



INNOVATION GRANT PROGRESS REPORT

PROJECT TITLE: Nitrogen dynamics and losses in artificially drainage agricultural fields
REPORTING PERIOD: 7/1/2021-9/30/2021
FARMER INNOVATOR: NA
COLLABORATING ORGANIZATION/PERSON: Lindsay Pease, Assistant Professor and Extension Specialist at UMN; Aaron Frankl, Graduate Student at UMN
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1.) PROJECT ACTIVITIES COMPLETED DURING THE REPORTING PERIOD. *(Describe project progress specific to goals, objectives, and deliverables identified in your project proposal.)*

Looking at nutrient movement due to rainfall was a key component of the work planned for this study. Due to the exceptional drought experienced in Northwest Minnesota this summer, we were unable to conduct the original study as planned. To get a snapshot of nutrient cycling in corn systems during the drought, we collected the following soil and infiltration measurements on two fields at NWROC and at three on-farm locations.

- Infiltration (dual-head infiltrometer)
- Water Extractable Organic Nitrogen/Carbon
- Potentially Mineralizable Carbon (metric of microbial activity)
- Aggregate Stability
- Bulk Density
- Qualitative descriptions of small soil pits, moisture data
- Age of subsurface drainage system (<5 years or >15 years)

Field work occurred over three weeks in July (this was selected to complete sampling at a convenient time for our farmer collaborators).

Data analysis is on-going and is planned for completion during Q3.

2.) IDENTIFY ANY SIGNIFICANT FINDINGS AND RESULTS OF THE PROJECT TO DATE. *(There may be none to report at some stages of the project)*

N/A

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

As stated above, we were unable to conduct the original study as proposed. Depending on the results of our study from this year, I am anticipating that a no-cost extension on the project until next summer may

be beneficial (in hope of capturing more average precipitation patterns season) so that we can conduct data collection as originally planned.

4.) EDUCATION AND OUTREACH ACTIVITIES. *(Describe any opportunities to engage with farmers, influencers or the media about your project.)*

N/A

5.) HOW CAN WE HELP? *(Please let us know how we can improve the experience or assist in your project if possible.)*

N/A