management

Following are recommendations for consideration by local governments, Michigan Department of Environmental Quality, and the Michigan Department of Agriculture. These recommendations focus on managing fertilizer usage for the purpose of supporting water quality protection.

Recommendations for consideration by local government

- Local governments should assess the extent to which nutrient loadings from fertilizer use is contributing (or will contribute) to water quality degradation.

- The need for a local regulatory program should be assessed, preferably in collaboration with other communities in a subwatershed.

- Local governments opting for a regulatory program should consider utilizing a model fertilizer ordinance such as the one contained in Appendix B.

- At a minimum, the following items should be addressed in any regulatory approach:

    - license applicators in the community,
    - months that fertilizer can be applied,
    - number of applications per year,
    - application rates for phosphorus, nitrogen, and potassium allowed in the community,
    - prohibit application within a certain distance from a waterbody, wetland, or floodplain, and
    - match usage with need through such means as encouraging soil testing by homeowners and commercial applicators.

- Communities should develop a working relationship with MDA and MDEQ and collaborate on:

    - the need and possible development of a fertilizer ordinance,
    - GAAMP development and review,
    - GAAMP implementation and conformance, and
    - subwatershed planning.

- Communities should participate in review of the nutrient utilization GAAMP using the following specific management practices as guides:

    - the appropriateness of application rates,
    - prohibiting application during frost conditions,
    - linking application rates to soil testing, and
    - prohibiting application within a certain distance from a waterbody, wetland, or floodplain.

- Communities should encourage the implementation of the nutrient utilization GAAMP in their community through such mechanisms as community newsletters and educational forums.

- Local communities not participating in developing or reviewing a GAAMP should comment on the GAAMP during the public comment period.

- Local communities should include education as an essential component in their fertilizer management program. Potential audiences include homeowners, commercial applicators, and farmers. Specific topics that should be incorporated into educational programs for these audiences include:

    - describing the link between fertilization and water quality degradation,
    - understanding the importance of soil testing and providing ease of access for analysis of soil samples,
    - providing background information on fertilizer usage (e.g., types of questions homeowners should ask commercial applicators),
    - interpreting fertilizer labeling based on landowner's lawn or farm needs, and
    - providing information on when and where fertilizer should be applied.

These messages can be conveyed directly to the landowner or through education such as at the point-of-sale, cable television, or community newsletters. Point-of-sale education can be highly effective, but needs support from local suppliers. In addition to encouraging point-of-sale education, local suppliers should be approached about accepting customer soil samples and sending them to MSU Extension for analysis, and subsequent fertilizer application recommendations.

Recommendations for consideration by the Michigan Department of Agriculture (MDA) and Michigan Department of Environmental Quality (MDEQ)

- MDEQ should assist communities in assessing the extent to which nutrient loadings from fertilizer application contributes to water quality degradation.

- MDA and MDEQ should develop a working relationship with communities and collaborate on the following:
  - the need and possible development of a fertilizer ordinance,
  - GAAMP development and review,
  - GAAMP implementation and conformance, and
  - subwatershed planning.

- When reviewing the nutrient utilization GAAMP, MDA and MDEQ should ensure that the review include:
  - the appropriateness of application rates,
  - prohibiting application during frost conditions,
  - linking application rates to soil testing, and
  - prohibiting application within a certain distance from a waterbody, wetland, or floodplain.

- MDA should work with local communities to encourage the implementation of the nutrient utilization GAAMP in their community. Community newsletters and educational forums are two possible implementation mechanisms.

- Education is an essential component in fertilizer management. MDA and MDEQ should continue their educational efforts (Farm *A* Syst, Field *A* Syst, and Home *A* Syst) and ensure the following messages are communicated to farmers, homeowners and commercial applicators:

  - describing the link between fertilization and water quality degradation,
  - understanding the importance of soil testing and providing ease of access for analysis of soil samples,
  - providing background information on fertilizer usage (e.g. types of questions homeowners should ask commercial applicators),
  - interpreting fertilizer labeling based on landowner's lawn or farm needs, and
  - providing information on when and where fertilizer should be applied.

