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NRCS 590 Nutrient Management Standard Team
MEETING NOTES *DRAFT*

Tuesday, December 3, 2024 ▲ 9:00am – 2:30pm ▲

Dane County UW Extension, 5201 Fen Oak Drive, Madison, WI 53718 ▲ Drumlin Conference Room ▲

Agenda-In-Brief:

9:00 Welcome (Kate, Team)
9:05 Notes Review (Team)
9:20 P Risk Assessment Review (Mike, Kyle, Travis)
Break as needed
12:00 Lunch, provided
12:30 Bray P-1 Testing Change (Matt) (moved up to 9:20 and other topics shifted later)
1:15 Precision Agriculture (Mike)
Break as needed
2:00 Review Updated Schedule (Mike)
2:15 Meeting Review (Kate)
2:30 End

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

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

Absent: Andrea Topper

Guests: Christina Anderson (WI Land+Water, Bart Chapman (DATCP, SOC Chair)

Kate is leaving WI Land+Water so Christina is present to help with the transition to the new SOC Program Manager and carry on the SOC work until they are hired.

Agenda will be shifted a bit as Matt needs to leave early today. After Notes review, team discussion will start with topic on Bray-Mehlich.

9:05 Notes Review (Team)
Goal: Action item reports and approve 9/26/24 meeting notes.

Draft notes were emailed to the work team for review. One action item was carried forward from previous meeting: **Dan** was pursuing input from a 2nd manure spreader in the Driftless area on

what they think is more feasible for manure application rates on their slopes in winter. He talked to 2 agronomists as a sounding board

- Generally, not a lot of liquid hauled in these conditions (slope+frozen). Including alternating contour strips (alfalfa) would provide justification for cost sharing which would be helpful. They'd like to see cleaning up language the new standard that contour strips are recommended so there is cost share justification to cite.
- 8,000-10,000 gal is typical, not 15,000.
- 3,500 P2O5 restriction – problem when a sunny day in winter. Proximity to surface water also adds complication.
- Language cleanup: Is 3,500 across the entire field or could it be 7,000 across half the field?
- Clarify that the "field" is the 40-acre tract and not the strip on a slope like in SnapPlus.
- In general, there should be better clarification of language on the steep slopes and not just rate change. **Dan** will work with **Mike** on making sure clarifying language is in the revised standard related to these concerns related to steep slopes in winter.

Team moved on before approving notes; this will be done at January team meeting.

9:20 **P Risk Assessment Review** (Mike, Kyle, Travis)
Breakout group will present for team discussion:

- Testing of P risk assessment approach on variety of fields,
- SnapPlus incorporation and P balance demonstration

Identify standard adjustments as needed. Confirm consensus for further adjustments to risk assessment ranking language.

As a follow-up to the last team meeting, a subteam with Mike, Kyle, and Travis met to test the approach developed at the last meeting, clarifying National standard language for LOW, MODERATE and HIGH RISK categories (with addition of Very High and Excessively High).

<u>Testing of P risk assessment approach on variety of fields</u>

Travis emailed the team details from his assessment from a field in Kewaunee Co and some of this information reviewed on-screen together. Some key points from this discussion:

- Revised risk approach would impact about 20% of fields in Kewaunee Co.
- The test field was able to get P down. There was alfalfa which helped a lot.
- PI was not always in line with soil text P results.
- When fields are in high risk category, there are lots of SnapPlus adjustments that can be made to get to reduction.
- Citing concentrations in the risk assessment could be confusing because of Bray-Mehlich differences that may require data conversion. Language could be tweaked to remove the concentration but instead cite UW P analysis. **Mike** will be adjusting Bray language and review other P data citations.

SnapPlus incorporation and P balance demonstration

Kyle looked at trying to reduce P over time in fields testing "excessively high". Some key points of this:

- P concentrations of 149 and 79 on his 2 test fields and average P Index of this farm was 2.5.
- For 79ppm test field, it would need 5 years with NO manure to meet 25% reduction. Farm would need roughly 300 acres to spread the 3.5 million gallons they generate.
- He manages manure to shift to different fields based on the P data for a P reduction strategy over the rotation. There's not enough land/time for real drawdown.
- **Kyle** will check calcs for his test farm to see if there is possible area to spread the 3.5 million gallons.

