



## Legislative Fiscal Bureau

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Joint Committee on Finance

Paper #158

### **Nitrogen Optimization Grants (Agriculture, Trade and Consumer Protection – Environment)**

[LFB 2021-23 Budget Summary: Page 64, #4]

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#### **CURRENT LAW**

The Departments of Natural Resources (DNR) and Agriculture, Trade and Consumer Protection (DATCP) operate a variety of nonpoint source water pollution abatement programs that seek to reduce nonpoint runoff in urban and agricultural settings. In particular, nonpoint prevention efforts in agricultural settings often seek to optimize nutrient application used to improve crop yields by reducing total applications of nutrients, or improving timing and placement of nutrients.

A common component of nutrients applied to agricultural fields is nitrogen, which when introduced to surface water or groundwater may reduce water quality, threaten wildlife, and adversely affect human health. DATCP operates a nutrient management planning program, which provides grants to landowners to implement planning practices to more effectively apply nutrients in agricultural settings to increase crop yields, and prevent and reduce nonpoint runoff. Further, DNR and UW System collaborators support research and technical assistance related to nutrient application and nonpoint runoff to develop and implement best management practices and regulatory standards that provide targeted strategies to prevent and control nonpoint runoff.

The UW-Madison College of Agriculture and Life Sciences (CALs) is dedicated to research, education, and promotion of food, agriculture, bioenergy, health, the environment and human well-being. Approximately 75 UW-CALs faculty and academic staff hold cooperative extension appointments, working closely with staff of the UW-Madison Division of Extension to provide information and recommendations to local communities and businesses. Additionally, CALs operates 12 agricultural research stations across the state dedicated to field research and education in the fields of agronomy, animal sciences, biological systems engineering, dairy science, entomology, forest ecology and management, genetics, horticulture, plant pathology, and

soil science.

The UW-Madison Division of Extension (UW-Extension) provides educational programs related to agriculture and other topics through an office located in every county in the state. As part of UW-Extension agriculture programming, educators work in local communities through activities such as working directly with farmers and other agricultural producers, engaging with community leaders, and providing information publicly through newspapers, radio, or television programs. Educators provide information on topics including safe and healthy agricultural practices, farm profitability, farm succession and planning, using resources in a sustainable way, and best practices for growing various crops.

UW-Extension operates the Discovery Farms program, which evaluates nutrient management strategies and nonpoint source runoff reduction practices by monitoring use of such practices at commercial farms throughout the state. Discovery Farms operates a nitrogen use efficiency program, which collaborates with agricultural producers to conduct on-farm data collection and research to determine optimal nitrogen use practices and develop recommendations specific to Wisconsin crop systems and soils.

The UW-Stevens Point Center for Watershed Science and Education is operated as a partnership between the UW-Stevens Point College of Natural Resources and UW-Extension. The Center is dedicated to assisting local communities with water quality problems by: (a) providing water quality assessments and technical support; (b) promoting water resource management strategies that protect waterbodies; and (c) educating students for careers in water resource management.

## **DISCUSSION POINTS**

1. Nitrogen and the nitrogen-containing compound nitrate are naturally occurring in the environment, but may also be introduced from sources such as nitrogen fertilizers, animal manure, and human waste from septic systems or wastewater treatment facilities. Excess nitrogen applications in agricultural processes is known to produce nonpoint source water pollution, which may have adverse impacts on surface water quality as high nutrient loads in water bodies increase the concentration of algae, threaten native species, reduce water clarity, and deplete oxygen concentrations.

2. State and federal nitrate drinking water standards limit nitrate concentrations to no more than 10 parts per million (ppm). High levels of nitrates negatively impact the ability of blood in a person's body to carry oxygen, which can cause a harmful health condition known as "blue baby syndrome" in infants. Studies suggest that high levels of nitrates may also increase the risk of other health problems, such as thyroid disease, diabetes, and some types of cancer. DNR and the Department of Health Services (DHS) recommend that no infant or woman who is or may become pregnant should consume any water that exceeds the nitrate standard. Further, DHS recommends that all people avoid long-term consumption of water that has a nitrate level greater than 10 ppm. DNR estimates approximately 6% of private wells in Wisconsin have concentrations of nitrate exceeding 10 ppm, which may be from human or agricultural sources.

