Public Listening Session Notes
Nitrogen Fertilizer Management Plan

In September 2013, the Minnesota Department of Agriculture (MDA) held 6 public listening sessions around the state. The sessions were held in Marshall, Crookston, Wadena, St Cloud, Rochester and Roseville. A total of 159 citizens attended the sessions. MDA presented information of the Plan background, structure and approach. Attendees asked questions and provided comments on the Plan. MDA staff took notes at the sessions. The compiled notes are organized by location – see attached. MDA also made "Public Comment Forms" available for attendees; MDA received 5 completed forms.

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Questions

1. What is an acceptable nitrate loss to groundwater and/or surface water? From participant who attended Rock County's Drainage Management Meeting.
2. Will homeowner survey include details on well construction, depth, age etc?
3. What is the timeline between Best Management Practices (BMPs) changes taking place and when MDA will measure water quality changes?
4. If southwest problems are "cured" – won't that take care of groundwater problems given enough time?
5. How did the committee address a singular catastrophic event? A spike? A drought season to wet year – (a flush of the system)
6. What are the health risks for high nitrates?
7. Where did the "6%" of nitrate contaminated wells in Minnesota come from? (from an early slide in the presentation) What's the source?
8. If a well is taken out of the data set (because it is an outlier –because of well const., age, etc.) – will the local team (once the issues are documented with a private well) help the well owner?
    a. Are there data privacy issues once a outlier is taken out of the data set?
    b. Don't want the local team to develop a bias
9. Small rural cities have waste water ponds that they release spring and fall – how much N is released on average?
10. There are all types of BMPs – which ones are the best?
11. Who will be on local advisory committees?
    a. Big farmers not best to have on the local board – instead use most/well respected farmers
    b. Need people with scientific background – need to avoid emotional decisions

Comments

1. Attendee wasn't aware there was an existing nitrogen management plan
2. Once prairie soil was turn by the plow – there is no way to get us back to the "natural state" – i.e. we need food and fiber for the population
3. BMPs cover both groundwater & surface water to minimize nitrate loss – but 2 different outcomes occur
4. Some families have been practicing conservation farming for over 75+ years, many producers are on the leading edge – and are ahead of academics and regulatory agencies
5. Concern about triclosan (anti-bacterial additive to soap) found in lakes in Northern Minnesota
6. Some environmental groups are opposed to large livestock farms – but if these farms go away it would be a counterproductive to the balancing act between crops and livestock
7. Too much money has been directed to defensive measures – not productive measures

Questions

1. Are nitrate results affected by well depths and other well characteristics?

2. What are some homeowner options for removing nitrates from drinking water?

3. When and how is fertilizer applied to irrigated coarse textured soils?

4. Agricultural Best Management Practices (BMPs) have been around for a long time. Is the Nitrogen Fertilizer Management Plan (NFMP) process that was described an additional step in the BMP process? (Answer: Potentially, if Alternative Management Tools (AMTs) are needed)

5. The extension educator service in Minnesota has gone through extensive cut backs over the past 10-15 years. Working at a township scale, how will the lack of University of Minnesota Extension support affect this NFMP effort?

6. Let's talk groundwater 101 for a moment. What is the difference between an aquifer and groundwater? Does groundwater flow like a river? Are there groundwater flow maps?

7. Can groundwater be aged and what are some methods used to age water? The participant had heard that groundwater that was used near Ada, Minnesota was over 300 years old.

8. Is there are record of old wells that have been sealed and who is in charge of sealing a well?

9. Will the township nitrate testing database include other information about the well (age, construction, depth, proximity to sources)? This will be important to determine the cause of elevated nitrogen levels in the groundwater.

10. Perham – whose idea was it to use alfalfa?

11. Earlier it was mentioned that the process Nebraska has used to handle elevated nitrogen levels in their aquifers was discussed during the development of the NFMP. Is it safe to say that we will learn from their experience in the south and apply those practices in Minnesota? Can the practices (BMPs) that are applied in the south even be effective in the north?

12. It will be challenging to distinguish the source of the elevated nitrogen levels found in groundwater. Will it be possible to show the nitrogen increase is due to the use of agricultural nutrient?

Comments

1. One member of the audience expresses some confusion between the Minnesota Pollution Control Agency's (MPCA) report on nitrates in surface water and the MDA's Nitrogen Fertilizer Management Plan.

