Agriculture and Agri-Food Canada | Agriculture et Agroalimentaire Canada

Monitoring Risk of Sclerotinia Using Space Technologies

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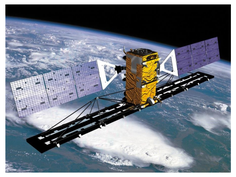
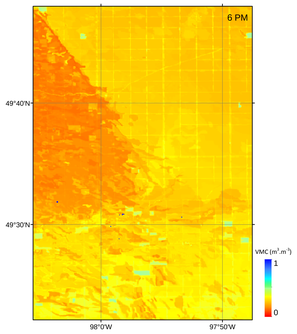
A research project led by Agriculture and Agri-Food Canada is developing an interactive geospatial application which delivers a dashboard of disease risk, with an initial focus on sclerotinia stem rot risk for canola. This application integrates high resolution (100 m) geospatial data of soil moisture persistence, cropping history and soil properties with lower resolution (2.5 km) precipitation and temperature data, and user-driven inputs. Data from Canada's RADARSAT-2 satellite are then used to signal the beginning of canola flowering.

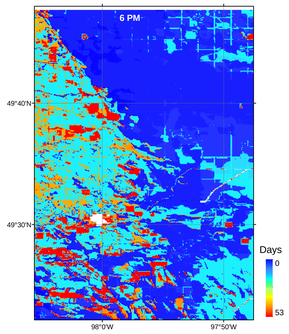
Data products from space technologies (100 m)



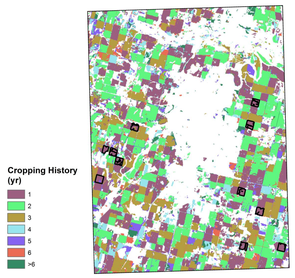
Surface soil moisture



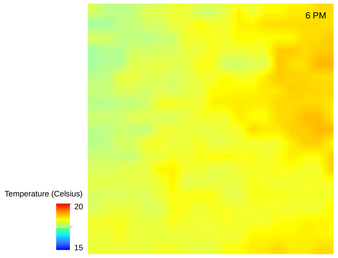
Days soil stays wet

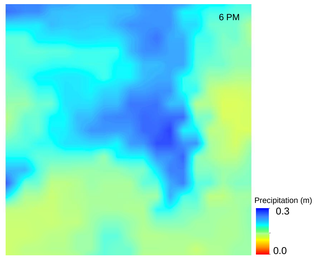


Years since last canola crop



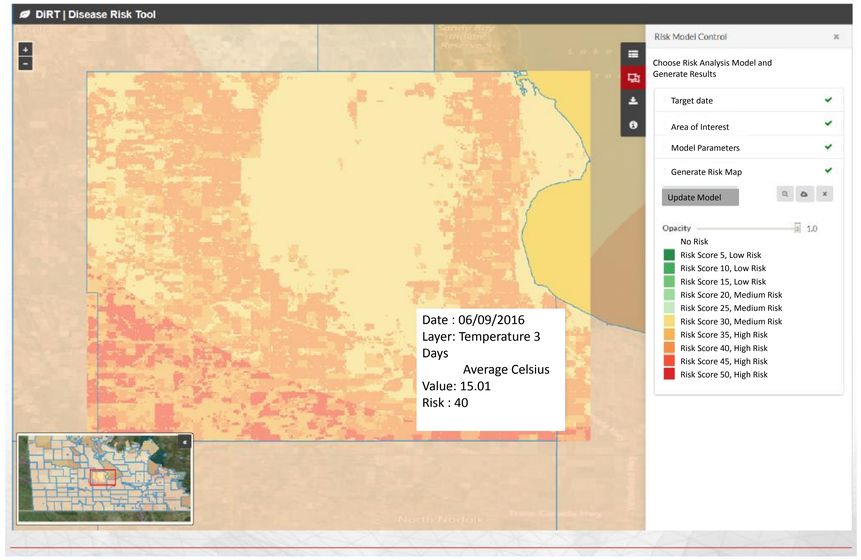
Temperature (left) and precipitation (right) modeled by Environment and Climate Change Canada (2.5 km)





Application integrates geospatial information to support targeting, deployment and diagnostics

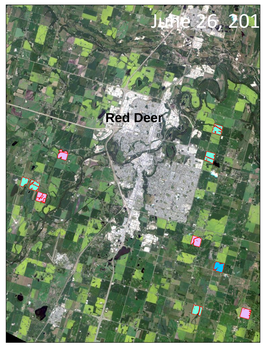
Disease Risk Tool (DiRT)

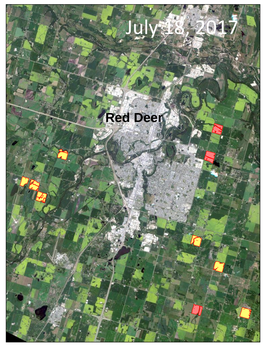


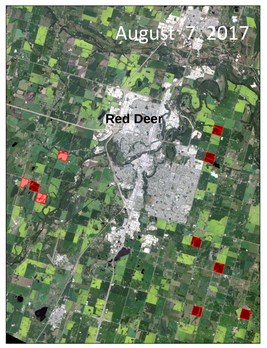
DiRT flags risk of sclerotinia from low (green) to high (red) based on the sclerotinia stem rot checklist (www.canolawatch.org/wp-content/uploads/2011/06/Sclerotinia-check-list1.png). The risk map is provided at 100m resolution.

Crop phenology maps (right) are created from satellites and identify canola fields in bloom.

Crop phenology development stages can be identified and forecasted on a daily time step, using satellite radar imagery. This method establishes when canola is flowering and can be coupled with the Disease Risk Tool which flags fields at high risk due to persistently wet conditions.







Legend
- Leaf development
- Stem elongation
- Inflorescence emergence
- Flowering
- Development of fruit
- Ripening

Airborne Underwater Geophysical Signals