Some takeaways:

- Lowering soil test P to get from very high to high is a very long term effort, and on some fields would be permanent.
- P Index implications in Snap Plus – slope isn't always accurate and adjusting a little bit can make a difference. Also relies on RUSLE2 and critical dominant soil type for some data with those issues.
- Just P Index allows for building soil test P up to 200. Meeting drawdown based on soil test data and the risk categories forces changes. Standard will require PI of 6 or lower in combination with P risk assessment based on soil text P.
- Add statement to Criteria for Surface Water protection (or possibly Consideration?) – "A PI of 6 may not meet water quality standards. Plan for a Phosphorus Index lower than 6 where the state has identified TMDL watersheds impaired for P. See DNR TMDL area subbasin analysis documents." Will need to get citation on these documents in the standard.
    - Could ask Laura Ward Good for rec of lower PI for TMDL areas but team discusses that it would be watershed (or subwatershed?) specific.
    - It's good for standard to be protective of water quality by having this in criteria. Including TMDLs and associated practice standards help toward protection of groundwater.
    - If this is a Criteria there are problems with implementation. TMDLs are voluntary but if this is added as criteria then it's mandatory for some users. In some counties (like Kewaunee County), their county rules include automatic adoption of a new 590 standard. The data on what adjustments needed would come from DNR and it's not fully available (yet) nor is it state law. Right now there are some TMDL reports with specifics and more are needed as TMDLs come out.
    - If requiring additional practices to now meet a lower PI, is there cost sharing? CAFOs would require a violation to get a new plan for farms in TMDL areas. They don't get cost sharing but they'd be forced to do it.

Mike will work on revising language and whether Additional Criteria or Consideration. He'll incorporate input from **Aaron** and **Travis**.

Break as needed

12:00 Lunch, provided

12:30 Bray P-1 Testing Change (Matt)
Goal: Discuss possible implications for 590 standard: manure testing P2O5 adjustments; A2809 update; remove Bray references from standard; refer to P category ranges.

UW recs are based on Bray but they are moving to Mehlich. Not many other states use Bray and it's time for a change to use Mehlich in their recs as well.

- The A2809 recs are based on Bray but will be converted.
- To start this effort, some staff at UW did correlations between Bray P and other soil test methods (Mehlich-3, M3P ICP, H3S, and ammonium acetate) to develop statistical approach. Whatever the method used for P analysis, UW is building a dataset to correlate to the A2809 recs.
- Calibrated optimal ranges based on the data and so ranges in A2809 will be changing a little bit (different from agronomic "optimum").
- Conversion is valid for every crop, but not every soil. Still need more testing on sand.
- A2809 changes to corn and soybeans rolled out first, then other crops later on. A2809 will have ongoing changes and not just one publication date.
- UW is doing more evaluation and "stress testing" of the correlations and recommendations. Part of this will be to test if Mehlich conversion to Bray would get the same recs.
- A2809 is being updated within a year. It will be online modular document updated on a rolling basis. Information will be more transparent, annotated and linked to data sets.
- UW will include outreach at Agribusiness Classic and some webinars.

DATCP and soil test labs may need adjustments in certifications. DATCP would go through their waiver process for Mehlich, although there may already be analysis of Mehlich certified in their lab. Mehlich is widely used and standard method is already published so this shouldn't be complicated for labs to get certified.

Team discusses implications for the standard and what should change:

- Currently Bray P-1 references in standard and regs based on Bray. Standard won't require one or the other analytical method, both Bray and Mehlich are options. Since there's correlation set up the method doesn't really matter but a conversion would need to be done. Conversion may be possible to be done within SnapPlus.
- Allowing option for 2 tests adds extra complication. Agronomists will need to adjust recommendations and do an extra step in data analysis if 2 tests are possible. Simpler to require just 1 method. Suggestion: recommendations based on Bray and provide conversion option if data is different method. There still are complications raised, but expected only during transition time.
  - Could soil test labs provide the conversion built into their data tables?
  - Data may move from one agronomist to another. Will the farmer even know which method they had?
- Standard will refer to P category ranges (or names that match A2809) rather than specific concentration numbers so less confusion with Bray-Mehlich.
- Also may be implications to the UW soil applied fertilizer rates and removal rates. UW is going to have to look at more wholistic approach for their recommendations.

