

# ADOPT

## Agricultural Demonstration of Practices and Technologies

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ADOPT Project #20110371

### Effect of Fungicide choice and varietal selection on the development of sclerotinia in canola

Contact Person: Curtis Braaten, Conservation Learning Centre  
Phone: 960-1834  
Email: [curtis@conservationlearningcentre.com](mailto:curtis@conservationlearningcentre.com)

#### **Objectives:**

Sclerotinia stem rot has been one of the most significant diseases affecting canola in Saskatchewan over the past 25 years. An important factor for disease development is environmental conditions. Fungicide application is important for controlling and reducing the spread of the disease which should result in increased yields.

#### **Rationale:**

Local producers are interested in this project as canola is a crop of economic importance in the Prince Albert region and sclerotinia is a disease of concern in the area, especially in wet years. Producers are interested in gaining more information regarding sclerotinia control and in particular they are interested in seeing if varietal choice and fungicide application can contribute to healthier canola crops with decreased disease and increased yields.

#### **Materials and Methods:**

The demonstration project at the CLC was based on treating 4 varieties of canola with three fungicide treatments for sclerotinia control. Varieties included Invigor L130 and Pioneer Hybrid 45S54, both with resistance; 45H31, along with Invigor L120, both being more susceptible. Fungicide treatments included no fungicide check, Proline and Lance, both applied according to label recommendations for sclerotinia control on canola. The design of the trial was a three replicate RCBD.

On May 12<sup>th</sup> one litre of glyphosate was applied for pre-seeding weed control. The Trial was located on summer fallow that was harrowed before seeding. We harrowed the summer fallow plot on May 14<sup>th</sup>. Prior to seeding we banded 140 N,



10 P, 20K and 10S to the entire plot area. Seeding was done on the 25<sup>th</sup> of May, with 40lbs of 11-51- 00 placed with the seed. Soil conditions were optimal at the time of seeding with warm soil and excellent moisture.

Optimal soil conditions allowed the crop to emerge in 5 days and produce an extremely vigorous canopy. A highly competitive crop with few weeds made herbicide application unnecessary.

On July 6<sup>th</sup> Lance was applied at 142 grams/acre and Proline at 135 grams/acre to each variety at between the 20 to 50 per cent flower stages.

As with all canola crops in our region, heavy winds (113 kph) reduced yields due to pods being broken off. Varieties that stood up well were the ones that had the biggest reduction of yield due to the heavy winds. Aster yellows were found in all varieties of canola which also reduced yields. All treatments were straight combined Sept 17<sup>th</sup>.

### **Results:**

Overall disease severity was rated at 3 and differed very little between varieties.

In the absence of fungicides yield ranged from 27.7 to 35.7 bu/ac while with fungicides yield ranged from 33.6 to 51 bu/ac (Table 1). Fungicides consistently increased yield of all varieties, by over 10 bu/ac. There were small differences between Proline and Lance (2 bu/ac) but these differences were not statistically significant. There also were differences in the yield response to fungicide treatments by each variety. However, the Fungicide by variety interaction was not significant indicating the cultivars responded to fungicides in a similar manner.

The cultivar L 130 was significantly lower yielding than 45S54, while L120, 45H31 and 45S54 did not differ from one another.

Table 1. Yield (bu/ac) and Fungicide Response (%) of 4 Varieties of Canola with 3 Fungicide Treatments at the CLC in 2012.

Variety	Fungicide Treatment			Variety Mean	Variety LSD P=0.05
	None	Proline	Lance		
L120	27.7	40.8	42.5	<b>37.0</b>	7.54
L130	28.0	39.2	33.6	<b>33.6</b>	
45S54	35.7	42.3	50.9	<b>42.6</b>	
45H31	28.6	48.3	35.6	<b>40.6</b>	
<b>Mean</b>	<b>30.0</b>	<b>42.6</b>	<b>40.6</b>		
Fungicide LSD P=0.05		6.53			



## **Conclusions**

During 2012, conditions were quite favorable for sclerotinia disease and untreated plots were quite heavily diseased. Fungicides were consistently effective at improving canola yields in this trial. Even the sclerotinia resistant variety 45S54 responded well to fungicides, particularly to Lance. In all cases, yield responses were sufficient to more than offset the cost of the fungicide application. The best combination was the variety 45S54 with Lance fungicide applied, but statistically this combination was not better than other except for the variety L130..

## **Supporting Information**

### **Acknowledgements:**

We would like to express our gratitude to the Ministry of Agriculture for the funding support and in-kind support with this project. To recognize the ADOPT program and the Ministry we had signage at the sites.

Field Days:

- Conservation Learning Centre – Annual Field Day – July 17<sup>th</sup> - 45 people
- Conservation Learning Centre – Combine Clinic – Aug 9<sup>th</sup> – 55 producers
- Report on the project to be posted on our website  
[www.conservationlearningcentre.com](http://www.conservationlearningcentre.com)

## **Abstract**

We treated 4 cultivars of canola (L120, L130, 45s54 &45H31) with either No Fungicide or fungicides Proline or Lance at the 20-50% bloom stage at the CLC in 2012. Weather conditions were near ideal for development of sclerotinia, and untreated plots were consistently very diseased. Both Proline and Lance consistently increased yield of all four cultivars. The sclerotinia resistant variety 45S54 responded well to fungicides, particularly Lance which was the highest yielding treatment at 51 bu/ac. In all cases, fungicide application costs were more than offset by yield increases. Fungicides worked very well in this trial.

