



Standards Oversight Council (SOC)

Developing effective technical standards that protect Wisconsin's natural resources

121 S. Pinckney Street #420, Madison, Wisconsin 53703
(608) 441-2677 || socwisconsin.org

NRCS 590 Nutrient Management Standard Team

MEETING NOTES

Thursday, February 22, 2024 ▲ 9:00am – 2:30pm ▲

Sauk Co. West Square Building, 505 Broadway, St., Baraboo, WI ▲ UW Extension Conference Room ▲

Agenda In Brief:

- 9:00 Welcome (Kate, Team)
- 9:05 Notes Review and Action Item Reports (Kate, Team)
- 9:15 State Rule References (Eric Hurley)
- 9:20 Standard Criteria for Split Applications (Aaron, Kyle and Carl)
- 10:15 Break
- 10:30 Fertilizer/Manure Application Recommendations (Dan, Kyle and Andrea)
- 12:00 Lunch, provided
- 12:30 Identify Innovations in the 4 Rs (will be SMART) (Mike)
- Break as needed
- 1:15 Brainstorming:
 - Ideas Related Phosphorous and Manure P Discussion Topics;
 - Identify related homework for subgroups for bigger topics;
 - Ask team to ID standard related questions for Laura and Hava
- 2:15 Meeting Review and Next Steps (Kate)
- 2:30 End

9:00 Welcome (Kate, Team)
Goal: Attendance and review the meeting objective.

Attendance: Kate Brunner, Mike Stanek, Eric Hurley, Daniel Smith, Kyle Much, Sara Walling, Morgan Kepler, Carl Hahn, Aaron O'Rourke, Cody Calkins, Andrea Topper, Andrew Craig, Matt Ruark

Absent: Travis Engels

Guests: None

9:05 Notes Review and Action Item Reports (Kate, Team)
Goal: Review and approve 1/25/24 meeting notes and team report out on brief action items.

Draft meeting notes from the 1/25 meeting were emailed to the team. Some open action items—a few topics will be discussed in-meeting today and some Kate will continue to track as longer term items. A few action items with follow-up:

1. **Andrea** was trying to get the existing soil temp data and found it is not readily available.
 - a. Another option is Mesonet, though dataset is not deep so limited for considering trends.
 - b. The runoff risk advisory system also has soil temp, though based on forecast/modelling and not very location specific.
 - c. **Sara** has some contacts and will also look into soil temp data options—this is a longer term item that will take some time.
 - d. If there is a need to better consolidate historical data, NRCS could consider a contribution agreement (e.g. with UW?).
2. **For later, when writing revised text: Mike** (and **Kate**?) will prepare revised standard language to cover changes discussed related to the use of book value.
3. **Aaron** asked colleagues at DNR about whether central sands area CAFOs are spreading manure in fall and if they are using an inhibitor.
 - a. He got feedback from manure haulers and crop consultants at some CAFO meetings. The trend is that most CAFOs are only Fall applying manure on sandy soils as a last ditch effort, meaning they choose to go to all other possible fields before going to the highly permeable ones. Then if they do need to go to the sandy fields they are almost always either planting a cover crop OR using an inhibitor.
 - b. For the non-CAFOs he heard that there still is a lot of Fall applications on sands without cover OR inhibitor. I asked a couple people about the impact of more fall restrictions on those spreading in Fall and the overall consensus is that the impact would be from the lack of storage that the non-CAFOs have, not that they want that manure out in Fall for agronomic purposes. If they can't apply in Fall on sands, they don't have enough storage to make it to spring.
4. **Morgan** asked her contacts about manure spreading in fall and if they are using an inhibitor on non-CAFO farms.
 - a. Josh Saykally from Waushara County LWCD said there are very few non-CAFO farms in Waushara County to truly answer this question, but the farms he is aware of do spread manure in the Fall without an inhibitor.
5. **Kyle** asked around and found:
 - a. Everyone said N-inhibitors are not being used with manure application. Most are applying the 90 lbs of nitrogen in the fall based off of the manure samples collected. How does a daily haul guy use a nitrogen inhibitor? Is there proven benefit of inhibitor?
 - b. Cover Crops
 - i. Are becoming more popular to use; however, cost will be an issue on years when income on the farm is very tight (like 2024).
 - ii. Cover crops are hard to grow in northern Wisconsin where p soils are; not enough time for growth after corn harvest. Is a 1-inch tall winter rye plant really sequestering nitrogen from manure? This is the typical height in northern Wisconsin some years after corn silage harvest. Only good part about this is we know the soil temperature is lower then.
 - iii. Extra investment. Growers don't want to have to pay for soil testing every four years and the NMP let alone another item (inhibitor) that may or may not work. Extra equipment, extra time... that they don't have
 - c. Will this force daily haul farmers to put in manure pits or go out of farming? (Manure pits are super expensive) Are we looking at just liquid manure and not daily haul manure?

