John P. Lenczewski, Executive Director
Minnesota Trout Unlimited
PO Box 845
Chanhassen, MN 55317
612.670.1629
John.lenczewski@mntu.org

July 31, 2026

Molly Darlington
Research Scientist | Pesticide Technical Unit
Minnesota Department of Agriculture
625 Robert Street North
St. Paul, MN 55155
TreatedSeed.MDA@state.mn.us

Submitted Via Email

Ms. Darlington:

I write today on behalf of Minnesota Trout Unlimited and its thousands of members around the state to urge the Minnesota Department of Agriculture to do more to regulate the use of neonicotinoid-treated crop seeds. The MDA's own data, as well as our members' imperial observations over several decades, demonstrate that Minnesota Rules Chapter 1505 currently is not adequate to protect Minnesota's trout streams and other natural resources from pollution, impairment, or destruction caused the widespread use of neonicotinoid-treated crop seeds. We call on MDA to amend Minnesota Rules Chapter 1505 to create a regulatory program that will reduce the contamination of Minnesota's groundwater and surface waters by neonicotinoids.

Importance of aquatic resources. Minnesota Trout Unlimited is a grassroots conservation organization working to protect, restore and sustain coldwater fisheries and their watersheds across Minnesota. Our several thousand members living and working in communities around the state understand that activities on the land determine the quality of the water in streams and lakes, and the health of trout and aquatic organisms that live in these waters. We regularly work with agricultural producers to improve streams flowing through their land. These farmers care deeply about the land and water, and many share our concerns about the impacts neonicotinoids are having on our public trout streams.

MDA's files already contain extensive data and studies showing that the widespread use of neonicotinoid-treated crop seeds is causing pollution, impairment, or destruction of aquatic resources, including trout streams located in southeast Minnesota and other areas of the state with intensive cropping. We trust that MDA will now make a thorough review of

existing evidence and conclude its current approach toward regulation in Minnesota Rules Chapter 1505 is not adequate to protect Minnesota's trout streams from pollution, impairment, and destruction caused by the widespread use of neonicotinoid-treated crop seeds. I do not intend to resubmit all of MDA's own studies and data. But as an introduction before summarizing members' empirical observations of the impact of neonicotinoids on Minnesota trout fisheries, I will highlight some of the basic findings and mechanisms by which these chemicals kill the beneficial insects in our trout streams.

Aquatic insects provide the essential food which supports trout fisheries. Aquatic insects form the base of food webs that support trout fisheries. Neonicotinoid chemicals ("neonics") are engineered to kill insects indiscriminately. They continue to kill insects after they wash into public waters. The concentrations of two neonics – clothianidin and imidacloprid - are routinely found in Minnesota streams at levels harmful and lethal to aquatic insects. The MDA has determined that seeds coated with neonics are the leading source of these highly toxic, persistent neonics in Minnesota waters.[1] Yet Minnesota Rules Chapter 1505 fails to regulate neonic-treated seeds. Protecting and improving the valuable public trout fisheries in agricultural areas of the state requires MDA to act to protect the aquatic insect populations that trout depend on.

Neonics decimate aquatic insects and ecosystems. Neonics are highly toxic to the aquatic insects that form the base of aquatic food webs. MDA's own data show "elevated and concerning" neonic concentrations in Minnesota's surface waters. Levels routinely exceed the U.S. Environmental Protection Agency's chronic aquatic life benchmark (ALB) for harm to aquatic invertebrates. MDA concluded that its analysis "strongly suggests that clothianidin and imidacloprid concentrations over the EPA's chronic ALB are sustained for periods more than 21 days in rivers and streams across western and southern Minnesota."[2] These elevated neonic concentrations are correlated with corn and soybean planting season, which "strongly suggests that neonicotinoids from seed treatments are the primary source of detections and are rapidly transported to rivers and streams after planting."[3]

Neonics are pervasive. Neonics are "systemic," meaning they are water soluble, and long lasting. This allows them to rapidly contaminate surface and groundwater and stick around for up to three years. Recent research in Minnesota showed neonics in 97% of water samples from rivers and streams, and 74% of groundwater samples, including at levels

