



At the Institute for Research and Development in Agri-Environment (IRDA), we innovate to create the agricultural production of tomorrow. We collaborate, we question, we explore and we progress together towards a common goal: a healthy, dynamic and efficient agriculture. We believe in a prosperous future that respects plant, animal and human health. This is why our teams work passionately to change today's agricultural practices.

BRS-2026-CB PhD Student in Molecular Biology

Innovation | Expertise | Engagement | Collaboration | Intégrité



UNIVERSITÉ DE MONCTON
EDMUNDSTON MONCTON SHIPPAGAN

SCHOLARSHIP OFFER | PhD Student

The IRDA and the Université de Moncton wish to recruit a PhD student, linking entomology and molecular biology in insecticide resistance to support the berry production sector in Quebec. This person will have the chance to be part of two dynamic teams and to work in a stimulating work environment, both in applied and fundamental research. Our team is based in St-Bruno-de-Montarville and the work will be done in collaboration with Dr. Pier Morin of the Université de Moncton, to gain both expertise in molecular biology and academic credit.

Problem

Since its first census in Quebec in 2010, and the appearance of the first damage in 2012, the spotted wing drosophila (*Drosophila suzukii*; DAT) has had a growing environmental and economic impact. This exotic pest mainly affects the berry sector, a major part of Quebec agriculture. In addition, the gradual expansion of its range now allows it to also affect an important heritage crop, the lowbush blueberry. All of these factors now position *D. suzukii* among the main pests of fruit crops in Quebec.

Alternative control methods for *D. suzukii* are at varying levels. Biological control is still under development, while physical control by exclusion nets has demonstrated high efficacy, sometimes even superior to that of insecticides, and is being increasingly adopted, particularly in blueberry fields. However, this approach remains limited by high implementation costs and an increased risk of fungal diseases depending on the production context.

In the absence of fully applicable alternative solutions, the management of *D. suzukii* is still largely based on chemical control, involving repeated (often weekly) and alternating applications of insecticides. This dependence on active ingredients associated with significant environmental risk indices (ERI) and health risk indices (SRIs) constitutes a major obstacle to the achievement of the objectives of the Sustainable Agriculture Plan (SAP) and increases selection pressure, promoting the emergence and spread of resistance. This risk is reinforced by the biological traits of *D. suzukii*, including a short generation time, high fecundity and high dispersal ability. Resistance has already been documented in wild populations for insecticides from groups 4A (neonicotinoids) in Brazil, as well as 3A (pyrethroids) and 5 (spinosyns) in the United States. The detection of resistance to neonicotinoids in Brazil, despite the lack of registration of these products against SWD, illustrates the strong adaptive capacity of the species.

In the context of active ingredient rotation, it is difficult to attribute loss of efficacy to a given insecticide. Nevertheless, variable efficacy has already been observed in Quebec for insecticides in groups 1B (organophosphates) and 5, raising concerns about the emergence of resistance. It is therefore essential to characterize the tolerance and resistance levels of wild populations of *D. suzukii*, as well as their potential for resistance development, according to regions, crops and chemical groups. This knowledge will be a key lever for adapting and optimizing integrated fruit production programs and preventing the spread of resistance.

This project is based on three main objectives:

- To establish a portrait of the resistance of spotted wing drosophila in Quebec;
- Develop a methodology for assessing the risk of resistance;
- Develop a decision-making tool for producers.

To succeed in this position, you must have the following qualifications:

- Graduate university degree related to the fields of entomology, molecular biology or a related discipline;
- Strong interest in agri-environmental issues;
- Taste for experimental work;
- Knowledge of statistical analysis using R software;
- Experience in scientific research (asset)
- Valid driver's license (mandatory).



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You are the person we are looking for if you stand out for your:

- Dynamism and creativity;
- Autonomy, versatility, rigor and resourcefulness;
- Sense of organization and priorities;
- Writing and communication skills (French and English).

Conditions of Employment:

- Scholarship equivalent to \$25,000 per year;
- Possibility of internal scholarships from the Université de Moncton and contracts as a teaching assistant;
- Duration: 3 years (between the IRDA of St-Bruno-de-Montarville and the Université de Moncton);
- Start date: **January 2027**

Place of work:

- IRDA of St-Bruno-de-Montarville; Fruit Entomology Team:
335, rang des Vingt-Cinq Est, St-Bruno-de-Montarville, Quebec J3V 0G7
- Université de Moncton; Pier Morin's Laboratory:
Rémi Rossignol Building, 60 Notre-Dame-du-Sacré-Coeur Street, Moncton (Canada) E1A 3E9

Supervision:

- Director: Pier Morin, professor at the Université de Moncton;
- Co-director: Célia Bordier, researcher at IRDA.

For any questions or information, contact Pier Morin, University professor, at pier.morin@umoncton.ca or Célia Bordier, researcher at IRDA, at celia.bordier@irda.qc.ca.

**Send us your application (CV, cover letter, transcripts and contact information for three references) before
September 11, 2026.**

Learn more about our organization and our research projects: www.irda.qc.ca