

ADMINISTRATIVE RULES Fiscal Estimate & Economic Impact Analysis

1. Type of Estimate and Analysis <input checked="" type="checkbox"/> Original <input type="checkbox"/> Updated <input type="checkbox"/> Corrected	2. Date 1/25/2021
3. Administrative Rule Chapter, Title and Number (and Clearinghouse Number if applicable) NR 151 - Runoff Management and NR 243 - Animal Feeding Operations	
4. Subject WT-19-19 - New agricultural performance standards for farms that apply commercial fertilizer or manure in areas of the state that are susceptible to groundwater contamination.	
5. Fund Sources Affected <input type="checkbox"/> GPR <input type="checkbox"/> FED <input type="checkbox"/> PRO <input type="checkbox"/> PRS <input type="checkbox"/> SEG <input type="checkbox"/> SEG-S	6. Chapter 20, Stats. Appropriations Affected
7. Fiscal Effect of Implementing the Rule <input type="checkbox"/> No Fiscal Effect <input type="checkbox"/> Increase Existing Revenues <input type="checkbox"/> Increase Costs <input type="checkbox"/> Decrease Costs <input type="checkbox"/> Indeterminate <input type="checkbox"/> Decrease Existing Revenues <input checked="" type="checkbox"/> Could Absorb Within Agency's Budget	
8. The Rule Will Impact the Following (Check All That Apply) <input type="checkbox"/> State's Economy <input checked="" type="checkbox"/> Specific Businesses/Sectors <input type="checkbox"/> Local Government Units <input type="checkbox"/> Public Utility Rate Payers <input checked="" type="checkbox"/> Small Businesses (if checked, complete Attachment A)	
9. Estimate of Implementation and Compliance to Businesses, Local Governmental Units and Individuals, per s. 227.137(3)(b)(1). \$9,726,000 over an anticipated full implementation period of 10 years (\$972,600 per year)	
10. Would Implementation and Compliance Costs Businesses, Local Governmental Units and Individuals Be \$10 Million or more Over Any 2-year Period, per s. 227.137(3)(b)(2)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
11. Policy Problem Addressed by the Rule The groundwater quality standard for nitrate, which is intended to protect public health, is being exceeded in many agricultural areas of Wisconsin. The statewide performance standards and prohibitions in ch. NR 151 Wis. Admin. Code are insufficient to attain the groundwater quality standard for nitrate in areas of the state that are susceptible to groundwater contamination. The proposed rules contain targeted performance standards and prohibitions for nitrogen use in agriculture that are targeted and designed to prevent nitrate leaching to groundwater in amounts that cause exceedances of the water quality standard for nitrate.	
12. Summary of the Businesses, Business Sectors, Associations Representing Business, Local Governmental Units, and Individuals that may be Affected by the Proposed Rule that were Contacted for Comments. The department convened a technical advisory committee to provide technical and professional input on development of the targeted performance standards and prohibitions. The technical advisory committee included farmers, a grain and farm supply cooperative industry representative, nutrient management planners, environmental advocacy groups, county land conservation departments, a county health department representative, researchers, agriculture extension agents, Natural Resource Conservation Service (NRCS), Wisconsin Geological and Natural History Survey, and the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP). The department conducted eight public meetings of the technical advisory committee. In the development of this analysis, the department considered the technical advisory committee's input regarding potential costs. The rule impacts all crop producers and livestock producers, including permitted and non-permitted farms, that apply commercial nitrogen fertilizer or manure directly or through contract to croplands, pastures, and winter grazing areas in the targeted area.	
13. Identify the Local Governmental Units that Participated in the Development of this EIA. Representatives of the Pepin County, Rock County, and Walworth County land conservation departments and Wood County health department participated in the technical advisory committee. This rule does not impact local government units directly. However, the department intends to notify the League of Wisconsin Municipalities so that counties and other local government units will be consulted as part of the solicitation process.	

ADMINISTRATIVE RULES

Fiscal Estimate & Economic Impact Analysis

14. Summary of Rule's Economic and Fiscal Impact on Specific Businesses, Business Sectors, Public Utility Rate Payers, Local Governmental Units and the State's Economy as a Whole (Include Implementation and Compliance Costs Expected to be Incurred)

Impact on Businesses

This rule package proposes agricultural performance standards and prohibitions that will apply to agricultural businesses in groundwater nitrogen targeted performance standard areas (targeted areas) located throughout the state. The Central Sands, Chippewa River Valley, and southcentral Wisconsin have greater concentrations of targeted areas.

The department's draft economic analysis considers the costs for various changes in practices that may result from compliance with these proposed rule requirements.

