

Wheat (<i>Triticum aestivum</i> 'Parshall') Target diseases: <i>Fusarium</i> spp. <i>Pythium</i> spp. <i>Bipolaris sorokiniana</i> <i>Rhizoctonia</i> spp.	R.O. Ashley, G. Martin, and D Barondeau Dickinson Research Extension Center Dickinson, ND 58601 Hettinger County Extension Service Mott, ND
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KNF seed treatment on HRSW near Mott, ND, 2007

This experiment was conducted in a field located near Mott, ND (NE ¼, Section 27, T136N, R93W – Hettinger County, ND). The previous crop was wheat in 2006. Urea at the rate of 200 lbs/acre was broadcast applied on 1 Apr. Prior to seeding, seed was treated with KNF2834-03, UBI9292-00, UBI4339-00, ST501, UBI2051-16 and Dividend XL RTA. Untreated seed was used as a check. Coarse ground wheat infected with *Fusarium* spp. was applied to the seed at seeding time at the rate of 1 g m⁻² of row for all plots. Plots were seeded with a drill equipped with Cross-slot openers on 30 Apr 2007 at the rate of 150 pls m⁻². A post emergent herbicide and foliar fungicide application of Harmony GT XP @ 0.5 oz/acre + Bronate Advance @ 16.0 fl oz/acre + Activator 90 NIS @ .25% v/vol. + Stratego @ 3.0 fl oz/acre was applied on 27 May. Plant counts were made on 15 May. Initial plant evaluations were made on 19 Jun and soft dough plant evaluations were made on 30 Jul. Precipitation at the North Dakota Agricultural Weather Network Mott, ND weather station in May, June, and July was 3.58, 3.76, and 0.50 inches respectively. The average maximum temperature for the same months was 66°, 77°, and 90°F respectively. *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 10 Aug. Grain yield, test weight, and protein were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical Software.

No significant differences were detected among seed treatments in plant densities, vigor, and characteristics evaluated during the root evaluations. However most of these characteristics tended to improve with seed treatment. Yield was significantly improved with most but not all seed treatments in this trial.

Treatment	Rate	Height	Head density	----- Grain -----		
				Test weight	Protein	Yield
	mL 100 Kg ⁻¹	mm	no m ⁻²	lb bu ⁻¹	%	bu acre ⁻¹
Check		855.0	72.1	57.7	16.4	32.0
KNF2834-03	325	891.3	96.3	57.7	16.4	37.6
UBI9292-00	325	896.3	92.1	57.4	16.4	36.4
Dividend XL RTA	325	884.4	92.9	57.5	16.4	34.6
UBI4339-00	325	863.8	88.5	57.0	16.3	37.0
ST501	370	857.5	78.0	57.5	16.5	34.3
UBI2051-16	330	860.0	87.5	57.8	16.4	35.6
Mean		872.6	86.77	57.5	16.4	35.4
CV%		4.67	13.16	0.78	0.84	6.2
LSD .05		60.6	16.968	0.67	0.30	3.3
SE		20.38977	5.710788	0.224313	0.069365	1.0965358
Prob Trt		0.6317	0.0795	0.2482	0.663	0.0324
Prob Rep		0.0674	0.1325	0.1556	0.3915	0.0107

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Treatment	Rate mL 100 Kg ⁻¹	----- Initial root evaluation -----					
		Plant length	Development Stage	Tillers	Subcrown internode	Seminal roots	Crown roots
		mm	Haun	no plant ⁻¹		no plant ⁻¹	no plant ⁻¹
Check		512.4	7.1	2.1	1.20	5.2	11.6
KNF2834-03	325	552.8	7.4	2.3	1.08	5.4	13.0
UB19292-00	325	509.4	7.2	2.4	1.03	5.3	13.1
Dividend XL							
RTA	325	540.2	7.3	2.2	1.00	5.3	12.0
UB14339-00	325	518.8	7.2	2.3	1.10	5.0	12.3
ST501	370	472.5	7.2	2.2	1.00	5.0	12.5
UB12051-16	330	513.4	7.3	2.3	1.03	5.4	12.6
Mean		517.1	7.2	2.2	1.06	5.2	12.4
CV%		8.5	3.3	11.2	10.52	6.2	10.7
LSD .05		65.4	0.4	0.4	0.17	0.5	2.0
SE		22.01463	0.11860632	0.125317	0.055813	0.161344	0.663497
Prob Trt		0.2914	0.6793	0.7318	0.1877	0.3228	0.6647
Prob Rep		0.2756	0.0062	0.7133	0.6954	<0.0001	0.0344

Treatment	--Soft dough root evaluation--		
	Root color	Root mass	Subcrown internode
Check	1.69	2.39	1.25
KNF2834-03	1.48	2.79	1.07
UB19292-00	1.63	2.49	1.07
Dividend XL			
RTA	1.66	2.64	1.18
UB14339-00	1.62	2.71	1.18
ST501	1.64	2.71	1.13
UB12051-16	1.54	2.59	1.15
Mean	1.61	2.62	1.15
CV%	18.42	8.90	14.68
LSD .05	0.44	0.35	0.25
SE	0.14814	0.116422	0.084205
Prob Trt	0.9557	0.2581	0.7369
Prob Rep	0.0719	<0.0001	0.0723

Subcrown internode = 1-4, 1 = 0-25% of internode covered with lesions, 2 = 25 to 50% covered with lesions, 3 = 50 to 75% covered with lesions, > 75% covered with lesions.

Root color = 1-4, 1 = white, 4 = dark.

Root mass = 1-4, 1 = few roots, 4 = many roots

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Treatment	Rate	Plant density	Plant vigor
	mL 100 Kg ⁻¹	no m ⁻²	
Check		61.0	4.8
KNF2834-03	325	88.4	8.0
UB19292-00	325	85.2	6.8
Dividend XL RTA	325	81.5	7.0
UB14339-00	325	90.8	7.5
ST501	370	73.6	6.8
UB12051-16	330	89.2	7.3
Mean		81.4	6.9
CV%		20.6	19.6
LSD .05		24.9	2.0
SE			
Prob Trt		0.1953	0.0755
Prob Rep		0.4066	0.4155