



GRADUATE RESEARCH ASSISTANTSHIP (GRA) – TREE FRUIT PHYSIOLOGY

Posted February 2024

The **Tree Fruit Physiology Program** within the Department of Plant Agriculture, University of Guelph has two GRA openings, one MSc. And one Ph.D. in tree fruit research.

Qualifications include:

- a) BSc. or MSc in horticulture, botany, plant biology, or plant physiology
- b) Coursework or experience in pomology/tree fruit physiology is a requirement.
- c) Competence in computer technology
- d) Preference will be given to Canadian citizens or permanent residents (who are eligible to pay domestic tuition rates)
- e) A valid driver's license

For the MSc position, an annual stipend of \$24,000 will be provided for 2.5 years (8 semesters) with a \$2,000 top-up bonus/year. For the PhD position, an annual stipend of \$26,000 will be provided for 9 semesters (3 years). Additional funds may be available through the University of Guelph, OGS or NSERC scholarships.

To qualify, students must demonstrate a high academic standing during the last two years of study (minimum of 80%) in addition to the admission requirements of the University of Guelph. The candidates must be highly motivated, creative, have excellent communication and writing skills, and a sound scientific background in the plant sciences. Preference will be given to those with experience in tree fruit production and tree physiology.

The successful candidate will have the opportunity to learn about and conduct research related to plant growth and development and production techniques related to fruit set, thinning and crop load management of peach, plum and apple.

The area of research will focus on crop load management of peach/nectarine, plum (*Prunus*) and apple (*Malus*) using new innovative plant bioregulators currently in development. The project aims to develop and implement decision support systems for

Horticultural Experiment Station

1283 Blue line Road • P.O. Box 573 • Simcoe • Ontario • Canada • N3Y 4N5
Tel: (519) 426-7127 Ext 331 • FAX (519) 426-1225 • Email: jcline@uoguelph.ca

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producers to improve crop load management, as well as investigate advancements in artificial intelligence-based computer vision systems to measure key indicators of crop load to improve crop load management outcomes. Project objectives include investigating the mechanism and factors involved in 1-ACC induced flower and fruitlet abscission of peach (*Prunus* sp.) and apple (*Malus*), testing and validating commercial digital platforms that use technologies (computer vision and ai-algorithms) to estimate flower and fruit, fruit growth rates, and yield to inform fruit thinning decisions, to investigate how digital technologies and new thinning compounds can improve the precision and prediction of crop load management, and to advance understanding of factors that cause orchard variation in bloom and crop load and their influence on annual bearing. Overall, the research aims to increase economic returns for Canadian tree fruit producers which will lead to a more sustainable and globally competitive industry. Students will be required to travel to the University of Guelph, Simcoe Research Station, and producer orchards in the Municipality of Niagara to conduct field/laboratory research as required by their project. Course work will be conducted in Guelph at the main campus.

The position is available September 2024, but applicants will be considered until a successful candidate is identified. For information about graduate school admissions visit please visit <https://www.plant.uoguelph.ca/students/future-students> and <http://www.plant.uoguelph.ca/treefruit/> and send letters of inquiry with the following to Dr. John Cline (jcline@uoguelph.ca):

1. a current CV
2. unofficial transcripts
3. a 1-2 page statement of your specific research interests and career goals, and why you are you are interested in this project
4. contact information for at least two references