- d. Some farms only have a majority of their farm as 'p' soils and do not have access to other soils based on the areas they live.
- e. The Oct 1. soil temperature rule is also ignored. Once a field is available for spreading it gets done.
- f. Surface applications of manure can cause public complaints. (using surface applications to lower the amount of nitrogen caused by volatilization)

No comments or questions on the notes. Kate will finalize and post Jan. notes online for public.

9:15 State Rule References

(Eric Hurley)

Goal: Acknowledge how standard will include cross references relevant to state rules.

Updated standard will not reiterate parts of rules to avoid conflicts with future rule changes or potential misinterpretation if only part of rule repeated. It may be helpful to incorporate some of the Silurian karst-specific restrictions since those are geography rather than policy, though that also isn't all karst in the state. Specific standard language will be reviewed by team later in this process.

In practice, producers use the most recent version of SnapPlus so any changes incorporated into SnapPlus are being implemented even if rule cites older standard date. Cost sharing may also require most updated version of the standard.

9:20 Standard Criteria for Split Applications

(Aaron, Kyle and Carl)

Goal: Review recommendations and determine updated language (incl. definitions like excessive rain events, split application) to include changes to both standard and Tech Note. Confirm consensus.

At the last meeting **Aaron, Kyle and Carl** presented on clarifications related to "rescue N" and split applications. This group then met to draft revised standard language, presented on screen to the team. The draft language is refined as a group as follows:

Where *soil saturation due to excessive rainfall* has caused *crop N deficiency*, up to 46 pounds per acre of in-season *rescue N* may be applied over A2809 crop nutrient recommendations if *split applications or pre and post planting applications* have occurred (or plan to occur). For *P soils and other sensitive areas*, do not apply *rescue N* over A2809 crop nutrient recommendations. Please follow the N application guidelines for *P soils and other sensitive areas in section "X"* of this standard. Guidelines for documenting the N deficiency, excessive rainfall, and need for rescue applications can be found in *Technical Note X*.

Some key points of this breakout group work and subsequent team discussion:

Creating and Refining Definitions:

1. Excessive rainfall

- a. NOAA = a month's worth of rain in a given location falling in one day
- b. NRCS = **Mike** will confirm with engineers what NRCS uses in their calcs (24-hr, 25-yr for most manure storage)
- c. If no NRCS source, could look for UW documents with definitions for "excessive"

2. Split applications
 - a. Applying nutrients closer to when the crop needs it.
 - b. Multiple applications where the total N recommendation is not applied prior to planting or at planting.
 - c. Delayed applications after planting with established root system would be considered split.
3. Starter fertilizer
 - a. Current std: Fertilizer applied at the time of planting and placed with or in a band in close proximity to the seed.
 - b. Current standard mention of starter is not N related. Starter allowed for corn, within setback for well.
4. Pre and post planting applications (manure)
 - a. Applied in Fall and/or Spring and did not meet crop recs prior to planting.
 - b. Fertilizer at planting would be considered “post plant”, manure is slow release.
5. P soils and other sensitive areas
 - a. This should come from other section of the standard.

