Fungicides and Application Timings for White Mold Disease Management in Field Pea, 2003.

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Introduction

Field peas (Figure 1)are one of the most rapidly expanding planted acreages in North Dakota. Planted acreage exceeded 156,000 in 2003. Field peas are moderate in susceptibility to the disease white mold caused by the pathogen *Sclerotinia sclerotiorum* (Lib) de Bary. However, field peas fit very well in rotations that include other crops susceptible to white mold like canola and sunflower. Potential problems and yield loss to white mold are inevitable (Figure 2). Fungicide and application timing evaluation will provide data helpful for exercising management strategies to control white mold.

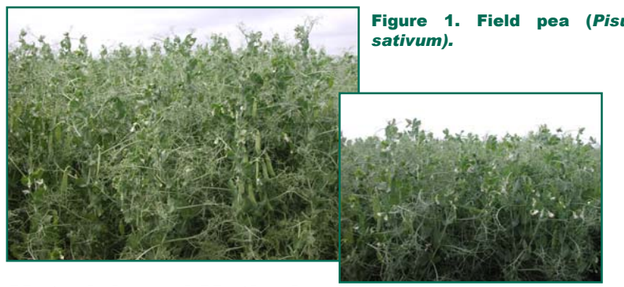


Figure 1. Field pea (*Pisum sativum*).

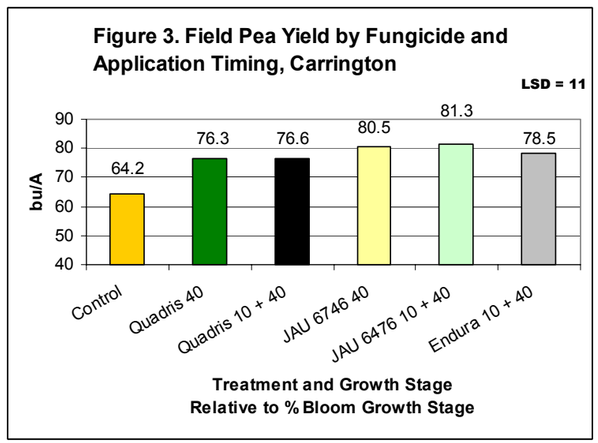
Materials and Methods

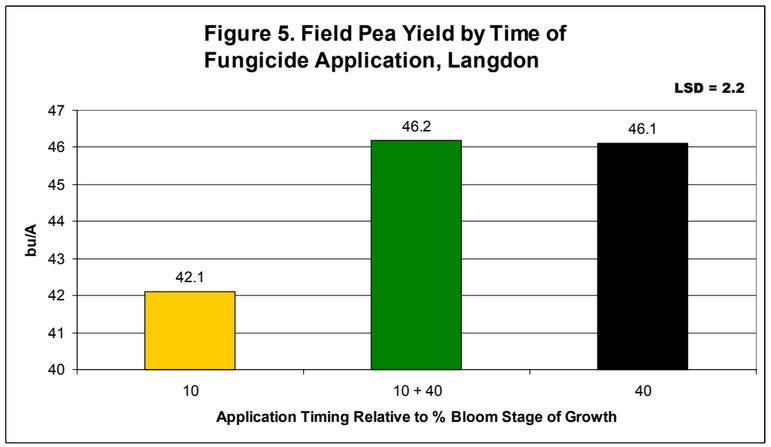
Research studies were conducted at North Dakota State University Carrington and Langdon Research Extension Centers in 2003. Sites were selected with previous history of white mold disease. Cropping history from 2002 was canola at both sites. Trial design was a randomized complete block with four replicates. Fungicides were applied by CO_2 backpack sprayer with vertically oriented nozzles at 18 GPA. Cultivars were 'Integra' at Carrington and 'SW Salute' at Langdon. Fungicides and rates included **Blocker**- pentachloronitrobenzene (48 fl oz/A), **Endura**-boscalid (5.8 oz/A), Bayer experimental **JAU 6476**-prothioconazole (5.7 fl oz/A), **Quadris**-azoxystrobin (9.6 fl oz/A), **Ronilan**-vinclozolin (12 oz/A), and **Topsin M**-thiophanate methyl (1 lb/A). Application timings as related to bloom stage of growth were 10%, 10 + 40%, 100%, and untreated. All fungicides and timings were not present at both locations. Visual disease assessment, 1000 seed wt, yield, and test weight were recorded. Data were analyzed by analysis of variance. Least significant differences (LSD) were used to compare means at the 5% probability level.

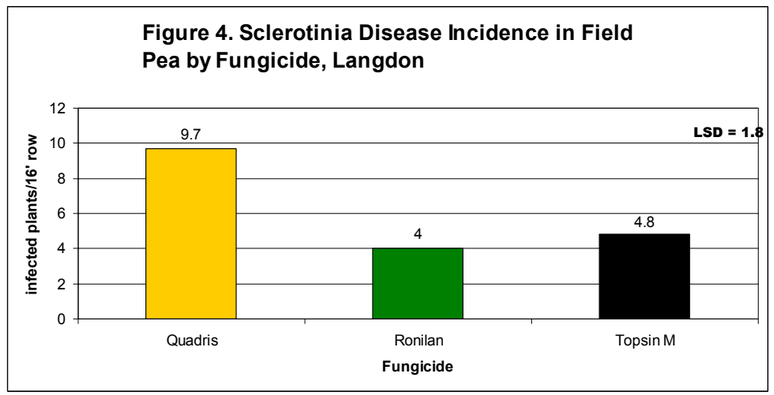
Figure 2. Sclerotinia damaged field peas.

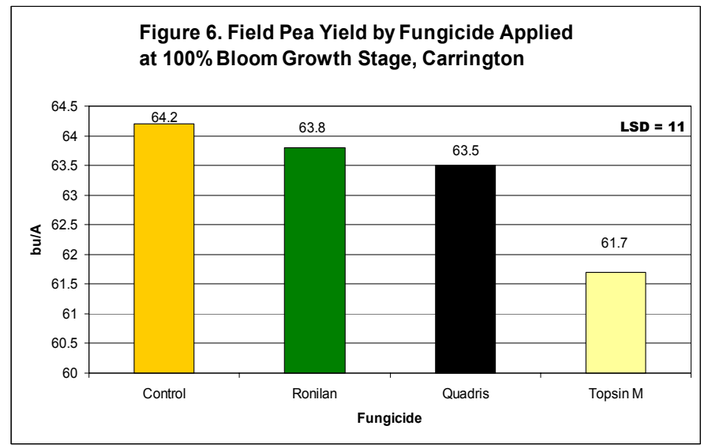
Discussion

Differences in fungicide efficacies were measured at both locations. Quadris, JAU 6476, and Endura increased yield at Carrington over the control (Figure 3). Ronilan and Topsin M increased yields and reduced sclerotinia incidence (Figure 4) over Quadris at Langdon. All application timings that included a 40% bloom growth stage timing increased yield at Langdon (Figure 5). Quadris and JAU 6476 at 10 + 40% or 40% bloom and Endura at 10 + 40% bloom growth stages increased yield at Carrington (Figure 1). All fungicide applications at 100% bloom growth stage were not different from the control at Carrington (Figure 6). Increases in seed weight and test weight were also measured. Further research is warranted to clarify the range of application timings and to further qualify application rates of fungicides for potential labeling for application to field pea.









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