2. An audience member brought up the idea to install irrigation wells at shallow depths in order to use shallow groundwater that may have a higher nitrate concentration. This was brought up following a reference during the presentation about the tendency for nitrogen to stratify in groundwater. The suggestion was that this should be a recommended practice where it is possible.

3. If this process does become regulatory, how many agencies will be involved in this phased approach and who will lead the process? It is a concern that if multiple agencies are involved this will cause confusion for the producers who are engaged in this process.

4. After further explanation that the MDA is the sole lead agency in regards to commercial nitrogen fertilizer impacts to groundwater in Minnesota, the audience member reiterated that he is "less than confident" that the MPCA would stay out of it. His view is that once the groundwater nitrogen levels are defined as "pollution" with a source identified, the MPCA will get involved. The general sentiment from this comment was that MPCA involvement would not be favorable.

Questions

1. It has been shown that there can be seasonal variation in groundwater nitrogen levels. How will the groundwater nitrate values be normalized to account for this seasonality? (Answer: The Minnesota Department of Agriculture's (MDA) groundwater monitoring shows that this seasonality is not a confounding factor).

2. There are existing datasets throughout the state that already show issues with elevated nitrate levels in groundwater. This must have been considered during the development of the Nitrogen Fertilizer Management Plan (NFMP). I'm curious about what that discussion was like. Will these datasets be used? If so, how? And if not, why?

3. Is the science available to get a definitive answer to nitrogen levels in coarse textured soils?

4. What is the purpose for sampling irrigation water?

5. In determining the percentage of wells that have elevated nitrogen levels in an area, will testing focus more on susceptible aquifers, such surficial aquifers? Irrigation has gone deeper to access the volume needed and many homeowners have gone deeper to avoid the elevated nitrogen levels in some areas. Even local well drillers recommend homeowners drill deeper in areas where shallow water is available, but is known to have elevated nitrogen levels. Will the deep wells be considered along with the shallow wells in the groundwater nitrogen level dataset?

6. Why has the burden mainly been placed on the private households or the community water suppliers to reduce nitrates in their drinking water when the contaminants are largely connected to agricultural practices? It is a question this person is faced with often and he does not have a clear answer for it. What are your thoughts? Where is the responsibility for the contamination of groundwater that has occurred?

7. Are the townships that have been selected for the accelerated groundwater sampling fixed or will this list change? Will the list grow to a larger area or possibly shift within the regions already indicated? (Answer: It will depend on the results from the testing.)

8. I am interested in the Alternative Management Tools (AMTs) as a 'cutting edge' tool to go beyond BMPs. The suggestion in the plan is that funding would be sought out to support some of these changes. It is apparent that there is a process to get through the NFMP before you get to the point that AMTs are considered. To seek funding to install these AMTs it seems that this process would have to be complete. If a local group has the desire to install AMTs in a shorter period of time is there a pathway for that group to accelerate the process to consider AMTs sooner?

Comments

1. A local producer commented on how he was encouraged to see the four phase approach in this plan. He explained that he thought it was a reasonable approach.

Questions

1. Have trends in nitrate levels been seen in the monitoring networks?
2. It says 5 percent of wells are exceeding the standard in Central Minnesota, has this number increased in the last 10 years? Is there a lot of testing in the first phase?
3. Is Phase 1 basically the monitoring of drinking water wells?
4. Most of this seems to be related to agriculture, what about golf courses, lakeshore property, and lawns? I don't think this is just a farm issue.
5. Most of the initial testing is performed by homeowners performing tests, does this concern you? Are there practices in place to throw out outliers?
6. Private drinking water wells testing may provide misleading results . . . it is difficult to ascribe high nitrates in a well to agriculture – a lot of wells were above the nitrate standard before cropland nitrate was used. In a Brown/Nicollet County study, all wells with elevated nitrate were found to be site-specific sources of nitrogen. The plan is designed so that proving a negative is required . . . that the nitrate being found is not agriculturally sourced. 70-80% of nitrogen is from non-fertilizer and non-manure sources. Most drinking water wells with nitrate have site specific problems. There should be some other mechanism for triggering this.
7. Why was there limited agricultural representation on the Nitrogen Fertilizer Management Plan Advisory Committee?
8. What legal authority is there for enforcement of regulations?
9. Are nitrates naturally occurring in soils? Do certain soil types have a propensity for nitrates?
10. Does the soil have the capacity to hold on to nitrate?
11. Who might comprise the local group? What authority do they have on the final say? Are recommendations given to the governing body or the commissioner? How do I get on the local advisory committee?
12. Regarding the local advisory committee, there's no selection process to exclude people, or to engage people? Who selects the local advisory committee?
13. University of Minnesota (UM) nitrogen recommendations are not current. Farmers are looking to consultants. How does that affect the usefulness of the Best Management Practices (BMPs) which are based on the recommendations? There is a need to booster UM recommendations. Repeat of statement that 70-80% of nitrate is from sources other than agricultural fertilizer and manure.
14. Will groundwater BMPs be coordinated with other initiatives, such as surface water protection, soil quality, etc.?

