



Standards Oversight Council (SOC)

Supporting Technical Standards for Urban and Rural Soil and Water Conservation

702 E. Johnson Street, Madison, Wisconsin 53703
 (608) 441-2677 || Fax (608) 441-2676 || soc@wlwca.org || socwisconsin.org

590 Nutrient Management Standard Team DRAFT MEETING NOTES

Wednesday, August 21, 2013 || 9:00am – 3:00pm
 Mapleton Community Center - N87 W35441 Mapleton, Oconomowoc, WI, 53066

Attendees: Sue Porter, Pat Murphy, Andrew Craig, Carrie Laboski, Todd Schaumberg, John Koepke, Laura Chern, Kevin Masarik, Sara Walling, Terry Kelly, Matt Zoschke, Gini Knight, Tony Smith.

Welcome/Updates

Process/Feedback update: NRCS would like to present overviews of specific technical issues as the team is ready and feels comfortable. By doing this, we'll solicit feedback from various stakeholders in stages rather than waiting until the end to receive all feedback. If any team gives presentations or materials, the team requests that the presenter share the materials with the whole team. Right now, we don't have too much to report.

The team will need to discuss allowing winter grazing/spreading on slopes exceeding 12%. Can farmers let cows graze on slopes exceeding 12% while prohibiting mechanical spreading of manure on these same fields? To be discussed.

N Management BMP Table for Groundwater

The team began summarizing the last meeting's discussion of the DRAFT BMP table for groundwater. The team needed to clarify several points in the table regarding P soils. The team did not cover the entire table and still needs to discuss management practices for R and W soils. The sections are from the table that relates types of soil and source of Nitrogen (commercial fertilizer or manure) to practices.

First section of draft BMP table with notes.

Feature	Source	Practices – Timing, Rate, Methods	Notes & questions from discussion. Not to be included in table.
P-irrigated soil	Commercial	<p>No fall N application except for establishment of fall-seeded crops. N application rate, where allowed, < 30 pounds available N per acre.</p> <ul style="list-style-type: none"> Split or delay N application to apply majority crop N requirement after crop establishment OR Utilize N inhibitor with ammonium forms of N OR Utilize slow release fertilizer and apply majority of crop N requirement after crop establishment <p>Where P enrichment of groundwater is a conservation planning concern, implement practices to reduce delivery of P to groundwater.</p>	<p>Standard will state that effectiveness of N inhibitors is variable. Provide references to literature, conference proceedings, etc...</p> <p>The team decided not to include DNR's recommendations on well water sampling and language about irrigation water management. This is a consideration in the current standard.</p>

WI Department of Agriculture, Trade and Consumer Protection • WI Department of Natural Resources • Natural Resources Conservation Service • University of WI Extension • WI Land & Water Conservation Association

DATCP
 Richard Castelnovo
 (608) 224-4608

WDNR
 Gretchen Wheat & Mary Anne Lowndes
 (608) 264-6273

NRCS
 Pat Murphy & John Ramsden
 (608) 662-4422

UWEX
 Ken Genskow
 (608) 262-8756

WLWCA Reps
 Perry Lindquist & Bruce Olson
 (608) 785-9867

WLWCA Staff
 Jim VandenBrook
 (608) 441-2677

P-irrigated soil	Manure	<p>No late summer or fall application of manure except for fields with perennial crops (e.g., alfalfa, triticale), fall-seeded crops, or cover crops. N application rate for perennial crops is <50 lbs available N per acre? N application for fall-seeded crops is <30lbs available N per acre.</p> <p>For spring, summer and fall manure applications:</p> <ul style="list-style-type: none"> • Split or delay application to apply majority crop N requirement after crop establishment or • Utilize N inhibitor with ammonium forms of N <p>Where P enrichment of groundwater is identified as a conservation planning concern, implement practices to reduce delivery of P to groundwater</p>	<p>The team still needs to come to agreement on 50° soil temperature and date criteria.</p> <p>After receiving input from manure haulers, team will evaluate practicality of a 30lb rate for fall-seeded crops. Team will further look into rates which will vary by type and nature of manure.</p> <p>Are there differences in solid vs. liquid manure?</p> <p>How will the restrictions impact smaller farms?</p>
------------------	--------	---	---

P-irrigated soil, commercial N application: Request to not allow any fall N application for cover crops. Many catalogs are actively promoting commercial N for cover crop establishment. If the cover crop is being used for nutrient uptake, would you need to put on more nutrients? Is there an agronomic need for fall N application to grow the crop? Agronomically cover crops do not really need any N in the fall, because most crops do not uptake Nitrogen until May. Most of cover crops are not being harvesting for yield or feed. There are many reasons to use cover crops, and different cover crops are better at achieving different goals. Many farmers plant fall cover crops to minimize soil erosion through the winter and early spring. Are there different recommendations for N depending on the purpose of the cover crop? If you grow for the full season, then there may be some justification for applying manure, not necessarily commercial N. Commercial N and manure should be considered separately.

