

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

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Vincit 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. 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 Vincit Minima+Thiram+Metalaxyl, Vincit F + Metalaxyl, Vincit FS, Vincit Minima + Metalaxyl, Vincit Minima+ Thiram, or Dividend XL RTA. 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. Soft dough root and crown evaluations were made on 17-18 Jul. Root samples taken during the soft dough analysis were submitted to the NDSU Plant Diagnostic Laboratory for tissue analysis and 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, test weight, and protein were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical Software.

Plant counts and vigor observed in both the initial and second counts tended to be greater than the untreated check for most seed treatments. Rainfall was normal for June but below normal for May, July, and August. No significant differences or trends were observed in this trial for color or root mass but subcrown internode ratings were significantly lower for treated seed when compared to the untreated check during the soft dough root and crown evaluations. *Fusarium graminearum* was found on 48% of the root/crown samples submitted for tissue analysis. *Rhizoctonia* spp., *Phyitium* spp., and *Bipolaris sorokiniana* was not detected. No significant differences were detected for mature plant height, head density, grain test weight, yield and protein.

| Treatment | 15 May | | 5 Jun | |
|------------------------------------|-----------------|----------|-----------------|----------|
| | Plant count | Vigor | Plant count | Vigor |
| | m ⁻² | | m ⁻² | |
| Untreated Check | 141 | 5 | 278 | 5.0 |
| Vincit Minima + Thiram + Metalaxyl | 150 | 5 | 277 | 5.8 |
| Vincit F + Metalaxyl | 132 | 5.3 | 291 | 6.0 |
| Vincit FS | 161 | 6.3 | 284 | 6.0 |
| Vincit Minima + Metalaxyl | 155 | 5.3 | 289 | 6.0 |
| Vincit Minima + Thiram | 139 | 5.5 | 284 | 5.3 |
| Dividend XL RTA | 162 | 6.5 | 279 | 5.8 |
| Mean | 149 | 5.5 | 283 | 5.7 |
| CV% | 11.21 | 25.6 | 4.9 | 16.5 |
| LSD.05 | NS | NS | NS | NS |
| SE | 8.3327 | 0.708508 | 6.981044 | 0.469295 |
| Rep F Prob | 0.937 | 0.7898 | 0.5512 | 0.0997 |
| Trt F Prob | 0.125 | 0.6364 | 0.7273 | 0.6318 |

Soft dough evaluation

| Treatment | Root ¹ color | Root ² mass | Subcrown ³ internode rating |
|------------------------------------|----------------------------|---------------------------|--|
| Untreated Check | 2.1 | 1.9 | 2.0 |
| Vincit Minima + Thiram + Metalaxyl | 1.9 | 1.9 | 1.7 |
| Vincit F + Metalaxyl | 1.9 | 1.8 | 1.6 |
| Vincit FS | 1.8 | 1.7 | 1.7 |
| Vincit Minima + Metalaxyl | 1.8 | 1.9 | 1.6 |
| Vincit Minima + Thiram | 2.0 | 1.8 | 1.8 |
| Dividend XL RTA | 2.0 | 1.7 | 1.7 |
| Mean | 1.9 | 1.8 | 1.7 |
| CV% | 7.1 | 6.8 | 8.6 |
| LSD.05 | NS | NS | 0.2 |
| SE | 0.06926 | 0.061189 | 0.0748332 |
| Rep F Prob | 0.0679 | 0.4174 | 0.0026 |
| Trt F Prob | 0.0678 | 0.416 | 0.0386 |

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

² Root mass - 1 = few roots, 4 = many roots

³ 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.

| Treatment | ----- Harvest ----- | | ----- Grain ¹ ----- | | |
|------------------------------------|---------------------|-----------------|--------------------------------|----------|----------|
| | Plant height | Head density | Test weight | Yield | Protein |
| | mm | m ⁻² | lb/bu | bu/acre | % |
| Untreated Check | 556 | 243 | 54.3 | 23.4 | 17.3 |
| Vincit Minima + Thiram + Metalaxyl | 555 | 228 | 54.9 | 20.8 | 17.2 |
| Vincit F + Metalaxyl | 583 | 236 | 54.8 | 22.2 | 16.9 |
| Vincit FS | 568 | 244 | 55.1 | 21.5 | 17.4 |
| Vincit Minima + Methalaxyl | 578 | 236 | 55.3 | 22.2 | 17.3 |
| Vinvit Minima + Thiram | 569 | 226 | 54.9 | 23.5 | 17.3 |
| Dividend XL RTA | 558 | 226 | 54.9 | 21.3 | 17.2 |
| Mean | 566 | 234 | 54.9 | 22.1 | 17.2 |
| CV% | 4.9 | 4.9 | 1.36 | 12.7 | 2.97 |
| LSD.05 | NS | NS | NS | NS | NS |
| SE | 13.9665 | 5.72718 | 0.3722 | 1.408459 | 0.255883 |
| Rep F Prob | 0.5512 | <.0001 | 0.044 | 0.5735 | 0.8609 |
| Trt F Prob | 0.7273 | 0.1486 | 0.7089 | 0.7604 | 0.787 |

¹Grain values adjusted to a 12% moisture basis.