Wheat (*Triticum aestivum* 'Briggs')

Target diseases:
Fusarium crown rot; *Fusarium* spp.
Pythium; *Pythium* spp.
Common root rot; *Bipolaris sorokiniana*

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Chemtura HRSW seed treatment performance trial near Dickinson, ND, 2010.

This experiment was conducted in a field located near Dickinson, ND (NE ¼, Section 35, T141N, R95W – Dunn County, ND) where the previous crop was wheat in 2009. A randomized complete block design with four replications was used. Plots were 10 ft wide by 50 ft long with a 2 ft wide spring wheat buffer between plots. A burndown application of 0.75 ae/a glyphosate + ammonium sulfate plus 0.5 oz/a of Harmony GT XP (thifensulfuron) was applied on 27 Apr. Prior to seeding, a fusarium infected seed lot was treated with Rancona Pinnacle (ipconazole, 0.434% + metalaxyl, 0.579%), Dividend Extreme (difenoconazole, 7.73% + mefenoxam, 1.93%), UBI 9345, UBI 9292, UBI 9307, Rancona 3.8FS (ipconazole, 40.7%), UBI 9346, Rancona Crest (ipconazole, 0.421% + metalaxyl, 0.562%, imidacloprid, 14.1%), Rancona Apex (ipconazole, 0.44%), UBI 4384, MetaStar (metalaxyl, 28.35%), UBI 9291, Incentive RTA (difenoconazole, 3.21% + propionic acid methyl ester, 0.27%), NitroShield, AGST 08002, AGM 05024 singularly or in combination. Untreated seed was used as a check. Plots were seeded with a drill equipped with Cross-slot openers on 24 May 2010 at the rate of 350 pls m^{-2}. Urea at the rate of 220 lbs/a (101.2 lbs/a N) was applied through the drill in a separate band during the seeding operation. A post emergent herbicide and foliar fungicide application of Unity (thifensulfuron) 0.68 oz/a, Puma (fenoxaprop) 0.66 pt/a, MCP Ester4 0.5 pt/a, BroClean (bromoxynil), and Tilt (propiconzole) 2 floz/a on 20 Jun. Plant counts and vigor were made on 14 Jun. Root and crown evaluations were made on 19-23 Jul. Harvest was with a Massy Ferguson 8 XP combine on 26 Aug. Grain yield and test weight were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical Software.

Plant counts observed tended to be greater than the untreated check for most seed treatments. Rainfall was above normal for May, June, and July but below normal in August. No significant differences or trends were observed in this trial for root mass or subcrown internode ratings but root color was significantly darker for the untreated check compared to all seed treatments except UBI 9291, UBI 9292, UBI 4384, and IRTA + NS + AGST08002 + AGM 05024 No significant differences were detected for mature plant height, head density, and yield though head density and yield for fungicide treatments tended to be higher than the untreated check.

Vigor and stand counts and soft dough root evaluation for Briggs, HRSW with various seed treatments at Dickinson, ND, 2010.

				Root Evaluation		
Treatment	Rate	Plant density	Vigor	Color[1]	Mass[2]	SCI[3]
	ml 100kg^{-1}	m^{-2}				
Untreated Check		296.3	100.0	2.4	2.4	2.8
Rancona Pinnacle	325	326.4	111.3	2.1	2.4	2.6
Dividend Extreme	130	309.3	105.0	1.7	2.5	2.6
UBI 9345	325	331.9	113.8	1.8	2.0	2.7
UBI 9292	325	253.9	85.0	2.3	2.1	2.3
UBI 9307 + Rancona 3.8FS	130 + 3.4	341.4	117.5	1.9	2.3	2.1
UBI 9346 + Rancona Pinnacle	12.5 + 325	276.2	95.5	2.1	2.1	2.4
Rancona Crest	325	286.5	97.5	2.1	2.4	2.3
Rancona Apex	325	327.6	112.5	1.9	2.3	2.3
UBI4384	300	328.1	111.3	2.2	2.4	2.4
Rancona 3.8FS + MetaStar Fl	3.4 + 12.6	298.3	101.3	2.0	2.7	2.4
UBI9291	325	302.8	97.5	2.1	2.7	2.5
Incentive RTA (I RTA) + Nitro Shield (NS)		295.3	101.3	2.1	2.5	2.2
I RTA + NS + AGST 08002		312.1	107.5	2.1	2.6	2.3
I RTA + NS + AGST 08002 + AGM 05024		311.6	106.3	2.2	2.4	2.2
Mean		306.5	104.2	2.1	2.4	2.4
CV%		17.12	15.16	12.7	16.4	11.9
LSD.05		NS	NS	0.28	NS	NS

[1]Color 1-4, 1 = white, 4 = dark.
[2]Mass 1-4, 1 = few roots, 4 = many roots.
[3]SCI = Subcrown internode rating, 1-4. 1 = less than 25% of the internode infected, 2 = 25-50% of the internode infected, 3 = 50 – 75% of the internode infected, multiple lesions, and 4 = 75-100% of the internode infected lesions coalesced.

Grain yield, test weight, height, and head density of Briggs HRSW grown with various seed treatments at Dickinson, ND, 2010.

Treatment	Rate	Mature plant height	Head density	Yield[1]
	ml 100kg^{-1}	mm	m^{-2}	bu/acre
Untreated Check		837.5	357.1	47.5
Rancona Pinnacle	325	882.5	359.0	52.0
Dividend Extreme	130	875.0	378.7	49.1
UBI 9345	325	832.5	373.8	50.0
UBI 9292	325	830.0	359.6	48.3
UBI 9307 + Rancona 3.8FS	130 + 3.4	877.5	367.0	50.6
UBI 9346 + Rancona Pinnacle	12.5 + 325	870.0	400.3	53.1
Rancona Crest	325	867.5	387.4	50.7
Rancona Apex	325	835.0	356.5	52.7
UBI4384	300	910.0	372.6	50.8
Rancona 3.8FS + MetaStar Fl	3.4 + 12.6	845.0	365.1	51.1
UBI9291	325	865.0	338.6	48.3
Incentive RTA (I RTA) + Nitro Shield (NS)		852.5	385.5	51.1
I RTA + NS + AGST 08002		895.0	352.2	51.5
I RTA + NS + AGST 08002 + AGM 05024		867.5	365.8	51.9
Mean		862.8	367.9	50.6
CV%		5.0	15.2	5.8
LSD.05		NS	NS	NS

[1]Grain yield is reported on a 12% moisture basis.