Review NRCS cover crop practice standard. If farmer is planting “fall-seeded crops, other than *cover crops*”, then they can apply up to 30lbs. If farmers want to use TSP in the fall, they could use a cover crop. Include the definition of cover crop, which will be the same as the existing standard.

NRCS Standard 340, Cover Crop definition: “Grasses, legumes, forbs, or other herbaceous plants established for seasonal cover and conservation purposes.”

The team decided to not allow fall commercial N application for cover crops on P soils. Farmers can apply up to 30 lbs of N for fall-seeded crops. If farmers want to apply phosphorus in the fall, they can use MAP or DAP. MAP (not common) – 200lbs of MAP equals 20lbs of N. 200lbs of DAP (most common) equals 36lbs of N. MAP and DAP are allowed under Criteria A, because farmers are allowed to apply P to meet the crop’s need for P.

Split application or N inhibitors – okay practice for permeable soils that are irrigated. Industry is pushing for a list of N inhibitors, so there may be some move soon on have a third-party verified list of inhibitors. Carrie will look into utilizing slow release fertilizers as practice.

Irrigation management recommendation from DNR. The UW’s A-2809 recommendations for N application are in addition to whatever N is in the irrigation water. The UW recommendations assume that there is some concentration of N in irrigation water is accounted, but the specific amount of N in the water is unknown. We need some information about how much N is in irrigation water, in particular across Central Sands. This could be a research priority – irrigation well sampling effort from DNR or others. If we want to fine tune nutrient management planning, and promote precision ag, then the amount N in irrigation water and irrigation management need to take this into consideration. Most irrigation wells are quite unique. The concentrations of N vary throughout the year, from season to season, across the landscape, and from well to well. Growers will not count on N in the irrigation water, if the amount of N in the water is uncertain. What would it take for a farmer be comfortable crediting N from irrigation water? Having a big rainfall event after applying N to fields is a much bigger threat than additional N from irrigation water.

There is concern that crediting N in irrigation water where concentrations of NO3 exceed 10ppm is too low.

There is a perceived concern about the amount of N concentrations in well water, but the data is inconclusive. In the sands, the N is accounted for in irrigation water. The N concentrations in wells may be different between the Central sands and other soil types. The yield response curves outside the sands do not account for the nitrate in the water. It only takes 18lbs of N to leach through the soil to groundwater and exceed drinking water standards. Farmers are already exceeding applications of N at that level. This conversation will be different for R soils or other soils that are not as permeable. Irrigated crops have the highest N efficiency because you get such high yields even at higher N application rates. Could credit N on non-P soils, as a consideration.

Pat, Laura, and Carrie (with data) will put together a memo on this discussion. They will solicit others for input.

The team decided to not require farmers to collect water samples as part of this standard. Irrigation management is included in Consideration E. The team will consider adding some language about nutrient delivery of irrigation water in the Consideration E. Irrigation management is an advancing technology and could be misused, so we need to make sure the guidance and standards are up to date.

Mitigation practices in a high-risk area may be in another standard or possibly another section of the 590 standard.

P-irrigated soils, manure application: (Todd wants to run this by the Central Sands group)

The team will need to re-evaluate the 50° soil temperature or date criteria. Discuss more about September 15th / October 15th date and the number of cuttings. Do we need to divide the state by 6" soil depth temperature? The temperature data would need to come from NOAA sites or Bill Bland's climate data. Manure haulers are not represented here and the team needs to consider their needs. The manure haulers will make better applications if they are not rushed. How do the temperature and date coincide? More discussion is needed.

Discussion of N application rate.

There may be different applications/requirements for livestock.