- Voluntary action by homeowners, commercial applicators, and farmers is the preferred method. However, when continued water quality impairment necessitates more reduction in loadings, there should be a collaborative strategy developed between MDA, MDEQ, and local governments.

- The memorandum of understanding between MDA and MDEQ should be periodically reviewed with local governments to assure its adequacy for ensuring water quality protection.

MEMORANDUM OF UNDERSTANDING
BETWEEN
MICHIGAN DEPARTMENT OF AGRICULTURE
AND
MICHIGAN DEPARTMENT OF NATURAL RESOURCES

Environmental Regulation of Farm Operations

This memorandum between the Michigan Department of Agriculture, hereinafter referred to as MDA, and the Michigan Department of Natural Resources, hereinafter referred to as MDNR, is entered into for the purpose of delineating the respective roles and responsibilities regarding the environmental regulation of farm operations; and,

WHEREAS, the MDNR is statutorily and constitutionally charged with the responsibility for the control of the discharge of pollutants into the air, soils, and waters of the State, and the protection of natural resources of the State from pollution, impairment or destruction; and,

WHEREAS, the Agriculture Commission is statutorily charged with the responsibility for the development and definition of documents describing generally accepted agricultural and management practices for farm operations, hereinafter referred to as the practices;

WHEREAS, the Departments of Natural Resources and Agriculture and their respective governing commissions recognize the need to protect the air, water, and natural resources of the State from pollution, impairment or destruction while maintaining a viable farm industry; and,

WHEREAS, the MDA is the staff for the Agriculture Commission, with the expertise to determine conformance with the practices;

NOW, THEREFORE it is hereby understood that:

1. MDA shall:

a. inform the farm community of the practices, promote implementation of the practices, and provide educational and technical assistance to operators to implement the practices.

b. investigate pollution complaints to determine if a farm operation is operating in conformance with the practices. MDA will investigate and address all environmental issues alleged in the complaint and all contributing factors to environmental problems identified during the investigation. If the operation is not in conformance with the practices, MDA will attempt to bring the operation into conformance. If within a reasonable length of time as set forth in paragraph 1.D., MDA is unable to bring the operation into conformance, MDA will refer the operation to MDNR. MDNR has the authority to investigate pollution complaint(s) and take any necessary follow-up action. All referrals to MDNR shall include the information outlined in 1.e.

c. Upon receipt of a complaint, endeavor to identify if a potential emergency exists, and if so, conduct the site visit as expeditiously as possible. If upon receipt of a complaint or during the initial inspection, the MDA finds that an emergency situation exists (or existed), such as failure of a lagoon dike causing direct discharge to a surface water, MDA shall immediately notify MDNR, and follow-up with a written referral.

d. Attempt to obtain conformance with all applicable practices as follows: 1) Conduct site visit, determine level of conformance, provide written notification of activities necessary to achieve conformance, obtain agreement with the operator, and assist in securing technical assistance for the operator within 60 days of receiving the complaint. 2) If after 60 days, agreement is not reached with the operator, secure and conduct a meeting between the operator and a Commission of Agriculture "AG Team" within 120 days of receiving a complaint. 3) If after 120 days of receiving the complaint, the operator has not agreed to conformance with the practices, (or the activity resulting in the complaint has not otherwise been terminated), inform the MDNR as described in paragraph 1.E. MDA may request a one time 30 day extension for demonstrated cause. This request shall be in writing and indicate the specific reason(s) MDA considers the 30 day extension is necessary and why it is likely to result in achieving conformance with the practices. If MDA receives a number of complaints from the MDNR in a group, MDA may request, and the MDNR may agree upon a modified schedule of the above activities for that group of complaints.

