

Sclerotinia (*Sclerotinia sclerotiorum*) is a pathogen found in all growing regions of Canada that causes stem rot in sunflower, soybean and most notably, canola. The presence of this disease in the field is variable from year to year, but incidence increases with continuous cropping and wet soil conditions. The primary method of control aside from crop rotation has been synthetic foliar fungicide (products such as Proline, Lance, and Astound). These products have been shown to be effective for mitigating the severity of the disease in crop, but lack the ability to control the incidence of the disease fully. As well, foliar fungicides do not possess any residual properties needed to control sclerotinia in the following season. A soil-residual biofungicide, Contans WG™ (*coniothyrium minitans*), has been launched in the market place by UAP. The objective of this project was to identify the most effective application method and timing of Contans WG™ (UAP) biofungicide.



Figure 1. [a] Sunflower stem rot symptoms showing sclerotia that developed in the stalk pith and [b] apothecia which develop on sclerotia on the soil surface.

This demonstration was conducted at the AAFC Scott Research Farm. It was arranged as a complete factorial design (2 x 3) with three replicates, resulting in a total of 18 treatments. The main factor consisted of crop type (canola, sunflower, soybean) and sub-plots consisted of the Contans WG™ application timing (fall or spring), and method of incorporation into the soil (no-till or tillage).

Disease Ratings

Overall, the disease ratings for each treatment were not statically different from one another. Neither the fall nor the spring applications showed any effect on the disease ratings on all three crops compared to the control. The foliar fungicide treatments also did not

provide any statistically different results from that of the Contans treatments or the control.

Yield

Grain yields were significantly affected by crop type ($P < .0001$), but the sclerotinia control effect ($P = 0.6823$) and sclerotinia control by crop interaction ($P = 0.3427$) were not significant.

Conditions that are conducive of heavy sclerotinia infection typically occur when a canola crop is lodged or has an excessively thick canopy. The timing of sclerotinia infection at a given crop stage can also play a role in the severity of the infection. Typically, an earlier onset of the disease at the beginning of flowering will have more detrimental effects on yield than compared to a late infection. Although conditions were ideal in 2014 in producer fields, we did not observe the same degree of infection in any of our three susceptible crops. The plants that we found to be infected with sclerotinia were infected late in the season and did not lodge. Furthermore, the plant densities of soybeans and sunflowers were low and well aerated within the canopy, therefore, the microclimate was not ideal for apothecia growth.

Contans WG™ is more effective when a high degree of sclerotinia bodies are present within the soil and the degree of efficacy declines as the level of infestation lowers. Sclerotinia infestation was minimal during this study, therefore, it was not surprising that the effect of Contans was not significantly different compared to the control. If this product was used in soils with a high degree of infestation, the effect of Contans may be significant. Overall, a lack of disease was likely the causing factor behind the non-significant response, rather than the inability of Contans WG™ to control sclerotinia. Read the full report at:

<http://www.westernappliedresearch.com/research/warc-annual-reports/2015/>

This project was supported by the Agricultural Demonstration of Practices and Technologies (ADOPT) initiative under the Canada-Saskatchewan Growing Forward 2 bi-lateral agreement.