1:15 **Precision Agriculture** (Mike)
Goal: Identify elements needed in Plans and Specifications for variable rate technology.

Variable rate technology (VRT) fields don't work in SnapPlus. The reviewers need some sideboards to interpret precision ag projects and confirm the metrics to determine if it meets 590.

VRT uses GIS to develop a database of boundary shape files for SnapMaps but SnapPlus doesn't overlay with the VRT software regarding the details of the maps (or vice versa). The restrictions in SnapPlus aren't part of VRT. SnapPlus provides an error with a note for VRT fields.

VRT has a lot of sampling for 2.5 acre fields (sometimes as low as 1) and they can't break down SnapPlus into separate data for each of those small fields. They may also be sampling every 2 years so more frequent repeat of the large effort. If more data or reporting becomes a burden, then it would be implemented a lot less. Precision ag is expensive and the incentive is to apply as little as possible. In VRT N is usually flat-rate but P is variable.

Elements of VRT will be included as a separate Plans and Specifications section and should include:

- Maps – lots of data and sampling points and boundaries.
- Narrative of recommendations with generalities for range of soil data, like a list of: apply X pounds for Y-Z ppm range.
- Soil test data
- Could SnapPlus be adjusted to provide a summary report of the flags. It needs a VRT check box.

Possibilities discussed included using total pounds per field then range/average or using combination of information similar to dominant critical soil concept. The precision ag planning already includes detailed plans by each nutrient and outputs of data analysis and planning recs are in figures.

Another issue, could VRT manure testing be included even though it's not DATCP approved test?

Some of VRT nutrient management plan interpretation is a staff training issue. For example, there can be misinterpretation that there is overapplication if you look at the average per field.

Current 2019 national language was reviewed on screen with some adjustments made on screen together. Team does not agree with the bullet requiring application records; this is not easily available and also is not required for a traditional application. Barriers to VRT will mean less use and that should not be intent.

Mike will refine standard language further with input from **Carl and Kyle**.

Break as needed

2:00 **Review Updated Schedule** (Mike)
Goal: Review remaining steps and milestones.

Team reviewed draft schedule on-screen together. Some updated information since team last met:

- Federal standard timeline unknown though still working toward Oct. 1 publication deadline from NRCS.
- Eric and Mike as primary writers of the revised standard. Drafts will be brought to team for input, focusing on larger issues rather than writing and wordsmithing collaboratively.
- A subteam still TBD will also work with Mike on the guidance docs (Technical Note and IR checklist). He'll first work on standard then shift to Tech Note.

2:15 **Meeting Review** (Kate)
Goal: Review Action Items and prepare for the next meeting.

Next meeting is scheduled for January 23 from 9:00-2:30, again at the Dane County UW Extension Drumlin conference room. Mike and Eric will be working on editing standard text and will strive to get a draft for team to review in advance. Christina Anderson will attend as SOC rep.

ACTION ITEMS

- **Mike** and **Eric** – complete draft standard for internal team review with some specific input:
  - Mike will work with **Dan** on clarifying language related to manure application on steep slopes in winter.
  - Mike will get input from **Aaron** and **Travis** on revised language on a lower PI for TMDL areas.
  - Mike will get input from **Carl** and **Kyle** on VRT requirements so it's information easy to provide with current systems.
- **Kyle** will check calcs for his test farm to see if there is possible area to spread the 3.5 million gallons, applying the proposed new P risk assessment requirements.
- **Kate** will draft notes from today's meeting for Team review.
- **Mike** will develop agenda for next meeting and send it to team along with any reading materials one week prior.

2:30 ***End***