Fusarium Seed Infection Surveillance Project

2023 Final Report

July 2023: Lacombe AB - Alberta Seed Processors (ASP) is releasing the Fusarium graminearum seed infection Report, part of Alberta's fusarium head blight management.

As part of the federal government's Canadian Agricultural Partnership (CAP), ASP launched a 3-year project in the fall of 2020 to study fusarium seed infection in Alberta to better understand how farmers can manage, control and prevent the devastating disease. The project funding expired in February 2023, and such this final report is funded by Alberta Seed Processors.

The success of the project is a result of collaboration with value chain partners. ASP is collaborating with three Alberta seed labs, including SGS Canada, Seed Check Technologies and 20/20 Seed Labs, to gather data. Dr. Michael Harding, Research Scientist - Plant and Bee Health Surveillance Section of Alberta Agriculture and Irrigation reviewed the data and created maps. Alberta Wheat & Barley Commissions supplied further agronomic and management input to the project.

The project is made possible with funding from the CAP program, which is a five-year, $3 billion investment by federal, provincial and territorial governments to strengthen the agriculture and agri-food sector and ensure its continued innovation, growth, and prosperity.

For more information regarding this project please contact info@seedprocessors.ca.

ALBERTA SEED PROCESSORS

FINAL REPORT TO AGRICULTURE VALUE CHAIN

This report covers seed tested between September 1, 2022, and May 1, 2023, assumes the seed is from production in the 2022 crop year and is destined for seed purposes in 2023.

METHODOLOGY:
Data was collected from three Alberta-based seed testing labs and was amalgamated into one database. The data includes seed testing results for both farm-saved seed as well as pedigreed seed. The data is catalogued as per postal code, then grouped according to the municipality.

