

Nitrogen Rate/Timing Trial

Corn following Soybeans – Innovation Farm 2015

Planted: 4/29/2015

Harvested: 9/25/2015

Hybrid/Population: DKC 64-87RIB; 36,000 seeds/A

Rows: (6) 30" rows(middle 4 rows weighed)

Tillage/Rotation: Conventional; c/s rotation

Replications: 3 (randomized)

Trial Description

Maximizing return on applied nitrogen continues to be a highly debated topic for corn growers especially due to the high cost of this input and environmental concerns. How much nitrogen to apply and when to apply are two very important factors that this protocol sponsored by University of Illinois and the Illinois Fertilizer and Chemical Association will help provide answers. Data from this trial will be used to help further develop the Maximum Return to Nitrogen (MRTN) calculator which is available to all Illinois growers for calculating nitrogen needs. This is a multi-year trial with fall, spring and sidedress nitrogen treatments using a range of different rates. Additional treatments are planned for 2016.

Rank	Treatment lb N/A	Moisture %	Yield bu/a
1	150 + 50	18.1	248.8
2	100 + 50	17.9	245.8
3	200	17.9	241.3
4	150	17.7	235.8
5	50 + 50	17.9	233.6
6	100	17.2	227.9
7	50	17.1	194.7
8	0	16.1	143.2

L.S.D. .10% Level = 24

CV (%) = 7.6

Trial Notes: In addition to the nitrogen rates stated in the table above, the entire area had 35 lbs N with UAN spring preplant. In the Treatment column the first number (blue) represents lbs N Fall applied as NH3 stabilized with N-Serve. The second number (red) represents lbs N as NH3 sidedress and was applied at V3. Adjusted to 15% moisture

Figure 1.

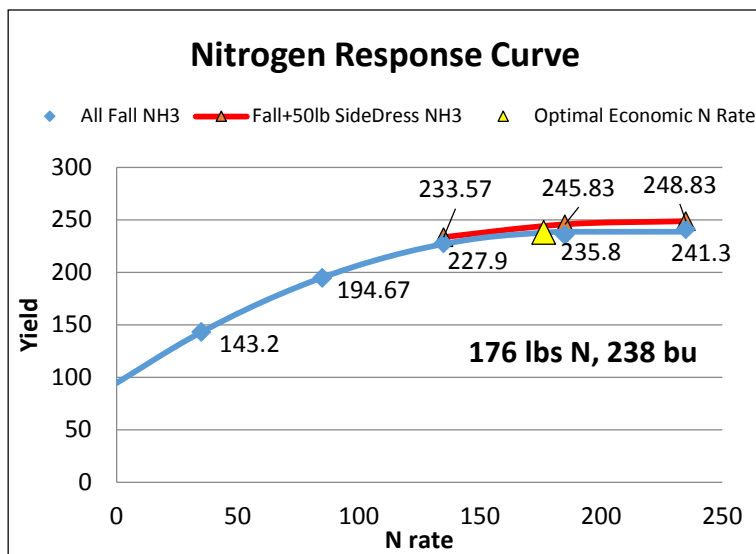


Figure 2.

Discussion

There are three key observations to take from this trial. The first seen in both Figures 1 & 2 show that all of the treatments that included a sidedress application out yielded the same amount of nitrogen applied without sidedress by a range of 5.67-10 bu/a.

The second observation as seen in Figure 2 indicates the optimal economic nitrogen rate calculated from this trial data for this year was 176 lbs of nitrogen producing 238 bu/a (yellow triangle in graph). This equates to .74 lbs of nitrogen per bushel of corn produced.

The third observation is the possibility that 35 lbs of nitrogen can raise a 140+ bushel corn crop. That clearly shows the importance of mineralized soil nitrogen.