

Kenneth Fetterly

Ken Fetterly
23496 161st Ave
Spring Valley, MN 55975

e-mail: kfetterly@outlookcom
Phone: (507) 951-7046

This letter is in response to the open call for comments to the MPCA and other state agencies' draft proposal to address fish kills in southeast Minnesota. I live in Fillmore county, volunteer in my community, and have a hobby beef operation. While I have not been part of the public input process until now, I would welcome the opportunity to become more involved.

Today is April 30, 2024, 8:30 pm, and it's raining. On my way home from Chatfield to Spring Valley this evening, I passed a large tractor towing a large liquid manure tank/applicator. I know of the farmer, he lives about 4 miles from us, and he was fully loaded with liquid manure and driving away from his farm site. It had just started raining and perhaps he was in a hurry to get that liquid manure onto the field before the heavy rain forecast for tonight muddied the field too much to drive on. Shortly thereafter, we passed a field with unincorporated manure lying on top of bare ground. I can only guess that operator hopes it doesn't rain so much as to wash away all of the nutrients. He certainly wasn't going to get the manure incorporated into the soil before tonight's rain.

The 2023 legislature called for a plan to prevent fish kills due to liquid manure runoff in southeast Minnesota. The joint statement(s) by the Minnesota agencies involved falls well short, preferring instead to find ways to placate the legislative process without making substantive changes (perhaps to avoid upsetting feedlot operators?). My comments below are based on review of "Report to the Legislature January 2024 – Preventing Fish Kills in Minnesota's Driftless Region, Recommended Strategies" (Recommended Strategies) and related documents.

1. There is nothing in the Recommended Strategies nor related documents that I have seen which actually addresses the known issue of summer application of liquid manure on hay and pasture. Here's what could be done immediately.
 - a. Reduce the amount of liquid manure per year allowed to be applied without incorporating into the soil. Given that this is a known problem, reduction by ½ would be a reasonable start. Adjust later based on the studies that MDA proposed. This real change would provide MDA motivation to ensure the proposed additional studies on the matter are done in a timely manner.
 - b. Most hay fields are harvested 3x per year. Restrict the amount of liquid manure that can be applied unincorporated during any 6 week period. ½ of 1a would be a reasonable start. Adjust later based on the studies that MDA proposed.

2. Current regulations require feedlot permits for >300 animal units, reduce this to 100 animal units.
3. Require all feedlots producing liquid manure to have a feedlot permit and manure management plan, regardless of number of animals onsite.
4. Require all permittees to declare how much solid and liquid manure they will produce.
5. Require all feedlot permittees to declare how much on-farm storage they have for liquid manure. With 4), this will allow estimation of carrying capacity (months) of on-farm storage.
6. Suggestions to increase the setback from open water or floodplain will be close to useless for preventing runoff of unincorporated surface application of liquid manure on hay. This seems like an attempt by an agency to come up with something which sounds useful to placate the process. That is that if the rain event is enough to move material and nutrients on the generally lesser slopes within the setback at the bottom of the hill, it is certainly also enough to move the unincorporated nutrients that are higher on the hills where slopes are also higher.
 - a. The implication in Recommended Strategies that nothing is known about transport of unincorporated nutrients seems exceptional to me. Any research that has been done to assess water runoff can be used to begin to infer how that same water will carry the nutrients which are dissolved in the liquid manure. Further, soil type maps are available in digital format; elevations and gradients are readily available in digital format; and certainly someone, somewhere has studied runoff on grass and/or hay fields (even if done in another state). This information can and should be combined to make reasonable recommendations now, respecting that the recommendations can be updated with the results of proposed new research.
 - b. If not already, recommendations need to understand how soil moisture content and drying days affects nutrients available to run downhill during a rain event. Likely, some of it evaporates away. Some of it soaks into the soil. If the soil is dry, then some of the remaining surface nutrients likely soak in with the first ½ or 1 inch of rain (dependent on existing soil moisture and rate of rain). With more rain, some of it likely leaches back to the surface to run off. I am optimistic that these concepts will be included in the 'forecast' system which was referenced.
7. The Recommended Strategies suggests to improve communication of recommendations to feedlot operators, hoping that this will resolve the known problems. Trusting feedlot operators to voluntarily follow guidelines has failed to now and will continue to fail to prevent problems associated with nutrient runoff. Instead, require permit activation prior to application of manure, similar to the burn permit system. The permit process can utilize the forecasting tool referred to in the Recommended Strategies.
 - a. Use a random selection algorithm to select applications to spot check the next day.
 - b. Limit number of activations per year to ensure that work is done when planned.
8. There are undoubtedly bodies of water in Minn which do not experience fish kills because they are already so polluted that they don't support aquatic life. These should be identified, and a map published on relevant state agency websites.
9. The feedlot site(s) where animals are housed should be inspected periodically and assessed whether they meet appropriate standards. This may help mitigate the point-source

pollution from these sites. Those found deficient should formalize a remediation plan administered by MDA, which should be audited by MPCA.

10. The recommendation for funding specifically for on-farm liquid manure storage is too prescriptive. Any future grant process should allow the feedlot operators to determine what equipment or facilities improvements will best fit into their operation.
 - a. Preference could be given the manure storage.
 - b. Notably, there was research published in 2023 describing the efficacy of a new applicator designed to incorporate liquid manure into standing hay fields. Initial results seemed favorable. This is an example of a novel technology that could help and which should not be excluded from grant consideration.
11. Published works which study liquid manure application onto hay fields demonstrate that application onto grass hay increases yield, that is that grass utilizes the nutrients in the liquid manure. However, it is well known that alfalfa is a nitrogen fixer, not a nitrogen user. The same studies that demonstrate efficacy of liquid manure application onto grass show relative lack of yield increase for alfalfa hay. In SE Minnesota, most liquid manure application onto hay fields in the summer is likely onto alfalfa, not grass hay fields. This legislative process should recognize that application of liquid manure onto alfalfa hay likely has limited benefit to the feedlot operation beyond getting the liquid manure out of the pits.
12. In 2023, the Fillmore County Board passed an ordinance to double the allowable feedlot size from 1000 to 2000 animal units (to my recollection). At the time, there were no Fillmore county feedlot operators asking for this change. I cannot help but think that the Board increased the feedlot size to 'get out in front' of this current legislative process to address nutrient runoff in SE Minnesota. I'm not sure there is anything for this current process to do about that, just thought I'd point out that at least one SE Minnesota county Board seems to be inclined to protect feedlot operators rather than ensure clean water. Or, perhaps the state legislative process could specify feedlot size instead of leaving it up to the counties.
13. Minnesota requires that surface application of liquid manure applied to bare ground be incorporated into the soil within a specified period. To my recollection, this was first implemented circa 1990 in Rice county, with the goal of mitigating odor. Based on observation in my neighborhood, tillage post application does not always happen in timely manner. At least one other state (Ohio) requires that the soil be tilled prior to liquid manure application. I suspect that this is because the liquid manure soaks into the freshly tilled soil much better than it soaks into untilled, bare soil. Also, the effects of sub-surface drainage tile systems on nutrient travel deserves consideration. If Minnesota is serious about mitigating surface runoff of liquid manure, then it needs to assess whether the current regulations regarding application to bare ground are working as intended or whether other strategies should be considered.