



ANNUAL (FINAL) REPORT

PROJECT TITLE: University of Minnesota Water Quality Education, Advancing Nitrogen Smart, Nitrogen Smart Online, Nitrogen Smart/Nitrogen College (funding extension)

PROJECT NUMBER:

REPORTING PERIOD: April 2024 – March 2025

PRINCIPAL INVESTIGATOR: Mike Schmitt, Brad Carlson

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1.) PROJECT ACTIVITIES COMPLETED DURING THE REPORTING PERIOD. *(Describe project progress specific to goals, objectives, and deliverables identified in the project workplan.)*

Nitrogen Smart activities

- Attendee info for 2024 in-person programs entered into master attendee database
- Evaluations from 2024 were processed and entered into a database
- Outcomes survey for 2024 in person meetings was created and launched online in August
 - Survey was closed in September
 - Outcomes and evaluation report was written and distributed in October
- Developed plans for the digital delivery objectives on the Advancing Nitrogen Smart grant in April
 - Jack Wilcox, a communications professional with the nutrient management team was assigned to work with the program
 - Advancing Nitrogen Smart podcast scheduled to be released every two weeks
 - A master cut sheet from the PowerPoints is being maintained in order to not duplicate topics in the future
 - Delivery of podcasts mimic those offered by the Nutrient Management group, but maintain separate branding
 - Podcasts are primarily a discussion between Brad Carlson and Dan Kaiser, however Melissa Wilson, Jeff Vetsch and Carl Rosen also appeared during the year
 - Short (approximately one minute) “Nitrogen Nugget” videos comprised the video portion of the program
 - Videos derive from a single fact delivered in the Nitrogen Smart program
 - Primary delivery of Nitrogen Nugget videos is via Facebook, YouTube and X

- Dan Kaiser and Brad Carlson are featured in the videos with the possibility of adding others in the future
 - Originally videos were to be released two per week, however it was decided early on that this was too frequent, as they needed time to reach their potential before the next release
 - The release schedule has been similar to the podcasts
- A total of 19 podcasts were released between May 8 and the end of the grant period
 - Total listens from the Extension website were 4,445
 - Extension is not able to obtain downloads from Spotify, iTunes, and Stitcher (which experience indicates is the bulk of the activity)
 - One on one positive feedback was received on numerous occasions during the winter
 - Statistics for individual sessions are available on request
 - At the end of the grant period an additional three episodes were recorded for release in the coming weeks
- Twenty two Nitrogen Nugget videos were released during the grant period
 - Total hits/watches totaled 30,736
 - Facebook was the most used channel for new releases
 - Older videos gain momentum on YouTube and pick up more hits later
 - It is unclear whether people are watching the entire video or just initiating them
 - Because we slowed the release of videos from what was originally planned there are a large number of them currently left in inventory
- Two Nitrogen College events were held in Crookston and Marshall in March
 - The Marshall meeting started the morning of the first day in a Blizzard warning
 - It was decided to hold the meeting anyway because:
 - The blizzard warning was set to expire at 9:00 AM, the start time for the meeting
 - It was primarily a ground blizzard in open areas and it was no longer snowing
 - Conditions in Marshall were not bad
 - Brad and Dan were already there
 - Significant effort and expense was put into promoting the event and past experience indicates that rescheduled meetings of this sort are a failure
 - Numerous texts and emails were received and Brad advised them to use personal discretion regarding travel and the availability of the Deep Dive curriculum (first session) as online training
 - A total of eight individuals were present at the start
 - Total attendance for the four sessions over the two days was 34
 - The Crookston meeting had lackluster attendance
 - It was discovered that the meetings conflicted with the American Crystal meetings more or less eliminating all beet producers
 - There was a total attendance of 19 for the four sessions
 - CEUs were offered for Certified Crop Advisors

- A special meeting for SE Minnesota was held on March 13 on the Olmsted Co. Fairgrounds
 - Significant effort was made to include county SWCDs in the planning
 - This resulted in increased promotion
 - Conflicts with other meetings was avoided
 - The Nitrogen Smart fundamentals curricula was the backbone for this meeting
 - The rest of the agenda was customized for the current situation
 - Total attendance for this meeting was 115
 - CEUs were offered for Certified Crop Advisors
 - “Booths” around the meeting room were staffed by partners including: Corn Growers, County SWCDs, U of M Extension, Minnesota Department of Agriculture, and Practical Farmers of Iowa
 - Feedback from attendees was good, with nearly a dozen individuals needing to be shooed away when we were ready to lock up at the end of the day
 - A busy schedule prevented the development of an evaluation for the meeting, however, as there was pre-registration for the meeting an online survey will be conducted

- Interaction with NRCS resulted in three Nutrient Management trainings for NRCS and SWCD staff where the Nitrogen Smart curriculum was delivered. Meetings were:
 - March 18 in Detroit Lakes (total attendance of 22)
 - March 25 in Marshall (total attendance of 18)
 - March 27 in Farmington (total attendance of 35)

- The online version of the Adapting Nitrogen Management to Climate was launched
- Recording of the Reducing Nitrate Loss curriculum was completed, with posting pending final production and various administrative hoops
- Enrollment for the online courses last year was:
 - Fundamentals – 127
 - Manure Management – 56
 - A Deep Dive Into the 4Rs – 100
 - Adapting N Management to Climate – 20

