Evaluation of Canola Cultivars for Resistance to Sclerotinia

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Abstract
The objective of this project was to identify canola (Brassica napus L.) cultivars which are less susceptible to Sclerotinia. In 2005 and 2006, field trials were conducted at the North Dakota State University Carrington Research Extension Center and an on-farm site near Red Lake Falls, Minnesota. Twenty-six canola cultivars, representing current production varieties and private breeding lines, were evaluated in a randomized complete block design with four replications. Plot size was approximately seven 7-inch rows x 25 feet. At flowering, plots were inoculated with ascospores (foliar spray) and misted until physiological maturity to provide a favorable environment for disease development. Disease incidence and severity were evaluated, as well as plant height and lodging at maturity and grain yield, test weight, and oil concentration at harvest. Data were analyzed by standard statistical procedures and means were compared by F-protected LSD.

Introduction
Sclerotinia sclerotiorum (Lib.) de Bary (white mold) is a fungal disease which frequently results in a significant reduction in the yield and quality of canola (Brassica napus L.). Sclerotinia was the most common and most serious disease of canola in North Dakota and Minnesota each year from 1993 to 2001 (Lamey 1998; Lamey et al. 2001), but resistant cultivars are not yet available.

Objectives
- Identify canola cultivars with lower susceptibility to Sclerotinia for use in current production and plant breeding programs,
- Develop a test methodology for screening cultivars for resistance to Sclerotinia,
- Disseminate results to the scientific and agricultural communities.

Materials and Methods

Planting Date: 23 May 2005
Plot Size: Seven (7) rows x 25 ft, 4 replicates
Borders: Apetalous and fungicide plots were surrounded by borders to avoid contamination of adjacent plots.
Fungicide: Endura (0-9 g product / pt) applied 8 July
Inoculation: 5.5 million ascospores / plot on 11 July
Missing: 2 – 4 minutes every half hour from 11 July to 13 August
Evaluation: 18 August (50 plants / plot, divided into 4 distinct areas)

Results and Discussion

Red Lake Falls, Minnesota. Disease pressure at Red Lake Falls was very low (data not shown). This problem has been observed in previous canola Sclerotinia trials and has been attributed to very hot weather conditions (> 85º F.) after inoculation (Lamey et al. 2002). Disease pressure at Red Lake Falls was very low (data not shown). This problem has been observed in previous canola Sclerotinia trials and has been attributed to very hot weather conditions (> 85º F.) after inoculation (Lamey et al. 2002).

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Literature Cited
