Soybean Planting Technology

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Low yields limit the expansion of soybean acreage across the northern plains. Productive varieties are available, but current planting recommendations are based upon data from more humid regions. The objective of this 3-year project, which began in 1999, is to develop recommendations for the drier conditions typical of central North Dakota. Optimum and delayed planting dates were compared. A full-season (Traill, Group 0.0) and a short-season (Daksoy, Group 00.5) variety were sown at target populations of 100,000, 150,000, and 200,000 plants/acre and row spacings of 7, 21, and 30 inches.

In 1999, planting date did not affect days to maturity, harvestabiliy (lodging and height of the lowest pod), or yield. With early planting, Traill out-yielded Daksoy by 5 bushels/acre (41 vs. 36). The yield of Daksoy was unaffected by planting date, while Traill yielded 9 bushels/acre less when planting was delayed 17 days. Delayed planting resulted in faster canopy closure and a better stand due to warmer temperatures. Wide row spacing produced a better stand, since more plants in a row increased the collective force to emerge through the soil. Increasing the seeding rate reduced the time to canopy closure and maturity, but did not affect plant height or lodging. Pod height increased with seeding rate.

Grain yield improved 7 and 2 bushels/acre with the high seeding rate compared to the low and medium rates, respectively. Narrower rows resulted in less lodging, shorter plants, and higher pods, but prolonged the time to maturity by up to 10 days. Grain yield was more than 4 bushels/acre higher with solid-seeding (7”) than with narrow (21”) or wide (30”) rows. The 1999 yield advantage observed with the highest seeding rate and solid-seeding may have resulted from above-normal precipitation during seed development in August.