3. Assembly Bill 68/Senate Bill 111 would create a continuing appropriation and provide \$500,000 GPR in 2021-22 for grants to agricultural producers, in collaboration with eligible UW programs, to conduct research projects on agricultural lands intended to reduce nitrate loading and improve water quality. The bill would require producers to collaborate with a UW institution to monitor their project, collect data, and make recommendations for optimal use of nitrogen. Under the bill, eligible UW institutions would be UW-Madison CALS, the UW-Stevens Point Center for Watershed Science and Education, and UW-Extension. AB 68/SB 111 would limit grants to \$125,000 per recipient, no more than 50% of which could be provided to the UW collaborator.

4. DATCP intends that nitrogen optimization grants would support research projects to identify specific agricultural practices that reduce nitrogen runoff and contamination of surface water and groundwater. The Department suggests grants could support the development of modelling strategies, and design and testing of soil health practices, nitrogen application strategies, edge-of-field vegetative treatment areas, in-field sensors, and groundwater monitoring equipment. DATCP intends that projects would represent pilots of strategies to reduce nitrogen runoff and associated research would demonstrate their effectiveness, allowing the Department to scale successful projects for implementation statewide.

5. DNR is in the process of promulgating updated rules related to nitrogen application in agricultural settings in order to establish a targeted performance standard for nitrogen use in areas of the state identified as sensitive to nitrogen runoff or groundwater leaching. In general, performance standards establish a level of allowable runoff from fields which, if exceeded, may begin to negatively affect local surface water bodies or groundwater. In order to meet such performance standards, agricultural producers must implement best management practices such as nutrient management planning, cover cropping, runoff control structures, and vegetative filter strips. Research related to effective practices for prevention of agricultural runoff continues to evolve, and best management practices are updated to reflect this research. Provision of additional funding, as proposed in AB 68/SB 111, would support continued development of best management practices that must be implemented to meet water quality standards. It is expected that continued development of best management practices will improve their effectiveness, lower their cost, and identify new methods, which will lower the burden on agricultural producers for implementing such practices.

6. From March through September of 2019, the bipartisan Speaker's Task Force on Water Quality, consisting of 11 members from the Assembly and four members from the Senate, held 14 hearings throughout Wisconsin to study determinants of water pollution, engage with stakeholders and water quality professionals, review best practices and possible solutions to water quality problems, and make recommendations to improve water quality in Wisconsin. As part of its final report and recommended legislation, the Task Force proposed 2019 Assembly Bill 796/Senate Bill 718. AB 796/SB 718 would have provided \$1,000,000 GPR each year beginning in 2020-21 in a continuing appropriation for grants to agricultural producers and collaborating UW programs to implement projects that reduce nitrate loading or optimize nitrogen use while improving water quality. The bill, as amended, would have limited grants to \$50,000 per project, with up to 20% of a grant supporting research by the UW collaborator. 2019 AB 796 passed the Assembly on February 18, 2020, by a vote of 98, but failed to pass the Senate pursuant to SJR 1. Both AB 796 and SB 718 were recommended for passage by the Joint Committee on Finance by a vote of 16-0.

7. The UW-Extension Discovery Farms nitrogen use efficiency program collaborates with agricultural producers to operate on-farm monitoring of nitrogen runoff and establish recommended nitrogen application practices specific to conditions found in Wisconsin. Further, UW System researchers study surface water and groundwater contamination, and UW-Extension agricultural agents collaborate with agricultural producers to implement best management practices to prevent such contamination. Thus, nitrogen optimization grants could be considered duplicative of existing efforts related to nonpoint runoff research and prevention activities. However, DATCP contends that existing programs do not provide funding to support pilot projects exploring new practices or innovation related to existing practices, and that nitrogen optimization grants would allow producers to test such practices in collaboration with UW entities currently conducting research on nonpoint runoff and groundwater contamination.

