

WHEAT (*Triticum aestivum* L. 'Parshall')
Tan spot; *Pyrenophora tritici-repentis*
Septoria; *Septoria* spp.
Leaf rust: *Puccinia recondita*
Fusarium head blight; *Fusarium graminearum*

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Evaluation of Gem, Prosaro and Stratego foliar fungicide treatments for control of leaf diseases & FHB in spring wheat at the Dickinson Research Extension Center, Dickinson, ND 2008.

The experiment was conducted at the Dickinson Research Extension Center (NW ¼, Section 5, T139N, R96W – Stark County, ND) with a previous cropping history of spring wheat in 2007. A randomized complete block design with four replications was used. Plots were 10 ft wide by 24 ft long. Plots were seeded with a no-till drill 23 Apr 2008 at the rate of 1.25 million PLS/acre. A pre-emergence application of Roundup Original Max + Actamaster was made at the rate of 0.75 pt/acre was made on 29 Apr. A post emergent herbicide application of 0.5 oz/acre Harmony GTXP + 0.66 pt/acre Puma + 0.75 pt/acre MCP ester on 29 May, 2008. Fungicide applications at 5 leaf stage were made on 05 Jun, applications at flag leaf stage were made on 23 Jun and applications at heading were done on 7 Jul. All treatments were applied in 19.1 gal/A water at 30 psi using a CO₂ pressurized hand-held spray boom equipped with 8002VS flat fan nozzles. Tan spot disease evaluations were conducted on 12 Jun, leaf spot disease evaluations were done on 30 Jun and leaf rust evaluations were conducted on 17 Jul. Fusarium head blight (FHB) evaluations were done on 21 Jul. Evaluations consisted of observations made on ten consecutive plants in the center row of each plot. Incidence was recorded as the percent of plants with at least one lesion observed, and severity was recorded as the average leaf area covered by lesions for all leaves for the early season evaluation, only the top three leaves for the mid-season evaluation, and the flag leaf for the late season evaluation. Crop injury observations were made at the same time as the disease evaluations. No crop injury from the fungicide applications was observed. No visual symptoms of FHB were detected. Grain samples from the control plots were sent to NDSU for DON analysis and no DON was detected in these samples. No further testing for DON in grain samples produced from fungicide treatments was done. Precipitation at the North Dakota Agricultural Weather Network Dickinson, ND weather station in Apr, May, Jun, and Jul was 0.23 1.7, 2.04 and 1.7 inches respectively or less than 60% of normal. Moist conditions near the end of May and the beginning of Jun promoted tan spot but dry, hot weather conditions at the end of Jun and throughout Jul were not conducive for any of the leaf diseases or FHB development. Disease ratings reflect moisture conditions at the time the crop was susceptible to infection. Harvest was with a Massy Ferguson 8XP combine on 1 Aug. Grain yield, test weight, and protein were adjusted to a 12% moisture basis. All data was statistically analyzed using SAS Statistical software v 9.1 Proc ANOVA.

| Treatment | Rate fl oz/acre | 12 Jun evaluation | | | 30 Jun evaluation | | | 17 Jul evaluation | | | 21 Jul |
|---|---------------------|----------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------|
| | | CI ¹ % | I ² % | S ³ % | CI ¹ % | I ² % | S ³ % | CI ¹ % | I ² % | S ³ % | FHB % |
| Untreated | - | 0 | 35 | 3.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stratego @ 4 - 5 leaf | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Gem 500 SC @ 4 - 5 leaf | 2 | 0 | 7.5 | 0.5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stratego @ flag leaf | 8 | 0 | 30 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prosaro 421SC + NIS @ flag | 6.5 + 0.125% | 0 | 35 | 2.75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Prosaro 421SC + NIS @ heading | 6.5 + 0.125% | 0 | 35 | 2.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Stratego FGS2 + Prosaro 421SC + NIS @ heading | 4 + 6.5 + 0.125% | 0 | 2.5 | 0.25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mean | | 0 | 20.7 | 1.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CV% | | - | 28 | 35.2 | - | - | - | - | - | - | - |
| LSD .05 | | - | 8.6 | 0.9 | - | - | - | - | - | - | - |
| SE | | - | 2.9039 | 0.3021 | - | - | - | - | - | - | - |
| Rep F Prob | | - | 0.7384 | 0.3036 | - | - | - | - | - | - | - |
| Trt F Prob | | - | 0.0001 | 0.0001 | - | - | - | - | - | - | - |

¹ CI = crop injury

² I = Disease incidence

³ S = Disease severity

| Treatment | Rate fl oz/acre | ----- Grain ¹ ----- | |
|---|---------------------|--------------------------------|---------------|
| | | Test weight lb/bu | Yield bu/a |
| Untreated | - | 56.6 | 10.8 |
| Stratego @ 4 - 5 leaf | 4 | 56.9 | 9.7 |
| Gem 500 SC @ 4 - 5 leaf | 2 | 56.6 | 10.3 |
| Stratego @ flag leaf | 8 | 56.0 | 9.1 |
| Prosaro 421SC + NIS @ flag | 6.5 + 0.125% | 56.6 | 10.7 |
| Prosaro 421SC + NIS @ heading | 6.5 + 0.125% | 57.8 | 11.7 |
| Stratego FGS2 + Prosaro 421SC + NIS @ heading | 4 + 6.5 + 0.125% | 56.8 | 9.4 |
| Mean | | 56.8 | 10.2 |
| CV% | | 1.7 | 16.7 |
| LSD .05 | | NS | NS |
| SE | | 0.49099 | 0.85505 |
| Rep F Prob | | 0.4960 | 0.0043 |
| Trt F Prob | | 0.3879 | 0.3946 |

¹Grain values adjusted to a 12% moisture basis.