**Corn response to nitrogen rates, Fessenden, 2011.**
(Greg Endres and Dave Franzen)

The objective of the study is to examine corn performance with several nitrogen (N) rates to provide additional information for a database to revise NDSU corn N recommendations. Experimental design was a randomized complete block with four replications. The field trial was conducted in a commercial Wells County corn field (cooperator = Mitch Lloyd). Materials and methods are listed in Table 1.

Silk date, seed yield and moisture, test weight, and seed protein and starch were similar among N rates (Table 2). However, seed yield tended to be highest at the high N rates.

Table 1. Materials and methods for corn response to N rates study, Fessenden, 2011.

| | | | Soil analysis (spring test) | | | | | | Corn[1] | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tillage system | Previous crop | Soil type | Organic matter (%) | pH | N | P | K | Zn | Planting date | RR hybrid | Planting rate | Starter N fertilizer | Harvest date |
| | | | 0-6 inches | | lb/A (0-24 inches) | ppm | | | | | seeds/A | lb actual /acre | |
| Reduced | soybean | Heimdal Emrick loam | 2.6 | 8.1 | 59 | 7 | 442 | 0.99 | 31-May | PFS 76F82 | 36,000 | 28 | 13-Oct |

[1]Planted in 30-inch rows.

Table 2. Corn response to N rates, Fessenden, 2011.

| | Corn | | | | | |
|---|---|---|---|---|---|---|
| Nitrogen | Silk date | Seed yield | Test weight | Seed moisture | Seed protein | Seed starch |
| lb N/acre | days | bu/acre | lb/bu | % | | |
| | | | | | | |
| untreated check | 218 | 128.2 | 51.2 | 26.7 | 8.9 | 68.2 |
| 40 | 218 | 140.4 | 51.1 | 26.8 | 8.9 | 68.2 |
| 80 | 218 | 139.6 | 51.4 | 24.8 | 9.3 | 68.1 |
| 120 | 218 | 136.5 | 50.5 | 26.1 | 9.7 | 67.3 |
| 160 | 217 | 151.6 | 51.6 | 26.0 | 9.9 | 67.6 |
| 200 | 219 | 144.3 | 51.4 | 26.8 | 9.8 | 67.7 |
| | | | | | | |
| mean | 218 | 140.1 | 51.2 | 26.2 | 9.4 | 67.8 |
| C.V. (%) | 0.3 | 7.6 | 1.5 | 4.1 | 6.7 | 1.2 |
| LSD (0.05) | NS | NS | NS | NS | NS | NS |