INNOVATION GRANT PROGRESS REPORT

PROJECT TITLE: Establishing a Paired Watershed to Prepare for Conservation Practice Assessment
REPORTING PERIOD: July 1 – Sept. 30, 2023
FARMER INNOVATOR: Neal Mensing, Rick Dickman
COLLABORATING ORGANIZATION/PERSON: USDA-ARS / Gary Feyereisen
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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.*)

Meaningful drainage flow from the CD62 and CD30 watersheds ceased July 24th. Soil moisture content (SMC) continued to be measured in four fields, one each in: Corn – Strip Till, Corn – Conventional Till; Soybean – Strip Till, and Soybean – Conventional (Figs. 1A & 1B). The graphs are being sent weekly to the producers who have agreed to let us install equipment in their fields. Despite a dry couple of months, soil moisture was sufficient to support corn and soybean production. As of this writing, three of the SMC systems have been removed in preparation for harvest.

The project PI and SWCD Program Manager spoke with MN Corn Research Director on a potential strategy of N rate optimization as a conservation strategy on one of the watersheds. We heeded his advice and broadened our search for N reduction strategies by engaging two suggested University of Minnesota researchers. We are now working with them to develop a proposal for a USDA NRCS Conservation Innovation Grant (CIG). The proposed work would integrate conservation strategies including field management, cover crops, and the bioreactor.

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

We are in the process of vetting all flow and water quality data for all years. Preliminary data shows that drainage runoff from the two watersheds continues to be consistent this season (Fig. 2).

As reported the past two quarters, the performance of the bioreactor system was reported from September 2016 to July 2017 in this paper: https://doi.org/10.13031/ja.15496.

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

Our preliminary nitrate-N load analysis indicates that we need to deploy conservation efforts that will reduce loads by ≥12% to have a statistically significant outcome.

Rodents have damaged wires in a couple of the soil moisture measurement systems, resulting in some loss of data.

If the looming partial federal government shutdown occurs, the PI will be prevented from assisting collaborators with the CIG proposal development.

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

We have maintained contact with the producers through visits, phone calls, and sharing the soil moisture data via email.

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

We are ready to discuss the NRCS CIG proposal and how that will impact future potential support funding from Minnesota Corn.

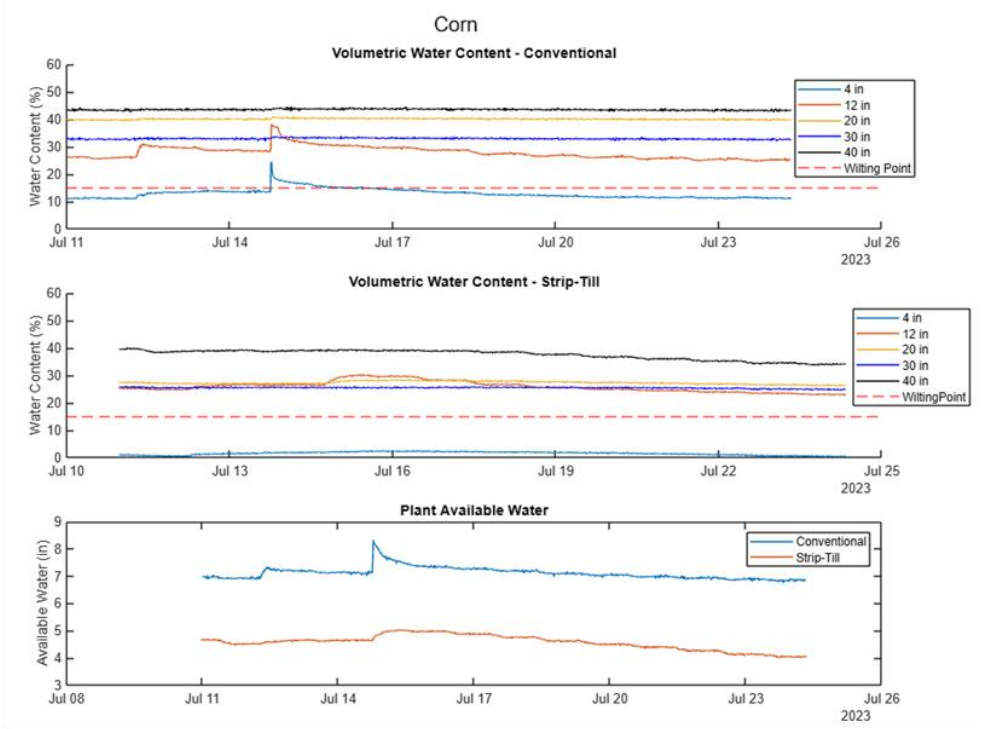

Fig. 1A. Soil moisture content and plant available water in two corn fields: strip till and conventional till.

