STRATEGIC PLAN 2012 -2017
Plant Agriculture Strategic Plan 2012 - 2017

Our unique name reflects a heritage that dates back to 1874 with the founding Departments of Horticulture and Agriculture in the Ontario Agricultural College and the establishment of the Horticultural Research Institute of Ontario in 1906. Each of these units evolved separately to address various aspects of field, vegetable and fruit crop production in Ontario for more than 90 years. In February, 1998 the Department of Plant Agriculture was formed from an amalgamation of these three units and it has continued to evolve with the addition of capabilities in biotechnology, genomics and bioproducts.

The Plant Agriculture Department has annual operating expenditures over $ 9 million and is one of six departments and schools in the Ontario Agricultural College at the University of Guelph. It consists of 34 faculty, 40 permanent staff, 60 contract staff and 112 graduate students. In addition, over 20 scientists from various organizations (including Agriculture Agri-Food Canada [AAFC]) are associated with us as adjunct faculty, and several staff from the Ontario Ministry for Agriculture Food and Rural Affairs (OMAFRA) are co-located in our buildings. Also, an AAFC scientist is located in our Crop Science building.

We teach students in introductory courses in the BSc(Agr), in specialty courses for our majors in the BSc (Plant Science) and the BSc(Agr) (Crop, Horticulture and Turfgrass Sciences; Organic Agriculture), and we offer plant science, bioinformatics and genetics courses to students in other Science majors and non-Science majors in the University. The current fields of study for our graduate program are: Plant Biochemistry and Physiology, Plant Breeding and Genetics and Crop Production Systems. We have also recently approved the addition of Bioproducts, as a new field of study.

Our activities are strongly rooted in crop science and horticultural science but we now encompass applied bioinformatics; molecular genetics; genomics; field, horticultural and greenhouse crops; plant breeding; turf and grassland studies; environmental sustainability; and the use of plant materials for health, fibres and industrial products. Our research interests are grouped around plant breeding, crop production (field and greenhouse), molecular, physiological and cellular biology as they relate to agricultural traits and, most recently, bioproducts. The crops for which we run breeding programs include: soybean, corn, cereals, forage legumes, dry beans, asparagus, native flowers, strawberries, nut crops, and fruit crops.

The Department is an active participant in the research contract that OMAFRA has with the University of Guelph. In the University-wide total research envelope of ~ $120M/y, the Plant Agriculture Department accounts for $16M/y.

Research is conducted in field stations with multiple soil types and heat unit zones in Guelph (Guelph Turfgrass Institute [GTI], Arkell Research Station); Elora; Kettleby (Muck Crops Research Station); Simcoe; Vineland; Woodstock and Ridgetown. Our laboratories are equipped for studies in plant physiology, molecular biology, biochemistry, genomics, bioinformatics, plant pathology and
biomaterials. We have specialized facilities, including: a large number of growth chambers, extensive greenhouses, a transgenic greenhouse, a postharvest facility, the GTI, an organic garden and the Bioproducts Discovery and Development Centre.

The Department recognizes its special mission to address problems and opportunities in agricultural sciences. This means that, in addition to our interest in making discoveries in our disciplines, we also want to apply knowledge to provide food, feed and fibre for society. Furthermore, we recognize that society’s expectations of agriculture are changing to include a wide range of health and environmental services such as producing food with nutraceuticals, protecting biodiversity, mitigating climate change and providing alternative energy sources.

Part of our strength is our diverse expertise and the broad range of facilities we operate that allow us to address these shifting needs and concerns. The legacy of budget constraints over the last five years, however, has resulted in fewer faculty to champion research initiatives, deliver the curriculum to a burgeoning student population and transfer technology to the agricultural sector in Ontario.

To focus its energies, the Department developed a key 5-year Strategic Plan in 2006. This plan resulted in the initiation of several activities that have been incorporated into the current strategic plan, including: a seminar series, a graduate program review, an undergraduate program review, a Departmental retreat and a staff Feed Forward Workshop.

