



New tool forecasts Sclerotinia risk

CATEGORY [disease](#) | Nov 21, 2019

The canola growth stage prediction model and sclerotinia stem risk index deployed on www.canoladst.ca are useful tools for managing the disease.

The major objectives of this project were to develop and deploy forecasting tools for canola growth stages, sclerotinia stem rot risk model, and a yield model to forecast local and regional canola production.

Small plot and field-scale trials were conducted from 2014 to 2017. Each small plot trial had three varieties (representing short-, medium- and long-season cultivar groups) with four replications. The field-scale trials had one cultivar with four replicates within a large field.

In all locations, canola growth stages were recorded using time-lapse cameras and also observed manually once a week. On-site, in-canopy and outside-canopy weather conditions were monitored during the entire growing season. In one location in Manitoba, sclerotia depots were deployed and sclerotia germination (apothecia) was counted. Sclerotinia stem rot was recorded two to three times after crop maturity before swathing.

Accumulated growing degree day, physiological days, and crop heat units (CHU) models were compared for 14 selected crop stages from emergence (BBCH 9) to ripe (BBCH 89). Physiological days were selected as the best model for predicting growth stages for short, mid, and long season varieties. This model successfully predicts growth stages in canola, and meets expectations for the most important canola stages of flowering, BBCH 60 and BBCH 65.

Sclerotinia stem rot incidences were widespread ranging from 0 to 55% in the four years of research trials. Based on sclerotinia biology and disease cycle as well as sclerotinia stem rot checklists previously developed by the Canola Council of Canada, a sclerotinia stem rot score card was developed. The score card has both weather and agronomic factors as input variables.

Web-based tool guides fungicide application

Based on the growth stage and sclerotinia stem rot models, a 'web-based' tool was developed by Weather INnovations. It provides a risk assessment as well as an estimated date when the canola will reach 14 different growth stages. These models provide canola growers with decision support to apply or forego fungicide application. This is important for grower profitability, reduced production risk, and environmental sustainability.

The web-based tool can be found at <http://www.canoladst.ca> or at <https://www.decisionfarm.ca>. The websites are free and can be used to deploy site-specific advisory for growth stage prediction and sclerotinia stem rot risk in Manitoba, Saskatchewan and Alberta. Weather data from Weather Farm stations and other networks owned by Weather INnovations as well as Environment Canada stations is integrated with GIS system to provide field-specific information.

A yield model was not produced because of variables outside of Weather INnovations control such as insect damage, severe flea beetle damage, blackleg, root rot lodging, nutrient deficiencies and club root damage.

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