e. If after MDA has followed the procedure outlined in paragraph 1.D., the farm operation has not implemented the necessary changes to be in conformance with the practices, the Agriculture Commission will inform the MDNR by written notification of the farm operation's non-conformance with the applicable practices. This notification shall include a description of the actions taken to achieve conformance and the MDA's observation of the impacts on surface water, groundwater, soil or air caused by the operation. MDA shall send MDNR copies of all information used in making the determination, and all correspondence with the operation including the names and telephone numbers of their respective contacts. Upon notification, MDA may request a meeting with appropriate MDNR staff to discuss the most effective approach to resolving environmental concerns at the operation. If MDA is unable to follow the procedures outlined in 1.d. due to denial of property access, the complaint will be referred to MDNR as described in this paragraph.

f. Inform the farm community that if the operation is referred to MDNR for follow-up action, MDNR will enforce the Air Pollution Act of 1965, P.A. 348, as amended, the Water Resources Commission Act of 1929, P.A. 245, as amended, and other appropriate environmental statutes and the rules promulgated under those statutes, and <u>not</u> the practices adopted by the Agriculture Commission.

g. Provide technical assistance to MDNR in any follow-up actions taken by MDNR, and provide testimony as necessary during administrative hearings or litigation regarding a farm operation.

h. MDA may involve other agencies, universities, and organizations including, but not limited to, Michigan State University, Cooperative Extension Service and Agricultural Experiment Station, local Soil Conservation Districts, and USDA Soil Conservation Service as appropriate to carry out their responsibilities insofar as MDA is authorized to delegate such responsibilities.

i. If MDA obtains an agreement to achieve conformance with all applicable practices, MDA shall assure implementation of the agreement by site inspection(s). The time period for inspection(s) shall be set forth in the agreement with the operator. Upon finding the farm operation to be in conformance with all applicable practices, MDA shall notify the farm operation in writing of its determination and report the status to the MDNR pursuant to paragraph 1.j.

j. Report quarterly to the MDNR on the status of all complaints not closed as of the beginning of the quarter. This report shall contain, at a minimum, the name of the operator, location of the operation, the date the complaint was received, the source of the complaint, resource affected, status of MDA activities to achieve conformance, time period for inspection and closure. A compliant shall not be considered closed for purposes of this report until MDA confirms implementation of agreed upon activities to obtain conformance or the activity which resulted in the complaint has been otherwise terminated.

2. MDNR shall:

a. Refer complaints regarding farm operations to MDA for a determination of whether the operation is in conformance with the practices and initial action to achieve compliance.

b. If an operation is determined to be in non-conformance with all applicable practices, allow MDA a reasonable length of time as described in paragraph 1.d. to bring the operation into conformance before taking any follow-up action.

c. Work cooperatively with MDA in attempts to obtain conformance with all applicable practices by: 1) providing expedited consideration of MDA requests for 30 days extensions as outlined in paragraph 1.d.; and, 2) if requested under paragraph 1.e., meeting with MDA staff to discuss the most effective approach to resolving environmental concerns at referred operations.

d. If MDNR finds that an emergency situation exists, such as failure of a lagoon dike causing direct discharge to a surface water, the MDNR shall immediately take action necessary to halt the discharge and notify MDA of the action taken. MDNR shall report quarterly to MDA on pollution emergencies confirmed at farm operations. This report shall contain at a minimum, the name of the operator, location of the operation, the date the complaint was received, and the status of the remedial activities.

e. Investigate cases for which MDNR has received notification pursuant to paragraph 1.e. and take any necessary follow-up actions. MDNR shall notify MDA of any follow-up actions. MDNR shall notify MDA when the operation has achieved compliance with the applicable MDNR regulations. Upon MDNR verification of compliance with applicable MDNR regulations, additional complaints filed against the farm operation will be addressed by MDA as conditioned by this memorandum. In the event that additional complaints are received prior to MDNR verifying compliance with the initial complaint, MDNR may request a meeting with appropriate MDA staff to discuss the most effective approach to resolving additional environmental concerns at the farm operation.

f. Determine which operations require air emission permits pursuant to the Air Pollution Act, P.A. 348 of 1965 as amended, or discharge permits pursuant to the Water Resources Commission Act, P.A. 245 OF 1929 as amended.

g. MDNR follow-up actions may include, but are not limited to: investigations, sampling, correspondence, notices of non-compliance or violation, compliance orders, monetary penalties, permit issuance, permit revocation, and litigation.

h. Provide technical assistance to MDA in an effort to bring an operation into conformance with the practices. Provide testimony as necessary during administrative hearings or litigation regarding a farm operation.