All members of the Department were invited to contribute to the formulation of the current plan. Writing of the plan was managed by a committee including: Beth Livingstone (staff); Carolyne Brikis (graduate student); Lewis Lukens (faculty and executive member); Gale Bozzo (faculty member); Katerina Jordan (faculty member); Mary Ruth McDonald (faculty member and Associate Chair), Dave Wolyn (faculty member) and K. Peter Pauls (faculty member and Chair). The process included a three week consultation period on a series of questions mediated through a blog site in CourseLink, a Department-wide afternoon workshop and a faculty meeting. We envision that the broad concepts of the current plan will serve the Department for the next 5 years but are committed to reviewing the plan yearly to update its details.
Plant Agriculture Strategic Plan

Mission Statement

To improve life through innovative science, education and service in plant agriculture

Value Statement

We value:

i) Excellence in education and scientific training

ii) Discovery through the application of scientific methods and innovative agricultural research

iii) Environmental stewardship and socially-responsible, sustainable, solutions

iv) Leadership, integrity, respect for individual rights, human diversity and internationalism

v) Intellectual freedom

Vision Statement

To be the Department that redefines plant agriculture through discovery, education and service
**TEACHING MISSION**

The Department of Plant Agriculture teaches in Diploma, Undergraduate and Graduate Programs. The Associate Diploma teaching is currently focused on Turfgrass Management. At the undergraduate level, the Department oversees the Plant Science Major in the BSc with the School of Environmental Science and the Departments of Integrative Biology and Molecular and Cellular Biology (in the College of Biological Science), the Crops, Horticulture and Turfgrass Science (CHATS) major in the BSc(Agr) and shares the responsibility for the Organic Agriculture major in the BSc(Agr) with the School of Environmental Science. Graduate students are trained in Plant Science, choosing one of three areas of specialization: Plant Breeding and Genetics; Plant Biochemistry and Physiology; or Crop Production Systems. Currently, Plant Agriculture only offers graduate degrees by thesis.

The courses we teach encompass our core disciplines of genetics, physiology, and biochemistry, and production systems of field, horticultural, ornamental, and greenhouse crops. The Department also teaches a significant number of students in courses designed for non-science majors.

**GRADUATE PROGRAM**

The Department’s graduate program in Plant Science, with three areas of study, is currently training 112 students: 50 PhD and 62 MSc. In general, our graduate students are in high demand by agribusiness and government agencies related to agriculture. The graduate program was last reviewed by the Ontario Council of Graduate Studies (OCGS) in 2006. The Institutional Quality Assurance Program (IQAP) will review the program again in 2015/16. The Graduate Committee oversees issues related to the program and brings forward motions to the Faculty for consideration. It includes a Chair, Vice-Chair, six additional faculty and two graduate students.

**Opportunities/Challenges:**

Overall, Plant Agriculture averages three graduate students per faculty. Of the 112 graduate students in our program, 19 are international and only 54 are classified as ‘eligible domestic.’ Therefore, Plant Agriculture currently has approximately 1.5 ‘eligible’ graduate students per faculty FTE (Figure 1, Appendix), which is the lowest in the OAC. The college average is 3.0 and one department has 5.5 graduate students per faculty. Departments with higher than average student enrolments offer both course-based and thesis-based Masters programs. Because the distribution of financial resources within the University is related to the number of eligible graduate students, the Department must be proactive to increase enrolments.

Development of an appealing course-based Masters degree that combines science and business should be a high priority. The recruitment of domestic students to both thesis- and course-based programs must also be enhanced.

The Department also has a commitment to internationalism. Over 25% of our graduate students are international students. However, our programs may not be well advertised to international students. In addition, for international students who wish to study at Guelph, tuition and fees are prohibitive. Plant
Agriculture needs to improve international advertising and explore funding and endowments to cover international student tuition fees.

The ability of the Department to conduct world-class research depends upon the recruitment of the best students to the program. Plant Agriculture must not only offer an exceptional graduate program and training experience to attract students, but it also must be proactive in recruitment of the best scholars.

**Strategic Goal 1: Revise and enhance our graduate program to build on world-class research and education.**

**Objectives:**

1.1.1 Implement plans to introduce a course-based Masters, add Bioproducts as a new field of study in our thesis based program, and rename our thesis based program as Plant Science.  

