2013 ADOPT Project Report

The Effect of Fungicide Choice and Varietal Selection on Sclerotinia in Canola

Prepared by;

Larry White
A/Manager, Conservation Learning Centre
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1. **Project Title:** The Effect of Fungicide Choice and Varietal Selection on Sclerotinia in Canola

2. **Project Number:**20120403

3. **Producer Group Sponsoring the Project:** Conservation Learning Centre Inc

4. **Project Location:** Conservation Learning Centre, Prince Albert, Sask. Located on the SW 20-46-26 W2, RM 461

5. **Project Start Date and End Date:** May 1, 2013 to February 1, 2013

6. **Project Contact Person and Contact Details:** Larry White, A/Manager Conservation learning Centre, Box 3003, Prince Albert, Sask. S6V 6G1 306 764-7320 or 306 960-1834, info@conservationlearningcentre.com

7. **Project Objectives:** To demonstrate the impact of fungicide and variety selection on the control of sclerotinia in canola.

8. **Project Rationale:** Canola is an important economic crop in the Prince Albert area. Sclerotinia is a canola disease that can greatly reduce canola yields. Producers need the latest information on how to control sclerotinia. Two methods of control are fungicide and resistant varieties. Resistant varieties and fungicides prevent or partially prevent the disease from infecting and developing inside the plant. With sclerotinia neither strategy is fully effective, so growers question whether they need to use both when potential for disease is high. This demonstration will help producers in the area make decisions on the best method to control sclerotinia.

9. **Methodology:** The project was set up using four canola varieties. The varieties Invigor L130 and Pioneer Hybrid 45S54 have some resistance to sclerotinia. The varieties 45H31 and Invigor L120 both are susceptible to sclerotinia.

   Two different foliar fungicides were applied at the 20-50% flower stage of the canola at recommended rates as follows;

   Lance at 142 g/ac
   Proline at 135 g/ac

   The plots were 2.5 m x 7 m and were replicated three times. The severity of the sclerotinia was evaluated based on the provincial canola disease rating scale (a scale of 0-5 based on lesion location and symptoms). Yields were taken on the treatments.

The project was seeded on lentil stubble. A pre-seed burn off of 1.5 L/ac of Advantage Plus was applied on May 17, 2013. The project was planted on May 28, 2013 using Helix Xtra as a seed treatment using a seed rate of 6 lbs/ac. The soil temperature that day was 13C.

The fertilizer deep banded was 130 lbs/ac N. The fertilizer applied with the seed was 13.3 lbs/ac N and 62.9 lbs/ac P. The ground was hard and dry at seeding time.

The germination as of June 1, 2013 was poor due to a dry soil surface. The crop however recovered quite well with the early June rains. The 45S54 and 45R31 treatments were sprayed with Maverick 111 at 1 L/ac on June 24, 2013. The temperature that day was 26C. The L130 and L120 varieties were sprayed with Liberty at 1 L/ac on the same day.

The treatments were sprayed with fungicide on July 19, 2013. The day was 24C and cloudy. The rates used were;

Lance at 142 g/ac
Proline at 135 g/ac

The treatments were in full bloom on July 22, 2013. The disease rating all along was 0. On the 0-5 scale this represented no disease visually present. This continued throughout the growing season as no disease was visually evident.

The treatments were harvested on October 17, 2013. The moisture content of the seed was 9.5% and the green seed less than 1%.

10. **Results:** There was no visual evidence of any sclerotinia present in these treatments. In fact there was no sclerotinia on any of the canola projects at the Conservation Learning Centre in 2013. This would be considered quite unusual. The weather would have been the major reason as the spring was warm and dry. Cool dry conditions early in 2013 likely delayed or prevented germination of sclerotia of the disease in the soil, thereby preventing release of disease causing spores during the vulnerable early flowering stage of canola.

All treatments were sampled and weighed. There was no difference in yields between the Lance and Proline. There were no significant differences in yields between the controls and the treatments where fungicide was applied. The yield calculations for each treatment were not kept. The following table illustrates the average yields (includes controls and treated) attained on the four canola varieties used.

Canola Variety	Yield in Bushels/ac
45S54	41.0
45R31	41.7
L130	44.9
L120	43.2

This trial was featured at the CLC summer field day on July 18, 2013 with 50 in attendance. A summary of results will be posted on the CLC website, and results will be presented at winter meetings as opportunities arise. Results will also be presented at industry workshops alone or in combination with results from other Agri-ARM sites as opportunities arise.

11. **Conclusions and Recommendations:** There were no conclusions to be drawn as there was no visible sign of sclerotinia and no indication in the crop yields that the application of the fungicides made any difference on any of the canola varieties yield in 2013. However it is clear that where potential for sclerotinia infection is low, responses to fungicide should not be expected. However, disease resistance in cultivars does not increase costs like fungicides do. Consequently using resistant cultivars is a useful strategy unless such cultivars are lower yielding than their non-resistant counterparts.

12. **Acknowledgements:** The Conservation Learning Centre would like to acknowledge the funding contribution from the ADOPT Program of the Ministry of Agriculture; the dedication of the CLC staff to complete the project and Stu Brandt of NARF for his assistance with reviewing the project report.

13. **Appendices:** Nil

14. **Abstract/Summary:** Canola is a very important economic crop in the Prince Albert area. One of the major production problems facing producers is how to control the disease sclerotinia. Sclerotinia can greatly reduce the yield of canola. The current options are to use varieties with genetic resistance or use fungicides. There are questions as to how effective either of these options are in any given year. Demonstrations such as this can be very helpful when it comes to producer decisions about their canola management strategy to reduce the damage done by sclerotinia. During 2013 we evaluated two resistant and two non-resistant canola cultivars with and without fungicides to demonstrate the effectiveness of these two strategies in protecting against yield loss due to sclerotinia. In 2013 at the Conservation Learning Centre there was no sclerotinia to be observed on any of the canola crops. This is a very unusual situation and unlikely to be repeated in successive years. However it is clear that where potential for sclerotinia infection is low, responses to fungicide should not be expected. However, disease resistance in cultivars does not increase costs like fungicides do. Consequently using resistant cultivars is a useful strategy unless such cultivars are lower yielding than their non-resistant counterparts.
The project is important enough to area canola producers that it should be repeated for a couple more years.