3. All official requests for assistance from MDA on referrals and/or inspections should be made to the Right to Farm Program Manager. The appropriate MDA Regional Supervisor and inspector will be contacted by MDA.

4. All official requests for assistance from MDNR on referrals and/or inspections should be made to the MDNR Regional Supervisor for the appropriate division as specified in Attachment B.

5. This memorandum recognizes these related regulations and authorities:

a. Dead animal disposal. The disposal of dead animals is regulated under Michigan Public Act 328, Public Acts of 1931, and Act 239 of 1982 as amended. These statutes are enforced by local law enforcement officials.

b. Open burning. Open burning of manure, used chemical containers and other wastes is regulated under Act 348, Public Acts of 1965 as amended. This act is enforced by the Michigan Department of Natural Resources. Many local county and township ordinances also regulate open burning.

c. Manure spilled on public roadways. Manure spillage that interferes with other traffic is prohibited under the Michigan Penal Code (MCL 257.720). The vehicle code is enforced by local law enforcement officials.

d. Land application of non-farm organic wastes and residues. The land application of such wastes is regulated under the Michigan Water Resources Commission Act, Public Act 245 of 1929 and/or the Michigan Solid Waste Management Act, Public Act 641 of 1978 as amended. These Acts are administered by the Michigan Department of Natural Resources.

e. Pesticide misuse. Pesticide misuse complaints are addressed by the Michigan Department of Agriculture as authorized by the Michigan Pesticide Control Act, Public Act 171 of 1978 as amended.

The MDA, MDNR, Agriculture Commission and Natural Resources Commission agree to exercise their respective responsibilities, as specified herein, for the purpose of protecting the air, water, and natural resources of the State from pollution, impairment or destruction while maintaining a viable farm industry.

APPROVED:

MR. BILL SCHUETTE, DIRECTOR
DEPARTMENT OF AGRICULTURE

Date: 3/2/93

APPROVED:

MR. DAVID CRUMBAUGH, CHAIR
AGRICULTURE COMMISSION

Date: 3-2-93

APPROVED:

MR. ROLAND HARMES, DIRECTOR
DEPARTMENT OF NATURAL RESOURCES

Date: MAR 01 1993

APPROVED:

MR. LARRY DEVUYST, CHAIR
NATURAL RESOURCES COMMISSION

Date: MAR 01 1993

Appendix B

MODEL ORDINANCE FOR MANAGING FERTILIZER APPLICATION TO PROTECT WATER QUALITY

Developed for West Bloomfield Township by Jerry Fisher of
Secrest, Wardle, Lynch, Hampton, Truex & Morley

ARTICLE II. MANUFACTURED FERTILIZERS

Sec. 14.5-11. Intent and purpose.

a) Based upon scientific studies and general knowledge, the _____ has determined that certain compounds containing nitrogen and phosphorus which are contained in manufactured fertilizers, when used within the _____, enter into the _____'s water resources, including wetlands and watercourses, resulting in excessive and accelerated growth of algae and aquatic plants (eutrophication) which is detrimental to such resources. Therefore, the _____ has determined it necessary and appropriate to regulate the rate and application of manufactured fertilizers.

b) It is the intent of this article to regulate the application of manufactured fertilizers on turf areas and not on or in areas such as gardens, farms, or landscape amenities.

c) It is also the intent of this article to implicitly recognize that mature topsoil has sufficient compounds such as phosphorus which occur naturally to promote adequate turf root growth.

It is the further purpose and intent of this article to require licensure of commercial and institutional applicators of manufactured fertilizers within the _____.

Sec. 14.5-12. Definitions.

In the interpretation of this article, the following definitions shall apply:

COMMERCIAL APPLICATOR: Any individual or entity who applies manufactured fertilizer in the _____ in exchange for money, goods, services, or other valuable consideration.