8. Grant programs related to prevention and control of nonpoint source water pollution are primarily funded from the nonpoint account of the environmental fund. For example, similar grants under current law related to nutrient application and best management practices in agricultural settings are provided from nonpoint SEG. However, provision of nonpoint SEG funding for nitrogen optimization grants is dependent on availability of funding in the nonpoint account. Based on Committee action as of June 3, 2021, the nonpoint account is anticipated to have a June 30, 2023, available balance of \$8.8 million, equal to an increase of approximately \$3.4 million during the 2021-23 biennium. Thus, across all budget items related to nonpoint programs, the Committee could consider providing an additional approximately \$1.7 million nonpoint SEG each year in ongoing expenditures while still maintaining balance with available revenues. Further, the Committee could consider allocating a portion of the fund balance as one-time funding, although any ongoing funding allocations that exceed available annual revenues could limit future availability of funding for nonpoint programs.

9. Given the potential benefits to surface water and groundwater, wildlife, and human health of reduced nitrogen runoff and nitrate loading in Wisconsin waterbodies, and the opportunity to support development of best management practices that are more effective and less burdensome on farmers, the Committee could consider providing \$500,000 GPR in 2021-22 for nitrogen optimization grants of up to \$125,000 per recipient, with a maximum of 50% allocated to UW collaborators [Alternatives 1a and 3a].

10. The Committee could also consider adopting the Speaker's Task Force on Water Quality recommendations to provide \$1,000,000 GPR each year on an ongoing basis for nitrogen optimization grants [Alternative 2a], and/or limiting grant awards to \$50,000 per project, with up to 20% supporting UW collaborator activities [Alternative 3b].

11. Given that the nonpoint account is the primary source of funding allocated to nonpoint activities, the Committee could consider providing funding as nonpoint SEG, rather than GPR [Alternatives 1b or 2b].

12. Grant programs typically operate under rules promulgated by a department and approved by the Legislature. Rulemaking allows a Department to delineate a grant-making process and provides clarity and certainty for applicants. Consideration could be given to requiring DATCP to promulgate rules to implement the nitrogen optimization program [Alternative 4].

13. Given existing efforts by UW-Extension agricultural agents, the Discovery Farms program, and UW System researchers, the Committee could also consider taking no action [Alternative 5].

## ALTERNATIVES

1. Create a continuing appropriation and provide \$500,000 in 2021-22 for grants to agricultural producers, in collaboration with eligible UW programs, to conduct research projects on agricultural lands intended to reduce nitrate loading and improve water quality. Require producers to collaborate with a UW institution to monitor their project, collect data, and make recommendations for optimal use of nitrogen. Define eligible UW institutions as UW-Madison CALS, the UW-Stevens Point Center for Watershed Science and Education, and UW-Extension. Specify that funding be provided from:

- a. GPR; or

ALT 1a	Change to Base
GPR	\$500,000

- b. Nonpoint SEG.

ALT 1b	Change to Base
SEG	\$500,000

2. Create a continuing appropriation and provide \$1,000,000 each year of the 2021-23 biennium on an ongoing basis for grants to agricultural producers, in collaboration with eligible UW programs, to conduct research projects on agricultural lands intended to reduce nitrate loading and improve water quality. Require producers to collaborate with a UW institution to monitor their project, collect data, and make recommendations for optimal use of nitrogen. Define eligible UW institutions as UW-Madison CALS, the UW-Stevens Point Center for Watershed Science and Education, and UW-Extension. Specify that funding be provided from:

- a. GPR; or

ALT 2a	Change to Base
GPR	\$2,000,000

- b. Nonpoint SEG.

<b>ALT 2b</b>	<b>Change to Base</b>
SEG	\$2,000,000

3. Specify the following limitations on award of grant funding:
  - a. Limit grants to \$125,000 per recipient, no more than 50% of which could be provided to the UW collaborator.
  - b. Limit grants to \$50,000 per recipient, no more than 20% of which could be provided to the UW collaborator.
4. Require DATCP to promulgate rules to administer the nitrogen optimization grant program.
5. Take no action.

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