METTLER, DAVID C.*[1], MARK W. BLOOMQUIST[1], and JOHN A. LAMB[1], [1]Southern Minnesota Beet Sugar Cooperative, 83550 County Road 21, Renville, MN 56284.

Nitrogen fertilizer management for *Beta vulgaris* in southern Minnesota.

Nitrogen management is a priority for production of high-quality sugar beets. The use of nitrogen placement could offset the input cost of nitrogen and lower the overall use rate through more efficient use and availability. The objectives of these studies were to determine: 1) the optimal rate of spring broadcast urea, 2) if placement of UAN close to the row would improve sugar beet production over comparable broadcast urea rates, 3) evaluate sugar beet response to nitrogen rates following different previous crops, and 4) if biological products could improve nitrogen use efficiency. These trials were conducted as randomized complete blocks with four replications and repeated over three years (2022-2024) across two locations each year. To achieve the objectives of this study, the following treatments were used. Urea N applications of 30, 60, 90, 120, 150, and 180lbs of N were broadcast and incorporated in the spring at each location. UAN at a rate of 30 and 60lbs of N was applied in placements of 3" either side of the row x 1" deep and 3" either side of the row x 0" deep at planting time. Three sites were established following field corn, and three sites were established after soybean in the rotation. In this study, sites following field corn all responded to the application of additional nitrogen. Sites following soybean only responded to additional nitrogen one out of three years. Of the sites that responded to additional nitrogen, the placement of UAN closer to the row versus broadcast urea did not improve crop production and none of the biological products tested improved yield over the standard broadcast urea equivalent.