15. When a field comes out of alfalfa, isn't there a flush of nitrogen?

16. What is the nature of regulation in Phases 3 & 4? Will it be basically be forced BMP use?

17. When levels of nitrate in tested wells is high, can the plan move right to Phase 3, 4?

18. Are you testing irrigation wells or just drinking water wells? Will testing of irrigation wells be required?

19. Is there coordination between the Minnesota Department of Agriculture (MDA) and Minnesota Department of Natural Resources for irrigation water appropriation permits?

Comments

1. Shallower wells and hand-dug wells will be higher in nitrates.

2. I think the majority of the committee should be locals. Dan Stoddard reiterated that the notes should reflect that there is a desire (from public comments) to screen who is on the local advisory committee so that non-locals and those without a stake in the area should be excluded from the local committee. We don't want people making decisions who do not have knowledge of agriculture.

3. There is no agricultural rep on the UM board of regents . . . a sad situation for the state's land grant university. The role of the Minnesota Agricultural Fertilizer Research & Education Council (AFREC) in supporting agricultural research was shared.

4. We, in the agricultural community, should be far more concerned about what social media is saying about us. We face responsibility on both sides. We can improve. We need to improve, if not for our own pocketbooks, if nothing else.

5. Farmers are doing a good job and practicing tight management.

6. Money is driving this issue . . . Clean Water Fund money. MDA had to create a problem. If 95% of the testing network results are within standards, there is not really a problem. But MDA will test until they find issues and then impose state standards on farmers . . . farmers who are actually the ones who really understand nitrogen management. The only reason we are here is because there is funding available.

7. We need to have a systems approach. We need irrigation on dry soils and drainage on wet soils so crops can make efficient use of nitrogen. We can't look at one thing without taking the whole system into consideration. The same people who are against nitrates are against irrigation and drain tile. The UM should be leading this process.

8. How many times have we heard about educating the producers, but that should be the other way around, it is the producers that are in the position to be educating. It is stepping on toes to say "educating the producers."

9. The 1990 plan has served us well . . . why change? It seems it is only to allow regulation. Moreover, it has not been proved that nitrogen fertilizer is the source of increased groundwater nitrate.

10. My concern is about the committee you will be selecting. Not just one mandate/rule fits all.

11. The Star Tribune is not necessarily a friend of the agricultural community. The work Warren Formo is doing is very much on the farmer's side – they're a strong ally. Green Star program sponsored by the Minnesota Agricultural Water Resource Center (MAWRC) is a farmer self-assessment program that will develop a database to show the practices that farmers are doing. Since it is industry supported, the government does not have access to the information. We don't have the ammunition to defend ourselves against the Star Tribune.

12. With the updated plan, will there be need for more for more staff?

13. Nitrates in groundwater is a big issue, there will be legislative hearings on the issue next week. Legislators are asking what the farmers are doing. Nitrates are on the forefront.

14. I knew my well was high in nitrates, over 4 times the health limit, so I put in a reverse osmosis system – that was the solution. It's a fixable problem, not a poison. If it is fixable, then it is not a problem.

Questions

1. How does this revised Nitrogen Fertilizer Management Plan (NFMP) fit into the Groundwater Protection Act?
2. Can you talk about the assessment program? How is it different than 10 years ago?
3. Will samples be sent to certified labs?
4. Are we leveraging the nitrate sampling work by testing for other parameters?
5. In karst, are we looking at long-distance recharge systems?
6. The last plan (1990) considered looking at surface water inputs to groundwater supplies causing problems; is that still in the plan?
7. Time lag concern – what happens if producers implement the nitrogen Best Management Practices (BMPs) but nitrates continue to increase – is that accounted for?
8. BMPS are a "safe harbor from regulations" . . . is it possible that BMPs (and therefore the safe harbor) will change?
9. Different wells in each area – different nitrogen concentration for each – who is responsible party? How do you determine? Concern over complicated surface water – groundwater areas. How do you address situation where you have one bad well and the neighbor gets blamed for it, how do you know it may be from another source? In the karst, it will be difficult to identify source of nitrate; it could be next door or miles away.
10. Why choose the 10 mg/L limit? Seems too late. Shouldn't it be lower?
11. Olmsted County has been testing nitrates for 30 years – is that data available?
12. Confused – are we protecting groundwater or promoting BMPs? Are you giving up on upper aquifer?
13. BMPs specific to southeast Minnesota – can you tell us how well the adoption has gone in the last 20 years? Have nitrogen rates increased? BMPs have been around since 1993, why isn't water quality better?
14. Long term impacts – how are we going to measure impacts? Longer recharge times – are we measuring?
15. What about the well owners? Are they on local committee? They are drinking the water too, so they should have a say.
16. Will there be funds to correct well construction issues?

