

Major oat buyers in eastern Saskatchewan have made the decision not to purchase oats which have been treated with pre-harvest glyphosate due to reductions in milling quality. Producers will need to focus on other agronomic practices to hasten the maturity of oats under field conditions, particularly seeding dates, seeding rates, and fertility management.

The objective of this trial was to demonstrate the interacting effects of these factors on oat maturity, yield, and milling quality. The trial was conducted at Indian Head, Melfort, and Yorkton in 2017. Treatments consisted of two seeding dates (early May and late May), with two seeding rates (200 and 300 seeds/m²), and three N rates (40, 65, and 90 lbs N/ac), plus an additional treatment with a lower rate of P fertilizer.

The trial results from all three sites were combined. Late-seeded oats matured more quickly than early-seeded oats across seeding rates and N rates, though the crop was still mature at a later calendar date (Figure 1). When oats were seeded early, the number of days to maturity increased with N rates but did not differ significantly between seeding rates. However, when oats were seeded late, the number of days to maturity increased significantly more with N rate at the low seeding rate compared to the higher seeding rate. A low seeding rate combined with a high N rate caused the greatest increase in days to maturity when oats were seeded late but still matured in fewer days than when seeded early.

The P rate had no effect on maturity; however, it was shown that adequate P rates are necessary to achieve maximum yield. Grain yield increased with N rate but was not impacted by seeding date or rate. All of the quality factors fell within acceptable ranges for milling quality, even at the lowest quality treatment for each factor, but this may have been a result of the drier environmental conditions in 2017.

In conclusion, oats compensate for a later seeding date by hastening maturity, and this does not necessarily result in a yield penalty. However, if oats are seeded late, increasing the seeding rate may be the most important consideration in order to hasten maturity while still maintaining a higher N rate to preserve yield potential, as maturity is significantly delayed when lower seeding rates are combined with higher N rates at later seeding dates. Reducing the nitrogen rate will also hasten maturity significantly, but the benefit of earlier maturity will need to be weighed against the corresponding yield loss.

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Figure 1. Effect of seeding date, seeding rate, and N rate on oat maturity when (A) early seeded and (B) late seeded at all sites combined (Indian Head, Melfort, and Yorkton) in 2017.

