HRS Wheat Variety Response to Foliar Fungicide

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Two trials were conducted by the Carrington Research Extension Center in 2004 to evaluate agronomic performance of selected hard red spring (HRS) wheat varieties with Folicur.

Trial 1 was an irrigated trial conducted at Carrington with 'Granger', 'Reeder', and an experimental HRS wheat line planted on 2003 corn ground (with supplemental wheat straw) at 1 and 1.75 million pure live seeds (pls)/acre (A) on May 17. Folicur at 4 fl oz/A + NIS (Induce) at 0.125% v/v was applied in mid-July to early-flowering stage (Feekes 10.51) wheat with a hand-boom plot sprayer equipped with 8002 twin-jet nozzles delivering 16 gpa at 40 psi. Flag leaf disease (tan spot and *Septoria* spp.), leaf rust, and Fusarium head blight (scab) were visually evaluated at the soft-dough stage. The seeding rate of 1 and 1.75 million pls/A established 927,000 and 1,387,000 seedling plants/A, respectively. Seed yield and test weight were slightly higher with the lower seeding rate (Table 1). Scab incidence was 7.5% and vomitoxin was 1.6% with Folicur compared to the untreated check having 23.5% scab incidence and 2.9% vomitoxin (Table 2). Folicur also reduced flag leaf disease and leaf rust. Compared to the untreated check, Folicur improved yield by 10.7 bu/A and test weight by 1.1 lb/bu. Vomitoxin, leaf disease, and leaf rust reduction with Folicur was greater with Reeder compared to Granger (Table 3). Folicur improved yield 18.6 bu/A with Reeder compared to the untreated check while yield increase with Granger was 8.0 bu/A. In addition, use of Folicur provided a greater test weight and kernel weight response with Reeder compared to Granger.

Table 1. HRS wheat response to seeding rates, Carrington, 2004.

Seeding rate	Grain Yield	Test Weight
(million pls/A)	(bu/A)	(lb/bu)
1	71.9	59.6
1.75	69.8	59.4
LSD 0.05	1.9	0.2

Table 2. HRS wheat response to foliar fungicide, Carrington, 2004.

Fungicide Treatment	Scab Incidence	DON	Leaf Disease	Leaf Rust	Grain Yield	Test Weight
	(%)	(ppm)	(%)	(%)	(bu/A)	(lb/bu)
Folicur	7.5	1.6	16	1	76.2	60.1
untreated	23.5	2.9	41	10	65.5	59.0
LSD 0.05	5.3	0.5	4	1	2.6	0.3

Table 3. HRS wheat variety response to foliar fungicide, Carrington, 2004.

Variety and Fungicide Treatment	DON	Leaf Disease	Leaf Rust	Grain Yield	Test Weight	250 KWT
	(%)	(%)	(%)	(bu/A)	(lb/bu)	(gram)
Granger Folicur	1.2	4	0	79.2	59.9	11.1
Granger untreated	2.7	20	4	71.2	59.2	10.6
Reeder Folicur	2.4	9	0	74.4	60.3	9.1
Reeder untreated	4.4	49	19	55.8	58.4	7.7
LSD 0.05	0.9	7	2	4.6	0.5	0.3

Trial 2 was conducted near Dazey, ND as part of the Carrington Research Extension Center's HRS wheat variety trial. The 25 cultivars and experimental lines in the trial were planted April 27 at 1.2 million pls/A on previous soybean ground. Folicur at 4 fl oz/A + NIS (Preference) at 0.125% v/v was applied July 7 to wheat ranging from early-head emergence (med.- to late-maturing varieties) to flowering-stage in 2 of 4 trial replications with a tractor-mounted sprayer equipped with 8002 flat-fan nozzles delivering 18 gpa. Flag leaf disease (tan spot and Septoria spp.), leaf rust, and Fusarium head blight (scab) were visually evaluated at the soft-dough stage on July 28.

Folicur application increased grain yield to 83.6 bu/A compared to 71.0 bu/A without fungicide (table 1). Test weight and protein were not significantly impacted by fungicide. Fungicide application timing was appropriate for suppression of leaf disease, which averaged 4% across varieties treated with Foliar compared to 39% without fungicide applied. Leaf rust and scab levels were generally low and did not differ between Folicur and untreated checks. Wheat varieties differed in their seed yield response to Folicur fungicide application (table 2). Eight cultivars responded with a yield increase (bu/A): Reeder (24.5), Ingot (23.0), Oklee (19.5), Norpro (17.0), Freyer (16.1), Oxen (16.0), Glenn (12.2), Russ (11.9) and Parshall (11.2). A significant increase in test weight (lb/A) due to Folicur fungicide application occurred with four cultivars: Oxen (3.1), Reeder (2.5), and Ingot and Russ (2.1). A review of the wheat variety maturity based on typical days to heading, would suggest that the response to fungicide is not correlated to maturity. The positive yield response or lack of is similarly distributed among the range of maturities associated with varieties in this trial.

CREC spring wheat off-station variety trial near Dazey, ND.