

What's Cropping Up?

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The 2008 soybean crop in NY, which was planted on a record 230,000 acres, averaged 46 bu/acre, similar in yield to the record 2006 crop. Corn acreage is expected to increase by 4% this year in NY (1.13 M acres) so we expect more corn to follow soybeans in the rotation. With N prices so volatile, it is important to apply the recommended rate of N to corn following soybeans in the rotation.

We conducted a 3-year study from 2000 to 2002 at the Aurora Research Farm to evaluate the response of corn to sidedress N rates (with 25 lbs N/acre in the starter) of 0, 50, 100, 150, and 200 lbs/acre when following soybeans in rota-

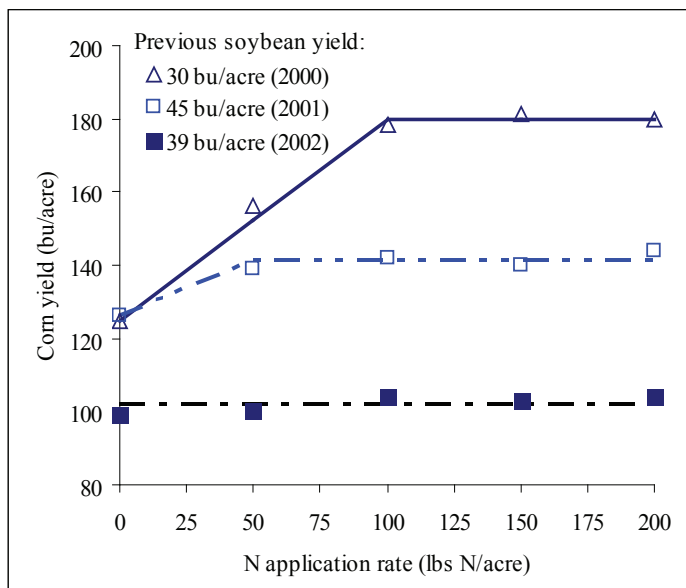


Figure 1: Corn yields in 2000, a wet year (following a 30 bu/acre soybean crop in the dry 1999 year), 2001, a somewhat dry year (following a 45 bu/acre crop in 2000) and 2002, an extremely dry year (following a 39 bu/acre soybean crop in 2001). All treatments received 25 lbs N/acre in a starter fertilizer. Currently, the recommendation for nitrogen for continuous corn at this site is 140 lbs N/acre.

N Sidedress Rates on Corn Following Soybeans

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tion. The recommended total N rate at this site is about 140 lbs N/acre. We used liquid urea-ammonium nitrate (UAN) as an N source and injected it about 4 inches deep when corn was at the 4-5 leaf stage in each year of the study.

Fig.1 clearly shows that the sidedress N rate on corn did

not correlate well with the previous soybean yield as indicated by optimum sidedress N rates of 100 lbs/acre (125 lbs of total N/acre) in 2000 following a 30 bu/acre soybean crop in 1999, 50 lbs/acre (75 lbs total N/acre) in 2001 following a 45 bu/acre soybean crop in 2000, and no response to sidedress N in the very dry 2003 growing season following a 39 bu/acre soybean crop in 2001. Instead, the N response was correlated more with the amount of precipitation during the growing season. Consequently, growers in NY should not think that there will necessarily be a higher than normal N credit for corn in 2009 from the high-yielding 2008 soybean crop.

Table 1. Corn yield following soybeans in 2007 (70 bu/acre soybean crop in 2006) and 2008 (35 bu/acre soybean crop in 2007), and averaged across the 2007 and 2008 growing seasons at Aurora, NY.

Sidedress N rate	2007	2008	Avg.
lbs N/acre	---bu/acre--	---bu/acre--	---bu/acre--
0	109	143	126
30	115	179	147
60	130	193	162
90	131	194	163
120	125	191	158
150	132	189	161

We repeated our sidedress N rate study in the dry 2007 and wet 2008 growing seasons. In both years, we used 25 lbs of N/acre in the starter and sidedressed at 0, 30, 60, 90, 120, and 150 lbs N/acre. Regression analysis indicated that

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in 2007, a dry year (following a 70 bu/acre soybean crop in 2006), the optimum sidedress N rate was 60 lbs/acre (Table 1). Likewise, in 2008, a wet year (following a 35 bu/acre soybean crop in 2007), 60 lbs N/acre (85 lbs total N/acre) also was optimum, despite the much high-yielding corn crop (Table 1). Obviously, corn yields, previous soybean yield, or even weather patterns do not totally explain the N response of corn when following soybeans.

Conclusion

We know that corn requires less N when following soybeans than when following corn but the exact reduction in N rate is difficult to quantify. Currently, Cornell recommends a reduction of 20-30 lbs N/acre when corn follows soybeans compared with corn on corn. Based on the data at the Aurora Research Farm, this is a fairly conservative estimate so growers should not hesitate to reduce N by 20-30 lbs/acre this year when corn follows soybeans in the rotation.