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| Wheat ( <i>Triticum aestivum</i> 'Parshall')<br>Target diseases: <i>Fusarium</i> spp.<br><i>Pythium</i> spp.<br><i>Bipolaris sorokiniana</i> | R.O. Ashley, and G. Martin<br>Dickinson Research Extension Center<br>Dickinson, ND 58601 |
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### Bayer CropScience seed treatment performance trial near Taylor, ND, 2007.

This experiment was conducted in a field located near Taylor, ND (NW ¼, Section 1, T138N, R95W – Stark County, ND). The previous crop was wheat in 2006. Urea at the rate of 150 lbs/acre was broadcast applied on 16 Apr. Prior to seeding, seed was treated with Raxil MD, Charter PB, Raxil MD-W or an experimental compound. Untreated seed was used as a check. Plots were seeded with a drill equipped with Cross-slot openers on 2 May 2007 at the rate of 150 pls m<sup>-2</sup>. 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 16 May and 5 Jun. Initial plant evaluations were made on 15 - 19 Jun and soft dough plant evaluations were made on 27-28 Jul. *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 21 Aug. Grain yield, test weight, and protein were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical Software.

Plant density and early season vigor tended to improve with seed treatments but not significantly. Observations made during the initial plant evaluation tiller and crown root counts tended to show an increase and during the evaluations made during the soft dough stage root color, root mass, and the subcrown internode rating tended to improve with seed treatments but not significantly. Yield was significantly improved with two of four seed treatments in this trial compared to the Check.

| Treatment  | Application Rate |        | Plant height<br>mm | Head density<br>no m-2 | Yield<br>bu/a | Test weight<br>lb/bu | Protein<br>% |
|------------|------------------|--------|--------------------|------------------------|---------------|----------------------|--------------|
|            | gA/100Kg         | oz/cwt |                    |                        |               |                      |              |
| Check      | -                | -      | 707.5              | 123.8                  | 18.9          | 56.1                 | 16.6         |
| Raxil MD   | 3.65             | 5      | 715.0              | 119.0                  | 20.9          | 56.4                 | 16.6         |
| EXP 10     | NA               | 5      | 693.8              | 113.3                  | 23.6          | 56.4                 | 16.8         |
| Charter PB | 55               | 5.5    | 716.9              | 122.8                  | 25.7          | 56.4                 | 16.6         |
| Raxil MD-W | 3.65             | 5      | 730.0              | 118.8                  | 21.1          | 56.4                 | 16.7         |
| Mean       |                  |        | 712.6              | 119.5                  | 22.1          | 56.3                 | 16.7         |
| CV         |                  |        | 5.3                | 8.4                    | 7.1           | 0.6                  | 1.5          |
| LSD .05    |                  |        | 58.1               | 15.5                   | 2.4           | 0.5                  | 0.37         |
| SE         |                  |        | 18.85              | 5.04                   | 0.78          | 0.16                 | 0.12         |
| Trt F Prob |                  |        | 0.7377             | 0.6231                 | 0.0004        | 0.6373               | 0.852        |
| Rep F Prob |                  |        | 0.8537             | 0.1944                 | 0.6356        | 0.179                | 0.5932       |

| Treatment  | Application Rate |        | ----- Initial plant evaluation ----- |           |                        |                           |                        |                        |
|------------|------------------|--------|--------------------------------------|-----------|------------------------|---------------------------|------------------------|------------------------|
|            |                  |        | Plant length                         | Plant Dev | Tillers                | Subcrown internode rating | Seminal roots          | Crown roots            |
|            | gA/100Kg         | oz/cwt | mm                                   | Haun      | no plant <sup>-1</sup> |                           | no plant <sup>-1</sup> | no plant <sup>-1</sup> |
| Check      | -                | -      | 345.5                                | 6.1       | 1.9                    | 1.1                       | 4.6                    | 8.2                    |
| Raxil MD   | 3.65             | 5      | 333.5                                | 5.9       | 2.0                    | 1.1                       | 4.2                    | 8.3                    |
| EXP 10     | NA               | 5      | 351.0                                | 5.9       | 1.7                    | 1.0                       | 4.2                    | 8.3                    |
| Charter PB | 55               | 5.5    | 341.3                                | 6.2       | 2.1                    | 1.1                       | 4.1                    | 8.8                    |
| Raxil MD-W | 3.65             | 5      | 334.2                                | 6.9       | 2.4                    | 1.0                       | 4.4                    | 9.6                    |
| Mean       |                  |        | 341.1                                | 6.2       | 2.0                    | 1.0                       | 4.3                    | 8.6                    |
| CV         |                  |        | 6.7                                  | 11.3      | 18.3                   | 8.1                       | 5.1                    | 9.2                    |
| LSD .05    |                  |        | 35.4                                 | 1.1       | 0.6                    | 0.1                       | 0.3                    | 1.2                    |
| SE         |                  |        | 11.5                                 | 0.3       | 0.2                    | 0.04                      | 0.1                    | 0.4                    |
| Trt F Prob |                  |        | 0.7895                               | 0.2813    | 0.1706                 | 0.5414                    | 0.0814                 | 0.1415                 |
| Rep F Prob |                  |        | 0.0153                               | 0.3134    | 0.2141                 | 0.4512                    | <.0001                 | 0.5111                 |

