

Fungicide, Commercial Adjuvants, and Nozzle Effects on Fusarium Head Blight (FHB) Control

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Herbicides are commonly mixed with surfactants, methylated seed oils, or other spray additives to enhance weed control. Most fungicides, however, are not generally mixed with spray additives. The objective of this study was to determine if different adjuvants or nozzle types enhance control of Fusarium head blight (scab) and leaf diseases and increase yield.

Grandin' hard red spring wheat was grown on durum wheat ground and sprinkler irrigated to favor disease development. At 25% flowering, Folicur was applied through 8002 TwinJet or 8001 f+b (forward+backward) nozzle tips at 4 fl oz. product/A with commercial adjuvants added at 0.25% v/v.

SUMMARY: All adjuvant – nozzle combinations tended to reduce scab incidence compared to the untreated control, but no differences were statistically significant (Table 1). Averaged over all adjuvants, incidence was significantly lower with 8002TJ nozzles (28.8%) than with 8001 f+b (35.0%). Head and field severity were reduced with several combinations of adjuvant and nozzle type. Folicur plus Silwet L-77, applied using either nozzle, generally had the least head and field severity. Septoria severity was significantly less for all treatment combinations than the untreated check, except for Silwet L-77 applied with the 8001f+b nozzle. In this case, either the surfactant ran off the leaf surface or flag leaf coverage was inadequate. Rust was effectively controlled by all combinations of adjuvant and nozzle type.

Although not statistically significant, yields with all adjuvant – nozzle treatments were numerically higher than the control. Test weights were statistically higher than the untreated check when Folicur was applied with Phase, Scoil, or Quad 7 and either nozzle type or with Activator 90 or Silwet-L-77 and the 8001 f+b nozzle.

Table 1. Folicur and commercial adjuvant effects on FHB and foliar diseases of wheat and wheat yields.

Fungicide	Adjuvant*	Nozzle**	Scab	Head	Field	Septoria	Rust	Test Weight	Yield
			% inc		-----% severity-----			lb/bu	bu/a
Untreated	--	--	45.0	60.7	27.8	9.0	12.5	56.5	23.1
Folicur	Act 90	8002TJ	37.5	53.0	20.5	4.0	0.8	57.5	29.5
Folicur	Phase	8002TJ	24.2	37.4	8.1	2.9	0.8	58.5	29.2
Folicur	SL-77	8002TJ	29.2	33.6	10.2	1.9	0.3	57.1	28.4
Folicur	CS-7	8002TJ	26.7	50.2	13.8	3.5	0.3	57.1	27.6
Folicur	Scoil	8002TJ	30.0	39.8	12.0	3.3	0.5	58.5	28.9
Folicur	Quad 7	8002TJ	25.0	42.7	10.7	4.0	0.8	57.9	29.0
Folicur	Act 90	8001f+b	35.8	45.9	17.0	4.4	0.8	57.6	27.8
Folicur	Phase	8001f+b	33.3	56.4	18.7	4.8	1.0	58.0	29.5
Folicur	SL-77	8001f+b	28.3	29.4	8.5	6.7	0.3	58.7	32.1
Folicur	CS-7	8001f+b	41.7	37.4	15.3	2.8	1.0	57.3	28.5
Folicur	Scoil	8001f+b	40.0	45.2	18.1	3.2	0.5	57.6	26.7
Folicur	Quad 7	8001f+b	30.8	48.8	15.0	4.3	1.0	58.1	29.0
LSD (0.05)			NS	16.8	9.3	2.9	4.8	1.1	NS
CV			30.2	26.2	43.3	47.7	216	1.3	10.5

** Nozzle orientation: 8002TJ = TwinJet, 8001f+b = forward + backward facing tips.

Table 2. Analyses conducted without the untreated check.

Treatment	Scab	Head	Field	Septoria	Rust	TWT	KWT	Yield
	% inc		-----% Severity-----			lb/bu	g/1000	bu/a
Adjuvant*								
Act 90	36.7	49.4	18.7	4.2	0.8	57.5	28.3	28.6
Phase	28.8	46.9	13.4	3.9	0.9	58.2	29.1	29.3
SL-77	28.8	31.5	9.3	4.3	0.3	57.9	28.3	30.2
CS-7	34.2	43.8	14.6	3.2	0.6	57.5	27.8	28.4
Scoil	35	42.5	15.1	3.3	0.5	58	29.1	27.8
Quad 7	27.9	45.7	12.8	4.2	0.9	58	29.2	29
LSD (0.05)	NS	NS	NS	NS	0.4	NS	NS	NS
Nozzle*								
8002TJ	28.8	42.8	12.5	3.3	0.5	57.9	28.4	28.9
8001f+b	35	43.9	15.4	4.4	0.8	57.9	28.8	28.9
LSD (0.05)	5.4	NS	NS	NS	NS	NS	NS	NS

* Adjuvants: data averaged across nozzles; Nozzles: data averaged across adjuvants.