

HRS wheat variety response to seeding rate and foliar fungicide, Carrington, 2003

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The irrigated trial was established with 'Alsen', 'Ingot' and 'Reeder' HRS wheat planted on 2002 soybean ground (with supplemental wheat straw) at 1 and 2 million pure live seeds (PLS)/acre (A) on May 21 at the NDSU Carrington Research Extension Center. The trial had a randomized complete block design with a split-split plot arrangement and four replications. Plot size was 5 by 22 ft. Fungicide treatments included an untreated check and Folicur at 4 fl oz/A + NIS (Induce) at 0.125% v/v. Fungicide treatments were applied to wheat (partially lodged) in the early-bloom stage (Feekes 10.51) with a hand-boom plot sprayer equipped with 80015 twin jet nozzles delivering 16 gpa at 40 psi. 'Ingot' was treated on July 12 with 78F air temperature, 47% RH, 75% clear sky, and 4 mph wind. 'Alsen' and 'Reeder' were treated on July 15 with 60F air temperature, 97% RH, 10% clear sky, 3 mph wind and moisture present on foliage. Flag leaf disease (tan spot and *Septoria* spp.) and leaf rust were evaluated on July 28 and August 6. Fusarium head blight (scab) was visually evaluated on August 8 at the soft-dough stage. The trial was harvested with a plot combine on August 26.

The seeding rate of 1 and 2 million PLS/A established 1 and 1.8 million seedling plants/A, respectively (Table 1). Seed yield and quality were not impacted by seeding rate. Flag leaf disease visually appeared to have a greater impact than scab on yield and quality. Folicur reduced disease and improved yield by 23% (13.9 bushels/A) and test weight by 2% (1.4 lb/bushel). Folicur reduced DON in Ingot and Reeder, but DON levels were very low in untreated Alsen (Table 2). Ingot and Reeder yield improved 27 and 31% (17.6 and 18.4 bushels/A) respectively, with Folicur while Alsen yield improved 10% (5.5 bushels/A) with Folicur. Also, kernel weight of Ingot and Reeder improved with Folicur.

Table 1. HRS wheat variety response to seeding rate and foliar fungicide, Carrington, 2003 (main factors).

Treatment	Scab incidence 8/8 (%)	Scab severity (%)	Scab plot severity (%)	DON ppm	Leaf disease 7/28 (%)	Leaf disease 8/6 (%)	Leaf rust 7/28 (%)	Leaf rust 8/6 (%)	Plant stand 6/3 (acrex1000)	Spike 7/23 (acrex1000)	Plant height (cm)	Lodge (0 - 9)	Grain yield (bu/ac)	Test weight (lb/bu)	250 KWT (grams)	Protein (%)
Variety																
Alsen	11	19	2.2	0.1	5	21	< 1	2	1468	1639	87.8	2	49.9	61.5	8.0	
Ingot	15	33	5.2	0.4	17	40	9	17	1439	1719	96.8	3	57.4	62.6	8.4	
Reeder	22	31	7.4	0.8	7	28	2	9	1485	1737	92.3	2	50.0	59.6	8.1	
LSD 0.05	2	1	3	0.2	1	7	2	3	NS	NS	2.3	1	1.2	0.4	0.1	
Seeding Rate																
1	17	32	6.0	0.4	10	28	4	11	1.009	1566	94.2	2	53.3	61.3	8.2	
2	15	24	4.0	0.4	10	32	4	9	1.841	1810	91.1	3	52.1	61.3	8.1	
LSD 0.05	NS	NS	1.0	NS	NS	NS	NS	NS	**	**	1.3	1	NS	NS	NS	
Fungicide																
Folicur	11	22	2.7	0.2	4	13	< 1	< 1	1445	1643	92.7	2	59.6	62.0	8.5	
untreated	21	33	7.2	0.7	15	47	8	19	1480	1755	92.3	3	45.7	60.6	7.9	
LSD 0.05	3	8	1.0	0.2	4	5	1	3	NS	**	NS	NS	2.3	0.5	0.1	

Table 2. HRS wheat variety response to seeding rate and foliar fungicide, Carrington, 2003 (interactions).

Treatment	Scab incidence 8/8 (%)	Scab severity (%)	Scab plot severity (%)	DON (%)	Leaf disease 7/28 (%)	Leaf disease 8/6 (%)	Leaf rust 7/28 (%)	Leaf rust 8/6 (%)	Plant stand 6/3 (acrex1000)	Spike 7/23 (acrex1000)	Plant height (cm)	Lodge (0 - 9)	Grain yield (bu/ac)	Test weight (lb/bu)	250 KWT (grams)	Protein (%)
VarxSeed																
Alsen 1	9	27	2.8	0.1	3	15	4	18	1014	1472	89.7	1	50.5	61.3	8.1	
Alsen 2	12	13	1.7	0.1	4	20	6	23	1808	1764	86.4	3	49.5	61.6	8.0	
Ingot 1	17	38	6.6	0.4	15	25	17	40	1013	1586	97.3	3	58.6	62.7	8.4	
Ingot 2	14	29	3.7	0.5	15	21	17	41	1865	1852	96.4	4	56.2	62.5	8.3	
Reeder 1	25	30	8.4	0.8	3	16	6	23	998	1634	94.5	1	49.1	59.3	8.2	
Reeder 2	20	31	6.7	0.7	3	22	7	32	1850	1814	90.6	2	50.7	60.0	8.0	
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
VarxFung																
Alsen Folicur	6	14	1	0.1	3	6	0	<1	1418	1609	86.7	2	52.7	61.9	8.1	
Alsen untreated	16	23	3.3	0.1	7	36	<1	3	1517	1668	88.9	2	47.2	61.0	7.9	
Ingot Folicur	11	27	2.8	0.2	5	20	<1	1	1390	1640	98.3	2	66.2	63.3	8.7	
Ingot untreated	19	40	7.5	0.7	29	61	19	34	1489	1797	95.4	4	48.6	61.9	8.0	
Reeder Folicur	15	25	4.1	0.2	5	13	<1	<1	1536	1680	92.3	1	59.2	60.5	8.6	
Reeder untreated	29	36	10.7	1.3	8	44	4	18	1434	1794	92.3	2	40.8	58.8	7.6	
LSD 0.05	NS	NS	NS	0.4	6	NS	2	5	NS	NS	NS	NS	3.9	NS	0.3	
SeedxFung																
1 Folicur	10	25	2.7	0.1	4	12	<1	<1	997	1504	93.8	2	60.6	62.0	8.6	
1 untreated	24	40	9.3	0.8	16	45	8	21	1021	1629	94.5	2	46.0	60.5	7.9	
2 Folicur	12	20	2.7	0.2	4	14	<1	<1	1819	1760	91.8	2	58.9	61.9	8.4	
2 untreated	19	28	5.4	0.7	15	50	8	17	1863	1860	90.5	3	45.4	60.7	7.8	
LSD 0.05	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
mean	16	28	4.9	0.4	10	30	4	10	1463	1699	92.5	2	52.7	61.3	8.2	
C.V.%	26	44	41	74	61	28	56	50	13	7	4	59	7	1	3	

