

### Fungicide Applications in Cereals

It's hard not to look back at the 2023 growing season and see anything but the challenges, but what we can do is look at management strategies and determine what worked and what could use a different approach through the 2024 season and beyond. One of the biggest challenges in cereals was undoubtedly Fusarium head blight. Conditions were conducive to disease development and the near-constant rain made it tough to get spray applications on at the ideal timing. Even with multiple fungicide applications, FHB infections and subsequently DON levels were still present at higher levels than anticipated. So, what's the upside to all of this? It gives us the opportunity to review or implement spray programs and look at cultural control methods that can help with disease management now and in the future.

It is well documented that there is a yield benefit when applying fungicides in cereals. The graphic below shows some results from a University of Guelph study looking at the effect of the number and timing of applications in winter wheat. Unsurprisingly, three applications of fungicides at the key timings resulted in the largest yield response, but then you have to layer the economics in on top of that to determine if it's enough of a yield boost to pay for the additional pass. A single application at T3 had the same yield response as two applications at T1 and T2, with lower input costs for the single application. The point I'm trying to make here is that a three-pass program in winter wheat may not be the right choice for everyone, but you have the opportunity to choose what works for you and will likely result in the most impact for your effort.

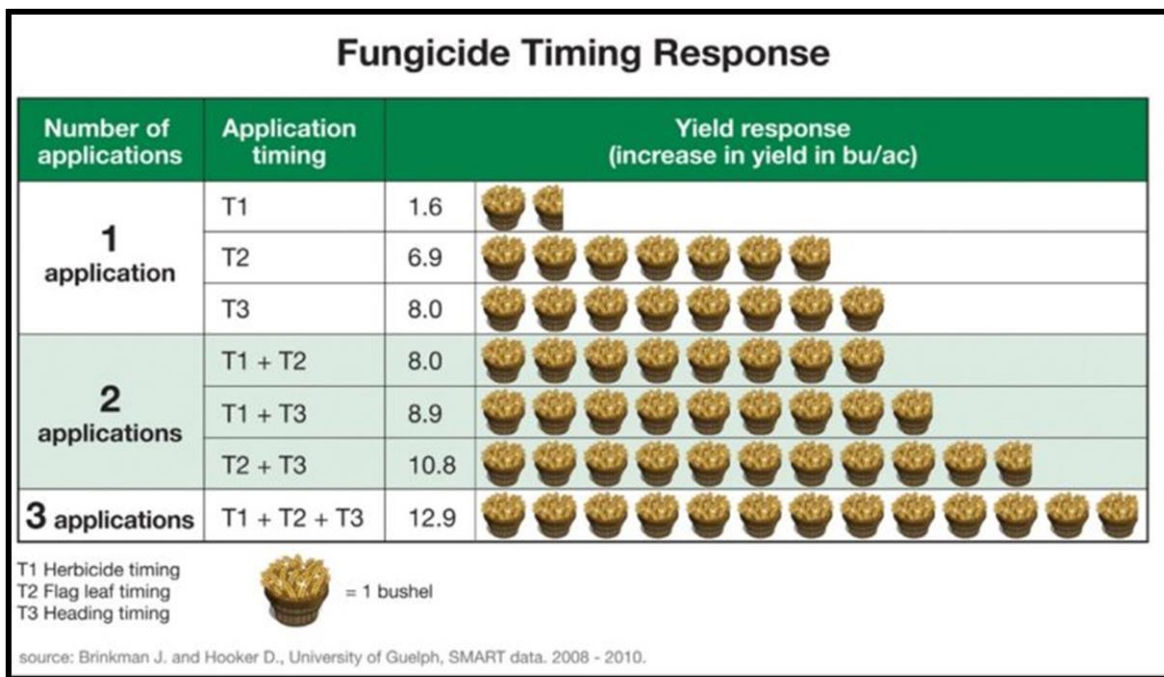


Figure 1. Fungicide timing response in winter wheat. Brinkman and Hooker, University of Guelph, 2008-2010 (<https://field-cropnews.com/2019/05/herbicides-fungicides-nitrogen-and-sulphur-prioritizing-trips-across-your-winter-wheat-fields-this-spring/>)

