



Sept 3, 2024

Minnesota Pollution Control Agency
ATTN: George Schwint
12 Civic Center Plaza, Ste 2165
Mankato, MN 56001

RE: Minnesota Pork Producers comments for the National Pollutant Discharge Elimination System (NPDES) and the general State Disposal System (SDS) Permits

Thank you for the opportunity to comment on the draft Minnesota Feedlot NPDES and SDS permit.

Minnesota's more than 3,000 family pig farmers are committed to doing right for pigs, people, and the planet. As environmental stewards, we understand our responsibility to operate our farms in a way that preserves and protects our shared natural resources while complying with the feedlot rules and the conditions in the NPDES and SDS permits.

As farmers and permit holders, we appreciate the outreach and meetings held during the process to gain input, yet we are discouraged that suggestions, feedback, and questions were not incorporated or answered in the draft permit.

Our comments relate to issues around limiting practices for farmers applying fall manure in vulnerable groundwater areas, changing transferred manure requirements, and establishing application site inspections.

Concern One– Cover crops for fall manure application in vulnerable groundwater areas.

The single largest concern that our members have shared is the proposal to limit the fall application of manure on soils in vulnerable groundwater areas. The only allowable fall practices are cover crops, perennials in the rotation, or application into a growing crop. Spring manure application presents farmers with many challenges and could cause unintended consequences. The spring planting season is already shorter than the fall season, making the logistics of hauling manure and preparing and planting a field difficult, even under good conditions. This requirement will also strain manure pumping equipment, spring road weight restrictions, and custom applicators during a short window of suitable field conditions in the spring. Farmers have also shared concerns about increased soil compaction, reduction in water infiltration, and potential for increased surface runoff if manure must be applied in the spring as their only option to be compliant.

We believe cover crops have the potential to help mitigate nitrogen losses. However, the science suggesting their potential effectiveness is inconclusive, and they should not be the only practice that would allow for fall application in these areas.

Many factors influence the effectiveness of cover crops, including planting timing, available moisture, length of growing season, and soil temperature conditions. It is well documented that plant uptake and biomass production are critical for cover crops to be successful in storing nitrogen.

The draft permit looks to implement a one-size-fits-all approach for cover crops. This requirement has shown agronomic and economic challenges for farmers because a single practice change uniquely impacts the biological system and management approach for each farmer. Plastina A, Liu F, Miguez F, Carlson S (2020). Cover crops use in Midwestern US agriculture: perceived benefits and net returns. *Renewable Agriculture and Food Systems* 35, 38–48. <https://doi.org/10.1017/S1742170518000194>.

The University of Minnesota, in a replicated study, documented that the weather allowed for adequate cover crop growth during one of four seasons. (Vetsch, J. 2020. Vegetative cover crops as a nitrate reduction strategy for tile drainage water. Four-year final report available at mncorn.org.)

Available moisture at the time of planting a cover crop can significantly impact the potential vegetative growth and emergence/establishment of a cover crop. University of Minnesota researchers authored a project which argued that “in rainfed agriculture of northern climates weather conditions drive the success of cover crops use in conventional maize production systems”. Rusch, H.L., Coulter, J.A., Grossman, J.M., Johnson G.A., Porter, P.M and Garcia y Garcia. A., 2020. Towards sustainable maize production in the U.S. upper Midwest with interseeded cover crops. *PLoS ONE* 15(4): e0231032. <https://doi.org/10.1371/journal.pone.0231032>.

The timing of planting during the growing season also plays a massive role in the effectiveness of cover crops. Again, University of Minnesota researchers have said, “Cover cropping practice provides promising opportunities for reductions in N losses for cropping rotations wherein the primary crops are harvested before mid-September and planted after mid-May.” Feyereisen, G.W., Wilson, B.N., Sands, G.R., Strock, J.S., Porter, P.M. 2006. Potential for a rye cover crop to reduce nitrate loss in southwestern Minnesota. *Agron. J.* 98, 1416-1426.

This window can limit farmers' opportunities to plant, harvest, apply nutrients, and establish a cover crop in a growing season. Farmers need more options to make the best decision according to the conditions and the best management practices they can successfully implement.

Finally, soil moisture and temperature, along with remaining growing degree days (GDD), can determine the effectiveness of a cover crop planted for scavenging nitrogen. Dr. Melissa Wilson's paper considered soil moisture content, soil temperature, and water potential of different soil types where rye was aerially applied. Her work showed that "These results suggest that overseeding a rye cover crop, including aerial seeding, may not be of practical value in more northern climates if the sole intention is to scavenge N." Dr. Wilson also concluded that "It is likely that areas with a longer growing season may experience more benefit from the use of cover crops if the main goal is to scavenge N." Wilson M, Baker J, and Allan D (2013) Factors affecting successful establishment of aerially seeded winter rye. *Agronomy Journal* 105/6 1868-1877.

Recommendation – Provide additional best management practices for applying fall manure on vulnerable soils throughout Minnesota.

Farmers utilize various best management practices to protect water quality, build soil health, and reduce emissions. This also means applying different practices across their farm to best meet the needs of each field, crop, weather condition, and input. For these reasons, we strongly encourage the MPCA to consider maintaining section 13.5 and applying it to all fall manure applications. That section includes **applying manure after soil temperatures reach 50 degrees Fahrenheit or colder, implementing nitrification inhibitors, and the split application/reduced rate application of manure**. Stacking best management practices that provide multiple benefits is common and should be considered for changes related to manure applications.