   *The Chair and Graduate Committee will develop a strategy and timetable for implementation by Fall 2012.*

1.2 Develop a strategy to recruit new students to a course-based Masters with the goal of 20 students per year in the program.  

   *The Graduate Committee will initiate a plan by September 2012*

1.3 Develop strategies to recruit more MSc and PhD thesis-based graduate students.  

   1.3.1 Advertise direct entry of students into PhD programs from BSc degrees.  

   1.3.2 Increase the enrolment of qualified U of G students in our graduate program.  

   1.3.3 Improve the Department’s graduate studies web page.  

   1.3.4 Develop a strategy to enhance participation of undergraduates in 4th-year research projects, which can include: offering an information session, making announcements/holding discussions in 2nd and 3rd year courses and initiating an effective marketing campaign.  

   1.3.5 Relay advertising materials to private consultants or ‘agents’ in countries such as India, where many self-supporting students use such individuals to find a graduate school.  

   1.3.6 Explore funding to help reduce the differential tuition for international students, through departmental resources and working with the OAC Associate Deans.  

   1.3.7 Advertise at annual meetings of professional societies, where booths are available for graduate programs.
The Graduate Committee will work with the Liaison Committee to develop and initiate plans for Objective 1.3 by September 2012.

UNDERGRADUATE PROGRAM
The Plant Agriculture Department is responsible for the instruction of almost 50 undergraduate courses to approximately 600 students in a variety of science and non-science majors. There are 28 faculty involved in teaching, most of whom are located on the Guelph campus. The undergraduate program is overseen by the Undergraduate Teaching Committee that consists of a Chair, five additional faculty members, one staff member and an undergraduate student in the Department.

In an effort to improve our undergraduate curriculum, attract more students and better meet the needs of students, the Department established a Curriculum Transformation Task Force in 2006. The committee consisted of representatives from the Department and was active for three years. During that time focus groups with students and employers were conducted and numerous changes were implemented to the undergraduate program including: 1) incorporation of a business course into the Crop, Horticultural and Turfgrass Sciences (CHATS) major in the BSc(Agr); 2) development of rubrics for evaluation of oral and written presentations and to improve teaching tools and skills development in undergraduate courses; and 3) merging of the Plant Biology and Plant Biotechnology majors into a new major in the BSc, named Plant Sciences (that is overseen by Plant Agriculture). The task force also recognized the need to develop innovative courses to serve non-major students and the result was the implementation of three courses for non-science students.

Opportunities/Challenges:
Since the formation of the Undergraduate task force, the Department has seen a three-fold increase in the number of undergraduate students per faculty that are taught in Plant Agriculture courses (Figure 2, Appendix). This increase is partly due to higher student numbers in our courses but also to a decrease in faculty numbers. It is the goal of the Department to attract additional students to our courses and further increase the number of undergraduate students taught per faculty by 50% over the 5 years encompassed by this Strategic Plan without further reductions in our existing faculty complement.

Strategic Goal 2: Continue to revise and enhance our undergraduate curriculum to offer quality education in our fields of expertise to plant science-focused and other undergraduate students.

Objectives:

2.1 Effectively launch the new and renewed introductory courses in the BSc(Agr) and BSc in 2012.

The Undergraduate Teaching Committee and the Chair and instructors assigned the new/renewed courses will work with the Associate Dean Academic to resource and coordinate the launch of the courses by Fall 2012.

2.2 Initiate a review of undergraduate teaching and develop an action plan to provide quality courses and increase enrolment by 50% with the existing faculty complement.

The Undergraduate Teaching Committee will work with COLES to initiate a review of courses and identify new opportunities by December 2013. The review will include...
mapping course prerequisite connections, collecting enrolment histories and describing target audiences. The information will be used by the department through the action of its committees and faculty meetings to make decisions to delete, expand, and resource courses. Some options that will be considered, include: the introduction of new courses or units within existing courses on sustainable agriculture, increasing the involvement of faculty in high-enrolment science courses, non-science service courses, and courses attractive to students in majors not controlled by Plant Agriculture, establishment of a CHATS or Agronomy Club, and increased involvement of third- and fourth-year students in research courses.