TECHNICAL NOTE INFORMATION (FOR RESCUE N):

1. What soil testing is required to document a N deficiency and the proper procedures for doing so.
 - a. PSNT to document N deficiency in corn fields. Intent of PSNT not necessarily to guide split application rates.
 - b. Can supplemental testing or imagery (w/ professional judgement) be used in collaboration with PSNT? PSNT testing would then require less density (currently 15 cores for 20 acres)?
 - c. Rather than specify, standard would also allow: PSNT testing or most current UW recs.
2. What to use to interpret the testing results to make a rescue N recommended rate.
 - a. What if PSNT results show full re-apply (like 2018-2019)? Standard will address contradiction of PSNT recs and 46 lbs and split application. PSNT interpretation doesn't supersede the A2809 annual crop recs and details on interpretation will be in tech note.
 - b. PSNT value <21
 - c. A3588 or 46lbs (w/100 lbs urea), whichever is less? another document? Do we not reference this at all here?
 - d. Do we need this at all if the loss is documented and the N need is proven? Yes, needs clarity and a cap.
 - e. If rescue N needed, consider split application in subsequent year.
 - f. Interpretation by CCA to adjust sampling frequency. If reduced, would need to have similar geography, soil features and management and close proximity (define with confirmation of weather radius).
3. How to document the rainfall event/s that led to the deficiency.
 - a. How to confirm and document if soil saturated before the rain event?
 - i. Runoff risk advisory forecast soil moisture determination of “very wet”. This is based on modelling and producers have access to this.

- ii. Could require a photo of water dripping out when squeezing soil in your hand. This is highly subjective based on selection of sample location and field compaction. Not a good option.
 - iii. Soil moisture probes are expensive and may not be feasible for all, but still an option.
- b. Certain amount of rainfall over the average.
 - i. Weather information (monthly avg breakdown), what source, etc. Aaron is reviewing options with DNR engineers and will report back to Mike to include in Tech Note.

Mike will take this info and input to standard language and prepare Tech Note (now known as guidance doc). He may bring in others on the team for support.

10:15 Break

10:30 Fertilizer/Manure Application Recommendations (Dan, Kyle and Andrea)

Goal: Review clarified and shortened language from the current 590 section B. Criteria to Minimize Entry of Nutrients to Groundwater. Confirm team consensus on language.

The Team thought current language could use a lot of shortening and simplification. This subgroup started to simplify and shares the revisions on-screen. Some discussion points:

- This subgroup took out rates and exemptions since some of this criteria didn't appear to be based on specific, current research and/or doesn't match numbers based on other programs (like 16% used for headland stacking). There was data on previous standard numbers; for example, the range of percent solids was from Laboski research. Kate can locate historic information from previous SOC team if needed.
- Rather than having an application cutoff date, Team agrees to eliminate and use soil temp.
- This subgroup identified a few particular areas for team discussion: What is percent dry matter (DM) to use? What soils to include and how to specify restrictions (e.g., could group PRW soils together for simplicity)?
- Low dry matter material – current 4% is low. Kate confirmed this was raised during public review of 2015 standard and that work team didn't budge on 4% number.
 - UW says solid is 11% DM.
 - Suggestion made to <10% solids prohibited in fall. About 10% DM is what's pumpable.
 - 4% dry matter came from ammonia content, based on risk factor
 - SnapPlus recommendation is 2% solids (less than that, use ammonium calc).
 - Instead of %, could use a manure analysis.
 - Team refers to variations of % solid and ammonium from an IA state manure database that includes WI-specific data. These are sampled at the time of storage.
- Bedpack is being used more. It has less avail N so applying to reach the lbs is A LOT of bedpack. Suggest using 16%; that's what's stackable in CPS 313.
- Setback of 1000' of potable well – need to confirm this is consistent with other sources; could change.
- Team agrees there is increased env risk based solely on it being more liquid. When there's more liquid it moves faster, especially through a permeable soil. This subgroup recommends more clarity on P soils and permeability – could we bring in a research expert or someone knowledgeable from NRCS? **Mike** will pursue input; likely with Jen Smith.