This rule includes a numeric performance standard requiring all cropland, pastures, and winter grazing areas identified in a producer's nutrient management plan to have a nitrogen leaching amount that is protective of the groundwater quality standard. The nitrate leaching amount will be calculated using a method approved by the department or DATCP. Development of nitrogen calculation methods will not add additional cost for producers. The prohibitions, or exceptions to prohibitions, are envisioned to help producers comply with the numeric performance standard. We anticipate costs and the need for cost-share to some producers for installing practices in accordance with the exceptions, below.

Nutrient management plans (NMP) must account for all sources of nitrogen applied on fields, including nitrogen applied through irrigation water. The current NRCS 590 nutrient management standard (2015) states that producers must account for all sources of nitrogen, so there are no additional costs.

The proposed rule seeks to prohibit application of commercial nitrogen fertilizer and liquid manure to fields in the fall and winter when there is no crop need for the nitrogen.

The rule prohibits applications of commercial nitrogen fertilizer after September 1 and provides three exceptions that allow applications at rates that are consistent with the NRCS 590 nutrient management standard. The first exception is for applications needed to grow fall seeded crops (winter cover crops). Many producers already plant fall seeded crops to increase soil health and grow a forage crop that can be harvested for feed in spring. In such cases, the farmer is already paying the cost of the fall seeded crop so there is no additional cost to achieving this exception. The second exception is for applications needed to grow a fall cover crop in a potato rotation to reduce applications of soil fumigants to future potato crops. In this case, the potato grower is already planning to use the cover crop and is already paying for it; therefore, meeting this exemption does not add cost. The third exception is for applications to established perennial crops at a maximum rate of 36 lbs./acre or in accordance with rates in the NRCS 590 standard, whichever is less. This exception is mostly for beef producers and grazers that need the nitrogen to maintain the quality of pasture feed. Because these crops are established as part of a farm's cropping system, there are no additional costs.

The rule prohibits applications of liquid manure after September 1 in a subset of the targeted areas that includes P and R soils, cropland within 1,000 feet of a community well, and cropland in certain Wellhead Protection Areas specified by the rule. In total, this area contains approximately 3 million acres of agricultural land. Corn acreage is considered for this analysis because it is common in dairy crop rotations and receives liquid manure applications, whereas alfalfa acreage is not considered because of an exception in the rule. Approximately 36 percent of agricultural land in the liquid manure prohibition area, or 1,081,000 acres, is used to grow corn. Half of this corn acreage goes to produce ethanol and food additives and does not receive liquid manure applications. As a result, approximately 540,000 acres are affected by this prohibition.

Those producers that are not be able to make use of the exceptions to this prohibition to manage all the manure that their farm produces within the existing limits of their NMP may need to change practices or install additional manure storage

ADMINISTRATIVE RULES

Fiscal Estimate & Economic Impact Analysis

to comply with this rule. State grant programs cost-share 70% of the cost for constructing manure storage structures, and the DNR cost shares about 15 manure storage structures each year statewide. Accounting for the average sized farm of 220 acres, the department estimates that about 2,500 farms are affected in the liquid manure prohibition area. We do not anticipate a high demand for manure storage as a result of this rule because the exceptions to this prohibition, including planting cover crops, offer lower-cost approaches to managing manure. The department anticipates that manure storage may be the least-cost approach to comply with this prohibition at 200 farms (8%) in this area. It costs approximately \$100,000, or \$500 per animal unit, to build a concrete lined manure storage structure for the average sized dairy farm in Wisconsin. Costs for manure storage can vary widely with some being as high as \$1,000 per animal unit. This analysis assumes that a new manure storage structure is designed to hold six months of manure. However, the rule would require affected farms to have 3 months of additional storage, at most, because of an exception that allows fall applications of liquid manure at 25% of rates allowed in the NRCS 590 standard. The cost to the average dairy farm is \$30,000 after accounting for state cost share. The total cost to producers in the liquid manure prohibition area is about \$6,000,000 over a 10-year period.

The exceptions are designed to afford low-cost approaches to accommodate manure management requirements in a manner that will assure the water quality standard for nitrate in groundwater can be attained. It is anticipated that most producers will choose to manage manure through the combined use of these exceptions.

The first exception is for applications needed to grow fall seeded crops at rates consistent with the NRCS 590 standard. It is assumed that most producers will choose to plant cover crops such as cereal rye to achieve compliance on the corn acreage in the liquid manure prohibition area. The total affected area is about 496,800 acres after accounting for farms where manure storage is the preferred compliance option. Cereal rye costs approximately \$25 per acre. Accounting for state cost-sharing rate of 70%, the cost to the landowner is \$7.50 per acre to plant cover crops, with a total cost to producers of about \$3,726,000 over a 10-year period.

