Fungicide Evaluations for Suppression of Fusarium Head Blight (Scab) in Spring Wheat

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Materials and Methods

- Primary pest was head scab (FHB) but assessed leaf diseases, i.e., tan spot.
- The trial was placed under a center pivot, planted into corn residue, with wheat straw spread over trial after planting.
- Additional fusarium inoculum applied via cultured inoculum at late-boot to initial-heading stage.
- Application details: Treatments were applied with 17.0 gallons of water per acre at 35 psi pressure using 8002 Twinjet tips. 'Induce' was the NIS product utilized for all fungicide treatments where NIS was required.

Assessments:

- Flag leaf and flag leaf^{-1} disease assessments made at early dough kernel stage.
- Primary leaf disease present was tan spot with limited septoria apparent.
- Leaf disease pressure at the time of treatment imposition was minimal.
- Observations of plants after treatment imposition did not indicate any phytotoxicity.

Table 1. Influence of scab fungicide application strategies on grain yield and grain quality.

ID	Fungicide Treatment	Product Rate/Acre	Application Timing	Grain Yield	Test Weight	1000 KWT	Grain Protein	DON
			Feeke's Stage	bu/ac	lb/bu	gram	%	ppm
1	Untreated control	NA	NA	47.7	55.8	25.2	15.3	3.13
2	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	52.5	57.3	27.7	15.4	1.50
3	Headline SC / Caramba + NIS	6.0 / 14.0 fl. oz. + 0.125%v/v	Feekes 9.0 / Feekes 10.51	50.9	58.4	28.2	15.3	1.00
4	Headline SC / Tebuconazole + NIS	6.0 / 4.0 fl. oz. + 0.125%v/v	Feekes 9.0 / Feekes 10.51	56.6	56.9	26.8	15.5	2.55
5	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	49.8	57.8	27.0	15.5	0.70
6	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	53.5	57.3	26.8	15.2	1.53
7	Tebuconazole + Caramba + NIS	4 fl. oz. + 10 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	50.8	58.3	27.4	15.2	1.00
8	Headline	6.0 fl. oz.	Feekes 9.0	53.7	57.2	27.0	15.0	2.78
9	Headline SC / Prosaro + NIS	6.0 fl. oz / 6.5 fl. oz. + 01.25%v/v	Feekes 9.0 / Feekes 10.51	52.6	58.3	29.1	15.4	1.00
10	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	Feekes 10.5 (~3-5 days prior to 10.5.1)	54.0	56.9	28.1	15.2	2.15
11	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	54.8	57.4	27.7	15.4	1.15
12	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	Feekes 10.5 (~3-5 days prior to 10.5.1)	51.7	57.3	27.5	15.4	2.03
13	Tebuconazole + NIS	4 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	51.0	57.6	26.6	15.3	1.40
14	Proline + NIS	5.0 fl oz + 0.125% v/v	Feekes 10.51 (early anthesis)	54.7	57.9	27.3	15.3	0.45
15	Propiconazole + NIS	4.0 fl oz + 0.125% v/v	Feekes 10.51 (early anthesis)	50.2	56.7	27.2	15.4	2.40
16	Tebuconazole + Caramba + NIS	4 fl. oz. + 10 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	50.2	57.5	26.6	15.4	2.18
17	Untreated control	NA	NA	47.5	56.2	25.4	15.4	2.95
18	Untreated control	NA	NA	49.3	56.5	26.7	15.2	2.93
			MEAN	51.7	57.3	27.1	15.3	1.8
			C.V. (%)	6.9	1.1	4.9	1.4	32.2
			LSD 0.05	5.1	0.9	1.9	NS	0.8
			LSD 0.01	NS	1.2	NS	NS	1.1
			Pr > F	0.0310	0.0001	0.0395	0.1475	<.0001
			#REPS	4	4	4	4	4

Planting Date = May 7 ; Harvest Date = August 9 ; Previous Crop = Corn; Spring Wheat Cultivar = Kelby ; Planting Rate = 1.6 million PLS

Table 2. Influence of scab fungicide application strategies on leaf disease and scab/fusarium head blight.

ID	Fungicide Treatment	Product Rate/Acre	Application Timing	Flag Leaf Disease	Flag Leaf[-1] Disease	Scab Incid.	Scab Severity	Plot Severity
			Feeke's Stage	%	%	%	%	%
1	Untreated control	NA	NA	12.1	15.8	66.7	13.9	9.3
2	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	13.1	22.1	50.8	14.0	6.9
3	Headline SC / Caramba + NIS	6.0 / 14.0 fl. oz. + 0.125%v/v	Feekes 9.0 / Feekes 10.51	12.9	11.1	32.8	11.9	4.1
4	Headline SC / Tebuconazole + NIS	6.0 / 4.0 fl. oz. + 0.125%v/v	Feekes 9.0 / Feekes 10.51	11.5	13.8	29.6	12.7	5.2
5	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	13.6	18.6	37.7	10.5	3.7
6	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	10.5	21.9	58.7	12.8	7.6
7	Tebuconazole + Caramba + NIS	4 fl. oz. + 10 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	15.1	12.2	33.3	14.3	4.6
8	Headline	6.0 fl. oz.	Feekes 9.0	10.9	4.2	59.2	18.0	10.8
9	Headline SC / Prosaro + NIS	6.0 fl. oz / 6.5 fl. oz. + 01.25%v/v	Feekes 9.0 / Feekes 10.51	12.3	11.6	33.8	11.7	4.5
10	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	Feekes 10.5 (~3-5 days prior to 10.5.1)	10.5	8.7	47.8	16.2	7.7
11	Caramba + NIS	14.0 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	14.5	17.7	35.8	13.2	5.1
12	Prosaro + NIS	6.5 fl. oz. + 0.125%v/v	Feekes 10.5 (~3-5 days prior to 10.5.1)	13.7	10.0	38.3	12.2	4.5
13	Tebuconazole + NIS	4 fl. oz. + 0.125%v/v	Feekes 10.51 (early anthesis)	12.0	13.7	43.8	12.3	6.0
14	Proline + NIS	5.0 fl oz + 0.125% v/v	Feekes 10.51 (early anthesis)	12.8	16.3	28.7	16.0	4.3
15	Propiconazole + NIS	4.0 fl oz + 0.125% v/v	Feekes 10.51 (early anthesis)	9.3	15.6	45.8	11.5	5.3
16	Tebuconazole + Caramba + NIS	4 fl. oz. + 10 fl. oz. + 0.125%v/v	7 days post Feekes 10.51	14.6	33.2	55.0	10.7	6.0
17	Untreated control	NA	NA	14.2	18.4	67.1	16.9	11.4
18	Untreated control	NA	NA	12.8	19.9	62.1	18.0	11.1
			MEAN	12.6	15.8	45.9	13.7	6.6
			C.V. (%)	35.6	55.1	24.9	26.5	32.2
			LSD 0.05	NS	12.4	16.3	NS	3.0
			LSD 0.01	NS	NS	21.7	NS	4.0
			Pr > F	0.9371	0.0183	0.0001	0.0697	0.0001
			#REPS	4	4	4	4	4

Planting Date = May 7 ; Harvest Date = August 9 ; Previous Crop = Corn; Spring Wheat Cultivar = Kelby ; Planting Rate = 1.6 million PLS