Soybean Planting Technology for the Northern Plains

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ABSTRACT

Late planting delays the expansion of soybean stands in northern regions, but significant advantages associated with earlier planting may be lost. Standard planting recommendations (Table 1) are based upon research done in the 1970s and may not be applicable to the conditions of the current day. Objectives and desired soybean traits have been combined into three full- and three short-season groups for northern North Dakota. These objective groups can be used to determine planting strategy from February to June. Launching soybean planting programs during the month of February may allow for early planting and may provide a firmer basis for drawing conclusions and formulating recommendations.

INTRODUCTION

Many growers in central and northern North Dakota are interested in soybean production. In many cases, their production practices are similar to those of producers further south. However, conditions that affect the growth of soybeans in the southern states are different in northern regions. This may be due to differences in soil type, climate, and the availability of production inputs. In addition, the work will expand to the NDSU Extension Centers, where varieties, seeding rates, and row spacings will be evaluated under no-till and conventional tillage systems. Additional results have been directed toward plant population. Within each objective group, the effects of row spacing, seeding rate, and date of planting will be evaluated. This response was especially pronounced under conditions that stress soybean growth, such as the number of days to canopy closure and lower seed yield benefits of solid seeding and the improved harvestability of higher plant populations. In addition, the work will expand to the NDSU Extension Centers, where varieties, seeding rates, and row spacings will be evaluated under no-till and conventional tillage systems. Additional results have been directed toward plant population. Within each objective group, the effects of row spacing, seeding rate, and date of planting will be evaluated. This response was especially pronounced under conditions that stress soybean growth, such as the number of days to canopy closure and lower seed yield benefits of solid seeding and the improved harvestability of higher plant populations.

OBJECTIVES

1. Optimize Inputs
2. Optimize Yield
3. Optimize Singhage

CULTIVAR: Mature Group 0 Zone 1 (362 days)

PLANTING DATE:
Not more than 5 days before last killing frost

SEEDING RATE:
370,500 plants/ha in 0.76 m rows

Figure 1. North Dakota Soybean Variety Zones

Figure 2. Effects of Planting Date and Row Spacing on Stand Establishment

Table 1. Current planting recommendations for central North Dakota.


LITERATURE CITED


Table 2. Response of two soybean cultivars to planting date, seeding rate and row spacing

Figure 3. Soybean Yield Response to Seeding Rate

Figure 4. Soybean Yield Response to Seeding Rate

Figure 5. Soybean Yield Response to Row Spacing

Figure 6. Soybean Yield Response to Row Spacing

Figure 7. Soybean Yield Response to Row Spacing

Figure 8. Soybean Yield Response to Row Spacing

Figure 9. Soybean Yield Response to Row Spacing

Table 3. Current planting recommendations for central North Dakota.


Table 4. Current planting recommendations for central North Dakota.