DIPLOMA PROGRAM
Plant Agriculture offers an Associate Diploma program in Turfgrass Management (ADTM) at the Guelph campus that prepares students for a variety of career opportunities in golf course management, lawn care, sports field management, parks management, sod production and related supply and service businesses. The ADTM program was founded in 2004 and offers a focused curriculum that was reconfigured in 2007 to provide students with a selection of 26 different courses for the development of skills to succeed in a growing and competitive turfgrass industry. The program utilizes the collaborative resources of the GTI, which includes departmental faculty and staff, industry professionals and the grounds, workshop and laboratory facilities of the Institute. Both applied and theoretical scientific study is combined with a co-operative summer internship to provide students with a wide range of experience and knowledge in turfgrass management. The Diploma in Turfgrass Management is offered only at the Guelph campus. Average enrolment in the program is 50 students per annum. Articulation agreements between The ADTM curriculum and undergraduate studies are currently under review by the department and the OAC. The ADTM committee consists of a Chair, faculty from Plant Agriculture and SES, personnel in the turfgrass industry and a diploma student.

Opportunities/Challenges:
The Department of Plant Agriculture would like to increase student enrolment in the highly specialized ADTM program without saturating job opportunities for current students. To achieve this goal the ADTM program must develop marketing and recruitment strategies in order to appeal to a larger potential pool of students, both nationally and internationally. It must also develop articulation agreements to increase opportunities for our diploma graduates to continue their education in degree programs. Success in transfer agreements may also be dependent upon enhanced perception of associate diploma programs offered by our department. Expansion and success of current and future associate diploma programs at Guelph requires input and committee participation from faculty members with expertise outside of turfgrass research.

Planned revisions in the allocation model that are based on diploma student numbers potentially open up the opportunities to fund new positions in the Department. To respond to this opportunity the
Department should consider expanding its existing diploma as well as initiating a new Associate Diploma program.

**Strategic Goal 3:** Expand the diploma offerings by the Plant Agriculture Department to take advantage of additional funding and employment opportunities.

**Objectives:**

3.1 Identify and act on new diploma opportunities.

*The Diploma Teaching Committee will identify opportunities and initiate the process of engaging stakeholders by Jan 2012.*

Diplomas in Urban Agriculture, Organic Agriculture and Bio Innovation Technology may be considered.

3.2 Explore opportunities for professional certificates.

*The Graduate Committee and Undergraduate Committees will work with the Associate Dean Research and COLES to explore opportunities by May 2013.*

3.3 Ensure that an articulation agreement for transfer of diploma students to BSc degree programs is in place.

*The Diploma Teaching Committee will work with the Associate Dean Academic to review models for articulation by May 2013 and implement by Sept 2014.*
RESEARCH MISSION

The Departmental faculty located at Guelph, Vineland, and Simcoe brought in $16.6M in research funds in 2010/11 (Figure 4, Appendix), representing approximately 10% of the entire University research envelope. In addition, Plant Agriculture faculty located at Ridgetown attracted approximately $2.3M in research funding. The focus on research in the Plant Agriculture Department makes it the most research intensive department in the OAC on a per faculty basis. Approximately 50% of these funds are from OMAFRA for agricultural research, reflecting the Department’s commitment to the agricultural industry in Ontario. In addition, the royalties collected from the varieties and germplasm released by the Department’s plant breeding programs bring over $700,000 to the University annually, representing the largest and most consistently successful University of Guelph intellectual property revenue stream. Many of the research programs are also supported by funds from grower organizations and private companies and many of these funds are matched by NSERC grants. The Department has also used grower and industry funds to obtain significant matching support from the Ontario Ministry of Research and Innovation. Several faculty also hold CIDA grants for international agricultural research projects.

Approximately one third of the faculty hold Discovery Grants from NSERC, reflecting the Department’s commitment to furthering fundamental knowledge in the disciplines on which Plant Agriculture is based, including: plant physiology, genetics, molecular genetics, plant development, microbiology, ecology, chemistry, biochemistry and biophysics.

