SHORT ABSTRACT

BOETEL, MARK[1*], ALLEN SCHROEDER[1], JACOB RIKHUS[1], AMITAVA CHATTERJEE[2], AND NORMAN CATTANACH[2], [1]Department of Entomology, North Dakota State University, Dept. 7650, P.O. Box 6050, Fargo, ND 58108, [2]Soil Science Department, North Dakota State University, Dept. 7180, P.O. Box 6050, Fargo, ND 58108. **Seed Lubricant Impacts on Plant Stands and Yield: Implications for Insecticidal Seed Treatment Use.**

Recently published research suggests that seed-flow lubricants (e.g., talcum) used in row crop planter hopper boxes can abrade neonicotinoid seed treatment insecticides (e.g., Poncho Beta, Cruiser, and NipsIt Inside) from seed coatings, with the resulting insecticide-laden dust being released into the air from vacuum-based planters and causing pollinator kills. This has raised questions as to whether talcum or other seed flow lubricants are necessary during sugarbeet planting. If lubricants are not needed in sugarbeet planting, or if a less-abrasive alternative to talcum could perform as well as talcum without negatively impacting seed delivery and seedling establishment, it may provide evidence to support continued federal registration of neonicotinoid seed treatment insecticides for use in sugarbeet production. This research was conducted in 2015 and 2016 to determine if seed-flow lubricants impact seed delivery, seedling establishment, sugarbeet yield parameters, or revenue. The experiment was arranged in a split-plot design with four replications. Seed size (i.e., miniature pellets [~9/64-inch diam.] and extra-large pellets [~12.5/64-inch diam.]) served as the main-level treatments, and lubricant (i.e., talcum, graphite, talcum/graphite mixture, Fluency Agent®, and a no-lubricant control) were sub-level treatments. In 2015, there were no significant differences in plant stands at 14, 21, or 39 days after planting among seed lubricants or between any seed lubricant and the no-lubricant control. Similarly, there were no significant impacts of any seed lubricant on recoverable sucrose yield, root yield, or percent sucrose content. Also, the main-level factor of seed size (i.e., Pro200 vs. regular pellet) had no significant effect on stand establishment or yield. Results and conclusions from both years will be discussed.