

Agronomy Update



December 2019

At Seeding Time, Speed Kills



After several years of walking fields seeded by John Deere 1870 drills, there is one thing I am convinced of. At seeding time speed kills. It kills the seedbed integrity by tearing up the fertilizer trench slope and making it hard for the seeding tool to build the shelf for seed to rest on, it kills seeds by bouncing them off the seeding ledge and into the fertilizer trench, and it kills struggling seedlings by throwing excess dirt from one row to the next, burying plants deeply in the ground.

While the results of excess seeding speed have been well documented when it comes to canola, I could find very little information on what happens in cereals when seeding speed is increased. Wheat and barley are certainly not as sensitive to seeding depth and seedbed firmness as canola is, but it would make sense that seeding speed should still affect seedling emergence and establishment. Yet I run into many producers who tell me they seed wheat at 5.2 to 5.5 mph and have no issues with their stand or final yield.

This Made Us Curious

This made us curious enough that we decided to document what actually happens as seeding speed increases in wheat. When we seeded Brandon wheat on the BRI Training Field on May 11th, we decided to play with the seeding speed. Our target plant stand on the field was 25 plants per foot, which worked out to be 120 lbs/acre of seed. We did side by side trials with 3 different seeding speeds; 4.8 mph, 5.2 mph, and 5.8 mph. Plant counts were done at the 4 leaf stage on June 6th measuring plants/ft and again on July 18th when the crop was fully headed out and we could count the heads/m².



Excess thrown dirt delays seedling emergence in front row shank



SEEDING SPEED (MPH)	PLANTS/FT OF ROW (June 6)	SEEDLING MORTALITY (%)	HEADS PER M ² (July 18)	FINAL YIELD (Bu/Acre)
4.8	24.2	15	540	77.52
5.2	19.5	32	510	76.61
5.8	18.7	35	485	77.87

There are some observations I would like to make about the results

We definitely observed increased seedling mortality as we increased speed. The real break point comes somewhere between 4.8 and 5.2 mph. Seedling mortality doubled between those two speeds. Adding more speed beyond that point had no real impact, as 5.2 mph did about the same job of burying seed rows with excess dirt as 5.8 mph did.

If we had just done a seedling count without any follow-up, the conclusion would be that if we don't slow down, we impact stand establishment and that, in turn likely affects the final yield. The second inspection where heads/m² was recorded, as well as the yield results shows us that the impact of increased seeding speed is more subtle and harder to measure than we had imagined when we started the trial. For those who are not familiar with heads/m² as a measurement, the optimum target population on most Prairie soils is between 500 and 600 heads/m². What was observed on this field is that despite the poor start the crop got where seeding speed increased, by the time the crop headed out, the wheat had aggressively tillered to compensate for the lower populations. This ultimately resulted in yields across the board that were roughly equal.

So does this mean we think seeding should be full speed ahead when it comes to cereals? Well, not so fast. One of the main reasons behind the trend to higher seeding rates is to minimize tillering and give us a more uniform stand that makes it easier to time herbicide and fungicide applications, push maturity and improve quality. Environment can also play a role in the final result. 2019 saw a lot of timely moisture, which allowed the poorly established stands to support more tillers than normal. In a drier year, some of these may have burned off, leading to a yield loss.

Seedlings buried under too much dirt will struggle to emerge.



Finally, we observed delayed maturity in both the 5.2 mph and 5.8 mph trials.



We also observed delayed maturity in both the 5.2 mph and 5.8 mph trials. Those extra tillers came with a price. And finally, most of the lodging we saw on the field this year was in the 5.8 mph trial. So in the end, I think that while there may be many years where seeding at higher speeds can work out, there are still sound reasons for keeping that seeding speed under 5 mph. Increased seed cost (who wants a 30% seedling mortality rate?) as well as losses of quality and yield can be hard to measure, but they are there if you care to look.

So despite the fact that we put the same amount of wheat in the bin from all three trials, I remain convinced that when it comes to seeding, speed is your enemy. However, you can be sure that some people will be harder to convince of this than others!

Wayne Spurrill, P.AG
AGRONOMIST

www.briltd.com

Battle River Implements
Cell: 780 761-1616
Office: 780 672-4463
wspurrill@briltd.com

BATTLE RIVER
IMPLEMENTS LTD.