Maintenance of the Department’s greenhouses and growth facilities is supported by a multi-year agreement between OMAFRA, the University of Guelph’s Physical Resources Department and the Department. OMAFRA has made significant investments into the infrastructure and equipment at the research stations, including the purchase of several new combines in the last three years. The Department also benefitted from a Canada Foundation for Innovation (CFI) grant in 1999 that provided critically needed laboratory renovations to the Crop science building at the University of Guelph, expanded the transgenic greenhouse and provided equipment for biotechnological research. An addition to the Crop Science building was completed in 2005 to house the Bioproducts Discovery and Development Centre and a Postharvest facility was completed in the Bovey building in 2007.

ORGANIZATION

The Department of Plant Agriculture has a complement of 34 faculty, located in two buildings at the Guelph campus as well as in Ridgetown, Simcoe and Vineland (Table 1, Appendix). Management of the Department is the responsibility of the Chair with assistance from the Associate Chair, the Executive Advisory Committee and the Executive Officer.

The Plant Agriculture faculty, staff and graduate students in each of the locations away from the Guelph campus are associated with additional organizations in various ways. At the Ridgetown campus the faculty work with College Professors to deliver the Associate Diploma programs in Agriculture and Horticulture. In Simcoe the faculty collaborate with OMAFRA personnel to develop opportunities for
agriculture in the sand plains of Norfolk, Brant, Elgin, Oxford and Middlesex counties. The faculty at Vineland collaborate with scientists at the Vineland Research and Innovation Centre (VRIC) and the AAFC Research station. Many of the 29 adjunct faculty in the Plant Agriculture Department are members of these organizations in the satellite Plant Agriculture locations.

While co-ordinating activities across diverse locations can be complicated, the dispersed nature of our Department is seen as an opportunity for us to have a presence and be relevant across a large geographic area of the province. The challenge of being spread across several locations is a constant one, but a recent purchase of video conferencing equipment has helped to consolidate faculty, staff and students in the various locations.

The faculty and their areas of expertise to a large measure determine what we teach, research and extend to our constituencies. Since 2000 there has been a 50% drop in staff FTE and a 30% drop in faculty FTE in the Department of Plant Agriculture (Figure 3, Appendix). The reduction in staff positions occurred because of significant reductions in the OMAFRA budget in 2002/03, a transfer of farm operations from the Department to the Office of Research in 2004/05 and a reduction in OMAFRA support for technical positions in 2005/2006. There were 23 faculty departures from the Department for various reasons but mostly due to retirements (Table 2, Appendix). Until 2003, the retired positions were filled by new faculty but since then there have been 18 departures that have not been replaced. The areas of research that have been lost through attrition include: ginseng production; post-harvest physiology; post-harvest technology; nursery propagation; food safety; vegetable weeds/ production; molecular genetics; ornamental propagation; mushroom production; corn physiology; organic production; bioproducts/molecular biology; flower production; cereal breeding; grape production/ breeding.

However, replacements and some new faculty positions have added expertise to the department in areas including: turfgrass science; weeds/biosafety; oilseed physiology; postharvest physiology; nutraceuticals; bioproducts and sustainable food production. The latter two areas are notable because they are research chair positions, supported directly by organizations (the Ontario Government, Loblaw) with specific research interests. In addition, we added five new faculty to our department through a process to convert College Professor positions at Ridgetown to faculty. This added expertise in weed management in field and horticultural crops, soybean breeding, and crop production systems to our department.

Opportunities/ Challenges:

For the most part the faculty changes over the last 10 years were not planned and this has resulted in strains on our ability to provide a coherent curriculum, especially at the undergraduate level. However, the chair positions have shifted some of the focus of the Department into new, exciting areas that have substantial growth potential. A strategic plan represents an opportune framework in which to discuss faculty renewal and overall Department reorganization.
Strategic Goal 4: Enhance our organizational effectiveness by identifying and building on core strengths.

Objectives:

4.1 Develop a priority strategy for research and teaching that will maintain and build upon our Department’s core strengths and allow shifts into emerging areas in the face of declining faculty numbers.

