



Nebraska On-Farm Research Network

Nitrification Inhibitor vs. None in Corn

Protocol developed by: Jenny Rees and Laura Thompson, Nebraska Extension Educators

Objective: Determine any effects on nitrogen retention and yield by utilizing a nitrate inhibitor in corn.

Rationale: Large amounts of precipitation received in the fall and/or spring can increase the potential of fall or spring applied anhydrous ammonia to be converted to nitrate and lost via leaching. Growers applying anhydrous ammonia in the fall or spring may be interested in or required by local Natural Resources Districts (NRDs) to utilize a nitrate inhibitor with anhydrous application. This protocol allows growers to test any nitrogen retention differences and yield effects of utilizing a nitrate inhibitor product.

Treatment Design: The following is an example treatment design for a two treatments. A total of 5 pairs need to be harvested for this trial (7 is preferred). The same hybrid and management practices should be used across the entire study area.

Treatments:

Check: Anhydrous ammonia with no inhibitor.

Nitrification Inhibitor: Anhydrous ammonia with inhibitor.

NOTE: Yield from full header width needs to be obtained for each treatment strip shown below.

Replication 1	Check	Yield from header width:
	Nitrification Inhibitor	Yield from header width:
Replication 2	Nitrification Inhibitor	Yield from header width:
	Check	Yield from header width:
Replication 3	Check	Yield from header width:
	Nitrification Inhibitor	Yield from header width:
Replication 4	Nitrification Inhibitor	Yield from header width:
	Check	Yield from header width:
Replication 5	Check	Yield from header width:
	Nitrification Inhibitor	Yield from header width:
Replication 6	Nitrification Inhibitor	Yield from header width:
	Check	Yield from header width:
Replication 7	Check	Yield from header width:
	Nitrification Inhibitor	Yield from header width:

Date to Collect:

1. Soil test for complete nutrient analysis prior to anhydrous application (0-8" samples).
2. Rate of anhydrous applied (in pounds of N), placement of anhydrous band in relation to planter row, name of inhibitor, rate of nitrification inhibitor product, time of application, precipitation received.
3. Soil test for Ammonium and Nitrate to determine any differences in nitrogen around June 10th. Samples should be taken 2" from the anhydrous band. Samples will be a composite of 12 cores. Each treatment and replication should be sampled. Samples should be down to 3' depth (if feasible) split into 1' segments. If not feasible to collect to a 3' depth, collect the same samples, but for a 0-8" depth.
4. Document any visual differences with pictures. Aerial imagery using NDVI would be helpful to visualize any early season color differences.
5. Harvest stand counts. In each treatment strip, two stand counts will be taken and average for 1/1000 of an acre.
6. Yield. Yield can be collected using a well-calibrated yield monitor or with a weigh wagon.

Grower Requirements:

1. Flag or mark GPS location of each treatment.
2. Provide all necessary inputs for crop production.
3. Complete background agronomic form about site and practices.
4. Collect yield data and grain moisture with weight wagon or yield monitor. If using yield monitor, please designate a separate "load" for each treatment and set up separate "products" names for each treatment harvested. Yield monitor must be **well calibrated**. Contact UNL Extension if assistance with this process is needed.
5. Collect stand counts at harvest.
6. Submit harvest data to UNL Extension within 30 days of harvest or by Dec. 15.
7. Allow UNL Extension to use submitted and collected data for research, educational, and informational purposes.

Nebraska On-Farm Research Network will:

1. Provide technical assistance in setting up replicated and randomized experimental design.
2. Provide assistance upon request with treatment implementation, flagging, stand counts, stalk rot tests, and recording yield.
3. Analyze raw data using statistical analysis and provide this information to the grower.

Disclaimer: The Nebraska On-Farm Research Network does not endorse the use of products tested in on-farm replicated strip trials. While treatments are replicated within trials and may be replicated across multiple sites under various conditions, your individual results may vary.

Copyright ©2015

Extension is a Division of the Institute of Agriculture and Natural Resources at the University of Nebraska–Lincoln cooperating with the Counties and the United States Department of Agriculture.

University of Nebraska–Lincoln Extension educational programs abide with the nondiscrimination policies of the University of Nebraska–Lincoln and the United States Department of Agriculture.

