

The meeting of the South Dakota Nutrient Research and Education Council (NREC) was called to order by Chairman Ryan Wolf at 9:00 AM, December 4, 2019 at the McCrory Gardens Education and Visitor Center, Brookings, SD.

In attendance were council members Kevin Bachmeier, Tom Gere, Bill Gibbons, Jim Loken, Colin Nachtigal, Ryan Schuchhardt, Richard Vasgaard, Robert Walsh, Paul Wegleitner, and Ryan Wolf. Council members absent from the meeting were Richard Jenny, Bryan Jorgensen, and Dana Loseke. Also in attendance were Kathy Zander, Executive Director, South Dakota Agri-Business Association and Angela Loftesness, Assistant to the Dean, College of Agriculture, Food and Environmental Sciences.

Ryan Wolf welcomed everyone to the meeting and asked for introductions. Tom Gere stated that he would continue to represent the Secretary of the Department of Agriculture on the Council.

Ryan Wolf asked for approval of the minutes from the July 2, 2019 meeting of NREC. Richard Vasgaard moved to approve the minutes from the July 2, 2019 NREC meeting. The motion was seconded by Kevin Bachmeier and the motion carried.

Jim Loken presented the financial report. The available balance was discussed along with expenses for some of the participants. Angela Loftesness stated that the next financial statement will show a correction from transfers made in July. In addition, project funds that were not used for projects in 2017 would be moved back into the general revenue NREC account. Ryan Schuchhardt moved to approve the financial report dated November 16, 2019. The motion was seconded by Richard Vasgaard and the motion carried.

Ryan Wolf reminded the Council that the first terms of Richard Jenny, Colin Nachtigal, and Ryan Schuchhardt would expire in July and action on those terms will take place during the July meeting.

The requests for no-cost extensions of projects were discussed and approved, as follows;

- Christopher Graham: Fertilization management to reduce potential yield declines following no-till adoption in South Dakota (3SB425). Jim Loken moved to approve the no-cost extension until December 12, 2020. The motion was seconded by Robert Walsh and the motion carried.
- Dwayne Beck: The impact of soil test level differences on crop response, P leaching, and P runoff under long-term no-till management in South Dakota (3SB426). Colin Nachtigal moved to approve the no-cost extension until June 30, 2020. The motion was seconded by Ryan Schuchhardt and the motion carried.
- Peter Kovacs: In-season N application in corn to improve fertilizer efficiency in eastern South Dakota (3SB427) and Nitrogen recommendation update for corn to move from contract to proposal (3SB535). Richard Vasgaard moved to approve the no-cost extensions until June 30, 2020. The motion was seconded by Kevin Bachmeier and the motion carried.

- Peter Sexton: Sulfur and nitrogen dynamics for rye raised as a cover crop (3SB424). Ryan Schuchhardt moved to approve the no-cost extension until December 30, 2020. The motion was seconded by Robert Walsh and the motion carried.
- Ruanbao Zhou: Identifying solar-powered N₂-fixing cyanobacteria in native grasslands for soil health and bio-nitrogen fertilizer application in South Dakota (3SB423). Robert Walsh moved to approve the no-cost extension until December 30, 2020. The motion was seconded by Richard Vasgaard and the motion carried.
- Shin-Yi Marzano: Exploring new microbial pathway for nitrate control by cover crop and bioreactor at the Southeast Research Station (3SB342). Jim Loken moved to approve the no-cost extension until December 30, 2020. The motion was seconded by Kevin Bachmeier and the motion carried.

The Council reviewed projects that needed funding to be renewed for 2020. An update for each project was provided during the July 2, 2019 NREC meeting. Kevin Bachmeier moved for the renewal of these projects for a total cost of \$628,388. The motion was seconded by Colin Nachtigal and the motion carried, renewing the following projects for 2020:

- Dwayne Beck: The impact of soil test level differences on crop response, P leaching, and P runoff under long-term no-till management in South Dakota (3SB426), \$36,496.
- Sandeep Kumar: Impacts of manure and inorganic fertilizer on soil fertility, water quality, and crop yield in South Dakota (3SC341), \$80,000.
- David Karki: Calibration of Nitrogen requirement of oats grown for grain in South Dakota (3SB340), \$33,688.
- David Clay: Building a South Dakota corn no-tillage N recommendation algorithm that considers improvements in soil health (3S9416), \$96,998.
- Jason Clark: Survey of South Dakota producer's nutrient management practices (3S9418), \$40,434.
- Jason Clark: Influence of interseeding cover crops on nitrogen fertilizer rate requirement for optimal corn grain yield in a no-till system (3S9417), \$71,909.
- Peter Sexton: Sulfur source and application timing effect on soybean yield (3SB424), \$72,305.
- Peter Kovacs: In-season N application in corn to improve fertilizer efficiency in eastern SD (3SB427), 119,977.
- Jason Clark: Fertilizer N rate recommendation update for corn (3SB535) \$76,581.

The process for obtaining external reviewers was discussed and Angela Loftesness suggested that a pool of potential reviewers should be established. It was determined by the Council that a pool would be helpful and thanked Angela for the idea.

Presentations for five new projects were given and three projects were approved to receive funding for a total of \$218,924:

- John McMaine: Identifying nutrient loss hot spots in tile drainage (\$67,743)
- Jason Clark: Building potassium fertilizer guidelines that include soil classification information (\$97,575)
- Jason Clark: Combining soil fertility and soil health to improve corn potassium, phosphorus, and sulfur fertilizer recommendations (\$53,606).

Projects not approved were as follows:

- Peter Kovacs: N placement and application methods effect on corn grain yield.
- Debunker Sanyal: Updating nitrogen fertilizer recommendations under different cropping systems of SD using selected soil health indicators and remote sensing tools

The Council provided comments for the reasons why projects were not funded to Angela Loftesness who will share them with Peter Kovacs and Debunker Sanyal.

Ryan Wolf asked Council members for ideas for future research projects. He stated that he would follow-up with Council members via email for ideas.

The next meeting will be held during late June or early July of 2020, and Angela Loftesness will send the Council dates to be considered.

Ryan Schuchhardt moved for the meeting to adjourn at 2:19 PM. The motion was seconded by Jim Loken and the motion carried.

Submitted by:



Ryan Wolf, Chairman