The second exception is for fall applications to established crops at rates consistent with the NRCS 590 standard. Because these crops are established as part of a farm's cropping system, there are no additional costs.

The third exception is for one fall application of liquid manure on fields without fall seeded crops or an established crop at 25% or less of the rates allowed by the NRCS 590 standard. Producers will bear costs related to manure storage (addressed above) where the combined use of this exception with other exceptions does not allow producers to manage all the manure that their farm produces within the limits of their NMP.

In addition to the exceptions included in the rule, producers have the flexibility to use an alternative application rate in their nutrient management plan that demonstrates to the department that it will comply with the rule. It is unknown what an alternative plan may be and whether it will present additional costs.

Summary of Compliance and Implementation Cost on Businesses

Based on the annual state funds available for cost sharing for cover crops and manure storage, the department estimates it will take affected producers approximately 10 years to achieve full compliance with the proposed rule. This estimate takes into account that non-permitted farms will only need to comply if cost sharing of qualified practices is available. Permitted farms (CAFOs) are not eligible for state cost sharing to comply with this rule. The analysis below describes the present value equivalent of the estimates using a 7% discount rate.

The compliance and implementation cost of this rule calculated in accordance with Wis. Stats. 227.137(3)(b)(1) is estimated to be \$9,726,000 over an anticipated full implementation period of 10 years. This is equivalent to \$972,600 per year (annualized present value of \$910,979 per year).

ADMINISTRATIVE RULES

Fiscal Estimate & Economic Impact Analysis

The compliance and implementation cost of this rule calculated in accordance with Wis. Stats. 227.137(3)(b)(2) is estimated to be \$1,945,200 (maximum annualized present value of \$1,881,572) over any 2-year period of the anticipated 10 years of full implementation.

Fiscal Impact and Impact on State Economy

The department does not anticipate this rule to impact the state's economy adversely. The fiscal impact of this rule on state grant programs for cost share-eligible practices is estimated to be \$2,269,400 per year (annualized present value \$2,125,618). Over the 10 years of full implementation of the rule, we anticipate the fiscal impact to be \$22,694,000 (present value of \$17,055,068). This fiscal impact is a result of cost share programs funded through DATCP and WDNR. The department anticipates that most of the cost of additional department technical staff time required under this proposed rule can be absorbed within the agency's staff workload.

Impacts on Local Governmental Units

The department does not anticipate this rule to impact local governmental units adversely. Local governmental units are not regulated under the NR 151 agricultural performance standards and prohibitions.

Impacts on Public Utility Rate Payers

The department does not anticipate this rule to impact the public utility rate payers adversely. The intent of the rule is to reduce the potential for municipal well replacement and treatment due to nitrate contamination of groundwater. This cost avoidance is a benefit to utility rate payers.

Impact on Small Businesses

While some farms impacted by this rule may be large businesses, for the purpose of this analysis the department assumes that all farms impacted by the rule are small businesses. Refer to the analysis above. Based on the department's preliminary analysis, the economic impact is estimated to be moderate, including less than \$10 million in compliance and implementation cost over any 2-year period.

15. Benefits of Implementing the Rule and Alternative(s) to Implementing the Rule

Protecting groundwater from nitrate contamination will reduce the need for drinking water treatment, well replacement, and health care due to nitrate-related illness. Reducing these needs will avoid associated costs.

Direct Health Impact Cost (Medical Cost) of Nitrate Contamination

According to (Mathewson, 2020), approximately 28% of Wisconsin's population relies on groundwater from private wells. Approximately 10% of all private wells and more than 20% of private wells in agricultural areas in Wisconsin have nitrate concentrations above the public health standard of 10 mg/l (Mathewson, 2020).

The Wisconsin Department of Health Services attributes adverse health effects to nitrate contamination in drinking water including colorectal cancer, thyroid diseases, and adverse birth outcomes (e.g., methemoglobinemia). The medical cost attributed to nitrate contamination of drinking water in Wisconsin is estimated to be between \$23 million and \$80 million per year (Mathewson, 2020).

Drinking Water Infrastructure Cost Avoidance

Well replacements, drilling of deeper wells, and installation of treatment systems due to nitrate contamination of public and private drinking water sources come with significant costs. The department estimates that the average cost to replace a private well is approximately \$12,000, and the cost to replace a municipal well is between \$150,000 and \$250,000. The Wisconsin Groundwater Coordinating Council, in its Report to the Legislature, Fiscal Year 2020, gives the following

ADMINISTRATIVE RULES Fiscal Estimate & Economic Impact Analysis

estimates:

- 10% of private wells in Wisconsin have nitrate levels that exceed the public health standard and the cost of replacement for these wells is in excess of \$440 million.
- Private well owners have already spent \$9 million in replacing wells because of nitrate contamination.
- Municipalities have spent over \$40 million to minimize nitrate contamination of drinking water.
- Data suggests that there will need to be solutions to nitrate contamination of drinking water for about 350 systems at schools, day cares, motels, restaurants, taverns, campgrounds, parks and gas stations, totaling about \$4 million.

