

Yield and Maturity of Late-Seeded Soybeans in Manitoba

Soybeans grown in Portage and Morden demonstrated good yield potential and little risk for seeding soybeans as late as June 9 to 12. Seeding between May 31 and June 6 at Arborg reduced yield potential and/or increased risk for not reaching maturity.

NEARLY HALF OF the 95+ soybean varieties evaluated in 2018 fell within the short-season category. These early-maturing varieties require less than 115 frost-free days to reach maturity.

In situations where spring planting is delayed, and farmers are presented with a shorter growing season, could early-maturing varieties be used to achieve acceptable yields and mature before the typical fall frost date?

Soybean seeding deadlines for full insurance coverage are May 30 for Area 2 (Portage), 3 (Arborg, Melita) and 4 (Roblin, Swan River), and June 6 for Area 1 (Morden). These deadlines have not been reviewed since 2005.

This project evaluated the potential of late-seeded soybeans in Manitoba and determined the feasibility of extending current crop insurance deadlines.

From 2015 to 2017, three soybean varieties (very early, early and mid-season) were planted in three seeding windows (late May, early June, mid-June) in Arborg, Portage and Morden. These locations vary in growing season length and latitude, but also represent three distinct Manitoba Agricultural Services Corporation (MASC) insurance areas. To evaluate the potential of late-seeded soybeans, data was collected on plant population, plant height, plant productivity, maturity, yield and seed quality. Regarding decision-making, yield and maturity are the most important variables.

MATURITY

At both Portage site-years, soybeans matured within at least one day of the normal frost date (Sep 25) regardless of seeding date. At Morden in 2017, all soybeans matured prior to the normal frost date (Sep 25), but in 2016, late- and

very late-seeded soybeans matured beyond the normal frost date. As expected, Arborg showed the highest risk associated with seeding soybeans late. Soybeans at Arborg matured five days or more after the normal frost date (Sep 22) when seeded May 31 or later. In addition, two of the varieties at the very late seeding date did not mature in 2016.

YIELD

Soybean yields ranged from 24–53 bu/ac, depending on the site-year. Overall, the very early variety and very late seeding date tended to reduce yield.

Historically, seeding dates and deadlines have considered 80% yield potential to be an acceptable benchmark. In other words, can late-seeded soybeans maintain 80% yield potential compared to a normal seeding date? To answer this question, the effect of seeding date within site-years was explored (Figure 1).

Soybean yield across seeding dates was statistically similar at most site-years,

except at Arborg, where soybean yield at the very late planting date was reduced to 65–67% of the normal planting date. Yield was reduced due to very late seeding at Portage in 2015, as well, but maintained 84% yield potential compared to the normal seeding date. All seeding dates were delayed at Morden in 2015, which contributed to reduced yields overall.

In summary, based on soybean maturity and yield potential, Portage and Morden site-years demonstrated good yield potential and little risk for seeding soybeans as late as June 12. At Arborg, seeding soybeans beyond June 6 typically resulted in a decline in yield potential and increased risk of not reaching maturity. When soybeans are seeded late, risk may be mitigated with appropriate variety selection.

The results of this research project are being reviewed in consultation with Manitoba Agriculture and MASC to support a review of soybean seeding deadlines for Areas 1–3. ▀

Figure 1. Soybean yield by seeding date (N = normal, L = late, VL = very late) within site-year.