17. Do we have good nitrate trend data? Are you monitoring springs? Why not use springs to determine trends? Will you consider spring monitoring data?

18. Will samples be taken from multiple aquifers? How do you know what water you are sampling, effects could have been from several decades ago?

19. Are you going to identify whether trends are going down (down from a higher trend/concentration)? (Showing improvements in water quality)

20. Are there a minimum number of wells?

21. What happens if a high concentration well drops out?

22. What is your time line for testing?

23. Won't this program have only the most interested/highest concentration wells participating?

24. Is this plan modeled after another state or it an all new approach?

25. Do we have information about how fast wells will change based on changing practices?

26. Ag Water Quality Certification Program vs. NFMP – which program will trump?

27. Can you determine from the sample if the well is being influenced from the septic?

    a. MPCA report – source from agriculture – how do we know it's from fertilizer? How do you separate out mineralization versus fertilizer?

28. Could a lack of septic systems (use of cesspools) be a source still 50 years later?

29. If nitrate moves down at 1 foot per year, the nitrate we are testing for now could be from when the sod was broken 100 years ago.

30. What is the response to high nitrates in the Hastings public water supply?

31. Does the University of Minnesota (UM) have to look at research done by others in developing the BMPs?

32. How do we make sure idea sharing takes place?

Comments

1. The Prairie du Chien aquifer is already too high in nitrate to be used for new wells in Olmsted County – let's get started protecting groundwater. The goal of the Groundwater Protection Act is protecting the groundwater resource, but in Olmsted County we have already given up on the upper aquifer due to high nitrate.

2. Without historical data, the current well testing will be difficult to interpret.

3. Well nitrate data biased in the Southeast Homeowners Network since many high nitrate wells have dropped out. Instead of 12-18% >10 mg/ L should be more like 20-25%.

4. Well nitrate data may show bias towards bad wells and not the good ones. Need to sort out bad wells from testing data.

5. I'm trying to understand how this plan corresponds with groundwater protection areas.

6. Monitoring surface water make sense to tie to changes in land use.

7. We don't know if our practices are having an effect. The Minnesota Pollution Control Agency (MPCA) graph on mineralization (pg 34) will be confusing and misconstrued.

8. Of all the 4Rs, right rate will have most impact. The challenge for animal agriculture is to credit manure. Important to note that it is mandatory for manure applicators to have tested their manure. BMP use is often driven by dollar; e.g. manure testing and crediting save dollars.

9. Mineralization process is substantially faster or affecting nitrogen loss more than fertilizer (other sources of nitrate other than agriculture should be considered since crops get up to 80% of their nitrogen from non-fertilizer sources).

10. It seems like the local advisory team needs some criteria for selection.

11. UM nitrogen BMPs rates of application – hope that with the technology changes we can adapt

12. Quality study – reductions with using yield monitors

13. We're using tissue sampling

14. We drink the water too; we're not bandits, we want an efficient use of the sun to produce food.

15. Southeast data set is biased because high concentration well owners have dropped off

16. Producers are already implementing advanced practices

17. Rate has the biggest impact on nitrogen loss

18. Recent technical developments and research studies on precision nitrogen application are opening up new opportunities in nitrogen management. Nitrogen application equipment has gotten better and more efficient, but there is still room for improvement.

