



Minutes of the NREC Research Committee
July 27, 2016
Illinois Farm Bureau Offices – Bloomington, IL
1:00 p.m.

Committee Members Present: Dale Hadden, Cindy Skrukruud, Chuck Cawley, Jenny Mennenga, Ted Mottaz, Amy Walkenbach, Laura Gentry, Dean Campbell. Joining via phone were Jessica Dexter and German Bollero.

Also present were Dr. Robert Hoelt (NREC Research Advisor), Julie Armstrong (NREC Executive Director), Jean Payne (IFCA), Lauren Lurkins (ILFB) and Jeff Kirwan (incoming NREC Council member)

Chairman Hadden called the meeting to order at 1:00 p.m.

Secretary Cawley reviewed the minutes from the previous committee meeting. Ted Mottaz moved and Cindy Skrukruud seconded to accept the minutes as presented.

Chuck Cawley, Governance Committee Chairman, provided the committee with an update on the strategic planning process and reviewed the updated conflict of interest policy. He and Julie Armstrong reviewed the updated voting matrix and procedures. It was noted that the voting procedure has evolved over time but still has room to grow. Jessica Dexter pointed out the importance of retaining a “human element” and allowing for individual decision making. And not making the voting procedure so rigid that it does not allow for individual input.

Discussion was held on the need for defining how we determine successful outreach. Should it be publication? Disseminating research findings? This should be further explored. Chuck Cawley added the fact that the outreach portion of our mission is critical to success.

Julie Armstrong reviewed the updated committee roles and responsibilities document and asked for any additional input from the committee. Seeing none, they will be added to the strategic plan which will be presented to the Council for review in August.

Chuck Cawley presented an update on tonnage numbers from the Illinois Department of Agriculture. Spring of 2015 income was \$2.15M compared to \$2M in 2014. Based on what we know today, we should budget for \$1.8M for Fall 2016. Jean Payne, IFCA, added that low commodity prices tend to drive less P&K but the large predicted crop will potentially increase the need for N due to removal of nutrients by a bumper crop.

Dr. Hoelt began the review of current projects with a reminder of the 2015 Annual Report which is finalized and available online. The mid-year reports are focused on learning what the researchers are finding and looking at where that may lead in the future.

Dr. Hoefl put the projects into focus area groups to better communicate around the progress being made in each of those areas.

N and Water Quality

The 4R's have proved to be of vital importance from both an economic and environmental aspect. The new recommendation – which comes from NREC funded research – lowers the N rate by 30-40 lbs/acre. However, the latest McLean County survey indicates a low % of adoption of the MRTN.

N-Watch is a system of data points that is used to predict potential issues with water supplies and is an education tool to help producers make fertilizer decisions.

Some of the unanswered questions around N efficiency include: new hybrids, new application techniques and technologies, and added production efficiencies. Can the recommendation be fine-tuned to specific areas/soil types? Can we predict conditions that lead to loss of Nitrogen to water?

Application timing/inhibitor use

This needs to focus on non-proprietary research but also we have an accountability back to the farmer to test these products. Also need to consider inorganic N to replace applied N.

Recovery of Applied N (Cover Crops)

- What species can be used most efficiently
- Climatic conditions that are conducive to success – can these be identified?

Questions that need to be considered:

- Impact on crop yields
- Impact on N in tile lines
- When does N in cover crop become available to the plant (N15)
- Techniques to control (terminate) cover crops
- Uniformity in tissue of cover crops
- What pool of inorganic N did the Cover Crops scavenge?
- What role does Denitrification play?

Recovery – Buffers/Wetlands

Multifunctional buffers – there were some issues with wildlife and plants didn't handle the wet soils well. However preliminary data is showing an improvement in removal of N.

Bioreactors – showing promise when combined with winter wheat (not much winter wheat).

Questions:

- What is the cost?
- How often do chips need to be replaced?
- Ted Mottaz reiterated the importance of useable real data that can help the industry make decisions.

Nox Emissions - Questions around potentially creating one issue while solving another?

Questions around P coming out of tile? Is this something that need to be studied?

Dr. Hoeft shared concerns that are coming out from tile installers who are afraid of limits being put on amount of tile being installed. This is something the council needs to be aware of.

