Plants provide food, raw materials, and a healthy environment and are the cornerstone for life on earth. Plant Science is key to understanding and enhancing plant life. Research in the Department of Plant Agriculture is divided into four areas: Plant Biochemistry and Physiology, Plant Breeding and Genetics, Plant Production Systems, and Bioproducts.

**Plant Biochemistry and Physiology** is a broad discipline. Faculty and students in this area study the response of plants to environmental change and plant development at the ecosystem, whole plant, and molecular levels. Students investigate ecologically friendly management strategies, study underlying molecular and biochemical mechanisms for regulating plant development, investigate how plant performance can be optimized in the field or closed environments, and contribute to cultivar development.

**Plant Breeding and Genetics** has long been a key focus of our faculty and students. Through breeding and biotechnology, Guelph researchers help society by developing new field-crop, fruit, ornamental and vegetable cultivars that are grown in Canada and worldwide. Also, Plant Agriculture faculty and students seek both to understand the fundamental mechanisms that enable plant improvements and to discover novel methodologies and technologies that will be the foundation for future advances.

**Crop Production Systems** research seeks to develop or test agricultural management strategies for yield improvement and economically and environmentally sound production practices in field and horticultural crops such as ornamentals and turf. Students in this area assist producers and industry in the control of weeds, insects, or plant diseases, and investigate the efficacy of new management protocols for production of high quality crops.

**Bioproducts** is a multi-disciplinary field and will deal with background sciences ranging from chemical engineering to plant science. Students deal with products and materials made from cellulose, oil, protein, starch and other compounds derived from various plant parts such as seeds, stalks/stovers, hulls and cobs of crop plants. Students will develop their expertise in analytical methods, factors affecting quality of plant-derived raw materials, engineering (including bioengineering of bioproducts) biomaterials and biocomposites.

Graduate programs leading to MSc & PhD degrees are offered in the following fields:
- Plant Biochemistry & Physiology
- Plant Breeding & Genetics
- Crop Production Systems
- Bioproducts

We offer an interdisciplinary research environment in modern, well-equipped research stations and laboratories to provide excellence in graduate education and training.

**CONTACT INFORMATION**

Graduate Program Assistant:
Tara Israel
Room 1105, E.C. Bovey Building
pagrad@uoguelph.ca
519-824-4120 ext. 56077

Graduate Coordinator:
Dr. J. Alan Sullivan
Room 4222, E.C. Bovey Building
asulliva@uoguelph.ca
519-824-4120 ext. 52792

Associate Coordinator:
Dr. Istvan Rajcan
Room 317, Crop Science Building
irajcan@uoguelph.ca
519-824-4120 ext. 53564

www.plant.uoguelph.ca/contact/
GRADUATE FACULTY

Stephen R. Bowley
Crop Science Building
sbowley@uoguelph.ca
Perennial forage breeding &
genetics, transgenic plants;
stress tolerance

Gale G. Bozzo
E.C. Bovey Building
gbozzo@uoguelph.ca
Postharvest physiology &
secondary metabolism

John A. Cline
Simcoe and Vineland Campus
jcline@uoguelph.ca
Fruit tree physiology &
management

Bill Deen
Crop Science Building
bdeen@uoguelph.ca
Cropping systems; agronomy;
nitrogen use efficiency

Hugh J. Earl
Crop Science Building
hjealr@uoguelph.ca
Oilseed physiology & agronomy

Mehrzad (Milad) Eskandari
Ridgetown Campus
meskanda@uoguelph.ca
Soybean breeding & genetics

Chris L. Gillard
Ridgetown Campus
cgillard@uoguelph.ca
Dry bean agronomy & pest
management

A. Max P. Jones
E.C. Bovey Building
amjones@uoguelph.ca
Plant propagation and in vitro
conservation

Katerina S. Jordan
E.C. Bovey Building
kjordan@uoguelph.ca
Turfgrass science; nematology

Elizabeth A. Lee
Crop Science Building
lle@uoguelph.ca
Corn breeding & genetics

Lewis N. Lukens
Crop Science Building
llukens@uoguelph.ca
Bioinformatics, genetics
of stress tolerance

Eric M. Lyons
E.C. Bovey Building
eyons@uoguelph.ca
Stress physiology; root
biology of turfgrass species

Ralph C. Martin
Crop Science Building
rcmartin@uoguelph.ca
Sustainable food production

Mary Ruth McDonald
Crop Science Building
mmcdona@uoguelph.ca
Diseases & integrated crop
management of vegetables

Barry J. Micallef
Crop Science Building
bmicalle@uoguelph.ca
Physiology & genetics of
vegetable crops

Manjusri Misra
Crop Science Building
mmisra@uoguelph.ca
Bio-based new materials
& green nanotechnology

Amar Mohanty
Crop Science Building
mohanty@uoguelph.ca
Bioeconomy related to biobased
materials, biofuels & biorefinery

Alireza Navabi
Crop Science Building
anavabi@uoguelph.ca
Wheat breeding

Gopinadhan Paliyath
E.C. Bovey Building
gpaliyath@uoguelph.ca
Postharvest biology; functional
foods & nutraceuticals

K. Peter Pauls
Crop Science Building
ppauls@uoguelph.ca
Tissue culture; molecular
biology techniques to crop
improvement

Manish N. Raizada
Crop Science Building
raizada@uoguelph.ca
Novel proteomics, genome
& protein engineering technologies

Istvan Rajcan
Crop Science Building
irajcan@uoguelph.ca
Soybean breeding & genetics;
seed composition, bioproducts,
yield stability, G x E,
exotic germplasm

Darren E. Robinson
Ridgetown Campus
drobinso@uoguelph.ca
Weed management & horticultural
crops

Praveen K. Saxena
E.C. Bovey Building
psaxena@uoguelph.ca
Plant morphogenesis;
conservation; medicinal
plant biology

Art W. Schaafsma
Ridgetown Campus
aschaafs@uoguelph.ca
Entomology/pathology
field crops

Peter H. Sikkema
Ridgetown Campus
psikkema@uoguelph.ca
Weed management, field crops

Jayasankar Subramanian
Vineland Campus
jsubrama@uoguelph.ca
Tree fruit genetics, breeding &
biotechnology

J. Alan Sullivan
E.C. Bovey Building
asulliva@uoguelph.ca
Breeding, genetics &
physiology of ornamental
and berry crop species

Clarence J. Swanton
Crop Science Building
cswanton@uoguelph.ca
Weed science; weed ecology;
cropping systems

Francois Tardif
Crop Science Building
ftardif@uoguelph.ca
Physiology, ecology & molecular
biology of herbicide resistance

Rene C. Van Acker
Johnston Hall
vanacker@uoguelph.ca
Weed biology & ecology;
biosafety & novel trait
confinement; agronomy

David J. Wolyn
E.C. Bovey Building
dwolyn@uoguelph.ca
Plant genetics; plant breeding;
tissue culture; molecular genetics

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