

In 2012, producers saw reduced yields and grades in cereal crops due to late season drought, frost, and wheat midge damage. These factors also affected seed size in the harvest sample with higher variability and higher than normal shrivelled seeds. Producers using this “bin run” seed for spring seeding in 2013 may have ran into problems with poor emergence, poor plant vigor, and improper seeding rates, making the crop susceptible to disease and reduced yields. This was found in work done by Dr. Brian Beres, AAFC, Lethbridge with winter wheat. This project intends to use a similar protocol to demonstrate the effects that seed treatments and seeding rates have on small, medium, and large seeds in strongfield durum wheat .

Bin run seed from 2012 harvest samples was sieved into 3 seed sizes; small, medium and large. Dual action Raxil WW was used as the fungicide/insecticide seed treatment vs. untreated. Normal seeding density was compared to a high seeding rate (25 seeds/square ft vs. 33 seeds/square ft). Seeding rates were based on seeds/square ft rather than bushels/acre, since seed size variation has a large impact as seen below (Fig.1). The combined factors create a range of agronomic systems from weak (low seed rate, small/thin seed, no seed protection) to superior (high seed rate, heavy/plump seed, dual seed treatment).

Fig.1 Variation in Seed Size (20 seeds per row)



In these twelve treatments we measured plant vigor, plant density, and disease weed pressure in each crop.

Results from this trial followed a similar pattern to the winter wheat study done by Dr. Brian Beres. Overall gains observed to grain yield by using seed treatments or larger seed were significant but relatively modest, therefore, we must consider economic implications for each agronomic system to properly evaluate the risks and benefits (Graph 1). Yield responses were greatest in a weak agronomic system (Fig. 2) and tended to diminish with a stronger agronomic system. (Fig. 3).

Graph 1 Yield Response (bu/ac).

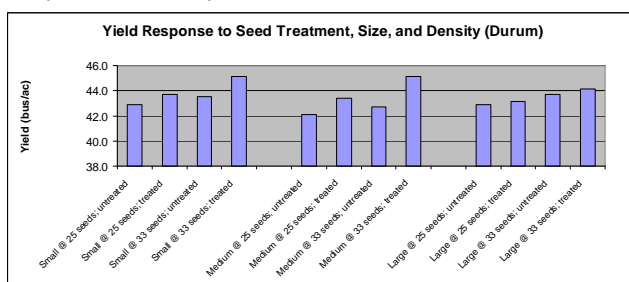


Fig. 2 Weak agronomic system (low seed rate, small seed) Untreated (left) vs. seed treatment (right). Visual impact.



Fig. 3 Superior agronomic system (high seed rate, large seed) Untreated (left) vs. seed treatment (right). Modest impact.

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