

Factsheet: Fungicide Application Timing to Increase Yield in Soft White Wheat



Objective:

The objective of this project was to demonstrate the effects of fungicide products and timing on grain yield and quality of soft white wheat.

Methodology:

This demonstration was conducted at the AAFC Scott Research Farm in 2015. The treatments were arranged in a randomized complete block design with four replicates. On May 11, sadash soft white wheat was seeded at a rate of 300 seeds m⁻² with an R-Tech drill seeder in a 10 inch row spacing and at a depth of 3-4cm. Fertilizer was applied at seeding according to soil test recommendations and weeds were controlled using a pre-seed burndown and registered in-crop herbicides (See Appendix, Table A.1. for complete details of field maintenance activities). Fungicides and their application timing followed the treatment list and were based at the recommended label rates (Table 1).

Table 1: Treatment list for the 2015 growing season

Treatment	Fungicide	Active Ingredient	Zadoks Timing (Z)
1	Untreated Check	n/a	n/a
2	Twinline	Pyraclostrobin + Metconazole	38 ^w
3	Folicur	Tebuconazole	38
4	Prosaro	Prothiaconazole+ Tebuconazole	58 ^x
5	Caramba	Metconazole	58
6	Prosaro	Prothiaconazole+ Tebuconazole	60 ^y
7	Caramba	Metconazole	60
8	Prosaro	Prothiaconazole+ Tebuconazole	64 ^z
9	Caramba	Metconazole	64
10	Twinline & Prosaro	Pyraclostrobin + Metconazole& Prothiaconazole+ Tebuconazole	60
11	Twinline & Caramba	Pyraclostrobin + Metconazole& Metconazole	60
12	Folicur & Prosaro	Tebuconazole & Prothiaconazole+ Tebuconazole	60
13	Folicur & Caramba	Tebuconazole & Metconazole	60

^wflag leaf; ^xLate heading; ^y Full heading but no flowering; ^z Mid flowering

Key Findings:

- Grain yield was significantly different among fungicide treatments (P = 0.0088), with the greatest yield achieved when fungicides were applied later in the growing season.
- A yield increase was reported when fungicide was applied at later growth stages (Z58 to Z64) compared to flag leaf stage (Z38).

The full report is available at www.warc.ca. This project was supported by the Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada-Saskatchewan Growing Forward 2 bilateral agreement
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- Flag leaf applications of Folicur and Twinline resulted in slightly higher yields compared to the untreated check. Overall, Twinline outperformed Folicur, as it had 11 % yield and 1.5 % bushel weight increase compared to the control, whereas Folicur resulted in a 5.9 % yield and 0.7 % bushel weight increase compared to the control.
- Twinline + Prosaro applied at Z38 and Z60 resulted in a similar yield to Twinline alone and did not result in a significant yield increase compared to the untreated check. This was unanticipated as it had the highest bushel weight (81.9 kg/ hL) compared to all the treatments.
- In contrast, dual applications at Z38 and Z60 of Twinline + Caramba resulted in a yield and bushel weight increase of 20 % and 4 %, respectively, compared to the untreated control.
- Single applications of Caramba and Prosaro at Z58, Z60, and Z64 on average resulted in a 15% and 16% yield increase compared to the untreated check.
- Overall, fungicide applications delayed until Z58 to Z64 resulted in greater yields compared to flag leaf application (Z38). Delayed applications are encouraged unless early disease pressure warrants early application

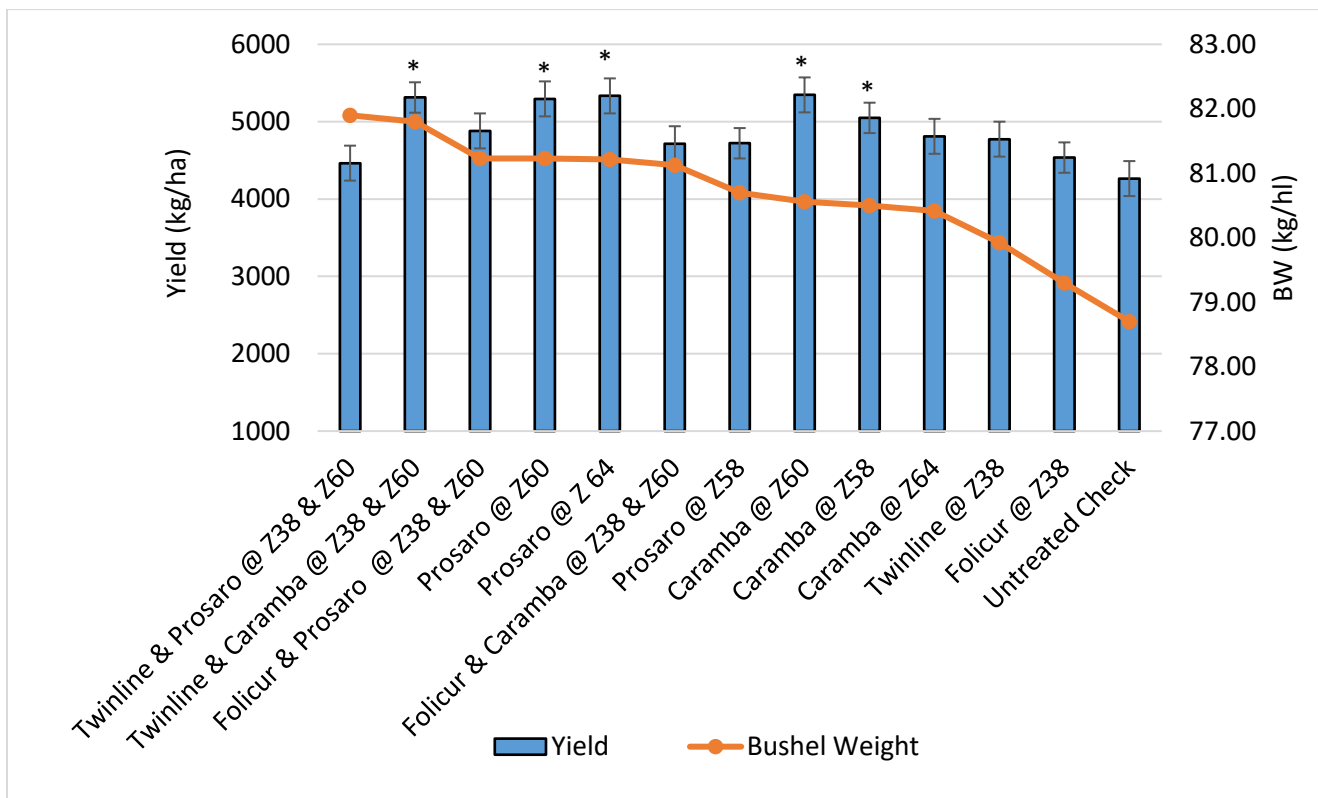


Figure 1. Yield (columns) and bushel weight (line) of soft white wheat at Scott, SK 2015 (columns with * indicate significant difference compared to the control).