DEPARTMENT:

DIRECTOR: The director of the department.

INSTITUTIONAL APPLICATOR: Any individual or entity who applies manufactured fertilizers for the purpose of maintaining turf areas of more than one (1) acre. Institutional applicators shall include but shall not be limited to, owners, operators, and caretakers of golf courses, public lands, schools, parks, religious institutions, utilities, industrial or business sites and any residential properties maintained in condominium and/or common ownership. Owners of individual parcels in single-family residential districts shall not be considered as institutional applicators.

MANUFACTURED FERTILIZERS: A commercially manufactured substance which enriches the soil containing elements essential for turf growth, being primary nitrogen, phosphorus, and potassium.

TURF: A covering of grass vegetation which has both aesthetic and functional benefits maintained at a given level of management.

Sec. 14.5-13. Construction of article

This article shall be liberally construed in favor of protecting the water resources of the _____, including watercourses and wetlands.

Sec. 14.5-14. Rates and application schedule; prohibitions.

The following regulations shall apply for turf applications of manufactured fertilizers:

1) Manufactured fertilizers shall not be applied more than once every six (6) weeks or more than five (5) times during any one (1) calendar year to any turf area.

2) Application of manufactured fertilizers shall not be permitted prior to April 1 nor after November 15 in any year (due to the inability of frozen soil to absorb nutrients).

3) Manufactured fertilizers shall not be applied to sidewalks, streets, driveways, or other nonturf or nonlandscaped areas unless removed within a period of two (2) hours.

4) In view of the specialized needs of golf course turf areas, the application schedules set forth in subsection (1) above shall not apply to golf courses. Golf courses shall conform to the permissible rates specified in subsection (5). New greens and tees on golf courses shall be allowed a greater amount of annual rate of fertilizer than permitted permissible rates will be exceeded is given to the department prior to or immediately following the initial application of manufactured fertilizer to the green or tee area, which notice shall contain the intended schedule and rates for the two year exemption period. Written notice of any changes or deviations from the intended schedule and rates shall be given to the department.

5) Individuals who are not commercial or institutional applicators shall use their best efforts to conform with the following rates and applications. Commercial applicators and institutional applicators shall apply manufactured fertilizer only at the lowest rate necessary without exceeding the maximum weight per application. Section 14.5-22 is intended to assist all applicators in making the determination necessary to comply with these maximum rates.
    a. Nitrogen (n). Element nitrogen shall be applied at the maximum of three and one-half (3 ½) pounds per one thousand (1,000) square feet of turf area per year. Single applications of elemental nitrogen shall not exceed one (1) pound per one thousand (1,000) square feet of turf area.
    b. Phosphorus (p). Elemental phosphorus shall be applied at the maximum rate of seven-tenths (0.7) pound per one thousand (1,000) square feet of turf area per year. Single applications of elemental phosphorus shall not exceed one-quarter (0.25) pound per one thousand (1,000) square feet of turf area.

c. Potassium (K). Concentration of potassium is not regulated under this article.

Sec. 14.5-15. Administrative relief.

a) All applicators desiring to apply manufactured fertilizers more frequently than permitted in subsection 14.5-14(1) or in amounts exceeding the quantities prescribed in this article may seek administrative relief in accordance with this section.
b) An applicator desiring to seek administrative relief under this section shall file an application with the department of the form approved by the _____ board.
c) A soil sample or samples shall be taken from the site on which an applicator is proposing to apply manufactured fertilizers in amounts exceeding the quantities prescribed in this article. Such soil samples shall be taken by the director or his designee and forward to the County Extension Service for analysis. Following completion of the analysis, the results shall be reviewed by the director or the director's designee.
d) Approval or denial of the application shall be determined by the director as expeditiously as possible, but in no event later than five (5) days after receipt of the soil analysis, taking into consideration the following criteria:
    1) Anticipated environmental impact upon surrounding water resources.
    2) Permeability of soils and topographic conditions of the site.
    3) Conditions of stormwater management systems and ability of the system for nutrient uptake.
    4) Percentage of the site allocated to impervious surface.
    5) Necessity demonstrated by the application with regard to the turf management requirements of the site.

