A Citizen's Guide to the Water Quality Improvement Act of 1998

Introduction

The Maryland General Assembly passed the Water Quality Improvement Act (WQIA) of 1998 during the closing hours of the recent session. The WQIA has been described as the most comprehensive farm nutrient control legislation in the country. What is it? Why was it passed? What does it do and what doesn't it do? How should farmers and others who will be regulated under the Act be involved and prepared to operate successfully under the WQIA?

Complete answers to these important questions will evolve as regulations are developed. However, many things can be determined from the language of the WQIA that can help interested parties better understand the Act and their possible role in developing and implementing programs and regulations created by the Act. This booklet is intended to provide a comprehensive explanation of the Act. It must be understood that many questions cannot be answered at this time.

Laws provide the framework or guidance for a set of legal requirements. The details and specifics are developed through regulations and programs. About 15 sets of regulations must be modified or created and nearly a dozen programs must be expanded or initiated under the WQIA.

Citizens, particularly farmers, should seek an active role in developing regulations and programs. Regulation development must follow strict State guidelines that require public notice, a public comment period and, if warranted based on comment, public hearings.

Stakeholder organizations and advisory groups (see section on Nutrient Management Advisory Committee below) are usually given some opportunity to review pre-public notice drafts. This review can be the best opportunity to assure balanced and functional regulations. Interested individuals and organizations need to stay well informed and involved during regulation development. The regulations will determine how the Act is implemented.

Interpretation during regulation development might change some of the discussion that follows. As a result, the College of Agriculture and Natural Resources at the University of Maryland is committed to providing quarterly updates on development and implementation of the programs, regulations, and activities that support the WQIA. Readers must recognize that this material is dated and should look for supplements or updates on a regular basis.

The Maryland Department of Agriculture (MDA) is required to notify all farmers of the requirements of the WQIA. This booklet is not intended to replace or supersede the required notification. It is intended to provide detailed information on the Act and opportunities for involvement in development of programs and regulations. It is also intended to provide a broader understanding of provisions of the Act.

History of the Water Quality Improvement Act of 1998

Most Marylanders are familiar with events leading to passage of the WQIA, but a brief history is warranted. On September 15, 1997, Governor Parris N. Glendening appointed the Citizens' Pfiesteria Action Commission, chaired by former Governor Harry Hughes, to study events surrounding the Pfiesteria outbreaks on the Lower Eastern Shore and to recommend policy actions to the Governor.

The Commission issued its report on November 3, 1997, and, as discussed below, it formed the basis for the Governor's legislative package. A key finding was a probable link between Pfiesteria populations (not toxicity) and nutrient overenrichment. This consensus, developed by an independent group of marine scientists, was adopted by the Commission and guided its recommendations. At the same time, a group of agricultural scientists concluded that dissolved phosphorus in runoff can be high, even without erosion, on soils with excessive soil test phosphorus levels. This finding caused the Commission to place a higher emphasis on phosphorus in nutrient management planning.

On January 21, 1998, the Governor introduced the Water Quality Improvement Act of 1998 in the Senate, largely following the recommendations of the Citizens' Pfiesteria Action Commission. The bill contained many requirements, new programs, and associated budget initiatives. The most controversial included mandatory nitrogen- and phosphorus-based nutrient management plans to be developed by 2000 and implemented by 2002.

Although consistent with the recommendations of the Citizens' Pfiesteria Action Commission, this bill was a clear and major departure from the State's long-term emphasis on voluntary agricultural nutrient pollution control programs, which was the cornerstone of Maryland's Chesapeake Bay Tributary Strategies. The bill created a great deal of controversy among farmers, poultry processors, environmental groups, Tributary Teams, and many others.

A group of rural legislators introduced a countermeasure in the House near the end of January 1998—the Nutrient Management Improvement Act of 1998. This bill maintained a voluntary nutrient management approach with incremental goals, resulting in 80 percent of all farmland under nutrient management by 2005. It was amended in committee to require all farms to have nitrogen-based plans by 2003 and nitrogen- and phosphorus-based plans by 2006. The bill was passed by the House in early March 1998.

