

References

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8.0 Determining the optimum seeding window for soybeans in Manitoba

Project duration: 2017-2019

Collaborators: University of Manitoba, MPGA, Kristen MacMillan

Objectives

- The objectives of this study were to determine the optimum seeding window for soybeans across Manitoba growing regions.

Background

Soybean is an important legume crop that contains significant amounts of isoflavone compounds which play a crucial role in human health (Al-Tawaha and Seguin, 2006). Soybean production on the Prairies is mainly limited by the cool short growing season that characterize this region. There is great potential for increasing total area under production but timing of seed establishment is crucial in achieving profitable yields. Traditional recommendations are to plant soybeans when soil temperature has warmed to at least 10°C, which is typically May 15-25 in Manitoba (Manitoba Agriculture). However, farmers have started to seed soybeans earlier (Page et al., 2019) and recent work by Dr. Yvonne Lawley and Cassandra Tkachuk (2017) supports this trend. They evaluated seeding dates across a range of soil temperatures from 6 to 14°C in 2014 and 2015; the earliest seeding dates maximized yield regardless of soil temperature and it was concluded that calendar date is a superior indicator. To update seeding date recommendations across a wider range of environments and using defined calendar dates, this study was initiated at Arborg, Carman, Dauphin and Melita in 2017 and continued through 2019.

Materials and Methods

The experimental design is a split plot RCBD, with seeding window as the main plot and variety as the split plot. The four seeding windows tested were “very early” (7 May), “early” (16 May), “normal” (28 May)

and “late” (7 June). The short season variety S007Y4 and mid-season variety NSC Richer were seeded at 1” depth on oat stubble within each seeding window. Fertilizer was banded during seeding at a rate of 7-35-20-7-2Zn (N-P-K-S) actual lb ac⁻¹. After seeding the first treatment on May 7, the whole trial area was sprayed with 0.1 L ac⁻¹ Authority, 0.75 L ac⁻¹ Roundup and 0.015 L ac⁻¹ Aim to burnoff weeds before crop emergence. Post emergence herbicide application was done during the season with 0.33 L ac⁻¹ Roundup. Lorsban insecticide was sprayed for the control of cutworm early in the season while Matador was applied at a rate of 0.03 L ac⁻¹ to control grasshoppers late in the growing season. Data collected included; plant count at emergence, days to R1, plant height at maturity, days to maturity, grain yield, green seed count and analysis of oil and protein content. All data were analyzed by the University of Manitoba.



Results and discussion

Final results and recommendations for the Soybean seeding window will be made available during the 2020 growing season.

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