- Future standard would have %DM cutoff for full prevention rather than restrictions (as it was in 2015 std). This would only really impact daily haul producers since others have storage and time to wait. Team discussed and refined, though not confirmed all the language together: Prohibit fall manure application on PRW soils below 11% dry matter unless cover crop or warmer soil temperature (<50 degrees). There will be some parameters specified, which **this subgroup** will work on as homework.
- W soils are not permeable but can hold on to nutrients better. Should be separate:
 - DNR CAFO program allows a variance where they can dig a hole (1 per 5 acre) in field with W soil and wait an hour—if no water in the hole they can spread manure on W soil with no restrictions. For DNR it's draft guidance and not yet final. It's a lot of holes! How are holes backfilled or are they creating direct conduit to groundwater?
 - What about tiling change W soils? DNR considers that if field is tilled per NRCS standard and it's maintained, then it's no longer considered a W soil. Subgroup may suggest alternate language, further review in FUTURE DISCUSSION
- Team agrees 120 pound available N limit should not change for W soils (0 on P soils).
- FUTURE TOPIC: Should manure analysis required?
- **Dan, Andrea and Kyle** will make further revisions based on team discussion, and include **Mike and Andrew** with future subgroup meetings.
 - They will send file to **Kate** to create comparison table of their proposed future WI standard language, current WI standard, and new national standard.
 - **Team** will review further revised text either via email or at a later meeting.

12:00 Lunch, provided

12:30 Identify WI Adjustments to the 4 Rs (SMART) Criteria

(Team)

Goal: Identify areas to improve and expand on the national standard language.

To prepare for this meeting, the Team was asked to review the 4Rs (right rate, right time, right place and right source) section of 2019 national standard and identify areas of suggested additions or changes. This national standard could be a different way of organizing the standard—this is more resource-focused rather than application-focused. National style may be easier for implementation; standard could use simplification.

SMART is very similar to 4Rs, and expected to be used in new, forthcoming national. The assessment part (the “A” in SMART) will be the Snap Plus tool.

Some considerations/edits are identified:

- The 4Rs are different for N and P.
- Under Nutrient Source, move to Considerations: “For operations following USDA’s National Organic Program, apply and manage nutrient sources according to program regulations.”



SMART Nutrient Management Planning

➤ NRCS Nutrient Loss Action Plan

SAVE \$ WITH A NUTRIENT MANAGEMENT PLAN

S



Source

M



Method

A



Assessment

R



Rate

T



Timing

[Nutrient Management | Natural Resources Conservation Service \(usda.gov\)](#)
[Nutrient Management: A Win-Win-Win | Farmers.gov](#)

- 4Rs of Nutrient Stewardship (right source, method, rate and timing).
- Now includes “Assessment”
- Nutrient Management Campaign
- [Nutrient Management Fact Sheet 2022.pdf \(usda.gov\)](#)
- CPS 590 and National NM Policy and Instruction to be updated in FY24

- Need to clarify EEF. Could add to glossary and/or include clarifying language in additional Criteria to Reduce Emissions.
- For frozen soils, need to clarify how deep. For snow-covered soils, need to clarify how much. Frozen soil and snow-covered are defined differently for both DNR and DATCP. Those agencies will be consulted on definition clarification and who can/will change. Aaron will send Mike language used in DNR CAFO program.