The Governor's bill was amended to require nitrogen-based plans by 2002 and nitrogen- and phosphorus-based plans by 2004. This bill was passed by the Senate in early March 1998. Both bills were amended to include a religious exemption and to restore State soil conservation staff to the 1991 level of 110 from the current level of 62.

The bills were sent to a conference committee. Since both bills now required mandatory nitrogen- and phosphorus-based nutrient management, debate during conference focused heavily on compromise dates. Penalties, compliance, enforcement, and the mandatory use of phytase remained contentious issues in conference. On Monday, April 13, 1998, the last day of the Session, the House approved the Act unanimously and the Senate voted 39 to 7 in favor of the Act. The Governor signed the Act on May 12, 1998.

The Water Quality Improvement Act of 1998

The most far-reaching requirement of the WQIA is that all agricultural operations with annual incomes greater than $2,500 or more than eight animal units (one animal unit equals 1,000 pounds live weight) must have and implement a nitrogen- and phosphorus-based nutrient management plan by a prescribed date. The Act requires that anyone "who, in operating a farm, uses chemical fertilizer" must have a nitrogen- and phosphorus-based plan by December 31, 2001, which must be implemented by December 31, 2002.

Persons using sludge or animal manure must have and have implemented nitrogen-based plans by the same dates as those using commercial fertilizers. Those using sludge or animal manure have until July 1, 2004, to submit a nitrogen- and phosphorus-based nutrient management plan, which must be implemented by July 1, 2005.

Definition of what constitutes "chemical fertilizer" versus "sludge or animal manure" will have to be defined by regulation. The commercial fertilizer dates apply to those who predominantly or solely depend upon commercial fertilizers for nutrients. The sludge and animal manure dates were intended to apply to those who obtained a substantial portion of their nutrients from organic waste.

Clearly, most farmers who use sludge and animal waste also use some commercial fertilizer. The regulations probably will not allow

farms that predominantly use commercial fertilizer, with only minor or token use of organic waste, to wait until the later date for addressing phosphorus.

Farmers using animal manure might need to find alternative uses for part or all of it, and sludge application could require a much larger land base. Alternative use technologies, distribution systems, and methods to reduce available phosphorus in organic waste must be refined and implemented. State strategies, programs, and cost-share to enable this will be discussed below.

The later date for organic waste reflects concerns over the time needed to refine and implement these solutions. Because of the ability to blend balanced commercial fertilizers, time was not considered to be as much of an issue for commercial fertilizer users.

Who must comply?

As stated earlier, any agricultural operation with more than $2,500 gross annual income or eight animal units must comply. This legislation applies to all traditional farms, not just poultry or livestock. It would also appear to apply to many alternative agricultural operations (e.g., vegetable growers, organic producers, nurseries, green houses, turf grass producers, and certain horse farms).

An exact definition will be developed by regulation. Language in the Act clearly and directly includes sludge or biosolids application to agricultural lands.

How do I obtain a nutrient management plan that meets these requirements?

This process should not change from the current system. Plans must be developed by a nutrient management consultant certified by the MDA. Certified consultants are located in every Maryland Cooperative Extension (MCE) county office and private sector consultants are available through independent crop consulting firms and farm supply/fertilizer companies. Additional funds were provided in this year's budget to hire additional nutrient management consultants through MCE.

Cost-share of 50 percent of the actual cost, up to $3 per acre, is available for farmers who wish to hire private nutrient management consultants to develop their plans. However, if a person receives cost-share for development of a nutrient management plan for chemical fertilizer or for sludge and animal waste based on nitrogen, "the person shall implement the plan upon completion of the development of the plan." Therefore, implementation is required when the plan is written, not by the deadline of December 31, 2002.

What happens if a plan cannot be completed by the required date?

If an individual requests development of a plan more than 60 days before the applicable date to submit a plan for their operation, they will be considered to have met the deadlines for plan development. However, it is important to note that this does not apply to implementation of the plan. While you can obtain an extension for submitting a plan, the dates for implementing the plan do not change.

