Higher seeding rates and nitrogen (N) rates are generally needed at higher yield potentials. Seed companies are developing hybrids with higher yield potential that may require higher N fertilizer and seeding rates. Fixed-ear hybrids (determinate) may respond more to higher seeding rates than flex-ear hybrids (indeterminate). This may also affect optimum N rates. Field experiments were conducted on two Mississippi River alluvial soils. Two hybrids, a fixed- and flex-ear hybrid, four seeding rates, 26, 400, 30,800, and 39,600 seed/acre, and four N rates, 100, 150, 200, and 250 lb/acre on Commerce silt loam and 200, 250, 300, and 350 lb/acre on Sharkey silt loam. The flex-ear hybrid did not increase in yield as seeding rates increased. Whereas, yields increased as seeding rates increased for the fixed-ear hybrid. Optimum seeding rate was 26,400 seed/acre for the flex-ear hybrid and 30,800 seed/acre for the fixed-ear hybrid. There was no interaction between hybrid and seeding rate for yield. Optimum N rate was about 250 lb/acre on Sharkey and 200 lb/acre on Commerce. Ear size (kernels/ear) decreased for both hybrids as seeding rates increased. In all trials, there was a large difference in ear size between hybrids at the lower seeding rates but these differences narrowed as seeding rates increased. At the lower seeding rates, ear size was larger for the flex-ear hybrid. Data suggests that the flex-ear hybrid required a lower optimum seeding rate than the fixed-ear hybrid at yield potentials evaluated in this study.

### Results and Discussion

In Sharkey silt loam trials, non-irrigated trials averaged 194 bu/acre in 2013, and 158 bu/acre in 2015 and irrigated trials averaged 200 bu/acre in 2013, 131 bu/acre in 2014, and 182 bu/acre in 2015. In Commerce silt loam trials, average yields were 190 bu/acre, 159 bu/acre, and 164 bu/acre in 2013, 2014, and 2015, respectively. Yields were similar between hybrids. Data in Tables 1-4 are averaged across years. In Sharkey trials, yields were similar regardless of irrigation (Table 1). The flex-ear hybrid (REV 28HR20) did not increase in yield as seeding rates increased. Whereas, yields increased as seeding rates increased for the fixed-ear hybrid, DKC 66-97. Optimum seeding rate was 26,400 seed/acre for the flex-ear hybrid and 30,800 seed/acre for the fixed-ear hybrid. A similar yield response occurred on Commerce silt loam (Table 3), with an optimum seeding rate of 26,400 seed/acre for the flex-ear hybrid and 30,200 seed/acre for the fixed-ear hybrid. There was no interaction between hybrid and seeding rate and N rate for yield. Optimum N rate was about 250 lb/acre on Sharkey and 200 lb/acre on Commerce. Ear size (kernels/ear) decreased for both hybrids as seeding rates increased (Tables 2 and 4). In all trials, there was a large difference in ear size between hybrids at the lower seeding rates but these differences narrowed as seeding rates increased. At the lower seeding rates, ear size was larger for the flex-ear hybrid. In summary, data suggests that the flex-ear hybrid required a lower optimum seeding rate than the fixed-ear hybrid at yield potentials evaluated in this study.