Sec. 14.5-16. Special regulation for wetlands and watercourses.

Manufactured fertilizers shall not be permitted within any wetland, watercourse, or fringe area as defined in _____. The _____ board may impose additional requirements of prohibitions with regard to the rate, area, and applications of manufactured fertilizers for the purpose of protecting wetlands, watercourses, and fringe areas.
(Ord. No. C-310, § 1(6), 4-15-91

Sec. 14.5-17. Licensure requirement and procedure.

a) All commercial and institutional applicators shall be licensed in good standing by the _____ prior to applying manufactured fertilizers on any lands in the _____.
b) A license issued under this article shall be valid until expiration, suspension, or revocation.
c) To secure a license, a commercial and/or institutional applicator shall complete and submit to the _____ clerk a license application. Previously licensed applicators shall submit their application shall include the following:
    1) Legal and business name(s), address, telephone number and contact person of applicant
    2) Name (if applicable), address, and description of institutional applicator property, including the use, area, and dimension of the property.

3) A copy of the applicant's material safety data sheets (MSDS) may also be required as park of the license application.
4) The product name or names of manufactured fertilizers to be used, including the percentage weight and ratios of elemental nitrogen and elemental phosphorus.
5) A description of the vehicles, including trailers, which will be used by the applicator during the license period to apply manufactured fertilizer to turf areas in the _____, which shall include to make, model, year, and weight of the vehicle; the size of any manufactured fertilizer tanks; the vehicle identification number; the license plate/registration number assigned by the Michigan Secretary of State and any other registration or identification numbers assigned by other state or federal governmental agencies.

d) Upon submission of an application to the clerk, the applicant shall pay the fee according to the schedule established by resolution of the _____ board, which fee schedule shall be calculated to cover the license review, issuance and periodic field inspection.
e) The clerk shall forward the completed application to the department for determination whether the manufactured fertilizers to be used comply with the provisions of this article.
f) The application shall be approved or denied within thirty (30) days by the department, and if approved:
    1) A numbered license shall be issued, to expire on the next day immediately following November 15.
    2) A sticker or decal for each vehicle disclosed in the application under subsection (c) (5) shall be issued, which shall immediately be permanently affixed by the licensee tot he inside lower left corner of each vehicle's windshield.
g) The _____ clerk shall maintain a current list of all licensed commercial and institutional applicators.
h) A licensee shall notify the department in writing of any changes in the information disclosed in the license application. Additional vehicles shall not be used to apply manufactured fertilizer to turf areas in the _____ until a sticker or decal for that vehicle has been used and permanently affixed to the vehicle windshield as provided in subsection.

Sec. 14.5-19. Inspection and license revocation.

a) The _____, through the department and _____ enforcement officer, shall monitor for conformance with this article and shall be permitted to conduct periodic spot checks on all commercial and institutional applicators for such purpose.
b) Should a commercial or institutional applicator be found to be in violation of this article, the _____ board, following notice, and an opportunity of the licensee to be heard, shall have the right to revoke a license for a period of up to one (1) year. If a commercial or institutional applicator is found to be in violation of this article on more than one (1) occasion, in any one (1) calendar year, the _____ board shall revoke the license of such applicator for a period of not less than one (1) calendar year by not more than five (5) calendar years.

Sec. 14.5-21. Calculations for proper application.

In order to determine permitted rates under this article, the following calculations reference the proper application levels per one thousand (1,000) square feet of lawn area:

1) Methodology for determining the greatest amount (in pounds per one thousand [1,000] square feet) of manufactured fertilizer allowable in accordance with this article:
    a) The three-number ratio given on the manufactured fertilizer bag represents the percent ratio for nitrogen, phosphorus, and potassium for any given manufactured fertilizer weight.
        Example: 29-3-4 mean 29% nitrogen, 3% phosphorus, and 4% potassium.
        NOTE: The third number may be disregarded, since potassium is not regulated in this article.

