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Minnesota Department Of Agriculture

Pesticide Management Plan Status Report for 2001 and 2002

May 6, 2003

I. Introduction

The Pesticide Control Law (Minn. Stat. 18B.045) required the development of a state Pesticide Management Plan (PMP) and a biennial report on the plan status. The following is the biennial status report, which outlines accomplishments and major activities conducted during 2001 and 2002 in support of the Minnesota PMP.

The statutory requirements and purpose for the PMP are outlined in the enabling legislation (18B.045):

"The commissioner shall develop a pesticide management plan for the prevention, evaluation, and mitigation of occurrences of pesticides or pesticide breakdown products in groundwaters and surface waters of the state. The pesticide management plan must include components promoting prevention, developing appropriate responses to the detection of pesticides or pesticide breakdown products in groundwater and surface waters, and providing responses to reduce or eliminate continued pesticide movement to groundwater and surface water."

Development of the PMP began in 1990, with a final draft published in 1996. Minor revisions were made in 1998. The United States Environmental Protection Agency (EPA) provided a formal concurrence of the original 1996 version and of the revised 1998 version. While the PMP is required by statute, it is a guidance document and has no enforceable or regulatory requirements. The PMP and additional data on many of the activities discussed in this report are available on the Minnesota Department of Agriculture (MDA) website at <http://www.mda.state.mn.us>

In October 2002, MDA Commissioner Gene Hugoson provided public notice in the Minnesota State Register of his intent to revise the PMP. Revisions of the PMP are necessary due to resource limitations and the need to streamline some of the processes outlined in the PMP. The announcement also indicated that the MDA would temporarily deviate from some of the processes and activities in the PMP until the revision process was complete. The announcement is attached to this report.

II. Pesticide-Related Prevention Activities

Ongoing Promotion of Pesticide BMPs and Training of Applicators

The MDA participates in a variety of training and education activities during which pesticide Best Management Practices (BMPs) and appropriate environmental practices are promoted. These activities include the following:

MDA/University of Minnesota Extension Service and Dealer-Sponsored Applicator Training

The MDA works cooperatively with the University of Minnesota Extension Service (MES) and other interested parties in training pesticide applicators. Certification or

licensing of applicators requires continuing education. These annual training sessions are vehicles for the promotion of proper pesticide handling, storage and use, and help minimize the potential risk from inappropriate management and use of pesticides.

General Promotional Activities

In 1998, the MDA completed development of generic BMPs for pesticides. They continue to be promoted by cooperators, through MDA's pesticide applicator training programs, and every three months by inclusion in the quarterly MDA newsletter, the MDA Update, which is sent to commercial/non-commercial pesticide applicators and private/restricted use pesticide applicators.

Newsletters and Articles

The MDA regularly submits articles on pesticide-related issues to publications which focus on agricultural audiences. Recent examples include the Minnesota Irrigators Association and Minnesota Rural Water Association newsletters, which ran MDA-authored articles on water monitoring results and the development of pesticide BMPs.

Integrated Pest Management (IPM)

The MDA continues to provide leadership in developing non-chemical pest management methods through implementation of several programs in integrated pest management, the IPM newsletter published in cooperation with the U of M Extension Service, and integrated weed management. In addition, the MDA provides leadership and applied research assistance for the biological control of insect pests and weeds. These programs are coordinated and prioritized based on the current state of science and an understanding of where integrated management is currently feasible.

IPM in Schools

In 2001 the MDA conducted a survey and prepared a report to the legislature on IPM practices in schools. The report highlighted school district knowledge of IPM and addressed considerations for implementation of IPM programs for schools. The MDA is involved in related ongoing educational efforts linked to the results.

Urban Activities

The MDA also recently completed an urban initiative aimed at informing low-income and immigrant populations of IPM approaches to pest control in their homes and apartments. This project, which was funded by an EPA grant, has reached thousands of people directly through presentations and literature in three languages (Hmong, Spanish and Somali), and indirectly through the education of minority community leaders in community organizations. This program's focus is primarily the protection of human health, but it also provides basic information regarding proper pesticide use that will help reduce excessive or inappropriate use of pesticides in the urban environment.

Pesticide Management Areas

The MDA received a grant from the US EPA to develop the concept of pesticide management areas (PMAs) as outlined in the PMP. PMAs are areas of similar characteristics for which a BMP may be applied. The concept is useful for continued prevention and evaluation efforts

associated with PMP implementation. The EPA grant provides funding to work with the University of Minnesota Department of Soil, Water and Climate to further advance the concept of agroecoregions in relation to pesticide monitoring and Best Management Practice promotion and evaluation. The establishment of PMAs, and a comparison of similar leaching and runoff patterns within them, will help in protecting diverse agricultural areas of the state.