---

[1] Letter from Thom Petersen, Commissioner, MDA, to Michael Regan, Administrator, U.S. Environmental Protection Agency, Sub: [MDA] comments on the U.S. Environmental Protection Agency's request for information and comment on Requirements Applicable to Treated Seed and Treated Paint Products in docket number EPA-HQ-OPP-2023-0420 located at www.regulations.gov (Feb. 9, 2024), attached as Attachment 1.
[2] *Id at page7*.
[3] *Id at page 8*.

above that kill aquatic insects.[4] Data collected by MDA confirms that neonic-treated seeds are the leading source of harmful neonic contamination in Minnesota waters. Highest levels are detected in May, June and July, and following the agricultural crop planting season.[5]

Empirical evidence gathered by Trout Unlimited members indicates that impairment and destruction of insect populations has been occurring. Many, or most, of our several thousand members are fly anglers who pay very close attention to the hatching of aquatic insects on Minnesota and Midwest trout streams. The major aquatic insect hatches on trout streams follows an annual seasonal progression that is largely predictable. Artificial flies are created and fishing trips planned to coincide with each specific hatch. Close observation of aquatic insect activity is made during each stream visit, and the sharing of hatching "intel" with fellow trout anglers has been an integral part of the sport for decades. The density of hatches of adult insects large enough to attract trout to the surface is closely watched, as is their duration. In short, Minnesota trout anglers notice and care about the presence, intensity and frequency of aquatic insects. They notice when aquatic insect populations decline or disappear.

The empirical observations of many Minnesota trout anglers, me included, indicate that many formerly dependable, dense insect hatches have largely disappeared from southeast Minnesota trout streams over the past 20 or 30 years. The near disappearance of major mayflies in the family Ephemerellidae is particularly noticeable and troubling. Those anglers who, like me, have also fished non-agricultural areas of Minnesota and Wisconsin for decades have also observed that hatches of these same mayfly species remain strong in non-agricultural areas. This disparity is strong evidence that the cause of the declines in mayflies populations observed in southeast Minnesota streams is due to agricultural practices. Water quality monitoring by the MPCA in the Whitewater River tied declines in macroinvertebrates to neonicotinoids.[6] The elevated (toxic) concentrations of neonicotinoids documented by MDA's own water sampling also strongly suggests neonicotinoids in the water is the culprit.[7]

Please see the comments submitted by our Twin Cities Chapter of Trout Unlimited on July 28, 2026 for further documentation of the empirical evidence gathered by trout anglers.

---

[4] Berens, M.J., Capel, P.D., Arnold, W.A. 2021. "Neonicotinoid insecticides in surface water, groundwater, and wastewater across land-use gradients and potential effects." Environmental Toxicology and Chemistry 40(4), pp. 1017–1033. https://doi.org/10.1002/etc.4959

[5] "Detection Patterns of Neonicotinoid Insecticides in Minnesota Rivers and Streams, 2018 through 2022", MDA

[6] MPCA, Mississippi River Winona/ La Crescent Watersheds Stressor Identification Update (April 2026). https://www.pca.state.mn.us/sites/default/files/wq-ws5-07040003c.pdf

[7] Attachment 1

Research supports link between observed insect declines and neonicotinoid exposure. Recent peer-reviewed research provides direct empirical evidence that neonicotinoid exposure causes declines in aquatic insects and disrupts aquatic communities. In a three-month field experiment using naturally established communities, Barmentlo et al. (2021) found that thiacloprid exposure substantially reduced the abundance and biomass of emerging insects across five major insect orders and reduced insect diversity.[8] Schmidt et al. (2022) similarly found that imidacloprid and clothianidin caused losses in stream-invertebrate abundance, biomass, and richness, with field data from 85 California streams supporting the ecological relevance of the experimental results.[9] Subsequent research found that neonicotinoid exposure progressively reduced the number and strength of relationships among species, ultimately causing aquatic community networks to collapse and disrupting freshwater ecosystem function (Barmentlo et al. 2025).[10] Hermann et al. (2025) also documented significant losses of aquatic insect abundance and biomass following imidacloprid exposure and found that elevated temperatures can intensify these effects.[11] Together, these studies demonstrate that neonicotinoid contamination can directly diminish aquatic insect populations and disrupt the broader aquatic food webs upon which trout and other wildlife depend.

