

Fungicide Evaluation for Disease Control in Barley

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Materials and Methods

- All treatments were applied with 17.0 gallons of water/A at 35 psi pressure using 80015 flat-fan tips.
- The fungicide treatments for the '4 to 5 leaf' stage were applied on June 24 when barley was at the 4 1/2 leaf stage.
- The fungicide treatments for the 'Flag Leaf' stage were applied on July 1, when barley was at Feekes 8.0 to 9.0.
- The fungicide treatment for the '50% Heading' stage was applied on July 8.
- The fungicide treatments for the 'Feekes 10.50' stage were applied on July 12.

Table 1. Influence of fungicide application strategy on seed quality, test weight and grain yield of barley.

Entry No.	Product Name	Product Rate (unit/acre)	Application Timing	Plump >6/64 %	Thin <5/64 %	Grain Protein %	Test Weight lb/bu	Grain Yield bu/ac
1	Untreated Check	NA	NA	97.8	0.2	13.9	48.0	118.6
2	Headline	3.0 fl oz	4 to 5 Leaf	98.4	0.2	14.0	48.2	120.9
3	Stratego	5.0 fl oz	4 to 5 Leaf	98.2	0.2	13.9	48.3	118.1
4	Quilt	8.0 fl oz	4 to 5 Leaf	98.6	0.2	14.0	48.1	124.7
5	Stratego	5.0 fl oz	4 to 5 Leaf					
5	Prosaro + NIS	6.5 fl oz + 0.125% v/v	Feekes 10.50	98.4	0.1	13.4	48.2	119.7
6	Headline	3.0 fl oz	4 to 5 Leaf					
6	Caramba	13.5 fl oz	Feekes 10.50	98.6	0.1	14.1	48.6	119.4
7	Headline	7.5 fl oz	50% Heading	98.6	0.1	14.1	48.6	127.2
8	Propiconazole	4.0 fl oz	Flag Leaf	98.5	0.2	14.3	48.2	118.9
9	Orius 3.6F	4.0 fl oz + 0.125% v/v	Flag Leaf	98.5	0.2	14.0	48.4	122.4
10	Twinline	8.0 fl oz	Flag Leaf	98.6	0.2	13.9	48.5	127.4
11	Evito	3.0 fl oz	Feekes 10.50	98.4	0.2	14.0	48.2	118.6
12	Prosaro + NIS	7.3 fl oz + 0.125% v/v	Feekes 10.50	98.6	0.1	13.9	48.4	119.8
13	Caramba	13.5 fl oz	Feekes 10.50	98.2	0.2	14.0	48.1	114.9
14	Untreated Check	NA	NA	98.1	0.2	14.1	48.1	118.5
MEAN				98.4	0.2	14.0	48.3	120.6
C.V. %				0.3	26.2	2.5	0.7	7.0
LSD .10				0.4	NS	NS	NS	NS
LSD .05				0.5	NS	NS	NS	NS
LSD .01				NS	NS	NS	NS	NS
#REPS				4	4	4	4	4

Planting Date = May 23; Harvest Date = August 23; Previous Crop = Spring Wheat; Barley Variety Planted = Tradition

Table 2. Influence of fungicide application strategy on disease symptoms and field agronomic traits of barley.

