REPORT TO

ENVIRONMENTAL QUALITY COUNCIL ON PESTICIDE AND GROUNDWATER ENFORCEMENT PROGRAMS PURSUANT TO TITLE 75, CHAPTER 1, PART 3, SECTION 314

MONTANA DEPARTMENT OF AGRICULTURE
Ben Thomas, Director
2020

Montana Department of Agriculture

TABLE OF CONTENTS

PESTICIDE PROGRAM

GROUNDWATER PROTECTION PROGRAM

PESTICIDE PROGRAM

The Montana Department of Agriculture (MDA) enforces the Montana Pesticide Act (MPA), Title 80, Chapter 8, Montana Code Annotated (MCA), and portions of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Enforcement of the federal law is accomplished through the MDA/EPA Cooperative Enforcement Agreement (CEA). This agreement provides primary enforcement authority to Montana to enforce pesticide use and sale regulations.

1a. Activities and Efforts Taking Place to Promote Compliance Assistance and Education:

Pesticide program staff have undertaken many activities to promote compliance within the pesticide use community. These activities include providing information and education, technical assistance, conducting inspections, complaint investigations, environmental sampling and issuing enforcement actions consistent with Montana code.

Information/Education:

The pesticide program uses education to help promote compliance and to ensure that dealers and applicators are properly qualified. As required under 80-8-109, MCA, the MDA develops and conducts educational programs for pesticide use/sales categories. The educational program informs individuals working with pesticides about correct methods for formulating, applying, storing, disposing, handling and transporting pesticides. These trainings also include information on proper record keeping for both the sale and use of pesticides.

Along with MSU Extension Service, the MDA conducts educational programs for pesticide dealers, commercial/governmental applicators and private applicators. The MDA provides “initial” training and testing for both commercial applicators and private farm applicators. Subject to available funds, the MDA and MSU Extension Service establish educational training programs for the general public and retailers on pest management, pesticide use safety and alternative pest control methods. Training manuals are used to provide information and education on pesticide sales, handling, use, application, and disposal. Passing a qualification exam of 80 percent or higher is required for the licensing of commercial and governmental applicators to become a certified applicator. This qualifies the licensed individual to use general-use and restricted-use pesticides. Once certified, all license holders must obtain 12 re-certification training credits over a 4-year period to remain licensed, or retest.

Educational programs give the MDA an opportunity to encourage participants to comply with pesticide laws. They also serve as an avenue to present law changes and new regulations. Over the next few years, the MDA will present changes to the Montana Pesticide Act to the regulated community helping them understand each specific element of the law changes. Topics that are discussed range from properly maintaining equipment to Worker Protection to general label safety language. The information provided in training programs also informs participants of the potential environmental effects that come with illegally using or storing pesticides.

.

Technical Assistance:
MDA works closely with pesticide registrants to help steward pesticide products. Almost every registrant has a stewardship plan for the products they sell. Stewardship plans provide education to unlicensed applicators, commercial and government applicators, commercial composters, hobby livestock owners, organic growers and others. It is in the registrant's best interest to promote, train and monitor the use of their products. As mentioned above, education programs allow MDA to not only educate the public in the proper use of pesticides, it allows the department a venue to share concerns that might adversely affect the environment. The MDA also can provide analytical support to registrants, land owners and MSU Extension field agents through the MDA Analytical Laboratory. Although successes of the stewardship plans are hard to measure, we have seen a reduction in the number of complaints and concerns involving pesticides in compost and other sensitive areas.

1b. **Size and Description of the Regulated Community:**

Producing Establishments are pesticide retail businesses, including manufacturers and formulators, that package or repackage pesticides. They can be identified because they are required to register as a Producer Establishment with the EPA. There are approximately 136 Producing Establishments (PE) currently registered with EPA and doing business in Montana. On average, the MDA conducts between 10 and 15 inspections per year that specifically target PE facilities.

Pesticide dealers are required to become licensed in order to sell Agriculture-Use pesticides. The number of licensed pesticide dealers has remained stable during 2018 and 2019 ranging from 460 to 440, respectively. Dealers who sell pesticides for home, lawn and garden use only are referred to as "retailers" by definition and are not required to be licensed; however, they are part of the regulated community. On average, MDA staff conduct approximately 80-100 routine dealer/marketplace and retail establishment inspections each year.

