**A PhD student – leaf spot complex of wheat: molecular diagnosis and epidemiology**

A PhD position is available for four years in the Cereal Pathology Lab headed by Dr. Reem Aboukhaddour at Agriculture and Agri-Food Canada based at Lethbridge, Alberta, jointly with Dr. Stephen Strelkov at the University of Alberta in Edmonton.

**Background**

The wheat leaf spot complex is a disease resulting in various types of necrotic lesions caused by infection by one or several fungal pathogens. Leaf spots can may result from infection by a single pathogen species or by a combination of several species (i.e., a complex of species). However, infection by any individual species causes similar foliar symptoms, and the different pathogens can co-exist in the same field, on the same plant and even in a single lesion. Diagnoses based merely on symptoms may be inaccurate, and cannot determine the dominant causing species. There is no simple and accurate way to identify and quantify all these pathogens in a direct rapid test. In Canada and the USA, the dominant leaf spot pathogens are *Pyrenophora tritici-repentis*, *Parastagonospora nodorum*, *Parastagonospora aveneria tritici*, *Zymoseptoria tritici*, and *Bipolaris sorokiniana*. Depending on the soil type, agricultural practice, region, prevailing weather conditions, wheat genotype and other factors the prevalence of the main causal agents can vary.

Briefly, in this project we will generate accurate data on the abundance of the main leaf spotting pathogens in wheat from various locations across the Canadian Prairies with an emphasis on Alberta. The aim is to improve and validate a preliminary molecular diagnostic assay developed in our lab, in order to quantify the major species in infected samples from commercial wheat fields. Additional objectives include the characterization of effector gene diversity and mutations linked to fungicide tolerance.

**The successful candidate must have:**

* An MSc degree in plant pathology or related discipline
* Experience working with fungal plant pathogens and basic molecular biology
* A proven record of independent research
* Good presentation, writing, computing and organizational skills and the ability to work

independently

**For further information regarding the position, please contact Dr. Reem Aboukhaddour**

[**Reem.aboukhaddour@agr.gc.ca**](mailto:Reem.aboukhaddour@agr.gc.ca)

**Application**

Interested candidates should send a cover letter and an up-to-date CV, together with the names and contact information of at least two references, to [Reem.aboukhaddour@agr.gc.ca](mailto:Reem.aboukhaddour@agr.gc.ca)