Winter wheat isn't the only cereal that gains a yield advantage with the application of fungicides. The graph below shows data from the Maritime Yield Enhancement Network between 2020-2023 comparing fields that had fungicides applied to them to those that had no fungicides. This information should be taken with a grain of salt since there were only 10 fields that did not have any fungicides versus 52 that had one or more fungicide applications, so there is more detailed information that could be teased out of this data set. The no fungicide fields had an average yield of 1.27 t/ac, ranging from 0.47-1.86 t/ac, while the fungicide fields had an average yield of 1.89 t/ac, ranging from 0.95-2.99 t/ac. It's interesting to note that the highest yield on a field with no fungicides was the average yield for those with fungicides. Overall, barley took a real hit in 2023, so I would encourage you to consider adding a T3 fungicide into your barley spray program.

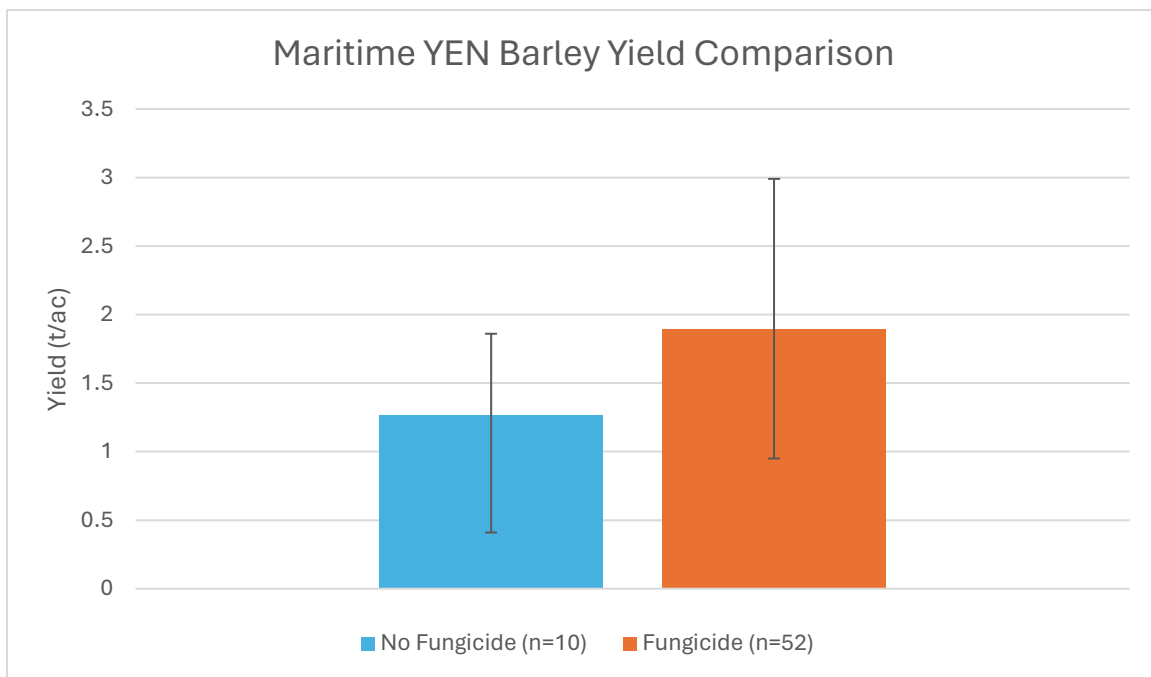


Figure 2. Maritime YEN comparison of barley yields with fungicide applications versus those without. Data courtesy of Dr. Aaron Mills, AAFC Charlottetown.

Both data sets included in this article span multiple years, which is important because disease pressure varies from season to season. With more years and more data points, real trends start to emerge and the story becomes clearer. If you're looking to add a fungicide into your spray program for the first time, or are planning to make any other management changes, I would recommend leaving an untreated check strip in the field. As the season progresses, you will get a side by side view of any differences between management options and can determine whether the new practice made a positive difference to the crop.