Commercial and governmental pesticide applicators are also required to obtain a Montana license. Commercial applicators are persons who apply pesticides "for hire", and governmental applicators are persons who apply pesticides for a public entity (city, state or federal) or who work for a public entity and train other applicators. Operators are persons who apply pesticides under the supervision of a certified applicator. The supervising applicator is required by law to train and have oversight of their operators' activities.

Non-commercial applicators are individuals who apply restricted-use pesticides and cannot be classified as a commercial, public utility, government applicator or private applicator. A certified non-commercial applicator may use restricted and general use pesticides on lands owned, rented, or leased by his employer or himself/herself. The total number of people licensed as non-commercial applicators in 2018 and 2019 basically remained the same when reviewed in a longer timeframe.

Private farm applicators are required to obtain a special use-permit if they wish to use and apply “restricted- use” pesticides. The license is good for 5 years and requires 6 credit hours of recertification training over the 5-year period to remain qualified. Montana maintains a yearly average of approximately ~ 5,800 permitted farm (Private) applicators.

Table 1

Licenses					
Year					
	Non-commercial, Public Utility	**Dealer**	**Government**	**Commercial**	**Private**
2018	130	460	786	1210	5796
2019	139	440	785	1103	5798

The total number of individual Montana license holders, including dealers, commercial/ government applicators and farm applicators, remains consistent at approximately 8,300.

In addition, the numbers listed in Table 1 do not include those homeowners or renters who apply pesticides to their own property (home, yard, lawn or garden) but are still considered part of the regulated community.

1c. Non- Compliance and Method of Discovery
Routine Commercial, Governmental and Marketplace/Dealer Inspections:
Table 2 represents the number of routine inspections conducted in fiscal years 2018 and 2019. The inspections are classified according to the licensee type (marketplace, agricultural applicator, non-agricultural applicator, etc.) or by purpose of the inspection. For example, follow-up inspections are “for-cause” inspections, usually conducted because of a citizen tip or complaint. Generally, the number of inspections is the result of an effort to meet department goals and generate a uniform enforcement presence in the regulated community. For the two years demonstrated below, the distribution of inspections among various parts of the regulated community has remained relatively constant.

Table 2

2018-2019 Routine Inspections		
Inspection type	**2018**	**2019**
Ag-Use	84	96
Ag-Follow Up (for cause)	12	14
Non-Ag Use	216	215
Non-Ag Follow Up (for cause)	18	37
Experimental Use	1	1
PE	8	8
Marketplace	84	89
Imports	0	0
Exports	1	1
Cert. App. Records	268	271
RUP Dealer Records	48	49
Total	**740**	**781**

Sampling and Inspections:

The Legislature established authority to sample (Section 80-8-302, MCA), inspect (Section 80-8-304, MCA) and analyze pesticides or devices distributed within the State of Montana to determine whether such pesticides or devices meet the minimum standards listed on the label. The Analytical Laboratory Bureau, located on the Montana State University campus, performs pesticide chemical analyses for the MDA, other state and federal agencies, MSU Extension Service and the public.

The inspection and investigation authority granted under Section 80-8-304, MCA, allows department staff or an authorized agent, upon reasonable cause, with a warrant or consent of the inhabitant or owner, to inspect or investigate pesticide use. Compliance assistance (CA) inspections of licensed dealers and applicators are routinely conducted. Although discretionary, a licensee is eligible for CA through their first inspection or at a point when new regulation becomes mandatory. Routine inspections with commercial/government applicators are usually conducted on a 4-5-year rotation after the initial inspection. Program inspection goals are determined prior to the beginning of the inspection year and average between 650-800 inspection events per year depending on staffing. Routine inspections are conducted with commercial applicators, government applicators, dealers, and permitted farm applicators. In addition to the routine inspection program, inspections are conducted with individuals upon the receipt of a complaint (follow-up) or if there is reason to believe that someone is in non-compliance with the pesticide laws.

The number of complaint investigations varies from year to year because pesticide use varies greatly with weather conditions, pest outbreaks, rainfall, crop types and commodity prices. The number of complaints, reports of damage and referrals from other agencies also vary from year to year for the same reason. Routine marketplace inspections are conducted at retailers/dealers to verify that products offered for sale meet state and federal pesticide law registration requirements.

The Legislature also established the authority under Section 80-8-304, MCA, to take residue samples related to either routine inspections or complaint investigations. The number of residue samples per year varies according to the number of inspections/investigations conducted during the use season. The number of samples collected per investigation depends on the number of pesticides involved in the investigation and the complexity of the investigation. Analytical results become part of the case evidence for enforcement.

