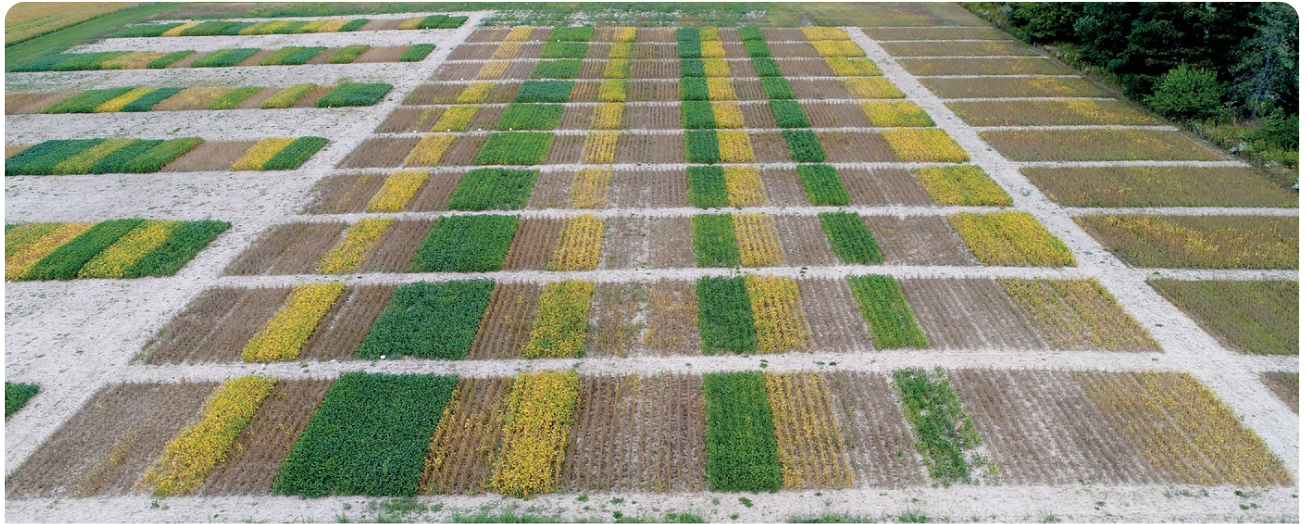




**Science
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Adjusting Seeding Rate, Seed Treatment, and Planting Date for Soybean Yield and Profit

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Top: drone image of a Michigan soybean field showing maturity progression based on planting date. Brown-colored strips represent early-season planting while yellow- and green-colored strips represent mid- and late-season plantings, respectively. Bottom: Soybean plants from plots planted at 124,000 to 519,000 seeds ha⁻¹ (l to r, in increments of 99,000 seeds). These plants show the differences in plant architecture between seeding rate treatments. Photos by Maninder Singh/MSU.

Early-season soybean planting in the U.S. Midwest has been shown to improve yield. However, inclement weather, equipment restrictions, and other issues can delay planting. Soybean planting dates will also become more inconsistent as the climate changes.

Research in Michigan and other northern states on optimal soybean planting windows is inadequate as is research on how growers should adjust other management decisions based on planting date to optimize their yield and profits. Decisions on soybean seeding rate and seed treatment can greatly influence grower profits.

New research shows that the optimal time for soybean planting in Michigan is between late April and mid-May. However, yield losses might occur when planting early in non-ideal field conditions. The seeding rate for maximizing *profit* was lowest at the end of April and increased as planting was delayed; it was only 63–68% of the seeding rate for maximizing *yield*. Seed treatment improved the number of plants per acre at one location but did not improve yield at any site-year regardless of planting date.

Future studies could explore how adjusting other management practices (e.g., variety maturity, planting method, fertility, and pest control) based on planting time could benefit growers.

Adapted from Siler, T.B., & Singh, M.P. (2022). Soybean seeding rate and seed treatment that maximize yield and profitability based on planting date. *Agronomy Journal*, 115, 759–769. <https://doi.org/10.1002/agj2.21253>

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