A faculty retreat will be held in 2012 to prioritize faculty hires. Its purpose will be to identify ideal numbers of faculty required, with respect to discipline and commodity expertise, to maintain and enhance the mission of the department, while looking forward to emerging areas and opportunities, and developing priorities for faculty replacement.

4.2 Identify opportunities to partner with federal agencies, commodity groups and companies to develop faculty positions in the medium-term (5-10 years).

The Executive Committee will review opportunities in consultation with the Associate Dean External, biannually.

4.3 Develop an action plan to streamline service responsibilities within the department.

The Executive Committee will review the roles and sizes of standing Departmental committees and make recommendations for efficiencies to account for declining faculty and staff numbers and new initiatives by September 2012.

4.4 Develop a strategy to maintain core technical expertise.

The Executive Committee will develop a plan for allocation of regular full-time technicians as retirements occur to maintain functionality and safety of lab and field programs as well as Controlled Environment operations. A plan will be presented to faculty by December 2012.

4.5 Develop working international collaborations/partnerships with organizations that fit with our core strengths (such as the Chinese Academy of Agricultural Sciences) to increase international programs and presence.

The departmental International Liaison Officer and Committee will review opportunities on an ongoing basis and work with the Associate Dean Research to actualize one key project per year in the next five years.
4.6 Establish a system of accountability for enactment of the strategic plan.

*The Chair and departmental committees will report progress on objectives annually to the department.*

**INFRASTRUCTURE**

The Department has access to a wide variety of research facilities and equipment. There are greenhouse and growth facilities in both the Crop Science and Bovey buildings, and the Department has access to field plots and greenhouse facilities at various locations including: Arkell, Elora, the GTI, the Muck Crops Research Station, Simcoe, VRIC and Woodstock, as well as regional campuses located in Alfred, Ridgetown and Kemptville. Specialized research instruments and equipment are found at most of these facilities. Faculty are charged Research Station Services Access (RSSA) fees based on a cost per unit of field space used that varies depending on the location. These fees are charged in part to support and maintain the specialized farm machinery, irrigation equipment, weather stations and other data collection instruments often located at the various field sites. The larger items (combines etc.) are financed by contributions from OMAFRA, ARIO, the Department and individual faculty, while smaller and/or specialized items are purchased using research funds by the individual faculty who use them. The University has a very good arrangement with the tractor manufacturer John Deere that provides leased tractors at a negligible price. Fees for the use of greenhouse, growth room and growth cabinet facilities are assessed charged to individual researchers to provide funds for maintenance. Fees are also charged to faculty who use equipment in the common equipment rooms to pay for maintenance of that equipment. Other arrangements exist to cover the maintenance costs of specific pieces of equipment at Guelph and at other locations.

**Opportunities/Challenges:**

The cost of maintaining and replacing research infrastructure in the lab and field sites often falls to individual research programs but this is not always guaranteed. Some granting agencies will not allow funds to be used for the purchase of large equipment making it difficult to plan for maintenance and replacement of equipment, leading to a delay or hindrance of research. For instance, growth cabinet failure can ruin experiments that took months to plan and carry out. Similarly, non-functioning laboratory equipment can slow research significantly. Having the appropriate field equipment (both large-scale and plot-sized) and irrigation and weather stations is essential for field research, or at the very least makes research efforts much more efficient.

Opportunities through federal and provincial granting agencies like CFI and the Ministry for Research and Innovation arise periodically for significant infrastructure support. Individual faculty can also include funds for equipment maintenance in research grants or pursue specific equipment grants through NSERC. These initiatives need to be supported and coordinated at the Departmental, College and University levels.
Strategic Goal 5: Maintain, enhance and improve departmental research infrastructure to enable world-class research.

Objectives:

5.1 Maintain shared equipment and infrastructure at research stations (e.g. buildings, weather stations, combines).

   Engage the OAC Associate Dean Research, Office of Research and OMAFRA in discussions of Plant Agriculture long-term infrastructure needs at the research stations to maintain effective research programs.

   The Chair will initiate discussions with faculty and staff using these facilities and present identified needs to the appropriate administrators. These needs will be reviewed annually.

