



SIERRA CLUB

NORTH STAR CHAPTER

North Star Chapter
2300 Myrtle Avenue Suite 260
Saint Paul, MN 55114

March 8, 2022

Re: Testimony on HF 3751

Minnesota House Agriculture Finance and Policy Committee members,

The Sierra Club North Star Chapter represents over 80,000 Minnesotans working to help our state's communities flourish through environmental protection, and we appreciate the opportunity to submit testimony on this important bill.

The North Star Chapter fully supports this legislation (HF3751) to prohibit the sale of pesticide and fertilizer that is coated with plastic or other non-biodegradable materials.

We know that plastics break down due to physical action (plowing/harrowing), UV radiation weakening the plastic, or biological degradation. Pieces greater than 5 mm will break down to microplastics (between 0.1 mm and 5.0 mm) and nanoplastics (< 0.1 mm). According to researchers, "more microplastics pollution is getting into farm soil than oceans—and these tiny bits are showing up in our fruits, veggies, and bodies." (Peterson, Kate S., 2020)

Although research on microplastics is still ongoing, preliminary findings suggest:

- Chemicals, such as pesticides, may become attached to plastic particles and be carried into surface and groundwaters.
- Plastics can alter the compositions of organisms in the soil. "Overall, our field-based microplastic additions resulted in reductions of abundance and shifts in the community composition of soil fauna, especially at the high level of microplastic concentration (Dunmei, et. al., 2020).
- Microplastics can travel through the soil into aquifers (especially in karst regions such as those in the SE part of Minnesota), and interfere with soil invertebrates and microorganisms (Wanner, Philipp, 2021).
- Plastics may also be a vector for other toxic materials. A researcher at Kansas State University studied wheat grown in different concentrations of plastic and cadmium, a toxic metal. She found that "the plants grown with microplastics were more cadmium-contaminated. The plastics really were acting as the vector for uptake of the cadmium" (Peterson, Kate S., 2020).
- Plastics in the soil can threaten drinking water supplies. "Hence, the deposited plastic in agricultural soils likely poses a major risk for underlying aquifers and drinking water

supplies that rely on groundwater resources below farmlands to be contaminated by plastic and pesticides” (Wanner, Philipp, 2021).

This research demonstrates that “improved regulatory measures are necessary regarding the general usage of plastic in the farming process to protect aquifers and drinking water supplies from plastic and pesticide contamination and to avoid a potential human health hazard” (Wanner, Phillip, 2021).

HF 3751 represents a crucial step toward such regulatory measures. We support this bill and ask that you approve it.

Thank you,

Steve Ring
Chair, Water and Wetlands
Sierra Club North Star Chapter

References:

Lin Dunmei, Yang Guangrong, Dou Pengpeng, Qian Shenhua, Zhao Liang, Yang Yongchuan and Fanin Nicolas, 2020, “Microplastics negatively affect soil fauna but stimulate microbial activity: insights from a field-based microplastic addition experiment”, *Proc. R. Soc. B.*, **287**, 20201268, <http://doi.org/10.1098/rspb.2020.1268>

Philipp Wanner, “Plastic in agricultural soils – A global risk for groundwater systems and drinking water supplies? – A review”, *Chemosphere*, Volume 264, Part 1, 2021, 128453, ISSN 0045-6535, (<https://www.sciencedirect.com/science/article/pii/S0045653520326485>)

Kate S. Peterson, “Microplastics in farm soils: A growing concern”, *Environmental Health News*, August, 2020, <https://www.ehn.org/plastic-in-farm-soil-and-food-2647384684.html>