Optimum Seed Rate for Hybrid Brown Mustard

This project was initiated to demonstrate the seeding rate response of hybrid brown mustard variety AAC Brown 18 compared to a traditional open pollinated variety Centennial. Field trials were conducted at Swift Current, Indian Head, and Redvers in 2019. Five seeding rates (129, 172, 215, 258, and 301 seeds/m^2) were tested on each variety. All fertilizer applications were side-banded at seeding to avoid any negative effects of in-row fertilizer application and seeds were treated with Helix Vibrance.

The lack of early spring moisture, cool temperatures, and late spring frosts affected crop emergence, which negatively impacted crop production in 2019 and limited any treatment effects studied in this trial. There were no significant treatment effects on yield, height, lodging, or days to maturity at all sites. When looking at the hybrid mustard compared to the open pollinated mustard averaged over all seeding rates, we observed higher yields in the hybrid mustard at Redvers and Indian Head compared to Swift Current, and lower establishment rates in the hybrid mustard at all three sites (Figure 1). The current recommended target plant stand for mustard is 70-120 plants/m^2. Plant establishment in this trial was well below this recommended target window at Swift Current and Indian Head and, clearly demonstrated the negative effects of the extreme dry soil moisture conditions. The hybrid brown took the biggest hit in 2019, which may be due to the smaller seed size of the hybrid (TKW = 2.8 g) compared to the Centennial (TKW = 3.1 g). In fact, the only treatment that reached the minimum target plant stand at Swift Current and Indian Head was the highest seeding rate of Centennial brown mustard. In 2019, despite poor establishment of the hybrid brown mustard, mid-season rains promoted branching, flowering, and pod development producing higher yields than the corresponding Centennial brown mustard at each seeding rate treatment. On average, hybrid mustard yields were higher at all three sites even though establishment rates were much lower. This demonstrates the vigorous elasticity of the hybrid and its ability to branch out and compensate for thin plant stands to produce yield when moisture conditions improve.

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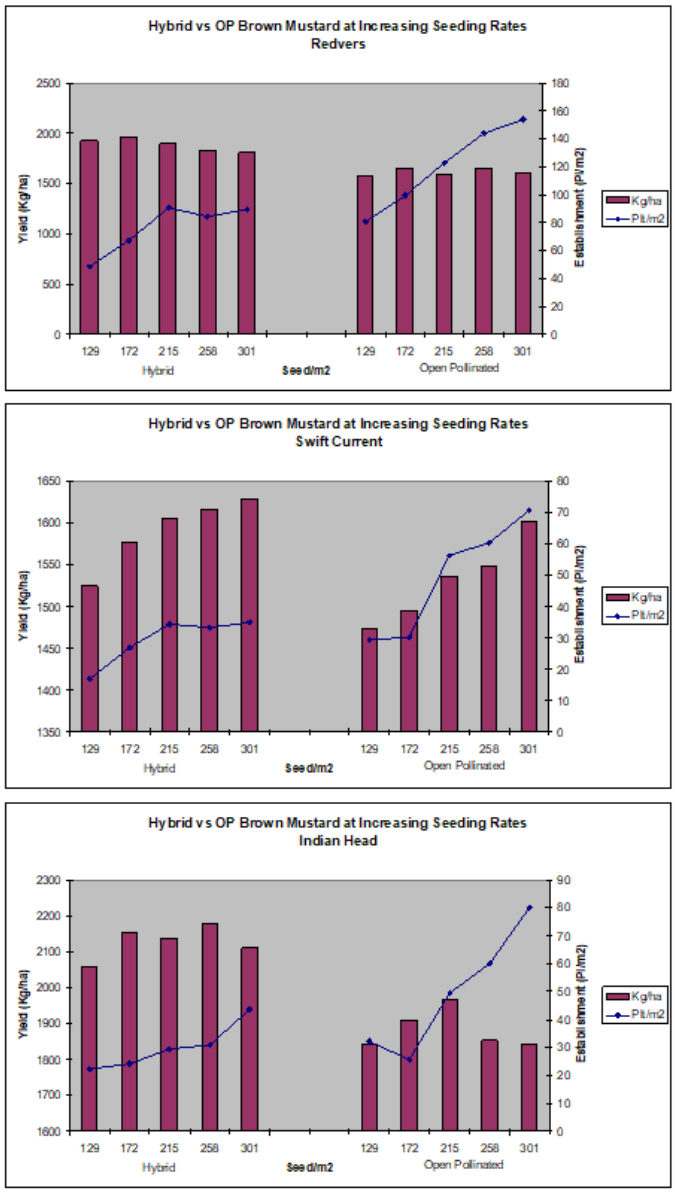

Figure 1. Establishment and yield of Hybrid Brown Mustard vs. Centennial Brown Mustard with increased seeding rate for each individual site (Redvers, Swift Current, and Indian Head) in 2019.