FRD01 – On Farm Research and Demonstration 6 UNL Recommended N Rate Versus a Higher and Lower Rate for Corn Production

State Criteria for on Farm Research and Demonstration

Research Topic: UNL recommended N rate versus a higher and lower rate for corn production.

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Name and brief description of the research entity: University of Nebraska-Lincoln Extension, the UNL Department of Agronomy and Horticulture, and the UNL-Extension offices of Gage, Hamilton, Saunders, Hall, Adams and Dodge counties.

General description and summary of research to be conducted: UNL research consistently confirms that N applied per unit of production (lb/bu) does not increase with yield but generally decreases. This is attributed, at least partly, to the high N use efficiency possible with crops that have healthy and well-developed root systems efficient in nutrient recovery and have plants that are efficient in converting nutrients and carbohydrates to yield (e.g. internal or physiological efficiency). The UNL N recommendation has been well validated for maximizing profitability at high (e.g. >240 bu/ac) as well as lower yield production over diverse production situations. However, many producers feel that N in excess of the recommendations is needed; this results in reduced profitability and more N loss to the environment.
Objective: Verify the UNL N recommendation by comparing it to the UNL± 30 lb N rate.
Procedure: Conduct trials with 3 treatments: UNL, UNL-30; UNL+30 with 5 replications per farm. Trials can be in long strips across the field or, if using variable rate technology, strips can be segmented to have 2 plots per strip, but minimum length should be 900 ft. This trial does not require a guidance system or yield mapping but these are preferred.

Area of Focus: Water quality.

Geographic Area: Annual crop producers in corn-soybean rotations in Lancaster, Gage, Jefferson, Hamilton, Saunders, Stanton, Hall, Adams and Dodge counties.

Participant requirements:

- A detailed plan must be developed in conjunction with the researcher that provides project details, plot locations, on aerial photos and in written format and **be provided to NRCS prior to scheduling the project.**
- All inputs for the research project, including crop seed, fertilizer, herbicides, farm equipment, and manpower will be provided by the participant. Participating producers will be responsible for contacting an Extension Educator for technical assistance at critical times (layout of trial, applying treatments, harvest), all field operations including those for establishing the trial and collecting the

yield data; in some cases the technical assistance may be delegated by the Extension Educator to a crop consultant or another agronomic advisor.

- Grain yield for each strip will be collected using a weigh wagon, yield map or monitoring equipment, or other means in agreement with the cooperating Extension Educator. Grain moisture will be determined for each strip. All data will be provided to the cooperating Extension Educator. All costs of implementation, excluding Extension advisory visits, will be the responsibility of the producer. Hybrids/varieties and other management practices will be the producer's choice.
- Minimum of 12 acres will be needed for the replications. Growers must have their own harvest equipment, preferably equipped with a yield monitor. Growers with their own sprayers and fertilizer applicators are preferred, but commercial herbicide and fertilizer applications are acceptable.
- The research will last a minimum of three years.

- **Number and size of on-farm research sites needed:** up to 15 sites. Minimum size is 13 acres.

Documentation: Complete the following Table and provide the documentation listed below:

Tract	Field(s)	Acres Planned		Acres Applied (completed by operator)
EX. 1	*1*	*15*		*15 acres*

I certify that the following information meets specifications and has been provided to NRCS:

1. Complete the table above and provide a map with delineation of the area where the enhancement was applied including partial fields.
2. Yearly reports will be provided to inform NRCS and associated stakeholders of the project progression and a final report at the end of the third year based on University of Nebraska Extension Service that documents that details findings of the research project..

Certified by: _____ **Date:**_____