HRS wheat variety response to foliar fungicides, Carrington, 2007. (Gregory Endres, Blaine Schatz, and Brandt Lemer) The irrigated trial was planted at 1.2 million pure live seeds/acre (A) on April 27 on soybean ground (supplemental wheat straw spread after planting) at the NDSU Carrington Research Extension Center. Experimental design was a randomized complete block with a factorial arrangement and four replications. Headline at 3 fl oz/A was applied at Feekes 2 to 5 stages on June 5 with a hand-boom plot sprayer equipped with 80015 flat fan nozzles delivering 17.5 gal/A at 40 psi. Folicur at 3 fl oz/A plus Proline at 3 fl oz/A plus NIS (Induce) at 0.125% v/v was applied at Feekes 10.5.1 to 10.5.3 on June 27 or 30 with TJ60 8002VS nozzles delivering 14 gpa at 35 psi. Flag leaf disease was visually evaluated on July 16. The trial was harvested with a plot combine on August 15.

Varieties with 20% or more flag leaf foliar disease (tan spot and Septoria) included Bigg Red, Kelby, RB07, Steele-ND, and Trooper (Table 1). Alsen, Bigg Red, and Rush had leaf rust at 2.5 to 5%. Fusarium head blight field notes were not taken due to very low incidence. Faller had the highest grain yield and kernel weight, while Fireball had the highest protein among varieties tested. Across varieties, the fungicide treatment significantly reduced flag leaf disease and improved yield (5.4 bu/A or 9%), kernel weight, and protein compared to the untreated check. Flag leaf rust and kernel weight were influenced differently as indicated by a significant interaction of variety by fungicide(Table 2).

Table 1. HRS wheat variety response to foliar fungicide, Carrington, 2007 (main factors).

Treatment	Flag leaf disease (%)	Flag leaf rust (%)	Head date (Jday)	Grain yield (bu/A)	Test weight (lb/bu)	250 KWT (g)	Protein (%)
Ada	13	0.5	176	64.5	60.5	9.34	15.3
Alsen	14	2.9	176	61.1	60.3	8.56	15.7
Bakker Gold	11	1.0	182	59.4	58.6	8.51	14.8
Bigg Red	24	4.8	177	57.2	61.2	8.71	15.6
Briggs	14	0.4	173	68.6	56.2	9.03	15.6
Faller	8	0.0	177	77.4	60.0	10.01	15.1
Fireball	10	0.4	177	57.4	57.1	7.66	16.2
Freyr	16	0.9	175	61.6	59.1	8.25	15.2
Glenn	12	0.0	174	67.0	62.5	8.60	15.7
Hotshot	10	1.1	178	63.9	59.7	8.15	14.2
Howard	11	0.1	176	67.0	61.0	8.92	15.2
Kelby	22	0.1	173	63.9	59.0	8.20	15.6
Knudson	10	0.0	176	66.1	59.5	8.74	15.0
Kuntz	16	0.1	176	64.0	59.3	7.70	15.0
Oklee	16	0.9	173	66.2	60.4	8.81	15.7
RB07	35	0.0	174	60.2	58.2	7.53	15.4
Rush	16	2.5	173	54.6	59.9	8.23	15.8
Steele-ND	20	0.0	176	62.2	60.3	8.88	15.8
Traverse	15	0.1	174	68.5	57.1	8.77	14.9
Trooper	21	0.6	174	62.9	60.4	9.68	15.1
Ulen	19	0.3	173	62.6	59.2	9.10	15.8
LSD (0.05)	8	2.6	1.0	6.0	2.3	0.28	0.4
mean	16	0.8	175	63.6	59.5	8.66	15.4
Fungicide	14	0.0	175	66.3	59.6	8.80	15.5
untreated check	17	1.6	175	60.9	59.4	8.47	15.2
LSD (0.05)	3	0.8	NS	1.8	NS	0.09	0.1

Table 2. HRS wheat variety response to foliar fungicide, Carrington, 2007 (variety by fungicide).

	Fungicide							Untreated check						
	Flag leaf dis	Flag leaf rust	Head date	Grain yield	Test weight	250 KWT	Protein	Flag leaf dis	Flag leaf rust	Head date	Grain yield	Test weight	250 KWT	Protein
Variety	(%)	(%)	(Jday)	(bu/A)	(lb/bu)	(g)	(%)	(%)	(%)	(Jday)	(bu/A)	(lb/bu)	(g)	(%)
Ada	11	0.0	176	68.7	60.9	9.63	15.3	14	1.0	176	60.4	60.1	9.05	15.2
Alsen	7	0.0	176	63.4	60.5	8.76	15.8	22	6.0	176	58.7	60.1	8.36	15.6
Bakker Gold	7	0.0	182	65.9	59.8	9.03	15.2	15	2.0	182	53.1	57.4	8.00	14.3
Bigg Red	16	0.0	178	60.1	61.2	8.93	15.8	32	9.5	177	54.4	61.2	8.50	15.4
Briggs	16	0.0	172	68.9	52.7	9.17	15.6	12	1.0	173	68.3	59.6	8.90	15.5
Faller	9	0.0	177	80.2	59.9	10.07	15.2	7	0.0	176	74.5	60.1	9.95	15.1
Fireball	9	0.0	177	60.0	57.4	7.78	16.6	11	0.8	178	55.0	56.7	7.54	15.8
Freyr	21	0.0	176	59.1	59.0	8.15	15.4	11	1.8	175	64.1	59.2	8.36	15.0
Glenn	8	0.0	174	68.9	62.6	8.62	15.8	16	0.0	174	65.1	62.5	8.58	15.7
Hotshot	10	0.0	178	70.5	60.1	8.37	14.1	9	2.3	179	57.4	59.3	7.92	14.3
Howard	12	0.0	176	67.6	60.9	8.94	15.4	10	0.3	176	66.4	61.0	8.91	15.1
Kelby	19	0.0	173	69.8	59.4	8.38	15.7	24	0.3	174	58.0	58.5	8.01	15.5
Knudson	8	0.0	176	68.3	59.5	9.02	15.2	11	0.0	176	63.9	59.6	8.46	14.8
Kuntz	13	0.0	176	65.8	59.7	7.93	15.0	19	0.3	176	62.2	58.9	7.47	15.0
Oklee	13	0.0	173	70.4	60.6	9.10	16.0	19	1.8	174	61.9	60.2	8.52	15.5
RB07	30	0.0	174	66.0	58.6	7.74	15.4	41	0.0	174	54.4	57.8	7.32	15.3
Rush	15	0.0	173	56.0	59.9	8.26	16.1	18	5.0	173	53.2	59.8	8.20	15.6
Steele-ND	21	0.0	176	62.5	60.4	8.94	15.7	19	0.0	175	62.0	60.1	8.83	15.9
Traverse	17	0.0	174	71.3	57.2	8.81	14.8	13	0.3	174	65.7	57.0	8.74	15.0
Trooper	20	0.0	173	67.2	60.9	10.03	14.9	22	1.3	174	58.6	60.0	9.33	15.2
Ulen	23	0.0	173	62.9	59.4	9.23	16.0	15	0.5	173	62.2	59.1	9.00	15.7
Variety by Fungicide LSD (0.05): Flag leaf rust = 3.7 and 250 Kwt = 0.39.														
mean	14.5	0.0	175	66.4	59.6	8.8043	15.5	17	1.7	175	60.9	59.4	8.474	15.3
C.V. (%)	51.5	332.5	0.4	9.5	3.9	3.2	2.8	51.5	332.5	0.4	9.5	3.9	3.2	2.8