

JOB DESCRIPTION

Working Title: Project Lead

Reports to: Administrative: PGA
Technical: APHL

PURPOSE:

Under the direction of the Alberta Plant Health Lab (APHL) Lead, the Project lead at APHL, Crop Diversification Centre North (CDCN) Edmonton, AB will provide technical support to the operation of a Results Driven Agriculture Research (RDAR) supported project (project number: 2021G007R) entitled “Establishment of a platform for rapid diagnosis of current and potential potato diseases in Alberta”. This is a collaborative project between the APHL and the Potato Growers of Alberta (PGA). The PGA is a not for profit potato grower organization that aims to increase the success of the potato growing industry in Alberta through education and extension, promotion, and research. The PGA continues to be the voice of the potato industry in Alberta today. The APHL is responsible for the delivery of laboratory-based services required for diagnostics, surveillance, research and extension in areas of plant health assurance, supporting Alberta’s complex crop industry and Alberta Agriculture and Forestry’s (AF) administration of the *Agricultural Pests Act* (APA) and *Weed Control Act* (WCA). The funded project is within the scope the mandate and commitments of the PGA and AF/APHL.

The Project lead must possess a diverse set of knowledge and skills, specifically in plant disease diagnostics, molecular plant pathology, molecular genetics, biotechnology, microbiology, mycology, experiment planning, implementation and coordination, data analysis, manuscript writing and program administration for success in this highly complex program. The Project Lead designs and conducts experiments to develop, optimize and standardize PCR-based protocols for diagnosis of potato diseases important, or of potential importance, to Alberta. The Project Lead also conducts diagnostic testing on samples derived from, or related to, the project 2021G007R, according to the requirements set out by the APHL Lead. The Project Lead also supervises a technologist supported by the project 2021G007R

Responsibilities also include ensuring the safe conduct of laboratory procedures and chemical usage, as part of risk management and ensuring that the lab is OH&S compliant.

RESPONSIBILITIES AND ACTIVITIES:

Design and conduct experiments to develop, optimize and standardize PCR-based protocols for diagnosis of potato diseases important or potentially important to Alberta.

- Primer design for PCR, qPCR with or without probe, rhPCR and LAMP
- Isolation, purification and identification of potato pathogens from infected specimens
- Microscopic analysis
- Preparation of specialized culture media
- Culturing and preservation of pathogen specimens for culture stocking, pathogenicity testing and PCR analyses
- Preparation of diseased samples for use in PCR to identify plant pathogens
- DNA sequence analysis including BLAST, multiple alignment, ORF analysis and submitting sequences to GenBank
- DNA/RNA extraction and cDNA synthesis
- Conduction of PCR, rhPCR, RT-PCR, qPCR and digital PCR

Conduct data analysis and prepare result reporting.

- Conducting literature searches to design new experiments improve the current protocols and write scientific reports and publications
- Collection and analysis of data
- Writing reports and manuscript based on the results obtained from the research project
- Making posters or oral presentations in scientific meetings

Support responsible program administration by supervising and overseeing staffing needs.

- Supervise technical and seasonal staff
- Ensures laboratory equipment maintained, as required, for efficient operation of the lab
- Maintains, by ordering, an inventory of equipment and supplies for the entire project 2021G007R

SCOPE:

Alberta’s potato industry contributes over \$1 billion to the economy annually. Disease(s) on potato may cause significant yield loss and impact market access. Rapid detection and diagnosis of these diseases is key to providing information on early management or

SCOPE:

confirming to customers that the disease is not present. A modest production gain of 1% through better crop health would translate into an additional \$10 million a year in farm gate revenue. The ability of the Alberta potato industry to effectively monitor and diagnose disease(s), in a timely manner, will limit market disruption. Currently rapid diagnostic testing for potato diseases is limited. The APHL supports Alberta’s potato industry through the diagnosis of new/unique diseases of potato.

This is an advanced research position responsible for conducting experiments of a funded project: “*Establishment of a platform for rapid diagnosis of current and potential potato diseases in Alberta*”. The position works closely with the APHL Lead and APHL Lab Technologists and is involved in all aspects of implement of a research project including project management and design, conducting experiments and analysis of the results. The position works with significant independence.

