

Smart Agriculture Research

2022 Summary: Evaluation of the Spornado Sampler Information as a Tool for Fungicide Application Decision-Making in the Case of Sclerotinia Stem Rot in Canola

INTRODUCTION

The Spornado Sampler uses a cassette to capture airborne spores, which are responsible for the infection of select crop diseases. Cassettes are then removed and sent to a lab where they are tested for the disease of interest. Using these test results, producers and agronomists gain additional information to assist in treatment decisions.

Olds College Centre for Innovation (OCCI) worked with Spornado to evaluate how the Spornado Sampler contributes to the fungicide decision process. OCCI also assessed the differences of spore loads on a cassette between those installed in a solar powered Spornado Sampler (solar powered fan unit) and passive Spornado Sampler (relies on wind to trap spores on the cassette). Additionally, a correlation analysis was completed between spore loads, wind quantifications and exposure times to identify possible relationships.

OBJECTIVES

- Evaluate the experience of working with the Spornado Sampler.
- Identify the impact of the Spornado Sampler lab results on the fungicide application decision making process:
 - Ease/confidence of application decision made.
 - Final recommendation regarding fungicide treatment.
- Compare passive to solar powered sampler spore loads.
- Identify the existence of correlations between spore loads, wind and exposure duration.
- Provide Spornado with weather data aligning with the Spornado cassette exposure.
- Compile and provide data sets with scouting responses.



STUDY DETAILS

- Evaluated in summer 2022 in 2 canola fields:
 - Field 19 on the Olds College Smart Farm.
 - Partner producer near Acme, Alta.
- Each site had 1 weather station, and a solar powered + passive sampler installed side-by-side.
- In-field assessments were conducted by OCCI staff 2 times per week and by Olds College Agronomy Certificate students during a one-day field event.
- Total of 20 cassettes were exposed.

RESULTS

Informed: Participants viewed Spornado Sampler lab results.
Uninformed: Did not view Spornado Sampler lab results.

- 2 of 14 uninformed OCCI staff changed their initial recommendation after viewing Spornado results.
- 90% of informed responses during the field event indicated that the Spornado results influenced their recommendation.
- 78% of uninformed responses during the field event changed their initial recommendation upon receipt of the cassette lab results.
- In cases where both cassettes had detectable levels of spores, the solar powered sampler consistently had higher spore loads by 2 - 3 times.
- Positive correlations were identified between the spore load and both air volume and exposure time.

FUTURE RESEARCH

The project has been completed. Future research possibilities are being explored between OCCI and Spornado for 2023, including conducting a similar study with a different crop and disease of interest.