Table 3 shows the total number of enforcement (physical) samples collected and the number of analysis (data points) produced in FY 2018-2019:

Table 3

Samples Collected & Analyzed (data points) per Year		
Year	**Samples Collected**	**Analysis Conducted**
2018	36	653
2019	29	1376

Compliance Inspections – Non-compliance

The MDA conducts comprehensive inspections and investigations. Inspections and investigations cover such topics as use, selling, labeling, registration, storage, records and licensure compliance. Therefore, one inspection can result in multiple category violations.

Table 4 illustrates the number of inspections conducted yearly and shows the percent of non-compliance.

Table 4

History of Compliance		
Year	**Total Number of Inspections**	**Percent Non-Compliance**
2018	740	<5%
2019	781	<5%

Major Violations:

In FY 2018 and 2019, the number of follow-up (for cause) investigations (30-50) was slightly higher than that of the previous 2-year reporting period. Most pesticide use violations are discovered through complaint investigations resulting from tips and complaints from the public. Case significance or severity depends on several factors including the type of violation and potential or actual occurrence of harm from pesticides. Each case has its own unique set of circumstances and is investigated according to department guidance documents and policies.

Very few cases go unresolved beyond fiscal year end. Cases that are in what could be called “open status” at the end of the fiscal year are cases or complaints that were received by the department late near the end of the fiscal year, contested cases or multi layered cases.

Significance of Noncompliance and Enforcement Options:

Section 80-8-211, MCA, establishes violations that are cause for revoking or modifying a license. Section 80-8-303, MCA, authorizes the MDA to embargo pesticides that are adulterated, misbranded, or unregistered. Section 80-8-304, MCA, authorizes compliance orders requiring a person to correct violations and clean up pesticide spills. Upon completion of each investigation, a review process determines if there is enough evidence to support enforcement action. Section 80-8-306, MCA, authorizes the department to issue written warnings or propose administrative civil penalties to settle a case. The department may also seek judicial civil penalties or criminal penalties under that same section. Minor violations that involve record keeping, storage or equipment maintenance are handled through the compliance assistance process or by the issuance of a Notice of Non- Compliance (NONC). Violations handled under these processes have not resulted in harm to humans or the environment.

The Montana Pesticide Act defines a major violation as one that is subject to civil penalties in Section 80-8-306 (5) (e), MCA. The Act specifically states that the department, in determining an appropriate amount of civil penalty, shall consider the effect on the person’s ability to continue to stay in business, the degree of harm, gravity factors associated with the violation, and the degree of care taken by the offender. The MDA considers these factors when determining the amount of the civil penalty for each violation. All enforcement actions are subject to appeal (or may be contested) according to provisions of the Montana Administrative Procedure Act.

1d. Compliance and Enforcement History - Trends:

Over the past several years, the number of major violations requiring MDA enforcement action has decreased. There are several factors that explain the decrease. One significant factor that helped reduce the number of misuse violations is the quality and quantity of applicator training provided by MDA and the agriculture industry. Another factor is the evolution of new and improved application equipment products and additives to help control pesticide drift. Montana applicators have also taken a more proactive approach to pesticide use education and that effort has helped reduce the number of cases the MDA is asked to address. Unique weather, pest infestation and agriculture economy also drive pesticide use and therefore can affect the number of cases each year.

GROUNDWATER PROTECTION PROGRAM:

The Montana Agricultural Chemical Groundwater Protection Act (MACGWPA), Title 80, Chapter 15, Montana Code Annotated (MCA) was enacted in 1989. Establishing under 80-15-103, it is the public policy of this state to:

(1) protect ground water and the environment from impairment or degradation due to the use of agricultural chemicals;
(2) allow for the proper and correct use of agricultural chemicals;
(3) provide for the management of agricultural chemicals to prevent, minimize, and mitigate their presence in ground water; and
(4) provide for education and training of agricultural chemical applicators and the public on ground water protection, agricultural chemical use, and the use of alternative agricultural methods.