III. Evaluation of Pesticides in Groundwater and Surface Water

2002 Water Quality Monitoring Data Report

The MDA has a statutory requirement to "determine the impact of pesticides on the environment, including the impacts on surface and groundwater" (MN Chap 18B.04). To address this requirement, the MDA has a monitoring program that samples for pesticides and their breakdown products in water resources. The MDA collects samples from more than 80 groundwater wells in 10 counties where vulnerable soils serve as an indicator for potential problems elsewhere in the state. Additionally, eight surface water monitoring stations located in southern Minnesota sample surface waters in both small and large scale, primarily agricultural, watersheds. In 2002, the MDA updated its approach to reporting monitoring results. Additional monitoring and evaluation data and a direct comparison with surface water standards and advisory values are now included in the report. The report summarizes MDA monitoring data and is used to help make informed decisions regarding frequently detected pesticides in groundwater and concentrations of concern in surface water.

Compilation of Non-MDA Water Quality Data

The Groundwater Protection Act directs the MDA to review relevant pesticide-related water quality monitoring data in Minnesota. Recent groundwater pesticide data from the U.S. Geological Survey (USGS), the Minnesota Pollution Control Agency (MPCA) and Dakota County Environmental Services were compiled as part of the MDA's annual review of pesticide impacts to water resources. This information will be considered in the evaluation of pesticide impacts to state water resources.

Monitoring Data Management System

In 2001 and 2002 the MDA, with assistance from the MPCA, worked on the development of an integrated data management system for the monitoring program which, when completed, will provide for timely and efficient management of monitoring data including the export of MDA monitoring data into the US EPA's STORET data management system. This will help ensure that MDA's monitoring data is easily accessible by any local, state or national monitoring program or effort. The effort within the MDA was an outcome from the department-wide compliance management system (CMS) and the MDA Laboratory Information Management System (LIMS). The final system will provide for a seamless transfer of monitoring data from the field, to the laboratory LIMS, then to the department CMS and finally to other users including other state and federal agencies and the general public through the internet and the EPA's STORET system. In addition, the data should be managed with fewer staff resources. Although the completed system is not yet fully operational, the primary components are currently in the process of field testing and user training.

Common Detection Advisory Committee Meetings and Recommendations

While ultimate authority for determination of common detection resides with Commissioner of Agriculture, the Common Detection Advisory Committee (CDAC) is a major PMP support activity intended to provide input into the Commissioner's decision from a variety of diverse and informed perspectives. During 2001, a new CDAC convened and provided recommendations to the Commissioner. In 2002, the CDAC process was streamlined to make the process more timely and efficient. In addition, the MPCA, the Minnesota Department of Health (MDH) and the USGS were invited to participate in the meetings as technical advisors and were also asked to provide separate recommendations to the Commissioner. Parts of the PMP, including the CDAC, are suspended pending revision of the PMP.

Determination of Common Detection in Groundwater

In 2002, the Commissioner made the determination that three herbicides – atrazine, metolachlor and metribuzin – were commonly detected in groundwater. In response to this determination, as required in the Groundwater Protection Act, the MDA began the development of chemical-specific, voluntary BMPs for these herbicides.

Standards Development

The MDH is responsible for developing health risk standards for pesticides (and other contaminants) in groundwater and the MPCA is responsible for developing regulatory standards for pesticides (and other contaminants) in surface waters. Both agencies have been active participants in the CDAC and are fully informed regarding MDA monitoring efforts and results. The MDA has forwarded to MDH and MPCA a comprehensive list of pesticides and pesticide degradates that have been identified in Minnesota's water resources and that currently lack a Health Risk Limit (HRL) or surface water standard.

MDA Laboratory Analyses for Additional Pesticide Breakdown Products

During 2001-2002, the purchase of new equipment and development of analytical methods by the MDA laboratory staff have provided the MDA with the ability to analyze for breakdown products of acetochlor, alachlor, dimethenamid and metolachlor. These analytes have been identified in groundwater in Minnesota and other states in other monitoring programs. Because of capacity limitations only groundwater samples are being analyzed for these degradates. The first round of groundwater samples analyzed for these additional pesticide breakdown products was collected in the second quarter of 2002. The MDA continues to routinely monitor for the degradates of atrazine and metribuzin which have been standard analyses for several years.