19. This is the digital age . . . we should be basing the plan on aquifers, not townships.

20. We should use surface water monitoring as an early indicator of groundwater nitrate problems.

Questions

1. How does well code & construction fit into this plan? I.e. sand point wells. Will there be an effort to modernize wells? ANS: Well upgrade will be a landowner decision.
    a. If high nitrogen, Minnesota Department of Agriculture (MDA) will evaluate if a point source cause can be identified. (Ex. septic)
2. What is the used to determine if farmers are adequately adopting Best Management Practices (BMPs) to know if there will be a move from phase 2 to 3? ANS: 80% adoption threshold rate
3. What is the time frame to determine effectiveness? ANS: minimum of 1 crop rotation
4. What is the estimated timeframe from an initial assessment until a township could move to Phase 4? ANS: This would be site specific, so no definite answer. It could be 2 crop rotations
5. Is the chart shown in the presentation (Phase chart), the same as in the plan? ANS: No
6. Why is it difficult to get participation for well surveys? Will there therefore different strategies this time? ANS: Not sure it is difficult; 50% participation rate is usual, which is pretty good. Participation will vary by community. MDA will work with local government units (LGUs) for assistance with participation.
7. If the nitrogen ppm thresholds are met through voluntary adoption there will be no regulation of farmers? Then why require a phase 4 regulations? ANS: If adoption is taking place, then will not move to Phase 3 or 4. It needs to be fully understood that in this program regulations will not be used if farmers are using BMPs, regardless of groundwater nitrate levels.
8. What is different about this plan vs. 20 year old plan; both consist of voluntary agricultural BMPs? ANS: The nitrogen thresholds are defined in this plan, working with farmers in the same in both; the township scale work and number of twps. Is more challenging in this plan; there is a big increase in sampling proposed, there is greater detail in this plan, with more criteria and creating greater transparency with the proposed response plan.
9. What if farmers are complying with Phase 2 requirements, but the nitrogen levels or % is increasing. The plan suggests that there will not be a move to Phase 3, but how will the increase in nitrogen contamination be addressed? ANS: This is where the Alternative Management Tools (AMTs) will be explored. MDA cannot stop row cropping.
10. Explain the strategy to target participating groups; advisors, crop consultants, etc. & when & how they will be brought in? ANS: Participants will form focus groups by area; and will be involved early in the process; Phase 1.
11. Since the first plan came out 23 years ago, why are some areas not in Phase 3 or 4 now? ANS: Those details were not in the old plan; this plan is more succinct, is not just blanket BMPs, and contains a detailed response plan.

12. Will this plan regulate surface water? ANS: Minnesota Pollution Control Agency (MPCA) does that

13. How is BMP education and outreach different in the revised plan?

14. Doesn't the Nitrogen Fertilizer Management Plan (NFMP) assume that livestock farmers are using recommended rates?

Comments

1. MDA should not be concerned with farmers being regulated. Don't worry about upsetting farmers; they will be okay with this. Nitrogen sellers, dealers and manufacturers will be opposed to regulation since it will impact profits.

2. MDA needs to be aware of USDA programs; participation rate and compliance rate. This can help determine if farmers are engaged and are currently doing BMPs. (Ex: CSP, CRP). ANS: MDA is aware; there is a privacy issue with individual data

3. The law refers to pollutants above background levels versus health standards. Believe there should be a move to regulation sooner (time frame) as well as using a lower threshold than 10 ppm; and this should not be exceeded. Voluntary BMPS are being adopted now; some of these should be requirements. Ex: no fall nitrogen application, nitrogen inhibitors required. ANS: Minnesota Statute 103H provides direction on how to proceed.

4. Law does not give specific levels that relate to phases in the plan; therefore Phase 1 should begin at less than 10 ppm.

5. The enemy is those who promote excessive nitrogen use; lobbyist, manufactures, dealers, advisors. The price of nitrogen reflects what a farmer can pay and not availability etc., therefore need to control the business community. Dealers are "scaring" farmers into thinking they need more nitrogen. There should be a strong need to get financial people involved in this process. (Agricultural lenders).

6. MPCA's Nitrogen in Minnesota Surface Water's study showed that manure application BMPs are in need of better adoption, but the MDA plan assumes these will be adopted. Manure use on permitted operations is regulated; however fertilizer use is not. Commercial manure applicators are regulated, commercial fertilizer applicators are not. There is a disconnect here.

7. The MDA Pesticide Program works because there are label requirements, certification & licensing requirements. The NFMP needs these type regulations to be successful.

8. Most farms (with enough animal units) must have a Nutrient Management Plan and keep records of manure application. (Commercial applicators too) This should be required for fertilizer application.

9. Education outreach is needed. Suggest that is done by UM Extension, not MDA. Suggest using existing network in UM Extension instead of creating one in MDA using Clean Water Funds.