Break as needed

1:15 Next Steps

(Mike, Team)

Goal: Identify:

- Phosphorous discussion topics (incl. manure P); - will be discussed more at 3/19 meeting, building off list of key issues team created at first couple team meetings.
- Related homework - subgroups are helping address some of the bigger topics and more subgroup work will likely be coming (e.g. winter spreading or setbacks).
 - To prepare for the P-related topic, Kate will forward a [P Index background document](#) for Team to review before the next team meeting.
 - Team is also reminded that other states have adopted the new federal standard with variations and could review these for reference. Specifically, on team website for quick review are 590 standards for [Iowa](#), [Michigan](#), [Minnesota](#), and [Nebraska](#).
- Standard-related questions for Laura Ward Good and Hava Blair – They are both attending the next team meeting on 3/19. The Team develops these questions to focus some topics to hear from presenters:
 1. How did P Index settle on 6 and 12 for annual vs course of a rotation? Team understands that it was based on Pleasant Valley watershed evaluation; is there more depth to understand more about these numbers?
 2. If we move from 6 to 4 do we take some tools out of the toolbox (like low disturbance manure)? Team notes that PI of 6 is in NR code so changing is complicated.
 3. What is the relationship of T and PI?
 4. Do we want to further allow the P Index to build soil test P?
 5. What are we missing in implementation of PI (weaknesses, misuse)?
 6. How are leached P and dissolved reactive P being dealt with in PI? Team understands it's in SnapPlus but should something be done with that information (e.g., to mitigate dissolved P losses)?
 7. How has the PI advanced since the last standard? Are there things you would change in the standard to be more protective or more realistic related to P?

Kate will send these above questions to Laura and Hava for them to prepare.

2:15 Meeting Review

(Kate)

Goal: Review Action Items and prepare for the next meeting.

Next meeting date is **March 19, 2024**. It was planned to be at the Sauk County building again; however, there is road construction that will completely shut down a major road into Baraboo so

Kate will look for alternate, centrally located meeting room. Kate will let Team know meeting location.

- The 3/19 meeting focus will shift to phosphorus and surface water, with attendance by Laura Ward Good and Hava Blair. Mike and Kate will develop agenda and send it to the team along with any associated reading materials one week prior to the meeting.

Action Items developed today:

1. Carried forward from previous meeting:
 - a. **Mike** and **Kate** will prepare revised standard language to cover changes discussed related to the use of book value. Text will be reviewed at a later date, in context with broader standard.
2. **Sara** will look further into accessing historical, updated soil temperature data. This is a longer term item that will take some time.
3. **Mike** will take the subgroup info on Rescue N and use to input to standard language and prepare Tech Note (now known as guidance doc). He will bring in others on the team for support. As part of this, Mike will confirm with engineers what NRCS uses as “excessive rainfall” in their calcs and define in this tech note.
4. **Mike** will pursue input from others at NRCS (Jen Smith?) on language for P soils and permeability.
5. **Dan, Andrea and Kyle** will make further revisions to Criteria to Minimize Entry of Nutrients to Groundwater based on team discussion, expanding the subgroup to include **Mike and Andrew**.
 - a. They will send file to **Kate** to create comparison table of their proposed future WI standard language, current WI standard, and new national standard.
 - b. Kate will send comparison to **Team** for review further revised text via email.
6. **Aaron** will send Mike language used in DNR CAFO program for frozen soil and snow-covered.
7. **Team** will review the P Index background document to prepare for March meeting: <https://pindex.webhosting.cals.wisc.edu/wp-content/uploads/sites/206/2012/10/Testing-the-WI-Index-at-the-Field-ScalesSept-2-2012.pdf> as well as some resources that Kate will email the team.
8. As a reminder of resources on team website, **Team** could also review other states 590 standards that have already adopted new national language (with some state customizations). Specifically, on team website for quick review are 590 standards for [Iowa](#), [Michigan](#), [Minnesota](#), and [Nebraska](#).
9. **Kate** will send the list of team questions to Laura and Hava for them to prepare for March presentation.
10. **Kate** will prepare draft meeting notes for today then forward to full **Team** for review.
11. **Kate** will finalize notes from the Jan. meeting and post on SOC team website.
12. **Kate and Mike** will prepare agenda for March 19 meeting and coordinate with Laura and Hava to present. Kate will send to the full team with preparation materials 1 week in advance.

2:30 End - Meeting ends at 2:30