

2014 BEETcast™ Performance and Weather Pattern in Ontario

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Cercospora leaf spot (CLS), caused by the fungus *Cercospora beticola*, is the most destructive foliar disease of sugarbeet in North America. The disease reduces beet yield and sugar content due to reduction in photosynthetic area. CLS is favoured by warm temperatures (day time temperature 25 to 32°C and night time temperature > 16°C) and long durations of free moisture on the foliage due to rain shower, heavy dews, fogs, humidity etc. BEETcast™, a weather-based model used to time fungicide applications has been delivered in Ontario and Michigan for over a decade (www.michiganbeets.com) to help growers manage CLS.



A three-year research project lead by Prof. Cheryl Trueman and graduate student Sherri Tedford, University of Guelph Ridgetown Campus in collaboration with Dr. Rishi Burlakoti, Weather INnovations is currently underway to study *Cercospora beticola* spore activity in sugarbeet fields and their relationship with weather patterns and BEETcast™ thresholds. The project aims to improve the existing CLS advisory system by adding the pathogen component into the decision support tool.



In 2014 the amount and frequency of rainfall has been high, however, average temperature in July and August has been lower than 30-year normal (Fig. 1 and 2), with average daily temperatures commonly less than < 20° C. The daily average disease risk predicted by BEETcast™ (Disease severity value, DSV) was lower in May and June (0.65 and 1.33) compared to average DSV in July and August (1.41 and 1.79). The first spray threshold of BEETcast™ (50 DSV) was reached on June 29th in Ridgetown, which was about 18 days earlier than the first symptom observed in field. The sugarbeets were seeded on May 12 in Ridgetown and the first symptoms were observed on July 16. The number of *C. beticola* spores was relatively low until the first symptom was observed, and increased slightly thereafter.

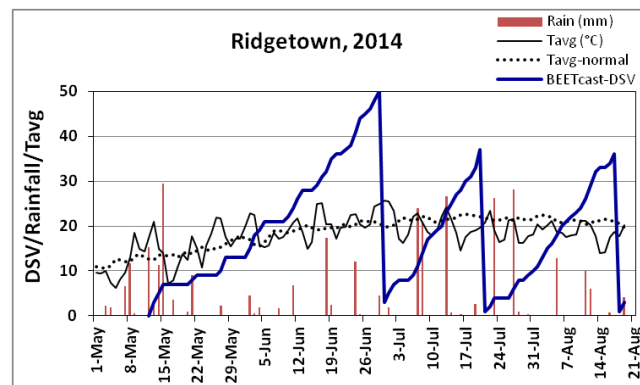


Fig.1 2014 weather pattern and daily disease risk predicted by BEETcast™ in Ridgetown

At the Pain Court site, sugar beets were seeded on April 18. The weather pattern and BEETcast™ DSV accumulation in Pain Court is similar to Ridgetown. The first spray threshold of BEETcast™ (50 DSV) was reached on June 21. The *C. beticola* spore concentration was also lower in Pain Court before July 15th and increased thereafter. Although early season spore counts were similar to those observed last year, current spore concentration is lower than levels recorded at this time last season. Interestingly, as of August 27 CLS has not been observed at this site. Spore counting is still underway and a complete analysis of spore activity, weather data, and disease severity will be completed this winter.

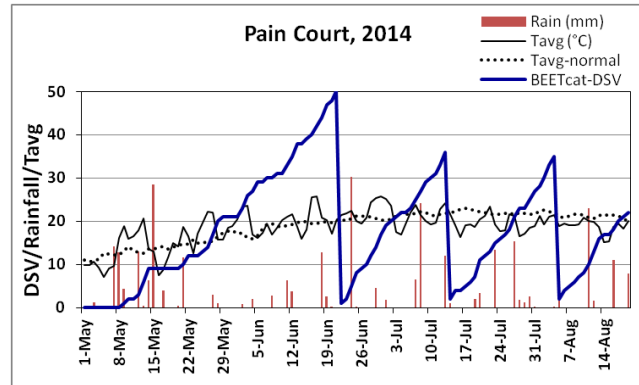


Fig.2 2014 weather pattern and daily disease risk predicted by BEETcast™ in Pain Court



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