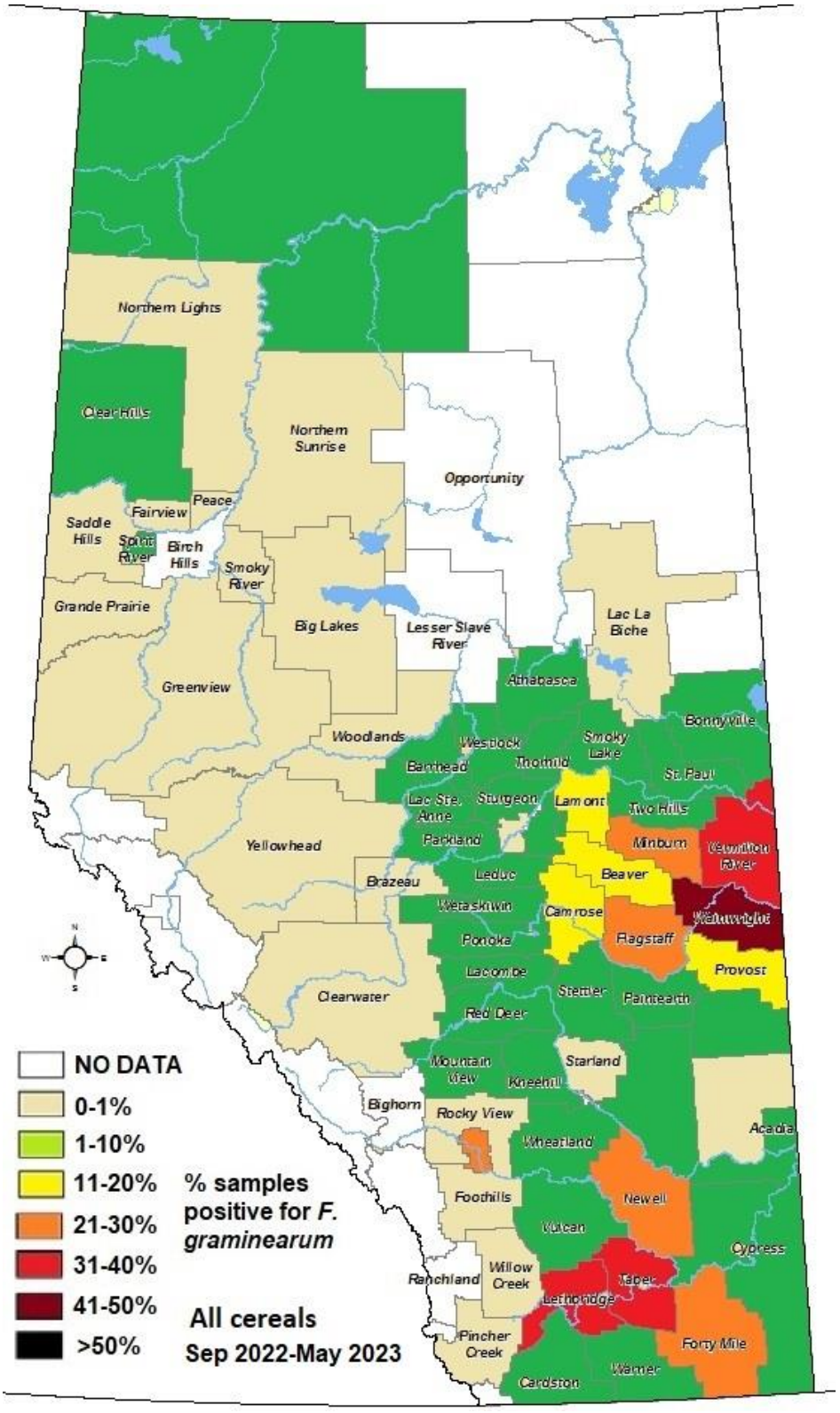
HOW TO UTILIZE THE DATA:
Understanding pathogen sources is foundational in integrated pest management (IPM) plan. Fusarium head blight (FHB) infection, caused by Fusarium graminearum (Fg), comes from two basic sources: wind-blown spores from crop residues such as stubble and stover/stalks, and infected seed. This project documents detections of Fg seed infection and does not attempt to measure or quantify the risk of FHB from crop residues. It can be assumed that where there was seed infection, there was field infection. Therefore, we assume areas with elevated incidence of Fg, the pathogen is established in the crop residues in that local area or field, and have elevated recommendations for FHB management.

Sample location is reported based on the postal code to which the sample results were sent. As a result, the second assumption is that the samples tested were produced in the municipalities that the corresponding results were sent to. However, this may not be the case and therefore some sample results may be sourced from a different municipality depending on field location. For example, the map shows samples within urban municipalities- i.e.: samples tagged to Calgary or Edmonton. This means the seed sample results were sent to a postal code within those city limits but does not necessarily mean the seed was produced within city limits. Additionally, it is unknown if the grain tested will be used for seed in the future.

Despite these assumptions and limitations, the map can be used as a general guide, in conjunction with other FHB management tools such as the Fusarium Head Blight Environmental Risk Map https://agriculture.alberta.ca/acis/m#!fusarium, to help producers evaluate risk and plan for appropriate management responses. For example, in or near areas of higher disease incidence, growers are advised to participate in as many preventative FHB management activities as possible or warranted based on the risk of infection. Management activities could include using long, diverse crop rotations (2–3-year break from host crops such as wheat and corn), planting seed with the best varietal resistance to FHB, using seed with low or no Fg infection, considering using a seed treatment with 'Fusarium' on the label, regular field scouting, and foliar spray protection when warranted, and within IPM guidelines. Further recommendations for FHB management can be found at: https://managefhb.ca/.