Is there a religious exemption in the Act?

A religious exemption is only developed if it is requested. A person or religious organization must show that the requirements of the Act "conflict with the bona fide religious beliefs and practices" of people subject to the Act.

How will the plans be filed and evaluated?

All nutrient management plans developed are subject to the Act, and all plan revisions must be filed with the MDA. MDA will maintain a copy of each plan for 3 years. The plans must be maintained "in a manner that protects the identity of the individual for whom the plan was written." Thus, the plans are considered part of a farmer's business records and are therefore provided confidentiality.

MDA will conduct on-farm evaluations of the implementation of the nutrient management plan. Maryland Department of Environment (MDE) was not given a direct role in the Act, but can be called in when there is evidence of a water quality violation.

When a nutrient management plan is submitted, it must include a "grant of a right of entry" to MDA to evaluate compliance with the nutrient management plan. Evaluations must be

done during daylight hours and the farmer must be given the opportunity to be present. The Act also requires that evaluations be done in a manner that minimizes inconvenience to the farmer.

What happens if someone does not submit a plan?

MDA will notify individuals who do not submit plans by the applicable date. If, "after a reasonable period of time" following notification, no plan is submitted, the individual can be fined up to $250. This fine is in addition to any fines associated with failure to implement a plan.

What happens if someone does not implement a nutrient management plan by the required dates?

If someone does not implement their plan, they will initially be given a warning that they are violating the Act. Although not specified in the Act, it is likely they will be advised how to obtain technical and financial assistance. If they still do not implement the plan, they will be offered an opportunity for an administrative hearing after which they can be fined up to $100 per violation, not to exceed $2,000 per year. In these cases, each day is considered a separate violation. However, the Act specifically states that fines do not continue to accrue if a farmer is taking reasonable steps to implement the plan.

Penalties are paid to the Maryland Agricultural Water Quality Cost-Share Program, which provides cost-share to farmers for implementation of conservation Best Management Practices (BMPs).

In addition to the fines, MDA may require repayment of cost-share funds for projects that are in violation and may deny or restrict eligibility for future cost-share. MDA must consider willfulness, recurrence, availability of technology, and actual harm to humans or the environment in assessing fines and restrictions. MDA is given full authority to determine compliance with the Act.

What is a phosphorus-based nutrient management plan?

The Act specifies that nutrient management plans consider both nitrogen and phosphorus application rates. Recommendations have always been made for both nitrogen and phosphorus application based on soil and crop information. However, when animal manures or sludge were applied, the amount of recommended materials was based on crop nitrogen needs. This practice resulted in substantial over-application of phosphorus.

Previously, it was thought that if you controlled erosion, you controlled phosphorus loss, so there was little concern about phosphorus loss if good conservation practices were followed. Recent research has shown that dissolved phosphorus in runoff can be high, even without erosion, on soils with excessive soil test phosphorus levels.

This finding is the reason the Act requires that nutrient management plans be balanced for both nitrogen and phosphorus. The Act identifies what must be considered in a plan, but does not specify what constitutes a phosphorus-based plan. This process will be determined during regulation development, but is not as straightforward as it might seem.

There are at least three approaches to phosphorus-based plans. The simplest would be to directly follow soil test recommendations. This approach assumes that agronomically and environmentally important phosphorus levels are the same, which does not appear to be the case. This approach would greatly restrict phosphorus application on soils with optimum to slightly excessive levels without considering other site-specific factors that control phosphorus loss.

The second approach would be to establish "critical" soil test values that limit phosphorus application. In this scenario, a level might be established at which only as much phosphorus as the crop removes could be applied, while for soils at some higher level no additional phosphorus could be applied.

Agricultural scientists have objected to both of these approaches since their research suggests that many site-specific factors influence the potential for phosphorus loss. These scientists have proposed the use of a "Phosphorus Site Index."

A generalized national index has been developed and is currently being adapted by the University of Maryland for possible use in Maryland. It evaluates slope, runoff potential, proximity to surface water, soil phosphorus levels, and fertilizer/manure application rates and

methods. The scientific community feels that site-specific assessments using this tool provide the most comprehensive evaluation of potential environmental impacts without restricting phosphorus application to low risk sites.