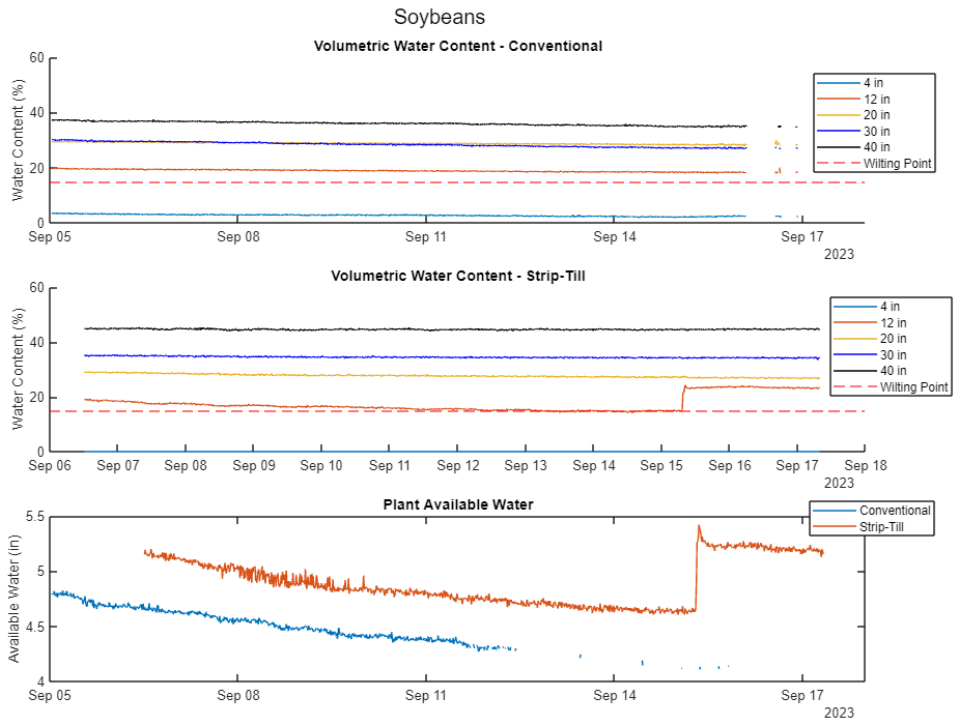

Fig. 1B. Soil moisture content and plant available water in two soybean fields: strip till and conventional till.

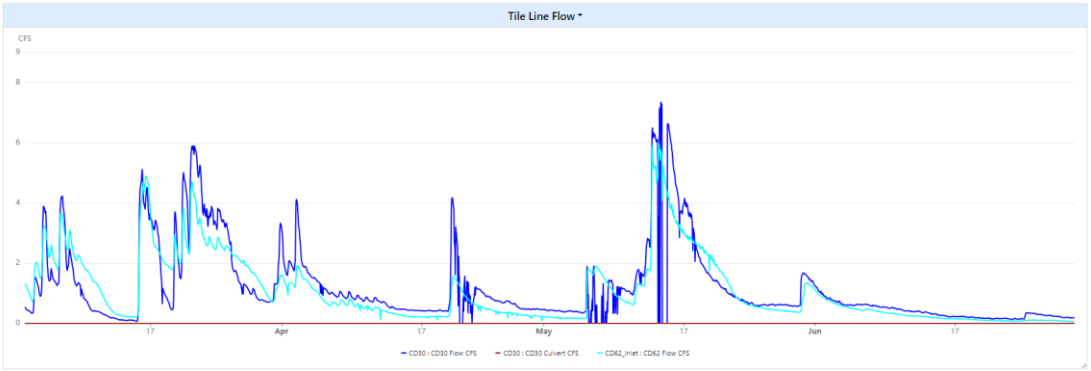

Fig. 2. Drainage flow from CD62 (light blue line) and CD30 (dark blue line) for March through June, 2023.