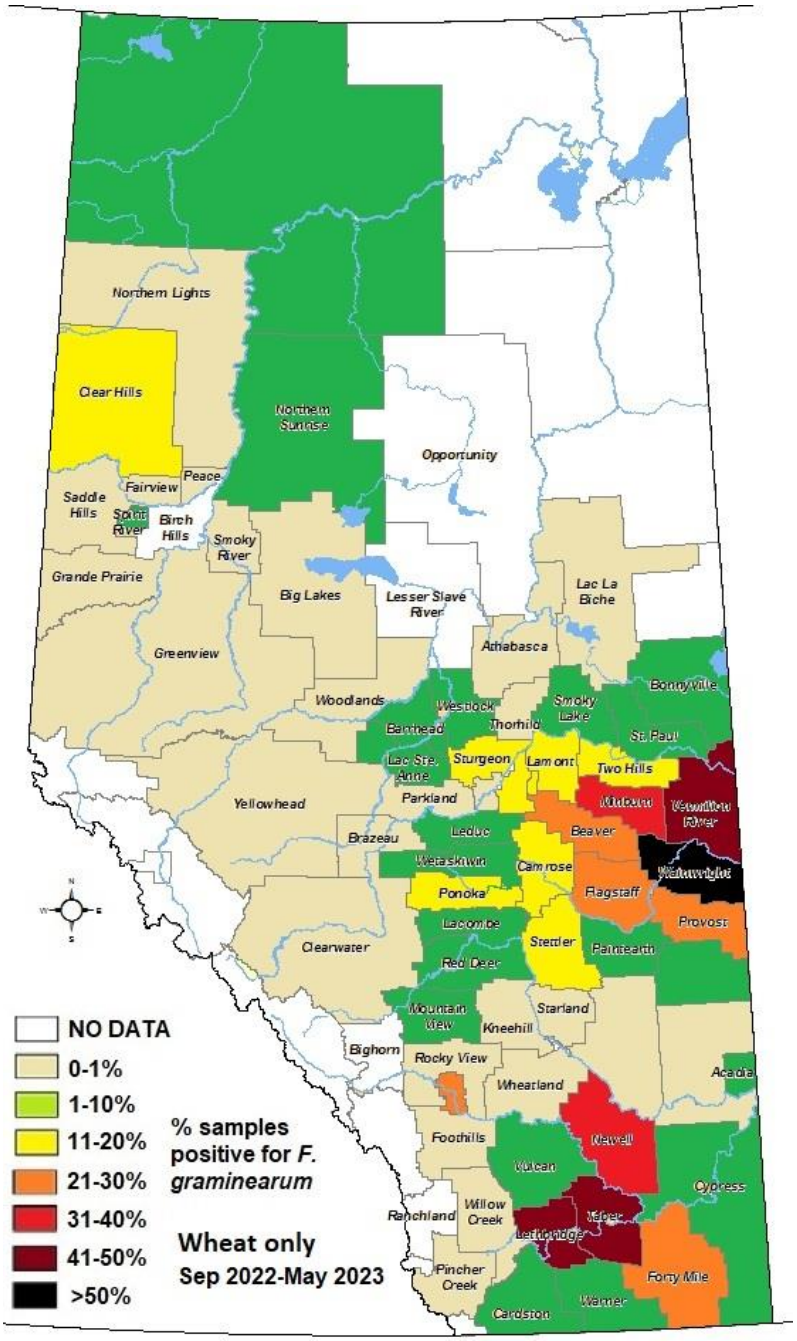
SEED TESTING DATA SEPTEMBER 2022 -May 2023

