

Wheat (*Triticum aestivum* 'CDC Buteo')

Target diseases: *Tilletia caries*
Ustilago spp.
Fusarium spp.
Pythium spp.
Rhizoctonia spp.
Bipolaris sorokiniana

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Vincit HRWW wheat seed treatment performance on bunt trial, New Hradec, ND, 2007- 2008.

This experiment was conducted in a field located near New Hradec, ND (NE ¼ Sec 2, T140N, R97W, Stark County, ND). The previous crop was spring wheat in 2007. Prior to seeding, seed was treated singularly or in combinations of Vincit F, Vincit FS, Vincit Minima, Thiram, Allegiance or Raxil MD. Untreated seed was used as a check. Ground bunt contaminated wheat grain was added to seed as it was planted to inoculate the trial with bunt. Plots were seeded with a drill equipped with Cross-slot openers on 2 Oct 2007 at the rate of 100 pls m⁻². A blended fertilizer 29-19-6 was placed in a separate band at the rate of 193 lbs/acre during the seeding operation. A post emergent herbicide and foliar fungicide application of 12oz/a Husky + 2 oz/a of Propanonizol + AMS + Surfactant was applied 4 Jun 2008. Plant counts were made on 15 and 23 May 2008. A whole plant evaluation was done at the jointing stage. Root and crown samples of this trail were submitted for analysis of soil-borne pathogens at the soft dough stage of crop development. Harvest was with a Massy Ferguson 8 XP combine on 6 Aug 2008. Grain yield, and test weight were adjusted to a 12% moisture basis. Bunted kernels were sorted from 50g grain samples and counted. All data was statistically analyzed using SAS Statistical Software.

Rainfall was well below normal for Oct through May and Jul with Jun near normal which affected winter survival and development of the crop. Plant counts were unaffected by seed treatment though rate of emergence appeared to be increased. Plant counts appear to have decreased between the first and second counts probably due to extremely dry conditions that occurred throughout the fall, winter, and early spring. Seed treatments significantly affected plant size but only tended to increase root counts and tillering when compared to the check. Seed treatments did not increase yield over the check but did reduce the number of bunted kernels and increase test weight over the check. Tissue analysis for root and crown disease pathogens indicated that 48% of the sample submitted had *Fusarium graminearum* present. *Pythium* spp, *Rhizoctonia* spp. and *Bipolaris sorokiniana* were not detected.

Treatment	Rate	Emergence ¹		15 May		23 May	
		7 DAP	14 DAP	Plant count	Vigor	Plant count	Vigor
	fl oz/cwt	%	%	m ⁻²		m ⁻²	
Untreated Check	0	0	26.3	12.8	4	11.7	3.3
Vincit Minima + Thiram	3.07 + 1.92 +						
42S + Allegiance FL	0.75	0	42.5	19.7	4.8	17.9	3.5
Vincit F + Allegiance FL	3.07 + 0.75	0	48.8	23	5	21.1	4.5
Vincit FS	3.07	0	53.8	22.6	4.8	19.6	4.5
Vinict Minima +							
Allegiance FL	3.07 + 0.75	0	52.5	25.1	5.8	22.8	4.5
Vincit Minima + Thiram							
42S	3.07 + 1.92	0	42.5	23	5.8	21.1	4.5
Raxil MD	5	0	43.8	23.8	5.3	21.9	4.5
Mean		0	44.3	21.4	5	19.4	4.2
CV%		0	11.5	21.3	22.3	20.1	18.4
LSD .05		NS	7.5	6.8	NS	5.8	NS
SE		0	2.5394	2.2841	0.56256	1.9523	0.3845
Rep F Prob		-	0.192	0.3247	0.8575	0.1768	0.0388
Trt F Prob		-	<0.0001	0.0231	0.3446	0.0139	0.1077

¹ Emergence was visually evaluated 7 days after planting and 14 days after planting.

----- Plant evaluation at jointing -----							
Treatment	Rate	Length	Stage of development	Tiller	Subcrown ¹ internode rating	Seminal root count	Crown root count
	fl oz/cwt	mm		no/plant		no/plant	no/plant
Untreated Check	0	433	31.5	4.0	1	2.8	16.8
Vincit Minima + Thiram 42S + Allegiance FL	3.07 + 1.92 + 0.75	469	31.8	5.3	1	3.8	20.0
Vincit F + Allegiance FL	3.07 + 0.75	462	31.8	5.3	1	3.8	19.3
Vincit FS	3.07	480	31.8	4.5	1	3.3	18.3
Vinict Minima + Allegiance FL	3.07 + 0.75	461	31.5	4.5	1	3.8	18.5
Vincit Minima + Thiram 42S	3.07 + 1.92	461	31.5	4.8	1	2.8	17.8
Raxil MD	5	497	32.0	5.0	1	3.3	19.3
Mean		466	31.7	4.8	1	3.3	18.5
CV%		4.8	1.8	20.8	0	24.9	12.1
LSD .05		33.1	NS	NS	NS	NS	NS
SE		11.1343	0.288675	0.494012	-	0.41308	1.120259
Rep F Prob		0.1727	0.3211	0.0025	-	0.0082	0.0004
Trt F Prob		0.0276	0.8503	0.5462	-	0.3572	0.4931

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.

----- Grain ¹ -----				
Treatment	Rate	Yield	Test weight	Bunted Kernels
	fl oz/cwt	bu/acre	lb/bu	no 50g ⁻¹
Untreated Check	0	21.4	49.1	120.5
Vincit Minima + Thiram 42S + Allegiance FL	3.07 + 1.92 + 0.75	20.0	54.2	25.0
Vincit F + Allegiance FL	3.07 + 0.75	20.7	53.6	20.5
Vincit FS	3.07	21.9	55.2	14.3
Vinict Minima + Allegiance FL	3.07 + 0.75	21.3	54.2	26.0
Vincit Minima + Thiram 42S	3.07 + 1.92	20.6	55.2	25.0
Raxil MD	5	21.3	53.0	77.0
Mean		21.0	53.5	44.0
CV%		9.5	2.5	65.0
LSD .05		NS	2.0	42.5
SE		0.9947	0.6772	14.31
Rep F Prob		0.003	0.2578	0.7626
Trt F Prob		0.8648	<0.0001	0.0003

¹ Grain values are adjusted to a 12% moisture basis.