

How Much N to Sidedress on Corn Following Soybeans?

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Soybean acreage has increased from 40,000 to about 140,000 acres in New York over the last 10 years. Typically, corn follows soybeans in the rotation, which results in about 10% of the corn acreage following soybeans in New York. Cornell has limited calibration data on the amount of N required by corn following soybeans so the current N recommendation for corn following soybeans is the same as for corn following corn. We compared continuous corn, corn-soybean, and corn-soybean-wheat/clover rotations under high and low inputs at the Aurora farm (Honeoye soil) and reported that corn yielded the same at 85 vs. 145 lbs N/acre when following soybeans in dry years (What's Cropping Up? Vol. 9, No. 3, p. 4-5). In wet years, however, corn following soybeans yielded about 15 bu/acre greater at 145 vs. 85 lbs N/acre. The Cornell N recommendation for corn at this location amounted to 120-140 lbs N/acre. In 2000, we initiated a 3-year study to evaluate the response of corn to sidedress N rates (with 25 lbs N in the starter) when following soybeans in the rotation.

Optimum corn yields were obtained at a sidedress N rate of 100 lbs/acre in 2000 (Fig. 1). Despite wet spring conditions and high corn yields in 2000, corn required only a total of 125 lbs N/acre (25 lbs N/acre as a starter plus 100 lbs N/acre sidedressed) to maximize yields. In 2001, optimum corn yields were obtained with a sidedress N rate of 50 lbs/acre (Fig. 1). The 2001 growing season was dry and the corn yields in 2001 averaged about 20% less than the yields in 2000. The results in 2001 in which a total of 75 lbs N/acre (25 lbs N/acre as a starter plus

50 lbs N/acre sidedressed) maximized corn yields are similar to the results of the crop rotation study in which corn following soybeans yielded the same at 85 vs. 145 lbs N/acre in dry years.

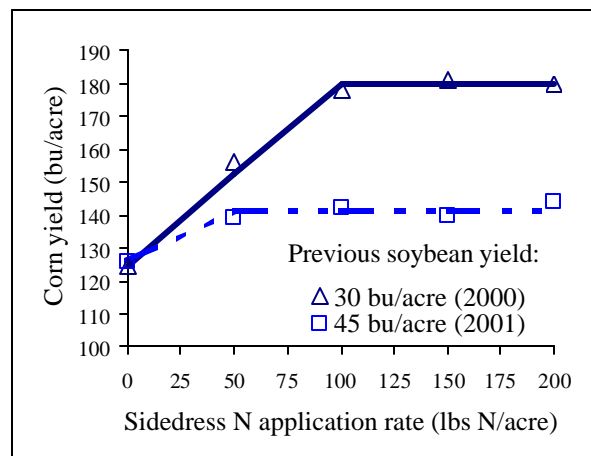


Figure 1: Corn yields following soybean in 2000 (a wet year) and 2001 (a dry year). All treatments received 25 lbs N/acre in a starter fertilizer. Currently, the recommendation for nitrogen at this site is 120-140 lbs N/acre.

We will continue the study for one more year. In 2002, the study was planted on April 24th at the Aurora Research Farm, which received about 5 inches of precipitation in the 4 weeks following planting. Consequently, we may have another wet year to add to the data set. Preliminary results indicate that total N recommendations for corn following soybeans (versus corn following corn) could be reduced with 25 lbs N/acre in wet years and 50 lbs N/acre in dry years.