Prevalence (% samples positive) for all cereals

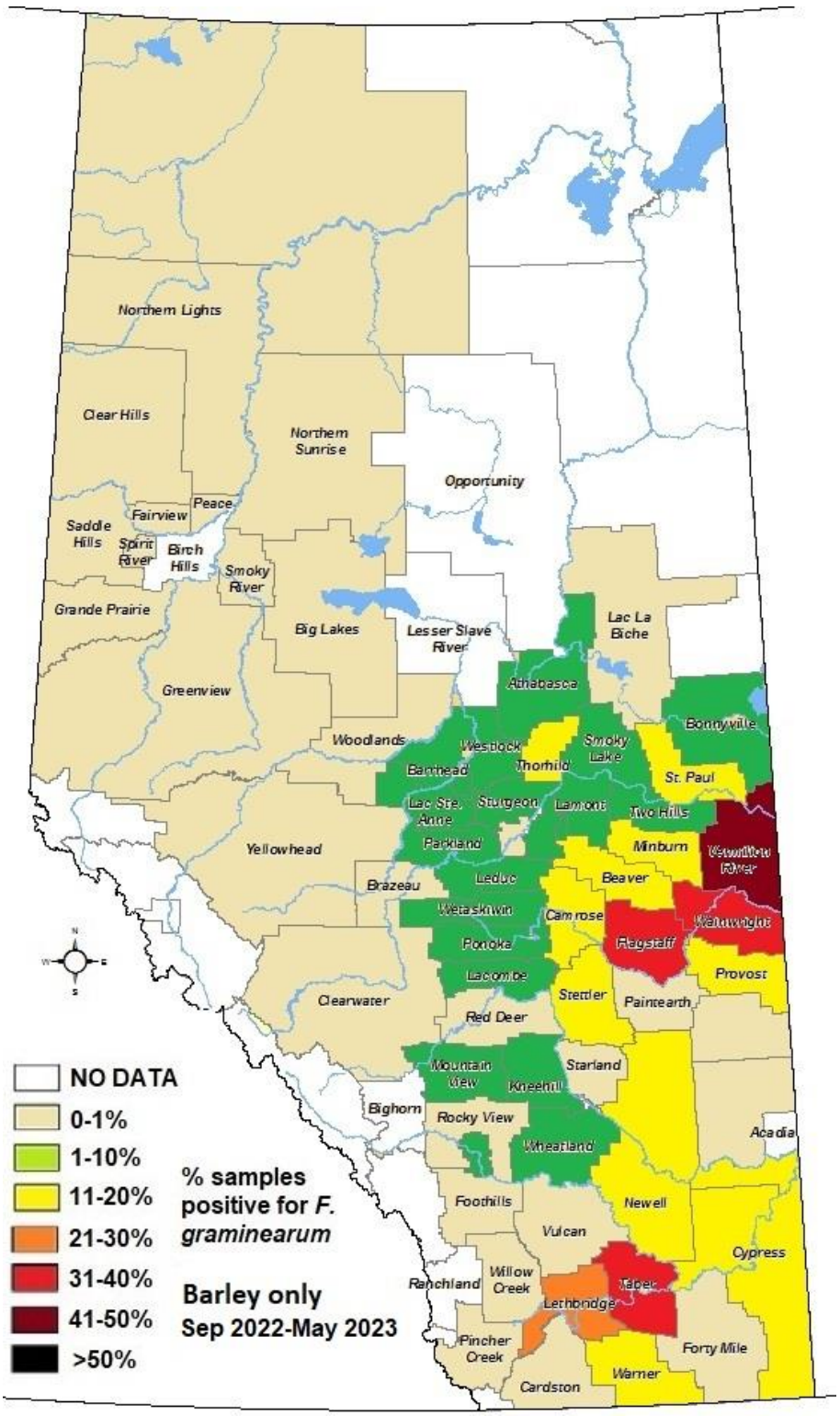


Prevalence (% samples positive) for Wheat Samples Only

Note: As wheat is more susceptible to Fusarium infection than other cereal crops, data for wheat samples only were aggregated, which shows incidence of infection despite environmental conditions that were not conducive to fusarium. The take away message: every year there is a threat for fusarium infection: always have a management plan!



Prevalence (% samples positive) for Barley Samples Only



Prevalence (% samples positive) for Durum Samples Only

Note: As durum is grown in southern regions, areas showing no prevalence, likely have little or no durum acreage. Durum has the highest susceptibility to fusarium of all wheat types. This coupled with a historic trend of cropping in areas with a consistent year after year of pathogen presence results in a high prevalence being shown on the map.