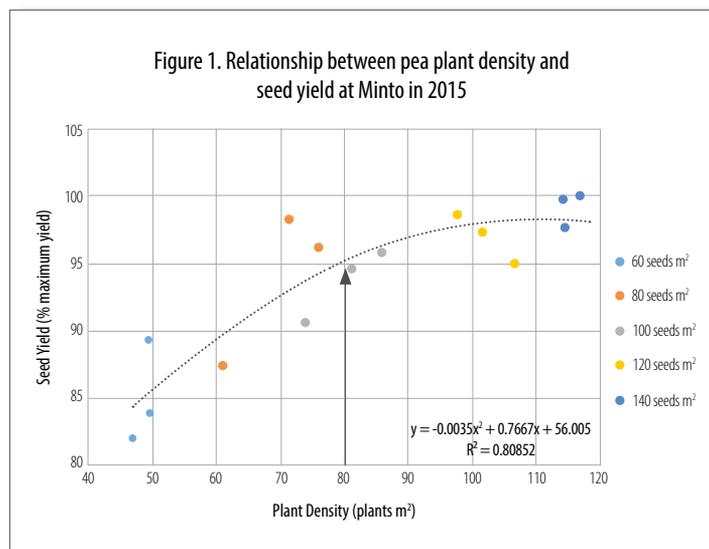


SEEDING RATES AND FOLIAR FUNGICIDES FOR FIELD PEAS

Yield responses to individual inputs, such as foliar fungicide, are often evaluated in small plot research or on-farm trials; however, it is less well understood how the combination of multiple inputs interact and affect yield. When it comes down to your bottom line, which combination of inputs is most likely to result in the highest yield and provide the most economic return?

A recent multi-input research trial conducted in Manitoba and Saskatchewan assessed the impact of five inputs, applied alone and in various combinations on field pea production: using a higher seeding rate (60 versus 120 seeds/m²), foliar fungicide (two applications), seed treatment (fungicide), granular inoculant (instead of liquid) or starter N fertilizer (30 lbs N/ac). Under relatively good growing conditions, such as those encountered at Scott, Melfort, SK and Minto, MB between 2012 and 2014 when peas yielded, on average, >45 bu/ac, higher seeding rates, foliar fungicide and granular inoculant increased seed yields (see trial yield results in Field Pea Production Tips, page 31). The combination of these three inputs also maximized economic return and resulted in more consistent yields than all other input combinations.

Unfortunately, this multi-input study lacked evaluation of seeding rates between the two extremes tested. Similarly, the study did not assess the effect of a single fungicide application compared to two applications. To further investigate the interaction between these two important inputs, MSPG initiated small-plot trials to test a range of seeding rates in combination with none, one, or two foliar fungicide applications to determine the most economical combination of these two inputs. In 2015, a single field site at Minto, MB was seeded to CDC Meadow pea at 60, 80, 100, 120 and 140 seeds/m² in combination with none, one (Headline EC at 10% flower) or two applications of foliar fungicide (Headline EC at 10% flower + Priaxor 12 days later). Average pea yield at this site was exceptionally high, averaging 95 bu/ac across the entire trial.



YEAR 1 RESULTS

As expected, seeding rate increased plant density and rates of 100, 120 and 140 seeds/m² resulted in densities above the recommended target range (80–90 plants/m²). At a plant density of ≥80 plants/m², 95% of maximum yield was achieved (Figure 1); therefore, with an average seedling survival rate (83% in this trial), seeding at 100 seeds/m² is recommended. Although pea yield at 80 seeds/m² was not statistically different than peas at 100 seeds/m² in 2015, establishing a lower than optimum plant density risks poor weed suppression and careful attention to weed control will be required to maximize yield. In addition, seeding above 100 seeds/m² may result in higher yields but the high cost of investment in additional seed may not pay every year.

Fungicide also had a significant effect on yield: one and two fungicide applications yielded 4.2 and 5.6 bu/ac more than the no-fungicide treatment, respectively; however, the difference in yield between one and two fungicide applications did not significantly differ (data not shown). Yield increases due to fungicide were reflected in a reduction in *Mycosphaerella* blight disease ratings taken 20 days after the second fungicide application (data not shown). Interestingly, the three highest seeding rates also had significantly higher disease rating than the lower two seeding rates, likely caused by

the denser crop canopy; however, the effect of higher disease levels at higher seeding rates was negligible compared to the yield potential of the crop with additional plants.

These preliminary results from the first year of the study appear to confirm current recommendations to establish a live plant stand of 80–90 plants/m² in field peas.

To further strengthen our understanding and refine recommendations for seeding rates and fungicide use in field pea in Manitoba, this trial will be repeated in 2016 at Hamiota and Minto, MB. An economic analysis of treatments will be conducted in the final report. There is potential to develop more specific recommendations based on economics of seed cost and market price, as is currently done with soybeans. ■

Mycosphaerella blight (*Ascochyta pinodes*) symptoms on peas

