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**Highlights:**

- Results are from only one location and year.
- Study was carried out with artificial inoculation of *Sclerotinia sclerotiorum* by spreading sclerotia before planting and spraying ascospores at 40% bloom to promote disease.
- Supplemental moisture as overhead irrigation was also provided.
- Disease assessment was not carried out due to the lack of white mold development.
- Numerically all treatments resulted in increased yield by 171.2 - 526.86 lb/A, however, none of them were statistically different than untreated. Serenade+Proline resulted in the highest yield (2964.21 lb/A).
- No statistical difference was observed for test weight among treatments and untreated.

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**OBJECTIVE**

Objective of this study was to evaluate efficacy of fungicides to control Sclerotinia stem rot caused by *Sclerotinia sclerotiorum* in Canola.

**METHODS**

**Location:** NDSU Langdon Research Extension Center, Langdon, North Dakota.

**Experimental Design:** Randomized complete block with four replications.

**Previous crop:** Hard red spring wheat.

**Cultivars:** DLK 30-42

**Planting:** 14 live seed per square feet was planted on May 15, 2013. A border plot was planted between treated plots to minimize interference from spray drift.

**Plot size:** Seven rows at six inch spacing. 5 x 20 sq. ft., mowed back to 5 x15 sq. ft.

**Inoculation:** Plots were inoculated by spreading sclerotia, collected from 2012 sunflower, before planting at the rate of 185 g /plot and harrowed. In addition to sclerotia, inoculation was done at 30-40% bloom by spraying *Sclerotia sclerotinia* ascospores (5000 spores ml<sup>-1</sup>) with a CO<sub>2</sub>-pressurized backpack sprayer operated at 40 psi and delivering 20 GPA. Second application of ascospore inoculation was done two days after first application. Supplemental moisture was provided by running overhead irrigation from the day of ascospore inoculation until 50% of pod reached final size (growth stage 75) at the rate of 1 hour per day to create conducive environment for white mold development.

**Fungicide treatments:** Fungicide treatments, their chemistry and application rates and time are listed in Table 1. Fungicides were applied, with CO<sub>2</sub>-pressurized backpack sprayer with three nozzle boom (XR8002), at the water volume of 20 GPA. Fungicide applications were made at 40% bloom on June 05 (wind southerly, speed three MPH, temperature 77 ° F at 10:00 AM).

**Disease Assessment:** Disease assessment was not carried out due to the lack of white mold development.

**Swath and Harvest:** Plots were swathed using research plot swather on August 20 (97 days after planting). Swathed plots were harvested August 30 with a small plot combine and the yield and test weight determined.

**Data Analysis:** Data were analyzed using the general linear model (GLM) in SAS. Fisher's least significant difference (LSD) were used to compare means at P≤0.05.

**RESULTS**

Results are presented in Table 1.

**Yield:** None of the treatments resulted in statistically higher yield compared to untreated. However, numerically Serenade (2 qt/A)+Proline (4.3 oz/A) resulted in 526.86 lb/A more yield than untreated.

**Test Weight:** None of the fungicide resulted in significantly higher or lower test weight than untreated.

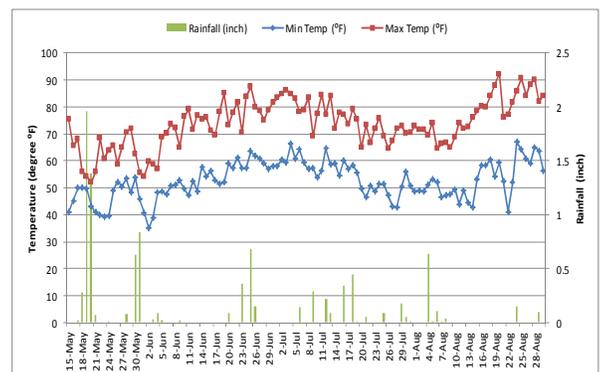
**ACKNOWLEDGEMENTS**

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**Table 1. Mean comparison of treatments for yield (lb/A), and test weight (lb/bu).**

TRT#	Treatments <sup>1</sup>	Chemistry (FRAC group)	Rate	Yield (lb/A)	Test Weight (lb/bu)
1	Untreated			2437.35 a <sup>u</sup>	50.63 a <sup>u</sup>
2	Proline 480SC	Prothioconazole (11)	4.3 oz/A	2689.91 a	51.29 a
3	Serenade ASO <sup>v</sup>	<i>Bacillus subtilis</i> strain QST 2808 (44)	1 qt/A	2622.42 a	50.88 a
4	Serenade ASO	<i>Bacillus subtilis</i> strain QST 2808 (44)	2 qt/A	2784.75 a	50.48 a
5	Serenade ASO Proline 480SC	<i>Bacillus subtilis</i> strain QST 2808 Prothioconazole (11)	2 qt/A 4.3 oz/A	2964.21 a	51.02 a
6	Serenade ASO Proline 480SC	<i>Bacillus subtilis</i> strain QST 2808 Prothioconazole (11)	1 qt/A 4.3 oz/A	2761.43 a	50.98 a
7	Endura	Boscalid (7)	6 oz/A	2608.55 a	50.77 a
8	Quash	Metconazole (3)	2.5 oz/A	2622.76 a	50.77 a
% CV				13.30	0.79
Mean				2686.42	50.88
Max				2964.21	51.29
Min				2437.35	50.48

<sup>1</sup> Proline 480 SC, Endura and Quash were applied with non-ionic surfactant at the rate of 0.125% v/v.  
<sup>u</sup> Treatments were applied at 40% bloom.  
<sup>v</sup> Means with same letter within individual variable (within column) are not significantly different at P≤0.05  
<sup>v</sup> Serenade is a biofungicide/bactericide



**Daily minimum and maximum temperature, and rainfall recorded in Langdon, ND during planting to harvest of canola in this study.**