The Project Lead will have a broad in-depth knowledge of diagnostic techniques for existing and potential potato diseases in Alberta and will improve Alberta's capacity for potato disease diagnostics. The Project Lead must pay strong attention to detail and have strong record keeping skills to successfully meet the regulatory rigor of diagnoses conducted within the APHL, of research projects conducted to improve diagnostic capacity and capability, and to meet any certification requirements. The Project lead ensures that Alberta’s potato disease diagnostic capacity and capability is robust and maintained in line with accepted national and international standards.

The Project Lead interacts with the PGA, APHL, the Chief Provincial Plant Health Officer, the Provincial Plant Pathologist and other AF technical staff. The position also interacts with technical staff in private diagnostic labs. The work of the Project Lead provides direct support to AF’s ability to administer the APA and the WCA.

This is a highly technical position supporting the funded project: “Establishment of a platform for rapid diagnosis of current and potential potato diseases in Alberta”. Administered by the PGA, with operational direction from the APHL.

This is a two-year contract position operating out of the Potato Growers of Alberta North office and the Alberta Plant Health Lab at the Crop Diversification Centre North in Edmonton, Alberta.

- KNOWLEDGE, SKILLS & ABILITIES:**
- Experience with DNA and RNA extraction, PCR, RT-PCR and qPCR.
 - Experience in writing research reports
 - Experience and/or awareness in areas of: microbiology, mycology, analytical and biochemistry, statistical analysis, interpretation and crop disease diagnostics/ pest identifications
 - Excellent communication skills (oral and written)
 - Minimum of Class 5 Alberta Drivers Licence required
 - Ability to work overtime and/or on weekends, as required
 - Must possess a working and theoretical knowledge (including trouble-shooting), of laboratory equipment (microscopes, centrifuges, laminar flow chambers, autoclave, PCR, qPCR and digital PCR), chemicals, and a willingness to instruct other staff members on their safe and careful use
 - Leadership, supervisory, coaching and instructional skills, with proven flexibility, required for training and supervising employees in a wide scope of work settings (laboratories, field research, greenhouses, and growth chambers)
 - Experience and/or understanding of project management
 - Time management skills
 - Attention to detail, perseverance, and patience to ensure urgent crop problems are resolved within short time frames
 - Understanding of OH&S processes and protocols. The position will implement OH&S processes
 - A high degree of independence and decision-making ability
 - Willing to follow PGA and AF/GOA policies and practises around such areas as: OH&S, Respect in the Workplace, Code of Conduct, etc.

CONTACTS:

Internal		
Potato Growers of Alberta	Daily / As needed	Advice/recommendations/partnerships on projects
Crop Assurance and Rural Programming Branch:		
Plant and Bee Health Surveillance Section	Daily	Advice/recommendations/partnerships on projects
Rural Programming Section	As needed	Advice/recommendations
Crop Assurance Programming Section	As needed	Advice/recommendations

CONTACTS:		
Provincial Plant Health Officer	As needed	Advice/recommendations
External		
Agricultural Fieldmen	As needed	Advice/recommendations
Industry Agronomists	As needed	Advice/recommendations
Other Alberta Government Ministries	As needed	Advice/Interdepartmental committees
Agriculture & Agri-Food Canada	As needed	Advice/Partnerships on projects
Other Provincial Agriculture Ministries	As needed	Advice/recommendations/partnerships
Private Diagnostic Labs	As needed	Advice/recommendations/partnerships
Canadian Food Inspection Agency	As needed	Advice/recommendations/partnerships
Universities/other researchers (National and International)	As needed	Advice/recommendations/partnerships

SUPERVISION EXERCISED:
Technologist, direct report

Signatures

Incumbent

Name

Signature

Date

Supervisor (PGA)

Name

Signature

Date

Supervisor (APHL)

Name

Signature

Date

Please submit resumes by email to:

Stacey Bajema
 Seed Coordinator
 Potato Growers of Alberta – North Office
stacey@albertapotatoes.ca

Applications will be accepted until May 5, 2021.