Economic impact of recreational trout angling in southeast Minnesota. The unique geological conditions in the southeast Minnesota karst region are responsible for the numerous cold, productive trout streams there. The trout fisheries in this "Driftless Area" draw trout anglers from across Minnesota, the Midwest and the county. I and Trout Unlimited members care deeply about these fisheries and trout-centered recreation is important to our quality of life. For many of us trout streams are the places where we embrace Minnesota's angling heritage and culture. While we draw great enjoyment from trout angling outings or a family meal of trout for their own sake, trout-focused recreation also has a substantial economic benefit for the State.

In 2015 Trout Unlimited commissioned an economic study of the economic impact of trout fishing in the Driftless Area. Because the study was based upon the number of trout anglers in each state (trout stamp buyers), the economic impact of trout angling in just

---

[8] Barmentlo, S. H., Schrama, M., de Snoo, G. R., van Bodegom, P. M., van Nieuwenhuijzen, A., & Vijver, M. G. (2021). Experimental evidence for neonicotinoid-driven decline in aquatic emerging insects. Proceedings of the National Academy of Sciences, 118(44), e2105692118. https://doi.org/10.1073/pnas.2105692118

[9] Schmidt, T. S., Miller, J. L., Mahler, B. J., Van Metre, P. C., Nowell, L. H., Sandstrom, M. W., Carlisle, D. M., Moran, P. W., & Bradley, P. M. (2022). Ecological consequences of neonicotinoid mixtures in streams. Science Advances, 8(15), eabj8182. https://doi.org/10.1126/sciadv.abj8182

[10] Barmentlo, S.H., Schrama, M., Cieraad, E., de Snoo, G.R., Musters, C.J.M., van Bodegom, P.M. and Vijver, M.G. (2025), Networks in Aquatic Communities Collapse Upon Neonicotinoid-Induced Stress. Ecology Letters, 28: e70121. https://doi.org/10.1111/ele.70121

[11] Hermann, M., Amekor, M. K., Contrucci, E., Evarita, A. M., Peeters, E. T. H. M., & Van den Brink, P. J. (2025). Multiple stressor effects of a neonicotinoid, heatwaves, and elevated temperatures on aquatic insect emergence. Environmental Science & Technology, 59, 14226–14238. https://doi.org/10.1021/acs.est.5c01498

southeast Minnesota could be determined. The study showed that the total economic impact of trout angling in southeast Minnesota in 2015 was $874,000,000 annually.[12] And since 2015 the number of trout anglers driving this economic engine has increased by 32%.[13]

Neonicotinoid-treated crop seeds have not been shown to offer any overall economic benefit to farmers compared to untreated seeds. The increased cost of treated seeds is greater than any marginal increase in yield. It makes no sense to needlessly diminish one important economic driver (trout angling) by using a practice that has not been shown to provide increased economic benefits to local farmers. It may be that neonicotinoid-treated crop seeds have a place in some locations and circumstances. The MDA needs to develop a regulatory program restricting the use of treated seeds to locations where the necessity for using these persistent insect killers is demonstrated.

We urge the Minnesota Department of Agriculture to move quickly to begin a rulemaking process to create a regulatory program, under Minnesota Rules Chapter 1505 or elsewhere, that will reduce the contamination of Minnesota's groundwater and surface waters by neonicotinoids, including neonicotinoid-treated crop seeds. Public rulemaking will allow our neighbors who farm to have a voice in designing a regulatory program that works for their farms and families, while ensuring that pesticide-treated seeds are used only where needed and neonicotinoids are kept out of surface waters and groundwater. We look forward to participating in that rulemaking process.

Respectfully,

John Lenczewski

Attachments (2):

Attachment 1: Letter from Thom Petersen, Commissioner, MDA, to Michael Regan, Administrator, U.S. Environmental Protection Agency re docket number EPA-HQ-OPP-2023-0420 dated February 9, 2024.

Attachment 2: "Economic Impact of Recreational Trout Angling in the Driftless Area", November 2016

[12] "Economic Impact of Recreational Trout Angling in the Driftless Area", November 2016, attached as Attachment 2.
[13] Minnesota Department of Natural Resources, Historical License Sales dataset. https://files.dnr.state.mn.us/rlp/licenses/historical_licenses.xlsx