The Minnesota River Report

The MDA worked cooperatively with Metropolitan Council Environmental Services, MPCA, and Minnesota State University-Mankato to develop a comprehensive report on sediment, dissolved oxygen, nutrient and pesticide concentrations in the Minnesota River and multiple tributaries ("State of the Minnesota River: Summary of Surface Water Quality Monitoring," 2000). The evaluation brings data from multiple monitoring efforts and reports into a standard format at a single location. It also provides the foundation for consistency and comparability in sampling methodologies, calculations, data management and reporting, etc. The report is available electronically at <http://mrbdc.mnsu.edu>.

IV. Pesticide-Related Mitigation Activities

Education and Awareness

Education and raising pesticide user's awareness of environmental concerns is one of the most important activities necessary to protect the state's water resources from the potential for leaching and runoff of pesticides. For this reason there is considerable overlap between prevention and mitigation activities. Those activities listed under prevention, although not repeated in this section, may be considered important mitigation steps.

Pesticide Best Management Practices Development

The Commissioner's determination of common detection for atrazine, metolachlor and metribuzin initiated the process of developing pesticide-specific, voluntary BMPs. The development of pesticide specific BMPs is a required response under the Groundwater Protection Act for pesticides that are commonly detected in groundwater. The general process for BMP development is outlined in the PMP, although as noted in the introduction section, the MDA may deviate slightly from this to streamline the process.

V. Other Pesticide-Related Environmental Activities

Other MDA Pesticide Programs

The MDA has a number of pesticide-related programs designed to ensure the safe and proper use of pesticides and to reduce the risk from pesticides to human health and the environment. These programs address virtually every aspect of pesticide use and management in Minnesota. These include the following:

- Waste pesticide collection
- Empty pesticide container collection
- Pesticide applicator licensing & certification
- Permitting and inspection of pesticide storage and chemigation activities
- 24-hour emergency response to pesticide spills
- Environmental cleanup of contaminated pesticide sites and facilities
- Rapid cleanups to facilitate property transfers and development of rural brownfields through the Agricultural Voluntary Investigation and Cleanup (AgVIC) program
- Partial reimbursement of costs for environmental cleanup of pesticide releases through the Agricultural Chemical Response and Reimbursement Account (ACRRA)
- Pesticide use inspection to ensure compliance with pesticide labeling
- Pesticide misuse investigations
- Pesticide use data collection
- Enforcement of violations of pesticide law

New Herbicide Registration Review

During 2001-2002, the MDA worked closely with the EPA and neighboring states in the registration review of a new corn herbicide, isoxaflutole (Balance, Balance Pro), to evaluate the

appropriateness of its use in Minnesota. The EPA, which is responsible for pesticide registration and the review of related environmental fate and ecological/human health risk information, conditionally registered Balance in 1998, and added another three years to the conditional registration in 2001. The herbicide provides a new chemical mode of action against persistent weeds in corn fields. The EPA's registration was conditional due to concerns about the herbicide's mobility and persistence in the environment. The MDA requested that EPA not include Minnesota on the federal registration label for Balance from 1998 through 2002. The MDA opted to carefully review environmental impact data from the registrant and neighboring states where the product is registered for use prior to consideration of its introduction here. The MDA continues to work with the registrant and the EPA in assessing the appropriateness of Balance use in Minnesota.

Activities Coordinated with Other State Agencies

Other state agencies have statutory responsibilities related to the protection of the Minnesota's water resources. The MDA works closely with other state commissioners and their staff through either the Water Resources Committee or the interagency workgroups on groundwater and surface water monitoring. In 2001, the MPCA, Department of Natural Resources (DNR) and the MDA worked closely to develop a joint groundwater monitoring proposal to the Legislative Commission on Minnesota Resources (LCMR). The proposal received a hearing but was ultimately not funded.

VI. Conclusion

In the past two years there has been a great deal of activity at the MDA in support of the PMP. Groundwater and surface water monitoring continues; groundwater samples are being analyzed for additional pesticide degradation products; MDA monitoring data is being managed, reported and shared more efficiently and effectively than ever before; and, three herbicides have been determined to be commonly detected in groundwater. In addition, there have been many other MDA pesticide related projects and activities that are described in this report. These many activities indicate that, despite budget concerns, the MDA has continued to effectively implement the PMP during the 2001-2002 timeframe.

For additional information regarding this status report, the MDA's PMP and other MDA pesticide-related programs, please contact Dan Stoddard, Manager, Agricultural Chemical Environmental Section, by phone at 651-297-8293 or by email at dan.stoddard@state.mn.us