P&K Removal Project – this project needs to pick up the pace

Soil Quality Project – needs more data

Nitrate reduction to ammonium – may need N15

After Chairman Hadden asked Dr. Hoeft for more detailed project status updates – Dr. Hoeft indicated the need for researchers to focus more on “what did we accomplish” versus “what did we do”.

Discussion then moved to identifying priorities for 2017 Research Projects.

1. N Placement – i.e. Strip Tillage
2. Microplots – 4x5 plots
3. Y-drops – Jean Payne, IFCA, told the committee that they did include Y-drops in the N-Watch studies this year and are tying yield to N-Watch testing. The economics of Y-drops and water quality impacts should be identified as a priority.
4. Enhanced Efficiency Products
5. Jenny Mennenga asked about any recent studies that are looking at N-uptake by crop stage
6. Tile and Conservation Systems
7. Management Tile Outlets

Ted Mottaz added that the cover letter with the RFP should be sure to include a specific request for water quality measurement.

Amy Walkenbach offered to provide an inventory of saturated buffers across the state.

Three priority items for 2017 research were identified as: Geographic diversity, looking at practices NOT currently in the NLRs, and including economic data for practices.

Laura Gentry offered clear language on Cover Crop research: “Look at the feasibility and economics of growing cover crops to address N and P loss, crop productivity, and management of cover crops (termination)”.

Amy Walkenbach asked if projects around algal blooms would be something that NREC would typically fund. The consensus was that it would be outside the traditional scope of NREC projects.

The Committee reviewed the language from the proposed RFP and made changes and updates based on the discussion.

Dean Campbell moved and Ted Mottaz seconded that the Committee accept the revised RFP priority language as developed (listed in italics below). The motion carried.

Nitrogen and Phosphorus Management Projects

1. *Continue/expand studies testing the impact of N management systems on efficiency of N use.*

- a. *Expand the work on optimum N rate to include more Illinois soil types, especially in Southern Illinois.*
 - b. *Evaluate the efficacy of combinations of method and time of application on N efficiency. For example, combination of preplant N and late N application using conventional application methods (UAN injected preplant and Y drop method for late application) for corn.*
 - c. *Evaluate the efficacy of fertilizer additives that claim to enhance the efficiency of N fertilizer use. This would include but not be limited to nitrification inhibitors and urease inhibitors.*
2. *Determine factors impacting release and/or tie-up of organic and fertilizer nitrogen (mineralization immobilization, nitrification, denitrification, leaching, and plant uptake). This research will require the use of N¹⁵ as well as established tile system.*
 3. *Cover Crops: Evaluate the feasibility, economics and best management practices of growing cover crops to address nitrogen and phosphorus loss as well as crop productivity. Best management practices should look at all aspects of cover crops from crop selection and seeding through crop termination. NREC is particularly interested in funding research on projects that:*
 - a. *Identify the best combination of cover crop species to use depending on crop to follow and geographic location within the state.*
 - b. *Provides options for farmers to consider when selecting product and times to use to kill cover crops.*
 - c. *Identify factors that effect when and how much N is released from cover crop to the following year crop.*
 - d. *Identify what pool of inorganic N was used by cover crops.*
 4. *Evaluate the utilization of N from DAP and/or MAP in comparison to Triple Superphosphate (TSP) for both fall and spring application.*
 5. *Evaluate the agronomic and environmental benefits of tillage and the placement and timing of phosphorus applications.*

Tile and Conservation Systems

6. *Tile Drainage: Evaluate drainage water management practices such as managed drainage (controlling flow) and the impact of tile spacing and depth on nutrient loss from a field*
7. *Bioreactors, Buffers and Saturated Buffers: An evaluation of practical approaches to installing these systems in areas where drainage ditches are the conduit for tile drainage. Focus should be on ways to utilize these systems to provide the most practical benefit while limiting the amount of land taken out of production.*

In addition, we ask that all projects, both new and continuing, contain an economic cost/benefit analysis as to the practicality of the adoption or utilization of these practices in a farming operation. NREC will entertain requests for supplemental funding to employ other scientists to conduct the economic analysis.

Julie reviewed upcoming meetings and the timeline for the RFP Process.

Chuck Cawley moved and Ted Mottaz seconded to adjourn the meeting.