Entry No.	Product Name	Product Rate (unit/acre)	Application Timing	Leaf Disease Leaf Below Flag ¹ %	Leaf Disease Flag Leaf ¹ %	NDVI ² %	Plant Health ³ 1 to 10
1	Untreated Check	NA	NA	62.5	50.0	32.4	3.5
2	Headline	3.0 fl oz	4 to 5 Leaf	19.0	16.3	34.8	4.8
3	Stratego	5.0 fl oz	4 to 5 Leaf	18.0	21.6	36.6	5.3
4	Quilt	8.0 fl oz	4 to 5 Leaf	17.1	13.5	31.5	4.8
5	Stratego	5.0 fl oz	4 to 5 Leaf				
5	Prosaro + NIS	6.5 fl oz + 0.125% v/v	Feekes 10.50	7.4	7.3	36.3	5.8
6	Headline	3.0 fl oz	4 to 5 Leaf				
6	Caramba	13.5 fl oz	Feekes 10.50	10.6	7.4	40.8	7.3
7	Headline	7.5 fl oz	50% Heading	5.3	7.5	40.5	7.5
8	Propiconazole	4.0 fl oz	Flag Leaf	29.5	21.5	32.1	5.0
9	Orius 3.6F	4.0 fl oz + 0.125% v/v	Flag Leaf	21.4	23.4	32.9	4.8
10	Twinline	8.0 fl oz	Flag Leaf	7.6	7.8	39.8	7.3
11	Evito	3.0 fl oz	Feekes 10.50	13.3	9.3	35.4	5.8
12	Prosaro + NIS	7.3 fl oz + 0.125% v/v	Feekes 10.50	9.3	6.0	37.0	6.0
13	Caramba	13.5 fl oz	Feekes 10.50	18.1	17.0	33.4	4.5
14	Untreated Check	NA	NA	52.8	42.3	30.8	4.3
MEAN				20.8	17.9	35.3	5.4
C.V. (%)				57.4	50.2	10.5	21.4
LSD 0.10				14.2	10.7	4.4	1.4
LSD 0.05				17.1	12.8	5.3	1.7
LSD 0.01				22.9	17.2	7.1	2.2
#REPS				4	4	4	4

¹ Flag leaf and leaf below flag leaf disease assessments made on August 7 at the early- to medium-dough stage of crop development. Primary disease present was spot blotch with some net blotch assessed to be apparent.

² NDVI Assessment: This parameter was recorded to begin developing a local database to determine the relationship between remote sensing of canopy reflectance and leaf disease levels.

³ Plant Health Assessment: An assessment of plant health made at the medium dough stage (August 8) with the intent of capturing apparent differences in plant (stem & overall canopy) health that may not be reflected by leaf disease scores. Scored on scale of 1 to 10 where a 1 equates to an open canopy with limited apparent green leaf tissue while a 10 equates to a full dense canopy with good/broad green leaf tissue throughout. Some lower scores that may be associated with low disease scores will be due to upper leaves lying more vertical in downward direction exposing the more heavily diseased lower canopy.

Table 3. Details associated specific fungicides and products utilized in barley fungicide evaluation.

Treatment #	Chemical	Product Name	Product Rate (unit/acre)	Fungicide App. Timing	FRAC Group
1	Untreated Check	Untreated Check	NA	NA	NA
2	Pyraclostrobin	Headline	3.0 fl oz	4 to 5 Leaf	11
3	Trifloxystrobin+Propiconazole	Stratego	5.0 fl oz	4 to 5 Leaf	11+3
4	Azoxystrobin+Propiconazole	Quilt	8.0 fl oz	4 to 5 Leaf	11+3
5	Trifloxystrobin+Propiconazole	Stratego	5.0 fl oz	4 to 5 Leaf	11+3
5	Prothio+Tebuco	Prosaro + NIS	6.5 fl oz + 0.125% v/v	Feekes 10.50	3
6	Pyraclostrobin	Headline	3.0 fl oz	4 to 5 Leaf	11
6	Metconazole	Caramba	13.5 fl oz	Feekes 10.50	3
7	Pyraclostrobin	Headline	7.5 fl oz	50% Heading	11
8	Propiconazole	product from Arysta	4.0 fl oz	Flag Leaf	3
9	Tebuconazole + NIS	Orius 3.6F	4.0 fl oz + 0.125% v/v	Flag Leaf	3
10	Pyraclostrobin+Metconazole	Twinline	8.0 fl oz	Flag Leaf	11+3
11	Fluoxastrobin	Evito	3.0 fl oz	Feekes 10.50	11
12	Prothio+Tebuco	Prosaro + NIS	7.3 fl oz + 0.125% v/v	Feekes 10.50	3
13	Metconazole	Caramba	13.5 fl oz	Feekes 10.50	3
14	Untreated Check	Untreated Check	NA	NA	NA