There will be some loss of nutrients when you apply manure in the fall/late summer. By the current standard, farmers could apply up to 10 tons of solid manure on established alfalfa in late summer. They can apply 3-5,000 gallons/acre of liquid manure. For practicality, it is difficult for farmers to spread as little as 3,000 gallons. Most are spreading 6,000 gallons. The current application rate is a little out-dated and farmers realize that they can put on more manure without killing or smothering the crop.

During the late summer, the fall application rate for perennials (alfalfa) on irrigated P soils could go up to 50lbs, because ideally the crop will be using that amount. If they are applying 50lbs of N, they must use a nitrification inhibitor, preventing the conversion of N over to nitrate. Those applications are risky enough that inhibitors should be required. If N is already in ammonia form, then the plant can take up what is already available. By spring, all the nitrogen is gone. By then, Ammonia N is converted to nitrate. Nitrification inhibitors are solely risk management tools. Applying 50lbs is more practical than 30lbs. Would you still need an inhibitor if you applied less than 50lbs?

Potassium is important for survival of winter stands of alfalfa.

What is the application rate for fall-seeded crops? The team's recommendation is to leave the limit at 30lbs and get more information from applicators or haulers. Ammonia will convert to nitrate and rain water will move N away from the roots and the crops. If you put on 80lbs of N, then 40 to 60lbs is at risk for loss. Why is the whole amount of N allowed for manure and not for commercial? The assumption is that the N in manure form is slow release. Nitrification inhibitors will only work for about one month.

During last standard revision, the team did not consider manure applications on the sands. There is a perspective that the 120lb limit should not be allowed on the sands. Manure should be treated like fertilizer in the fall. There is

a recommendation to lower the 120lb limit to 50lbs. WPDES permitted farms are required to have adequate storage for only 180 days. Farmers need more storage capacity.

Most of this discussion was based on Central sands and CAFOs... The team needs further consideration of the impact on smaller farms? This is going to be expensive for these farms. What will be the impacts of a shift from 120lbs? The rate and source need to be considered for irrigated and non-irrigated soils. Are there different recommendations for solid vs. liquid manure?

At this time, irrigation management has been deleted as criteria for the table, and is considered sufficient in the Considerations with language revision on nutrient delivery in irrigation water.

Further discussions are needed for nitrogen management practices on R and W soils.

FARM TOUR

- Koepke Farm Introduction
- UW Discovery Farm data on P & N loss
- Tile Drainage – primer for future discussions

Soil Sampling Frequency

A proposal was presented to provide a variance to soil sampling frequency of once per 4 years. The proposal could be a workable solution for certain low-input systems. There is concern that it could be exploited. After years of pushing soil sampling, does this variance undermine soil sampling recommendations? Lengthening the frequency requirement to once per rotation with a rotation not exceeding 8 years does not necessarily present greater environmental risk. This would not be a recommendation to achieve best agronomic yield, although highest yield may not be the goal of these low-input operations. All team members should review Carrie's proposal (Gini to attach with notes), and ask colleagues about their agreement with proposal. The discussion will continue at the next meeting.

Manure Analysis - Ammonium N

Discuss a strategy for next steps in reaching agreement on complying with national standard on testing for Ammonium N in manure analysis. The team did not get to this topic at the meeting, and will add it to the next meeting's agenda.

Action Items

- Carrie will look into data available for slow release fertilizers and will bring a recommendation.
- Carrie will search for data available showing the N concentrations in well water.
- Pat, Laura, and Carrie (with data) will put together a memo on this discussion.
- Todd to get input from Central Sands Working Group on BMPs on irrigated, P soils with manure application.
- All team members should review revised BMP table for R and W soils and send comments to Andrew.

Next Meetings: Meeting dates with draft agenda topics.

Sep 18

- Nitrogen Management continued
- Soil sampling frequency
- Testing for Ammonium N

Oct 16

- Nitrogen Management continued
- Tile Drainage, Potential for transport of nutrients to tile
- Winter Spreading Risk Assessment

Nov 12

- Winter Spreading Risk Assessment (manure irrigation, setbacks, shallow bedrock)
- Air Quality
- Manure Land Base Estimate (Plans & Specs) – strategy if farm doesn't have adequate land base to spread manure produced on farm

Dec 10

- Winter Spreading Risk Assessment
- Phosphorus
 - Impaired watersheds, SWQMAs, dams, aligning WI 590 with NR243?

January

- Adaptive Nutrient Management
- 590 Alternative Format, consider simplified/tiered plan