During legislative conference, there was considerable discussion of a phosphorus index, but the Act does not specify what to use to develop a phosphorus-based plan. The Act does request that the Governor support research to develop a phosphorus index.

What is the Nutrient Management Advisory Committee?

The Nutrient Management Advisory Committee was established in 1992 under the statute that created the nutrient management certification program. The Committee advised MDA during the development of nutrient management certification regulations, training materials, and exam. Since then, the Committee has worked with MDA to implement the nutrient management certification program. The WQIA greatly expands the responsibility of this committee.

Previously, fertilizer/crop consultant representatives, agricultural agency personnel, and University of Maryland soil fertility specialists were the principal participants on the committee. Although invited, farmers and environmental groups had limited participation. This was not inappropriate when the focus was to train and certify consultants. The WQIA gives this committee major advisory and reporting responsibilities for several programs.

The Act also added representation from county governments, and commercial lawn care, biosolids, and agricultural fertilizer industries. One member from the Maryland House and one from the Senate will also be appointed to the committee.

The statute continues to require representation from the agricultural and environmental communities, academia, and appropriate government units. "Industry" was deleted from the statute after the specific ones named above were added. Unlike many advisory groups, the size and number from each sector are not defined in the Act. MDA will increase the involvement of various agricultural commodity perspectives. It is important that farmers and environmentalists participate on the committee.

The Nutrient Management Advisory Committee is required to report to the Governor and General Assembly by July 1 of each year on the implementation of WQIA requirements. The report must include the level of participation in the nutrient management program and the need for additional resources to meet WQIA goals. It will also evaluate the effectiveness of the nutrient applicator educational program and the pilot poultry litter transport program (discussed below). The report will include an evaluation of the economic impact to farmers if the transport program was to be eliminated.

In addition to the report, MDA is required to consult with the advisory committee as it develops regulations to describe the criteria, form, and content of nutrient management plans and to define continuing education requirements for consultants and persons needing educational vouchers for nutrient application. The Committee is also expected to advise MDA on regulations being developed to implement the WQIA. The Act makes this advisory committee very important to agricultural and environmental interests in Maryland.

Does the WQIA change what is in the nutrient management plan?

The basic components of nutrient management plans will remain the same. Obviously, there will be more emphasis on phosphorus, particularly where sludge or animal manures are used.

The Act does add some factors that must be considered in the development of nutrient management plans. These factors include the level of "bioavailable" nitrogen and phosphorus in soils and in all fertilizer materials applied. "Bioavailable" is intended to mean the portion of the total nutrient that is available for plant use. This interpretation could be important in determining what proportion of the total phosphorus needs to be considered for sludge and possibly animal manure applications. Bioavailability will need to be defined by regulation.

Plans must also consider the amount of nitrogen and phosphorus needed to achieve expected crop yields as determined by actual yield records and soil productivity for that crop. If this information is unavailable, relevant information from similar fields and soils must be used.

"Soil erodibility and nutrient retention capacity" must also be considered and will need to be defined by regulation. It is unclear what measure of "nutrient retention capacity" would be appropriate for nitrogen or phosphorus. Application of the phosphorus index, as discussed earlier, could provide a mechanism to estimate the ability of sites to retain phosphorus.

Existing BMPs must also be considered in plan development, and might be used to give an overview of efforts to control nutrient losses. It is unclear how BMPs will be used; this must be defined by regulation.

Finally, the Act requires that plans consider "the best reasonable scientific methods accepted by the MDA and Maryland Cooperative Extension." While all nutrient management should be science-based, this language gives Maryland Cooperative Extension a significant role in assuring the most appropriate science is considered.

What are the requirements for nutrient application?

Anyone who applies nutrients for hire must either be a certified nutrient management consultant or work under the supervision of a certified consultant. A person applying nutrients for hire who is not certified must provide documentation to the farmer that he works for a certified consultant. Most, if not all, fertilizer and sludge application companies have certified consultants, so this requirement should not interfere with routine fertilizer or sludge application. The requirement does apply to animal waste so companies involved in application of animal manures must have a certified consultant.

