

Farmers may see a benefit of increasing spring wheat seeding rate above the recommended rates when targeting higher grain yields. A more dense plant stand allows the crop to compete better with weeds. Higher seed rates reduce tillering to allow a greater proportion of heads to flower at the same time, which could be beneficial in timing of fusarium head blight control. This in turn could enhance both yield and quality of the crop. However, increased seeding rates may also create an environment that is more conducive to disease as higher seeding rates tend to induce increased lodging of wheat. Lodging risk may be reduced with the use of plant growth regulators (PGRs).

This demonstration was conducted at the AAFC Scott Research Farm in 2015. The demonstration was a 4x 2 x 2 (seeding rate, fungicides and PGR, respectively) factorial in a randomized complete block design with four replicates.

There was a significant effect of seeding rate on yield and most of the quality parameters, with maximum yield of 2894.6 kg/ha obtained at a seeding rate of 271 seed/m². There was no yield advantage of seeding above 300 seed/m² so farmers may target between 200-300 seed/m² to get an appreciable yield and acceptable quality.

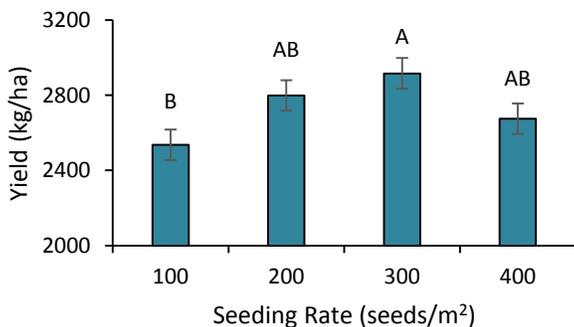


Figure 1. The effect of seeding rate on wheat yield.

Fungicide application resulted in a yield and bushel weight increase with a decline in protein content. This could be attributed to a prolonged grain filling period via delayed senescence of the flag leaf to result in an increase in bushel weight and yield. The decline in protein content could be linked to the yield increase, as higher yields typically result in lower protein.

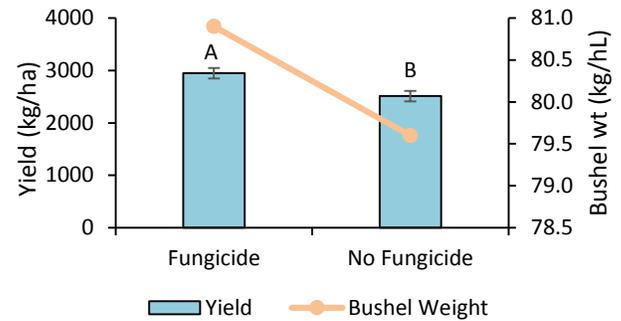


Figure 2. The effect of fungicide application on wheat yield and bushel weight.

PGR application served its intended purpose of height reduction but as no lodging occurred, we could not see its actual effects on crop stand-ability. PGR did not increase yield, but it did have a negative effect on the measured yield quality parameters (protein, TKW and bushel weights).

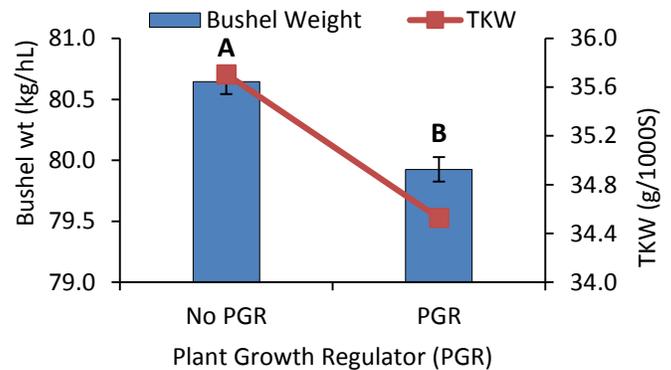


Figure 3. The effect of PGRs on wheat yield and bushel weights.

In conclusion, the benefits associated with PGR application in terms yield and seed quality may not outweigh the cost of application, especially in drier years. In a drier season such as 2015, application of fungicides should be decided based on disease pressure and its projected impacts on yield. PGR effect based on this study requires further investigation, however, if seeding rate is high and a wet growing conditions are predicted, it may be worth an investment to apply PGR.

Read the full report at: <http://www.westernappliedresearch.com/research/warc-annual-reports/2015/>
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