It is well documented that waiting to apply manure and commercial fertilizer until **soil temperatures reach below 50 degrees Fahrenheit** will significantly reduce the nitrogen conversion process by soil microbes. The University of Minnesota, through its nutrient management team, suggests fall nutrient applications should be directed by soil temperature rather than by date. ([Minnesota Crop News – 1/1/24](#)) The current draft permit removed this BMP option.

Additionally, Dr. Melissa Wilson's research in modernizing the University of Minnesota manure recommendations reports that "waiting until after soils had cooled to below 50°F resulted in similar or better corn yields than spring fertilizer. This trend happened regardless of whether cover crops were planted or not." This underlines how critical soil temperature is in reducing nitrogen conversion. Additional research is needed to continue evaluating the effectiveness of cover crops as a mitigation strategy for nitrogen in Minnesota livestock and cropping system.

It is paramount that soil temperature be reincorporated as an additional option for safely applying manure on soils throughout Minnesota.

Another practice that needs to be reconsidered is utilizing **nitrification inhibitors**. Much research has been done and shows nitrification stabilizers can have a positive impact on reducing nitrogen conversions in soils where swine manure is applied. Sassman AM, Barker DW, Lundvall JP, Sawyer JE. Evaluation of fall-applied liquid swine manure with encapsulated nitrapyrin. *Soil Sci Soc Am J*. 2020;84:1751–1768. <https://doi.org/10.1002/saj2.20099>. When used in conjunction with soil temps below 50 degrees, the efficiency of inhibitors is even greater. ([Minnesota Crop News – 1/1/24](#))

There are many products commercially available today that farmers could use for nitrification inhibitors if added to their suite of options for most responsibly applying manure.

Split-applying manure continues to be a promising practice for managing nutrients. Manure provides many benefits beyond a source of nitrogen. The building of soil organic matter, other macro and micronutrients, and the microbial activity found in manure are all benefits that can also help protect water quality, build soil health, and reduce emissions. Providing farmers flexibility to split apply the manure will reduce the rate applied during the fall and reduce the overall potential leeching, runoff, and volatilization. This also allows farmers to capture the full value of the manure.

An essential consideration for split application depends on the amount of storage a swine feedlot has. While this option is viable for many sites and provides added flexibility, older sites might not have enough storage to bridge these application windows.

The agency should maintain the current permit options and provide additional options for farmers to best apply and manage their manure, including in vulnerable groundwater areas.

Concern Two- Additional requirements related to transferred manure

The draft permit will require permit holders to obtain information from manure transfer recipients, along with extending permit conditions to non-permitted farmers, adding additional barriers and further disincentivizing the utilization of manure. A serious concern our members have raised is if the farmers they transfer manure to refuse to follow the extra permit condition beyond the Chapter 7020 rules, refuse to provide the required data and information, or altogether do not accept the transfer because of the permit conditions- what options or accommodations exist for the manure originator? Often, those purchasing transferred manure are not livestock farmers themselves. Adding these requirements to non-feedlot permit holders and requiring the holder of the permit to maintain this information creates concern for the security and liability of private data.

Furthermore, placing additional burdens on transferred manure could adversely impact other environmental outcomes because of the need for additional commercial fertilizer. As mentioned, beyond the nitrogen cycle that happens when manure is utilized to grow crops,

which are in turn fed to pigs and other livestock, and their manure is recycled again, we can reduce the need for synthetic fertilizers being brought into our local cropping system. Commercial fertilizer production is energy and water-intensive and contributes significantly to additional greenhouse gas emissions, all things the state of Minnesota has goals and plans to reduce. The MPCA needs to consider the biological system in place and how these proposed changes impact the broader agricultural system in our state.

Recommendation – Maintain the current requirements around transferred manure.

Manure transfer recipients are already required to maintain records of manure application activities, which include soil and manure test information, crop type and yield, field location, application timing, rate and method, nitrogen and phosphorus accounting, and information on who applied the manure. Regardless of ownership status, these records are already maintained by those liable for the manure and should be sufficient for inspections or enforcement needs.

Concern Three– Application site inspection requirement

The premise around this new requirement is confusing and would provide negligible environmental protection. The feedlots under the NPDES and SDS permit are not allowed to discharge. Clear guidelines and protections are in place, including setbacks required around sensitive features that protect the environment from discharges related to manure application. Nearly all swine manure is incorporated at the time of application and at rates that significantly reduce the risk of observable discharges.

Recommendation—Maintain current permit conditions related to the manure application that does not exceed the application site's hydraulic loading capacity. These permits do not allow discharges, and any spill, breach, or overflow must be reported to the duty officer. Farmers will need clear guidance on compliance determination beyond checking the box in the nutrient management tool.

Thank you for considering our comments and suggestions regarding the draft NPDES and SDS Permit. We commit to remaining engaged and reasonable partners in this process and future conversations about livestock farms in Minnesota. As farmers, we, too, want to see positive environmental outcomes and remain steadfast that a one-size-fits-all approach to the proposed NPDES and SDS permits could create unintended consequences for the environment and Minnesota's family farmers.

Thank you,



Daryl Timmerman, President
Minnesota Pork Producers Association