

SFP Establishing nitrogen and seeding rate recommendations for hybrid brown mustard production in Saskatchewan

Summary (2020-2021)



Objectives

The objective of this trial is to understand nitrogen requirements of a hybrid mustard compared to Centennial brown (open-pollinated) and define upper and lower nitrogen limits for hybrid brown mustard.

We also want to maximize production by determining seed rates that are based on seeds/ft² rather than in lbs./ac, for both the hybrid and open pollinated brown mustard, due to varietal differences in seed size and establishment.

Preliminary results

As a result of the below average moisture received 5 out of 6 site-years, establishment rates were often below the target plant stand of 7-11 plants/ft². AAC Brown18 emergence ranged from 41-54% and Centennial brown ranged from 50-60%. Hybrid brown mustard yields increased up to 160N total (1602 kg/ha). The highest Centennial mustard yield resulted from 140N total (1402.3 kg/ha) with no significant increase resulting from 160N. Hybrid brown yielded best when seeded 10-18 seeds/ft² and Centennial brown yielded best when seeded at a slightly higher rate of 14-22 seeds/ft².

Similar to previous research, the vigorous nature of the hybrid brown mustard allowed for better utilization of higher nitrogen rates to increase branching, pod development, and yields, despite lower plant stands resulting from the hybrid brown mustard compared to Centennial brown.



Centennial brown mustard with 100N (soil and applied lbs. N/ac)



AAC Brown18 with 100N (soil and applied lbs. N/ac)



Height (cm)

Hybrid mustard was generally taller than Centennial, and height increased with nitrogen rate and decreased as seeding rate increased, but did not result in much variation.

Lodging (1-9)

Lodging increased linearly with nitrogen and seeding rate, but was low overall and not statistically significant.



Days to Maturity

Days to maturity decreased with higher seeding rates. Variation between treatments was small due to limited moisture and above average temperatures, but Centennial mustard generally matured 1-2 days later.

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