One alternative to implementing the rule is to do nothing, which does not ensure that groundwater quality standards will be met in the targeted areas identified in the rule. Another alternative is to expand the targeted area by relaxing the criteria used to identify nitrogen restricted areas, which are based on groundwater data. The Department is proposing a rule that is targeted to those areas of the state identified as the most vulnerable to groundwater nitrate contamination.

16. Long Range Implications of Implementing the Rule

The protection of public health and avoidance of costs associated with groundwater nitrate contamination are long-term benefits. For producers, changes in practice may be required. For non-permitted operators, those changes will be required only if accompanied by cost share dollars for eligible practices. Permitted operators (CAFOs) will be required to implement changes for compliance through their 5-year WPDES permit.

17. Compare With Approaches Being Used by Federal Government

The federal government does not directly regulate nitrogen leaching to groundwater in the targeted area identified in this rule.

18. Compare With Approaches Being Used by Neighboring States (Illinois, Iowa, Michigan and Minnesota)

There are similarities to nutrient management practices such as timing and rates of commercial nitrogen fertilizer or manure applications and setback distances to public drinking water supplies with neighboring states. Most adjacent states take a targeted approach to nutrient management that includes regulation and voluntary recommendations. Minnesota, Iowa, Indiana, Michigan, and Nebraska target practices to limit leaching of nitrate in areas susceptible to groundwater contamination. Minnesota and Nebraska have comprehensive rules with the goal of protecting groundwater from nitrate contamination. Iowa has a groundwater protection fee tacked onto the cost of nitrogen fertilizers.

19. Contact Name	20. Contact Phone Number
Mike Gilbertson	608-267-7628

This document can be made available in alternate formats to individuals with disabilities upon request.

ADMINISTRATIVE RULES Fiscal Estimate & Economic Impact Analysis

ATTACHMENT A

1. Summary of Rule's Economic and Fiscal Impact on Small Businesses (Separately for each Small Business Sector, Include Implementation and Compliance Costs Expected to be Incurred)

The department anticipates that most of the entities impacted are small business. For the purpose of this analysis, the department assumed the economic impact of this rule is the same for small business. See section 14 above.

2. Summary of the data sources used to measure the Rule's impact on Small Businesses

Mathewson, P.D., Evans, S., Byrnes, T., Joos, A., & Naidenko, O.V. Health and economic impact of nitrate pollution in drinking water: a Wisconsin case study. Environmental Monitoring Assessment 192, 724 (2020).

<https://doi.org/10.1007/s10661-020-08652-0>

Schnitkey, G., Coppess, J., and Paulson, N. Cost and Benefits of Cover Crops: An Example with Cereal Rye. Department of Agricultural and Consumer Economics. University of Illinois. Farmdoc Daily (6):126 (2016).

<https://farmdocdaily.illinois.edu/2016/07/costs-and-benefits-of-cover-crops-example.html>

University of Wisconsin, Center for Dairy Profitability, 'Transitioning in Steps: Costs of Modernization,' February, 2005.

Wisconsin Department of Health Services. Nitrate in private water Wells.

<https://www.dhs.wisconsin.gov/water/nitrate.htm>

Wisconsin Groundwater Coordinating Council, Report to the Legislature, Fiscal Year 2020.

<https://dnr.wi.gov/topic/groundwater/documents/GCC/Report/FullReport.pdf>

3. Did the agency consider the following methods to reduce the impact of the Rule on Small Businesses?

- Less Stringent Compliance or Reporting Requirements
- Less Stringent Schedules or Deadlines for Compliance or Reporting
- Consolidation or Simplification of Reporting Requirements
- Establishment of performance standards in lieu of Design or Operational Standards
- Exemption of Small Businesses from some or all requirements
- Other, describe:

The rule allows options and flexibility for ways to comply with the new requirements.

4. Describe the methods incorporated into the Rule that will reduce its impact on Small Businesses

The rule includes exceptions and options for compliance with the prohibition requirements. In many cases, state cost sharing is required for installing qualified practices for compliance.

5. Describe the Rule's Enforcement Provisions

Permitted CAFO farms will be required to comply with this rule through their WPDES permit. Non-permitted farms may be required to comply when cost sharing is required and available through state grant programs, or in limited circumstances when cost sharing is not required. Local units of government may implement this rule through an ordinance.

6. Did the Agency prepare a Cost Benefit Analysis (if Yes, attach to form)

- Yes No
-