1a. The Activities and Efforts Taking Place to Promote Compliance Assistance and Education

The Groundwater Protection program has undertaken the following to promote compliance with the statutory goals of the program:

Information/Education

The groundwater program promotes research and technical assistance. The department provides information and assistance to prevent groundwater impairment by agricultural chemicals. Through education and outreach, the department provides information on groundwater and agricultural chemical characterization and Best Management Practices (BMP). The department is involved in an ongoing process of identifying environmentally sensitive areas, soils, and aquifers. Information about agricultural chemicals in Montana groundwater is provided through analytical results from the MDA's statewide monitoring program. Public meetings (such as weed district meetings) and pesticide certification training events are used as a venue to inform the public about the locations of vulnerable areas in Montana. Special project reports, detailing MDA monitoring of major agricultural regions for pesticides and nitrate are available on our web site.

As required under Section 80-15-106, MCA, the department is required to develop and conduct appropriate educational programs. Groundwater protection is a component of all pesticide applicator training, which assures that dealers and applicators have the necessary knowledge and safety tools to sell and use pesticides in accordance with label directions. The MDA provides education and training for commercial, non-commercial and governmental applicators and the public on groundwater protection, agricultural chemical use, and the use of alternative crop protection methods.

The MDA, in cooperation with MSU Extension Service, provides initial and recertification training and testing for all licensed pesticide applicators. One of the major topics covered during the pesticide recertification training courses is how to protect Montana's water resources from agriculture chemical impairment. A variety of training manuals are available to provide education on agricultural chemical handling, use, application, and disposal. The Montana General Agricultural Chemical Ground Water Management Plan is a comprehensive strategy for Montana to protect groundwater from agricultural chemicals.

The "*Pesticide and Fertilizer Use Around the Home, Effects on Water Resources and Alternatives to Chemical Controls*" as well as many other pamphlets, have been developed in cooperation with MSU Extension Water Quality Program, to provide information to homeowners on good stewardship practices and to protect water resources from the impacts of chemical use.

Technical Assistance

The position of the MDA, as guided by the Montana constitution and statute, is that agriculture and groundwater in the state can be protected. The department dedicates most of its assistance efforts to prevention of groundwater impairment by agricultural chemicals using MDA, EPA, and MSU Extension Service bulletins, brochures, reports, other training aids. Protection efforts also involve participating in educational programs, direct contact with the regulated community, and sharing of analytical data with other agencies working to protect Montana's water quality.

The Montana Agricultural Chemical Ground Water Protection Act (MACGWPA) provides for the Groundwater Protection Program under 80-15-107, which is presently a research monitoring and technical assistance program. General statewide ambient groundwater monitoring for impairment by agricultural chemicals has been ongoing since 1984, before the law was passed. The MACGWPA required the development of the General Management Plan principally as a tool to identify environmentally sensitive areas, soils, and aquifers and to develop Best Management Practices for the use of agricultural chemicals in Montana.

Section 80-15-202, MCA, directs the MDA to conduct monitoring to determine if agricultural chemical residues are present in groundwater resources and to determine the likelihood of agricultural chemicals to enter groundwater. The department initiated a groundwater monitoring program in 1984. The department established a permanent monitoring well network in 1991. The network of permanent monitoring wells that is available for testing has grown from the eight wells in 1984, to its present size of 32. In 2018, MDA collected samples for chemical analysis from 30 wells and 8 surface water locations. In 2019, MDA collected samples for chemical analysis from 32 well locations. The monitoring wells are in areas that are representative of Montana agricultural production, as well as areas with extensive noxious weed management. The department also conducts project specific monitoring to augment permanent well monitoring efforts, generally as a response to new scientific research or to meet a state identified need.

Monitoring results indicating the presence of an agricultural chemical are evaluated to determine the type of response that is necessary or appropriate. At a minimum, land owners are sent a summary of monitoring results along with a brief description of any agricultural chemicals that were detected. Additional appropriate response activities may include land-use recommendations, mandatory spill clean-up, additional monitoring, or referral to the Department of Environmental Quality for remediation. The development of a Specific

Management Plan (SMP) pursuant to Section 80-15-212, MCA may also be an appropriate response. Continued monitoring, data sharing and education are also incorporated in a response, which will promote awareness and resource protection.

Specific Management Plans (SMP)
Section 80-15-212, MCA, requires the MDA to adopt "Specific Agricultural Chemical Groundwater Management Plans" when necessary to protect groundwater. The 2005 Legislature passed HB 107, which clarified conditions requiring a Specific Management Plan (SMP). This gave the department more flexibility in addressing the presence of low-level agriculture chemicals in groundwater through educational measures to prevent, minimize and mitigate pesticide presence in groundwater that would be more appropriate and cost effective than development of a Specific Management Plan under administrative rule. Under provisions of HB 107, a SMP is required when an agricultural chemical is found at or above 50 percent of the human health standards established by the Department of Environmental Quality in Circular DEQ-7 Montana Numeric Water Quality Standards.