- A recorded promo (Corn Grower sponsored) for the digital content was completed with Brownfield
- An update on Nitrogen Smart activities with numbers was given to the MDA Nitrogen Fertilizer Education working group meeting in November
- Promotion for Nitrogen Smart content was conducted at the Minnesota Association of Soil and Water Conservation Districts and Minnesota Crop Production Retailers Association trade shows
- A poster presentation on activities was developed and presented at Ag Expo

- Work on the Nitrates in Groundwater publication for Southeast Minnesota has been slow
 - Literature was reviewed and discussed with the Nutrient management group

- “Bluebook” articles that reported on the research that went into development of the BMPs in the early 90s were reviewed
- A meeting with Jeff Vetsch resulted in retrieval of data files for unpublished research from the Lawler farm from the late 90’s, however the files were not able to be read, as they were saved to an early version of the Quatro Pro software
- Discussions were held with Dan Kaiser and Fabian Fernandez regarding the updates to the BMPs and the connection to this effort
- Writing took a backseat to online and in person activities as the calendar turned to 2025
- At this time it appears that all relevant research has been uncovered, therefore writing will commence in the coming quarter

Other relevant work includes:

- Participating in state technical committee for development of revised Nutrient Reduction Strategy
- Wrote two Nutrient Management blogposts that received significant attention
 - The “Are You Overspending on Fertilizer” one received national play when it was discussed in the Upstream Ag Insights newsletter
 - The one focusing on N loss at the end of May was also highly popular
- Appeared on six Nutrient Management podcasts (in addition to the Advancing Nitrogen Smart ones).
- Recorded TV segment on saturated early growing season conditions for KTTC in Rochester
- Recorded video with the Linder Farm Network in June regarding N loss and saturated conditions
- Was featured on the Field Notes live webinar in June to discuss current conditions
- Assisted Extension Communications with preparation of an article regarding the Extension response to the SE MN nitrate situation with a visit to Gar-Lin dairy and an interview with Corn Growers president Dana Allen-Tully. This included a photo shoot. The article is set to appear in the fall issue of Source Magazine.
- Recorded media interviews regarding emergency supplemental N with the Linder Farm Network and Brownfield Ag Network
- Gave presentation on N status and rescue treatments at a field day in Carver County June 17
- Participated in the Extension presence at Farm Fest and attended the Corn Growers reception on campus that resulted in many significant interactions related to my efforts
- Recorded video with the LFN regarding fall N management in September
- Recorded a “Best Practices” segment for Austion Public Television KSMQ on Fall N Application
- Developed talking points regarding the 2024 growing season
 - Developed a presentation on the topic for delivery at Sibley Co. Crops Day
- Participated in discussions regarding the Nitrogen BMP revisions statewide
- Presentation on “On-Farm Research” at Nitrogen Conference

- Was the featured speaker for two NRCS Tech Talks and one BWSR online training regarding nitrogen management

2.) IDENTIFY ANY SIGNIFICANT FINDINGS AND RESULTS OF THE PROJECT TO DATE.

The videos have been wildly successful. The podcasts have been successful too, however, we know it takes time to build an audience for podcasts.

We finally broke through to have a successful meeting in Southeast Minnesota. Discussions will be ongoing regarding continued engagement with this audience, as well as what we can learn from this meeting regarding offerings in other parts of the state.

3.) CHALLENGES ENCOUNTERED. *(Describe any challenges that you encountered related to project progress specific to goals, objectives, and deliverables identified in the project workplan.)*

Attendance at the in-person Nitrogen College events is petering out. Both the SE MN meeting, as well as focused training for NRCS/SWCD staff had good attendance. We will need to reflect on this regarding what in-person offerings look like in 2026.

Gathering information for the SE MN focused publication has been difficult. The directive was to write something similar to the Nitrates in Drainage Water publication, however, there is not nearly as definitive data for SE MN. Results are usually in the form of residual soil nitrate, or nitrate concentration from water extracted under tension. In neither case is there a guarantee of how much of this nitrate will end up in groundwater. As mentioned above, we have been unsuccessful in retrieving some of the stored data from the late 1990s due to software issues. The publication will need to focus on comparisons between cropping systems and management practices (the 4Rs), without a direct connection to delivery of nitrate to groundwater. As such, there will be great similarities to the revised Nitrogen BMPs for Southeast Minnesota publication currently under development.

4.) FINANCIAL INFORMATION *(Describe any budget challenges and provide specific reasons for deviations from the projected project spending.)*

Expenditures tracked mostly as expected. The carryover funds from the Nitrogen Smart/Nitrogen College grant covered the costs of the in-person meetings. There was adequate funding left in this grant, however, it was necessary to re-budget to cover actual expenses, as most money was in the travel line, but was needed to cover promotional costs and food for the Rochester meeting. It continues to be a challenge to plan budgets 14 months in advance, as is the case for the in-person offerings

5.) EDUCATION AND OUTREACH ACTIVITIES. *(Describe any conferences, workshops, field days, etc. attended, number of contacts at each event, and/or publications developed to disseminate project results.)*

As the focus of these grants are education and outreach, this has already been covered in section 1.