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**Progress Report**

PROJECT TITLE: Impact of Cover Crop Strategies on Productivity of Corn

PROJECT NUMBER: 4123-16SP

REPORTING PERIOD: Jan 1 – Mar 31, 2017

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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*)

The objectives of the project are to a) assess the viability of cover crop strategies on corn-soybean rotation under different tillage practices and b) determine the effect of cover crop strategies on growth and yield of corn and soybean produced across multiple environments. Experiments for objective (a) are conducted within the Long-Term Tillage Trial platform (LTTT) located in Lamberton and Waseca. Experiments for objective (b) are conducted within the Long-Term Agricultural Research Network (LTARN) located in Grand Rapids, Lamberton, and Waseca. Experimental fields at the two LTTT and three LTAR sites are getting prepared for planting. Instruments – ceramic cup lysimeters and access tubes to monitor [N-NO3] and soil moisture, respectively – were checked.

We did organize the start of the 2017 growing season. To do so, a project meeting was held on March 16 at the Southern Research and Outreach Center, Waseca. Most researchers, students, and field staff attended the meeting. We also visited fields at Lamberton and Waseca sites, and checked instruments. Progress on specific objectives follow.

**Cover crops and tillage practices (objective a)**

The 2017 workplan was revised and updated; no significant changes were made. We purchased a couple of devices to monitor soil moisture and soil temperature across tillage practices in the top 3-5 inches. A grad student has accepted to join the project and work on this specific objective. The individual is expected to start end of May.

**Cover crops in multiple locations (objective b)**

Similar to objective (a), the 2017 workplan was revised and updated. Changes include a) expand the complementary study on *early seeding cover crops* on corn to Grand Rapids, b) continue with the 3-species blend (4-species blend in the original proposal), c) add canopy temperature measurements, and d) start a nitrogen mineralization study in the fall. A grad student (Hannan L. Rusch) joined the project in January to work within this objective.

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

Nothing to report.

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

Nothing to report.

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

No budgetary challenges to report.

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

1. February 2, 2017. I spoke to an audience of 17 people (Winter Crops and Soils Days) in Montevideo and Olivia, MN. Preliminary results on the establishment of cover crops at different environments and their potential to reduce nitrate levels in leachate were presented.
2. February 1, 2017. I spoke to an audience of 47 people (Winter Crops and Soils Days) in Lamberton, MN. Preliminary results on the establishment of cover crops at different environments and their potential to reduce nitrate levels in leachate were presented.
3. January 31, 2017. I spoke to an audience of 28 people (Winter Crops and Soils Days) in Luverne, MN. Preliminary results on the establishment of cover crops at different environments and their potential to reduce nitrate levels in leachate were presented.
4. January 31 and February 1, 2017. The project’s objectives were presented by a colleague speaking about ‘Cover Crops Research at the Southwest ROC’ at the 2017 Best of the Best in Moorhead and Grand Forks. A combined audience of more than 400 people attended.
5. January 30, 2017. I spoke to an audience of 13 people (Winter Crops and Soils Days) in Fairmont, MN. Preliminary results on the establishment of cover crops at different environments and their potential to reduce nitrate levels in leachate were presented.
6. January 26, 2017. I presented the project at the 2017 MN Ag Expo in Mankato, MN.