

thousand kernel weight, grain yield, protein content and disease incidence for leaf spots, crown rust and stem rust.

Results

2019 results and recommendations will be made available when the trial is finalized.

References

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5.1 Pulse Genetics pea variety evaluation

Project duration: 2018-2019

Collaborators: Pete Giesbrecht, Winkler

Objectives

To evaluate performance of 6 advanced lines compared to registered varieties in the pea growing regions of Southwestern Manitoba and Eastern Saskatchewan.

Background

Pulse Genetics is a small pea breeding company based in Southern Manitoba that started as a dream in a hobby garden 9 years ago. Their goal is to develop yellow and green pea varieties with excellent protein and yield, with an emphasis on premium seed quality. These new lines will exhibit consistent performance over a variety of environments. Selection of appropriate pea varieties should be based on review of many differences that exist among varieties (Schatz, 2009). Apart from yield being the most important selection criteria, traits related to seed quality are increasingly meaningful. Among the varieties and pea lines there exist differences in crude protein and other chemical compounds that determine the nutritional value of the seed. When selecting varieties for production in different areas, farmers do not only consider yield potential, but are also concerned with protein content which is a critical grading criteria when marketing their product. Other important factors for consideration when selecting varieties include market class,

harvest ease, lodging characteristics, maturity and resistant to diseases such as mycosphaerella blight, which is a serious disease that results in severe seed losses (Xue and Warkentin, 2001).

Materials and Methods

The trial was conducted at Melita in South west Manitoba and under no till system. Seven treatments (6 advanced lines and one check 'CDC Meadow') were arranged as randomized complete block design and replicated 3 times. The treatments were inoculated with BASF granular inoculant before seeding on the 3rd of May 2019 to a depth of 1.25". At the time of seeding, soil moisture was reaching approximately 24" in depth, which was adequate to ensure emergence. Fertilizer was side banded at a rate of 7-35-20-7-2Zn actual lb ac⁻¹ during seeding. A burn off herbicide application with 0.1 L ac⁻¹ Authority, 0.75 L ac⁻¹ Glyphosate and 0.015L ac⁻¹ Aim was done 6 days after seeding to ensure control of weeds before peas emergence. Post emergence weeds were controlled by the application of 0.12 L ac⁻¹ Select mixed with 0.5% v/v Amigo adjuvant and 17.3 g ac⁻¹ Odyssey mixed with 0.5% v/v Merge adjuvant at 4 weeks after seeding. Pounce insecticide was applied at a rate of 0.054 L ac⁻¹ as a control measure for cutworm caterpillars during the same period as post emergence herbicide application. Several data were collected for analysis and these included; plant vigor, date of flowering, days to maturity, plant height at maturity, mildew and mycosphaerella blight incidence, lodging, grain yield, thousand kernel weight and protein content of grain on dry basis. The data were analyzed using Minitab 18 and mean separation was done at 5% level of significance.

Results

Results obtained in 2019 showed no significant differences in pea height or mildew and mycosphaerella disease incidence among the seven varieties. Disease incidences recorded were moderate for mycosphaerella and low to moderate for mildew. Days required to reach maturity were significantly different among pea lines and varieties (P=0.016). The earliest maturing variety was Meadow and it required 89 days to reach maturity but this was not significantly different from PG2908, PG2601 and PG3312 that required 89-90 days (Table 5.1a). The late maturing lines (PG3308 and PG6150) required 91 days to reach maturity. Six of the treatments were highly susceptible to lodging (5-7) and this could be a challenge during harvesting and might also result in poor quality of the seed. Treatment PG2601 had significantly lower lodging rating (3) compared to other treatments. This is a desirable characteristic which is considered by most farmers when selecting pea varieties to grow because it may have an impact on yield, quality, disease incidence and harvestability of field peas. There were significant differences in pea