# Efficacy of Scholar (fludioxonil) for control of Sclerotinia rot of carrot during cold storage

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## INTRODUCTION

*Sclerotinia sclerotiorum* (Lib.) de Bary causes of one of the most important storage disease of carrots, Sclerotinia rot of carrot, also called cottony soft rot (Fig. 1a). There are no fungicides registered for control of this disease in Canada. An emergency registration of the fungicide Scholar (fludoixonil) was approved in 2009 for post harvest application to washed carrots to prevent rot in storage. Many of the carrots grown in Ontario are placed in cold storage for sale during the winter, but most are stored unwashed in wooden pallet boxes. Application of fungicide to washed carrots can be in a dip tank or as a spray on carrots on a conveyor belt. This trial was conducted to determine the efficacy of Scholar for control of Sclerotinia rot of carrot during cold storage.

## OBJECTIVES

**To determine the efficacy of Scholar for the control of Sclerotinia rot of carrot during cold storage.**

**To compare dip and drench methods of applying Scholar to carrots**

## MATERIALS AND METHODS

➢Carrots, cv. Envy were grown at the Muck Crops Research Station, using standard practices, and were washed and graded at a commercial facility on 10 Nov., 2008.

➢Each experimental unit consisted of 30 non-inoculated, treated carrots, in a plastic bag with a single Sclerotinia- infected carrot (Fig. 1 b) in the middle.

➢Dip treatments(Fig. 1c): Scholar ( fluidioxinil 50%) at 65.6, 131.2 and 250.6 mL product, Mertect (thiamethoxam 50%) at 108.4 mL and Scholar + Mertect at 131.2 mL + 108 mL, respectively, per100 L of water, and

➢Scholar at 131.2 mL/100 L of water applied as a drench on a single layer of carrots using a backpack sprayer.

➢Untreated non-inoculated and inoculated checks were also included.

➢ Bags (Fig. 1 d) were placed in a cold storage ( ~ 1 ºC, 95 % rh) and four bags per treatment were assessed each month for 6 months (December to May). Incidence and severity was recorded. Severity was assessed on a 0 – 6 scale where 0 = no rot, 1 = 1 - 5% rot, 2 = 6 – 10% rot, 3 = 11 – 25% rot, 4 = 26 – 50% rot, 5 = 51 – 75% rot and 6 = 76 - 100% rot.

Analysis of variance was conducted using the Linear Models section of Statistix V.7 (Analytical Software, Talahassee, FL)

Fig. 1 a. Sclerotinia on carrots in storage

Fig. 1b. Inoculated carrots

Fig. 1 c. Dip treatment with Scholar

Fig. 1 d. Carrots in bags ready for cold storage

## RESULTS

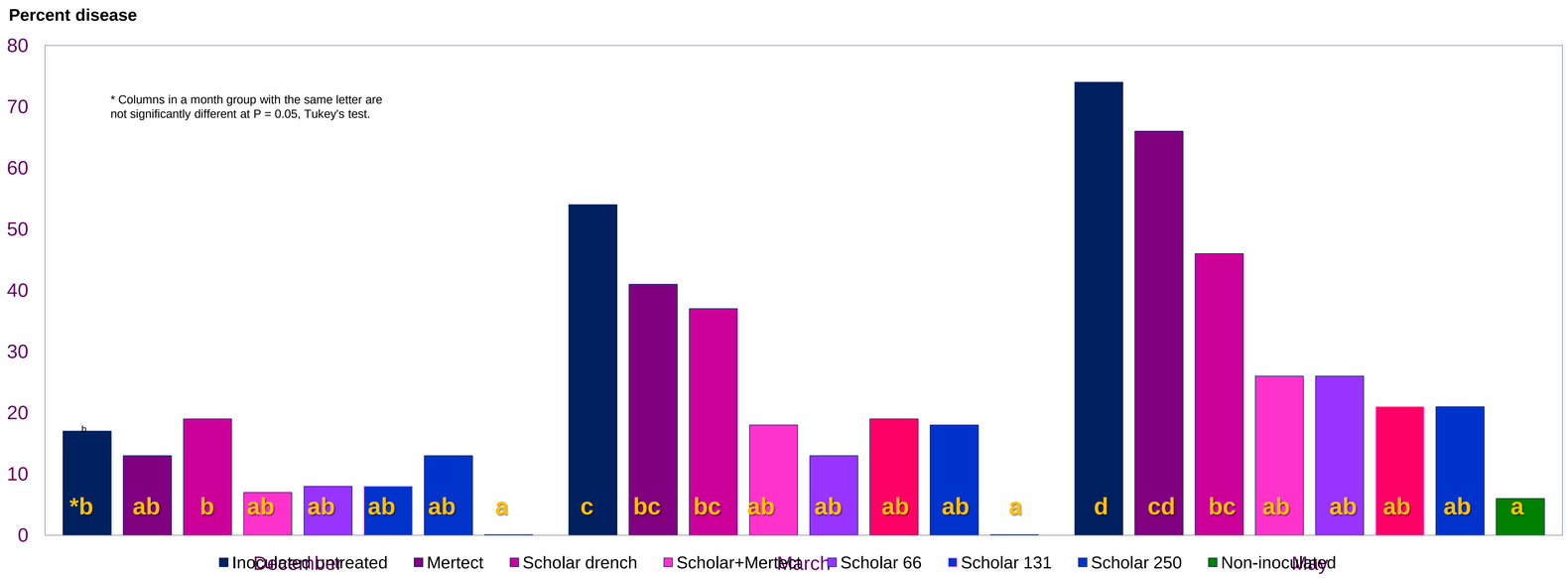


**Fig.2**. Disease incidence (5) of Sclerotinia rot of carrot assessed on different months. Carrots were placed into storage in November, 2008

Disease increased during the 6 months of the trial, to a maximum of 74 % on the inoculated check in May (Fig. 2). Significant differences in disease incidence and severity were found in the March to May assessments. There were no significant differences among the efficacy of the Scholar dip applied at the three rates.

## CONCLUSIONS

**➢All rates of Scholar applied as a dip effectively reduced disease incidnece and disease severity in the final three months of the trial.**

**➢ Scholar applied as a drench was less effective, but reduced disease in the final two months of the trial.**

**➢ Mertect was not effective in reducing Sclerotinia rot in storage.**

**➢There was no advantage to combining Scholar and Mertect.**

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