

Wheat (*Triticum aestivum* 'Parshall')
 Target diseases: *Fusarium* spp.
 Pythium spp.
 Bipolaris sorokiniana

R.O. Ashley, and G. Martin
 Dickinson Research Extension Center
 Dickinson, ND 5860

Bayer CropScience HRSW seed treatment performance trial near Mott, ND, 2008.

This experiment was conducted in a field located near Mott, ND (SE ¼ Section 14, T136N, R93W, Hettinger County, ND). The previous crop was wheat in 2007. A soil sample was collected on March 26 and analyzed by the North Dakota State University Soil Testing Laboratory. Soil nutrient levels reported were N=44 lb/a, P(Olsen) = 17 ppm, K = 382 ppm, pH = 6.2. Prior to seeding, seed was treated with Raxil MD, Charter PB, Raxil MD-W, Dvidiend Extreme, or an experimental compound. Untreated seed was used as a check. Plots were seeded with a drill equipped with Cross-slot openers on 9 May 2008 at the rate of 150 pls m⁻². Urea at the rate of 116 lbs/a (53lbs/a N) was applied through the drill in a separate band during the seeding operation. A post emergent herbicide and foliar fungicide application of Bromac Advance (Bromoxynil Octanoate and Heptonic + MCPA Isooctyl Ester) at 1.5 pt/a, Puma (Fenoxaprop-P) at 0.66 pt/, and Tilt (Propiconazole) at 2 fl oz/a.. Plant counts were made on 15 May and 5 Jun. Initial plant evaluations were made on 1Jul and soft dough plant evaluations were made on 21-22 Jul. Root samples taken during the soft dough analysis were submitted to the NDSU Plant Diagnostic Laboratory for identification of pathogens. Fusarium head blight was not observed probably because of the hot, dry growing conditions that occurred in Jul. Harvest was with a Massy Ferguson 8 XP combine on 25 Aug. Grain yield, and test weight were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical Software.

Early season plant density was significantly improved for treatments L1397-C12, Raxil MD-W and Raxil MD when compared to the untreated check. Rainfall was normal for June but below normal for May, July, and August. No significant differences or trends were observed in this trial for any of the symptoms evaluated during the initial and soft dough root and crown evaluations. Lab analysis for pathogen presence indicated that *Bipolaris sorokiniana* was present on 10% of the root/crown samples submitted. *Rhizoctonia* spp., *Phytium* spp., and *Fusarium graminearum* were not detected. No significant differences were detected for mature plant height, head density, test weight, and grain yields though grain yields tended to be greater for treated seed than for the untreated check.

Treatment	15 May		5 Jun		
	Rate	Plant density	Vigor	Plant density	Vigor
	g AI/100Kg	m ⁻²		m ⁻²	
Untreated Check		155.4	6.5	193.9	7.5
L1397-C 8	8	172.7	6.3	178.4	7.5
L1397-C 12	12	177.7	7.8	191.4	9.5
L1397-C + Poncho	55	158.1	7	191.9	9.3
Raxil MD-W	8.8	191.8	7	201.2	9.5
Dividend Extreme	15	170.8	6.3	207.3	8
Charter PB	55	161.6	5.3	201	7
Raxil MD	3.8	180.4	6.5	206.8	9.3
Mean		171	6.56	196.4	8.4
CV%		9.01	25.08	10.35	23.76
LSD .05		22.7	NS	NS	NS
SE		7.7097	0.8229	10.1628	1.0022
Rep F Prob		0.332	0.8523	0.0073	0.737
Trt F Prob		0.0447	0.6076	0.5336	0.4102

----- Initial plant evaluation -----

Treatment	Rate	Plant length	Stage	Tillers	Subcrown ¹ internode rating	Seminal roots	Crown roots
	g AI/100Kg	mm	Zadoks	no/plant		no/plant	no/plant
Untreated Check		480	43.1	1.8	1.8	2.6	9.5
L1397-C 8	8	459	39.1	1.8	1.7	3.0	8.6
L1397-C 12	12	488	43.4	1.9	1.7	2.8	8.9
L1397-C + Poncho	55	467	43.8	2.0	1.6	2.6	9.4
Raxil MD-W	8.8	488	43.1	1.9	1.7	2.7	9.3
Dividend Extreme	15	506	42.4	1.8	1.8	3.7	7.6
Charter PB	55	517	44.2	1.6	1.9	3.0	9.3
Raxil MD	3.8	524	43.0	2.2	1.9	2.9	10.2
Mean		491	42.8	1.9	1.8	2.9	9.1
CV%		4.9	6.1	17.6	10.1	14.8	15.2
LSD .05		NS	NS	NS	NS	NS	NS
SE		14.0107	1.50248	0.1896	0.1028	0.248	0.7987
Rep F Prob		0.9052	0.1786	0.0059	0.3979	0.1207	0.122
Trt F Prob		0.0532	0.4118	0.6101	0.4018	0.1067	0.5101

¹ Subcrown internode rating, 1-4. 1 = less than 25% of the internode infected, 2 = 25 – 50% of the internode infected, 3 = 51-75% of the internode infected, multiple lesions, and 4 = 75-100% of the internode infected, lesions coalesced.

----- Soft dough evaluation -----

Treatment Name	Rate	Root ¹ color	Root ² mass	Subcrown ³ internode rating
	g AI/100Kg			
Untreated Check		2.09	1.96	2.10
L1397-C 8	8	1.95	1.96	2.02
L1397-C 12	12	2.02	1.93	1.79
L1397-C + Poncho	55	2.00	1.97	1.86
Raxil MD-W	8.8	2.19	1.90	1.98
Dividend Extreme	15	2.00	1.89	2.02
Charter PB	55	2.00	1.90	1.88
Raxil MD	3.8	1.92	1.92	2.02
Mean		2.02	1.93	1.96
CV%		7.37	4.46	8.87
LSD .05		NS	NS	NS
SE		0.0745	0.0429	0.0869
Rep F Prob		0.0472	0.0019	0.1118
Trt F Prob		0.291	0.77	0.2221

¹Root color 1 – 4; 1 = white, 4 = dark.

²Root mass 1 – 4; 1 = few roots, 4 = many roots.

³Subcrown internode rating, 1-4. 1 = less than 25% of the internode infected, 2 = 25 – 50% of the internode infected, 3 = 51-75% of the internode infected, multiple lesions, and 4 = 75-100% of the internode infected, lesions coalesced.

Treatment Name	Rate g AI/100Kg	----- Harvest -----		----- Grain ¹ -----	
		Plant height mm	Head density m ⁻²	Test weight lb/bu	Yield bu/a
Untreated Check		530	249	56.6	16.7
L1397-C 8	8	511	256	56.6	16.9
L1397-C 12	12	538	271	57.2	18.8
L1397-C + Poncho	55	507	257	56.9	17.1
Raxil MD-W	8.8	503	256	56.9	17.9
Dividend Extreme	15	519	291	57.4	19.8
Charter PB	55	531	260	57.0	17.0
Raxil MD	3.8	514	276	57.2	17.9
Mean		519	264	57.0	17.8
CV%		5.9	12.4	1.3	9.4
LSD .05		NS	NS	NS	NS
SE		15.3	16.5	0.35	0.83
Rep F Prob		0.3515	0.775	0.4369	0.0162
Trt F Prob		0.6907	0.6802	0.7395	0.1706

¹Grain values adjusted to a 12% moisture basis.