<sup>1</sup> Subcrown internode rating - 1 = < 25% lesions, 2 = 25 to 50% lesions, 3 = 50 to 75% lesions, 4 = >75% lesions.

| Treatment  | Application Rate |        | ---Soft dough root evaluation--- |                        |  |
|------------|------------------|--------|----------------------------------|------------------------|--|
|            |                  |        | Color <sup>1</sup>               | Root mass <sup>2</sup> | Subcrown internode rating <sup>3</sup> |
|            | gA/100Kg         | oz/cwt |                                  |                        |  |
| Check      | -                | -      | 2.1                              | 2.3                    | 1.5                                    |
| Raxil MD   | 3.65             | 5      | 1.8                              | 2.5                    | 1.1                                    |
| EXP 10     | NA               | 5      | 1.8                              | 2.5                    | 1.1                                    |
| Charter PB | 55               | 5.5    | 1.7                              | 2.5                    | 1.3                                    |
| Raxil MD-W | 3.65             | 5      | 2.0                              | 2.4                    | 1.2                                    |
| Mean       |                  |        | 1.9                              | 2.4                    | 1.2                                    |
| CV         |                  |        | 18.1                             | 10.7                   | 17.3                                   |
| LSD .05    |                  |        | 0.5                              | 0.4                    | 0.3                                    |
| SE         |                  |        | 0.2                              | 0.1                    | 0.1                                    |
| Trt F Prob |                  |        | 0.5612                           | 0.5469                 | 0.11                                   |
| Rep F Prob |                  |        | 0.0326                           | <.0001                 | 0.0545                                 |

<sup>1</sup> Color - Root color, 1 = white, 4 = dark

<sup>2</sup> Root mass - 1 = few roots, 4 = many roots

<sup>3</sup> Subcrown internode rating - 1 = < 25% lesions, 2 = 25 to 50% lesions, 3 = 50 to 75% lesions, 4 = >75% lesions.

| Treatment  | Application Rate |        | Initial count                       |        | Second count                        |        |
|------------|------------------|--------|-------------------------------------|--------|-------------------------------------|--------|
|            | gA/100Kg         | oz/cwt | Plant density<br>no m <sup>-2</sup> | Vigor  | Plant density<br>no m <sup>-2</sup> | Vigor  |
| Untreated  | -                | -      | 94.7                                | 4.5    | 104.5                               | 4.5    |
| Raxil MD   | 3.65             | 5      | 109.6                               | 6.5    | 113.7                               | 6.8    |
| EXP 10     | NA               | 5      | 117.0                               | 6.5    | 121.3                               | 7.3    |
| Charter PB | 55               | 5.5    | 116.8                               | 7.0    | 116.5                               | 8.3    |
| Raxil MD-W | 3.65             | 5      | 107.4                               | 7.5    | 108.5                               | 8.5    |
| Mean       |                  |        | 109.1                               | 6.4    | 112.9                               | 7.1    |
| CV         |                  |        | 9.6                                 | 15.6   | 9.8                                 | 18.7   |
| LSD .05    |                  |        | 16.2                                | 1.5    | 17.0                                | 2.0    |
| SE         |                  |        | 5.3                                 | 0.5    | 5.5                                 | 0.7    |
| Trt F Prob |                  |        | 0.0614                              | 0.0115 | 0.2844                              | 0.0076 |
| Rep F Prob |                  |        | 0.0413                              | 0.0563 | 0.1159                              | 0.4165 |