This requirement could also have an impact on farmers and others who do custom planting. Some fertilizer is usually applied at planting, so it would appear that custom planters using starter fertilizer would need to be certified or work under the supervision of a certified consultant. Specifics regarding this requirement will be developed by regulation.

Those who apply fertilizer material to land they own or manage as part of routine farming operations must complete a continuing education course on nutrient application every 3 years. These requirements will be defined by regulation.

MDA, in consultation with the Nutrient Management Advisory Committee, will create or approve educational programs that meet these requirements. The programs will likely deal with equipment calibration and application rate measurement, and could be offered as part of other training programs. The educational programs must be offered throughout the State. Those required to participate will get a voucher and MDA will maintain a registry of participants.

Are other agricultural Best Management Practices affected by the WQIA?

The WQIA principally focuses on the application of all sources of nutrients to land. The only impact on other BMPs would be if a violation of the Act resulted in repayment of cost-share or denial of future cost-share.

Agricultural erosion and sediment control and animal waste storage and handling remain extremely important voluntary practices. The Conservation Reserve (Enhancement) Program, riparian buffers, treatment of highly erodible land, and other conservation programs continue to be important and voluntary. This Act does not affect any of these programs.

Do poultry companies have to use phytase?

By December 31, 2000, all contract feed for chickens "must include phytase or some other enzyme or additive that reduces phosphorus to the maximum extent that is commercially and biologically feasible." The date for this requirement was changed in the final Act from the beginning to the end of 2000.

MDA must monitor compliance with this requirement. If the Secretary of Agriculture determines this requirement has a significant negative impact on either poultry production or the poultry market, he can "suspend the program for a reasonable period of time" or "recommend to the General Assembly that the requirement be modified or terminated." MDA must consult with the Delmarva Poultry Industry, Inc., Maryland Farm Bureau, and the University of Maryland Animal and Avian Sciences Department in writing regulations for this requirement and in determining negative impacts.

Are there any requirements for non-agricultural nutrient use?

Anyone who applies nutrients to property of 3 or more acres for nonagricultural purposes (lawns, gardens, beds, etc.) or to any State property must do so in a manner consistent with the recommendations of Maryland Cooperative Extension. MDA will have to develop regulations that incorporate these recommendations.

It appears that private property owners who apply nutrients to more than 3 acres of nonagricultural land would be subject to this requirement. There is no delay for implementation, so this requirement will take effect once regulations are approved.

Fines for violation of this requirement are up to $1,000 for the first violation, and $2,000 for subsequent violations, up to $10,000 per year for violations associated with "the same facts and circumstances." Willfulness, recurrence, impact on humans or the environment, and availability of technology are considered in assessing fines. Each day is a separate violation and penalties go to the State general fund. MDA is responsible for developing regulations and determining compliance with these requirements.

What new programs have been developed to help implement WQIA?

Pilot poultry litter transport program. This program is a joint project between the State and poultry processors. It will provide cost-share, up to $20 per ton, to offset the cost of transportation and handling of poultry litter from farms with excess. Poultry farms anywhere in the State are eligible for the program, but the goal is to remove 20 percent of the poultry litter produced by Maryland's four Lower Eastern Shore counties.

Litter must be transported for use on land "having the capacity to hold additional phosphorus," which will need to be defined by regulation. Cost-share can also be obtained for transport to sites for other environmentally acceptable uses, such as composting.

The State and poultry processors are each expected to provide $750,000 for this project in fiscal year 1999. The State is committed to match funds provided by poultry processors for a 4-year period.

Poultry Litter Matching Service. MDA will establish a service linking farmers with excess litter with nearby farmers who can use litter as a nutrient source. This service will build on the existing Delmarva Poultry Industry Program and support the pilot transport program.