    b) To determine the maximum amount (in pounds per one thousand [1,000] square feet) of applied manufactured fertilizer allowed annually, divide 3.5 (the maximum amount of nitrogen allowed) by the first number in the ratio (percent nitrogen) and then multiply by 100.
        Example: 3.5 divided by 20 = 0.121
        0.121 multiplied by 100 = 12.1 pounds

    c) Compare the number of pounds as determined from the percent nitrogen with the number of pounds as determined by the percent phosphorus. The smaller weight represents the maximum amount of manufactured fertilizer that shall be used.
        Example: The sample problem above gave 12.1 pounds and 23 pounds as the maximum quantities of manufactured fertilizer. Using 12.1 pounds of manufactured fertilizer ensures that neither phosphorus nor nitrogen will exceed the allowable annual application rates described in this article. If 23 pounds were used, the amount of nitrogen would exceed its limits of 3.5 pounds per one thousand (1,000) square feet of turf area.

    d) To convert the maximum allowable pounds per one thousand (1,000) square feet per year into the maximum allowable pounds per one thousand (1,000) square feet per application, divide the pounds per year by the number of applications per year.
        Example: 12.1 pounds per year divided by 5 applications = 2.4 pounds per 1,000 square feet per application

EXAMPLES OF MANUFACTURED FERTILIZERS SELECTIONS

Annual Application (lbs. per 1,000 sq. ft.)		*Possible Fertilizer Analysis*	*Maximum Amount of Fertilizer Allowed**
N (Nitrogen)	*P (Phosphorus)*		*(lbs. per 1,000 sq. ft.)*
3.5	0.7	35-7-X	10
3.5	0.3	35-3-X	10
3.4	0.3	35-3-X	10
3.3	0.4	30-4-X	11
3.5	0.4	29-3-X	12
3.4	0.5	28-4-X	12
3.4	0.4	28-3-X	12

Numbers are rounded to the highest whole number permissible by this article.
X - Does not apply to this article.

2) Methodology for determining how many square feet of turf can be covered by a given bag of manufactured fertilizer:
    a) To determine the total pounds of nitrogen in a given bag of manufactured fertilizer, multiply the percent ratio of nitrogen (the first number) by the total bag weight. Then divide by 100.
        Example: If you have a 12-pound bag of manufactured fertilizer with a 28-4-X ratio, the equation would be as follows:

        28 multiplied by 12 = 366
        366 divided by 100 = 3.36 or rounded 3.4 total pounds of nitrogen

    b) To determine the total number of square feet that can be treated by the nitrogen in the given bag of manufactured fertilizer, divided by the total pounds of nitrogen by 3.5 (the maximum amount of nitrogen allowed). Then multiply by 1000.
        Example: 3.4 divided by 3.5 = 0.97
        0.97 multiplied by 1000 = 970 square feet can be treated by nitrogen

    c) To determine the total pounds of phosphorus in a given bag of manufactured fertilizer, multiply the percent ratio of phosphorus (the second number) by the total bag weight. Then divide by 100.
        Example: 4 multiplied by 12 = 48
        48 divided by 100 = 0.48 or rounded 0.5 total pounds of phosphorus

    d) To determine the total number of square feet which can be treated by the phosphorus is the given bag of manufactured fertilizer, divide the total pounds of phosphorus by 0.7 (the maximum amount of nitrogen allowed). Then multiply by 1000.

Example: 0.5 divided by 0.7 = 0.71
0.71 multiplied by 1000 = 710 square feet can be treated by phosphorus

e) Compare the total square feet that can be treated by the nitrogen and the total number of feet that can be treated by the phosphorus. The larger number of square feet represents the amount of square feet to be covered by the bag of manufactured fertilizer. This ensures that neither the phosphorus nor the nitrogen will exceed the limits outlined in this article.

Example: If you apply the manufactured fertilizer to 970 square feet, both nitrogen and phosphorus fall within their minimum limits of application. However, if you apply manufactured fertilizer to only 710 square feet, then the nitrogen is not being applied to a large enough area (970 square feet). Therefore, the nitrogen exceeds the limits specified in this article.