1b. Size and Description of the Regulated Community
In general, the regulated community includes all persons who apply pesticides to control weed, insect, animal and microorganism pests. Anyone who applies pesticides must read and follow the container label directions for use, including the label directions to protect both ground and surface water.

There are parts of the regulated community that are easily identifiable through the licensing process; however, there are parts of the regulated community that do not require licensing and are not easily identified or necessarily trained. That part of the community includes landowners, including homeowners, who use pesticides or fertilizers. Pesticide dealers, fertilizer dealers, and some pesticide applicators are required to be licensed by the MDA and would be identifiable for training and possible regulation. The same is true for landowners who desire training on groundwater pollution prevention techniques or Best Management Practices (BMPs) and Best Available Technology (BATs).

1c. Non-Compliance and Method of Discovery:
The MDA has (the authority to) issue administrative orders requiring cleanup of pesticide spills, sampling soils and groundwater, and some soil removals. Orders are issued using authority of the Montana Pesticide Act, Title 80. The department has issued informative letters to fertilizer facilities where soils may be contaminated with high levels of nitrate that have the potential of impacting groundwater. The letters provided information to improve operational activities to minimize further contamination. The information contained Best Management Practices for handling and storage containment of fertilizers.

Monitoring results are used to determine if a pesticide is present in groundwater resources, and if detections are a concern for human health. The Department of Environmental Quality is responsible for development of numerical human health standards. The relative significance of an agricultural chemical residue in groundwater is related to the percentage of the Montana Water Quality Standard met. The MDA puts forth effort in locating contaminated groundwater bodies, possible source(s) for the contamination, and to what extent the body of groundwater is impaired. Dependent upon the contamination level and source, (i.e., point or non-point source) the Department discusses and implements appropriate enforcement and/or mitigation responses.

Table 1 shows the total number of monitoring samples collected and the number of analysis conducted during 2018-2019:

Table 1

Samples Collected & Analyzed per Year		
Year	**Samples Collected**	**Analytes Measured**
2018	55	5,795
2019	91	9,575

1d. Compliance and Enforcement History - Trends:

At the time of this report, there are no significant non-compliance issues related to non-point source groundwater contamination from agricultural chemicals. The Groundwater Protection Program maintains a permanent monitoring well network distributed across the state to capture various land uses and geographical conditions

Where detected, pesticide concentrations are very low and do not exceed or approach human health drinking water standards set by DEQ. In 2018 and 2019, there were no pesticide detections from the permanent monitoring well network that exceeded 50 % of the respective human health drinking water standard. Most detections were less than 6 % of the respective human health drinking water standard.

Concentrations of Nitrate and Nitrite as Nitrogen are also analyzed in groundwater samples collected from the single use monitoring wells (not used for drinking or stock water). Of the 55 groundwater samples collected in 2018, Nitrate was detected in 37 samples with concentrations averaging 160% of the drinking water standard (10 ppm). Nitrite was detected in 2 samples with concentrations of 1.1 ppm and 0.3 ppm, 110% and 30% of the drinking water standard (1 ppm). Of the 91 groundwater samples collected in 2019, Nitrate was detected in 60 samples with concentrations averaging 191% of the drinking water standard (10 ppm). Nitrite was detected in 1 sample with a concentration of 1.7 ppm, 170% of the drinking water standard (1ppm). The source of the nitrate has not been identified.

The department has notified landowners of the monitoring results of the wells on their properties and has shared all the monitoring results with DEQ. The Water Quality Associate Specialist at Montana State University Extension, states in his research paper, *Connections among soil, ground, and surface water chemistries characterize nitrogen loss from an agricultural landscape in the Upper Missouri River Basin*, "*Elevated nitrate in shallow aquifers is common in agricultural areas… however leaching losses are likely derived not only from fertilizer but also from organic N mineralization, and are apparently higher during the post-fallow phase of crop rotation".* Research by MSU Extension also suggests that elevated nitrate in agricultural areas are not likely due to fertilizer misapplication, but instead the result of nitrate migrating from the rootzone into groundwater as the moisture boundary of the soil recedes during the fallow periods of crop rotation.