Animal Waste Technology Fund. This fund was established in the Department of Business and Economic Development to provide support for research and development of technologies to reduce nutrient content of animal waste, alter the composition of animal waste, or develop alternative animal waste utilization processes. The fund can provide grants, loans, loan guarantees, or equity investments.

Eligible projects must have strong potential to improve public health and the environment, preserve the viability of agriculture, and have a positive economic impact in the State. Funding will be competitive based on the above considerations. $1.3 million has been allocated to the fund for this year, with $350,000 targeted to support the addition of the phytase enzyme to feed.

Tax Credit for Additional Fertilizer Costs. It is likely that some individuals will have to reduce or eliminate their use of animal manures as a fertilizer source to comply with their nutrient management plan and will have to purchase additional fertilizer, particularly nitrogen.

The Act allows for a State tax credit equal to 50 percent of the additional cost of fertilizer up to $4,500 per year for up to 3 consecutive years. Individuals and corporations are eligible for the credit starting in tax year 1998. If the credit exceeds the total tax for the year, the excess may be applied to subsequent tax years until the excess is used, or by the fifth succeeding tax year. The credit must all be used by the end of tax year 2008.

To qualify for the credit, an individual or corporation must receive a statement from MDA certifying: 1) that a nutrient management plan has been filed as required by the WQIA, 2) that the additional fertilizer costs are necessary to implement the required plan, and 3) the amount of credit the individual or corporation is eligible to take that tax year. Certification is required for each year of eligibility. The individual or corporation must file the MDA certification with their taxes as prescribed by the Comptroller.

Tax Deduction for Purchase of Manure/Litter Spreading Equipment. A person who purchases equipment to spread poultry litter with the capacity of being calibrated to 1 ton per acre, or to spread solid or liquid livestock waste, may deduct 100 percent of the purchase price in the year of purchase from their State taxable income. The person must have purchased the equipment during tax year 1998 or later and must own the equipment for at least 3 years after the tax year in which the deduction is made. If the deduction exceeds the Maryland taxable income prior to the deduction, the excess may be carried over for up to 5 succeeding tax years. This deduction is much like the current tax deduction for conservation tillage equipment.

Technical Assistance/Field Staff. In addition to additional Extension nutrient management consultants, the current budget funds 15 additional field staff in conservation districts. After July 1999, the Act requires the State to employ 110 field personnel in conservation districts. Current field staff number 62; this will increase to 77 in July 1998.

Research and Educational Programs. The Governor has committed $800,000 per year for at least 3 years for agricultural research and education programs to expedite implementation of technologies that will help farmers meet the WQIA requirements. The original proposal included research and extension programs on composting, analysis of the pilot transport program, animal nutrition management, development of a phosphorus index, and phosphorus dynamics in soils. A cabinet-level group, not yet named, will oversee use of the research funds.

Cover Crops. The State budget includes $1.5 million for a cover crop program targeted to the Eastern Shore for this year. This program focuses primarily on nitrogen use.

Summary

The Water Quality Improvement Act of 1998 offers many challenges for agricultural and environmental interests in Maryland. It represents a major change in our approach to controlling agricultural nutrient pollution.

Approximately 15 sets of regulations must be changed or created and nearly a dozen programs must be modified or started. It is imperative that all interested parties, particularly farmers, be involved in regulation and program development. It is equally important that all farmers begin today to evaluate their operation, and nutrient practices, in light of the requirements of the WQIA. Farmers should also look at the programs, cost-share, and tax incentives to determine what assistance is available during the transition to a mandatory program.

Although 3 1/2 years seems a long way off, certified nutrient management plans are required by that time. In 7 years, the industry must manage animal waste and sludge based on phosphorus content. It will take time to refine and implement the technologies needed to reach the phosphorus goals. Farmers, agribusiness, environmental groups, State government, and the College of Agriculture and Natural Resources must all work together, starting now, to achieve the goals of the WQIA, while maintaining a strong agricultural industry for Maryland.

Brief updates will be published quarterly as regulations and programs are developed.

Hard copies of this booklet will be available at local Extension offices. It will also be posted on the College 's World Wide Web page at http://www.agnr.umd.edu.

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