



Wednesday, 15 November 2006
254-9

Reducing the Risk of Poor Soybean Emergence in No-till Soil in the Northern Corn Belt.

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Adoption of no tillage in the northern Corn Belt has lagged behind other regions because of the slow warming and drying of soils in early spring coupled with a short growing season. Cold, wet soils can lead to seed damage resulting in poor stand establishment. Since no-till soils warm slower than conventionally tilled soils they are often planted later, requiring the use of early maturing crop cultivars with less yield potential than full-season ones. In this study, a temperature-activated polymer (TAP) coating was applied to soybean [*Glycine max* (L.) Merr.] to test whether the coating prevents reduced stand establishment of early planted seed, while allowing use of later maturing cultivars. Coated and uncoated seed of a 0.8 MG and 1.8 MG soybean cultivar were planted early (6 Apr) and at an average time (20 May) in a no-till loam soil previously cropped in corn (*Zea mays* L.). Early planted soybean remained in the soil for 30 d before emerging. For the early planting, maximum emergence of coated seed was 49 and 36% greater than uncoated seed for the 0.8 and 1.8 MG cultivars, respectively. Yield of early planted, coated 0.8 MG soybean averaged 1 Mg ha⁻¹ greater than its uncoated counterpart and was similar to that of uncoated seed planted 20 May. Yield for coated and uncoated 1.8 MG seed was similar across planting dates and was about 0.3 Mg ha⁻¹ greater than the 0.8 MG cultivar. Seed moisture of the early planted 1.8 MG was similar to that of the 0.8 MG in both planting dates, but was 3% greater in the second sowing. TAP coatings for soybean may be a viable management option for no-tillers looking to plant earlier than normal while reducing the risk of poor stand establishment.

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