5.2 Enhance departmental lab and growth facilities.

   The Chair will strike a working committee that includes the Associate Dean Research and Associate Dean External by May 2012 to develop a long-range plan for facilities needed (including: modern research laboratories and teaching space tailored to expanding diploma, undergraduate and graduate programs) by winter 2013.

   When funding opportunities arise, the Chair will engage faculty to write applications for major equipment grants that benefit core areas.

5.3 Develop plans for growth facilities renewal.

   The Growth Facilities Committee will review needs annually and the Chair and the Chair of the Growth Facilities Committee will continue to work with OMAFRA and physical resources to negotiate a multiyear plan to renew facilities one year before the completion of the current agreement.

5.4. Pursue major grants for infrastructure renewal.

   When funding opportunities arise, the Chair will work with the OAC Associate Deans and faculty to prepare proposals for major infrastructure renewal.
**RESEARCH ACTIVITIES**

As described above, the Department has been very successful in attracting funding for both basic and applied research. The Department's expertise is in high demand, both nationally and internationally, and many Department members have strong connections with the private sector. A number of Department members are editors in the top journals of their fields, invited to both national and international review panels, and have international stature. Building on the strength of the Department’s reputation, we are committed to redefining plant agriculture through discovery.

**Opportunities/Challenges:**

Challenges to enhance research excellence and innovation include new, shorter graduate student training times that may reduce quality research, and loss of the critical mass of faculty in key research areas. The Department's high percentage of funding from OMAFRA makes it especially sensitive to funding cuts from this organization, as the declines in the Department's staff FTEs over the last decade show.

Opportunities to enhance funding, research and peer-reviewed publications include: improving internal administration in order to free up faculty and technical time; supporting the desire of faculty, technical staff, and students to excel and break new ground by highlighting research contributions and fostering a positive intellectually-stimulating atmosphere; and reducing teaching hours by intensifying teaching loads.

**Strategic Goal 6: Encourage a culture that values ground-breaking fundamental and applied research.**

**Objectives:**

6.1 Encourage and recognize extra efforts made by faculty to obtain high profile (national and international) funding.

*Expand the role of the research review committee to advise on major grant applications and share insights from panel members to applicants.*

6.2 Recognize the extra efforts made by faculty, technical staff and graduate students to publish high impact/ high profile work.

*The P&T Committee will initiate a review of Departmental P&T guidelines and bring revisions to faculty for a vote by August 2012.*

6.3 Encourage faculty/students and staff to disclose potentially commercializable discoveries.

*The Executive Committee will work with the Business Development Office to initiate periodic sessions with staff and student groups to discuss intellectual property protection.*

6.4 Encourage and recognize graduate student involvement in publication.
6.4.1 Increase student awareness of the mandate to publish.

6.4.2 Conduct an annual workshop for students to be instructed on proper writing technique for publications.

_The Graduate Committee will bring recommendations to the Department on means to encourage graduate students to publish their work in peer-reviewed journals during their time in graduate school._
COMMUNICATION and SERVICE MISSION

We communicate our research findings and our activities in teaching and service to different groups and for various reasons, including: knowledge transfer, promotion of the Department, student recruitment and building community within the Department. The Department engages in service to its constituencies and stakeholders in various forms, including: assistance in the preparation of OMAFRA fact sheets, writing of annual and final OMAFRA project reports, industry research and technology transfer, preparation of reports to growers’ organizations and supporting industries, maintenance of a departmental website and by serving on committees within and outside of the University. The internal committees are important for furthering the business of the University and building community among members of the department.

Knowledge of and facility with modern communication tools is an important feature of a relevant, communicative and attractive Department. Increasingly, electronic tools are being used for our personal and professional communication. Tools such as video conferencing are also becoming easier to use and help to bridge distances. However, we continue to value personal meetings with prospective students, members of our profession and industry representatives and seek to find ways to make them productive, enjoyable and memorable.

LIAISON AND RECRUITMENT

The Department of Plant Agriculture is actively involved in a number of University and College student recruitment activities including: Science and Engineering Sunday, College Royal, Fall Preview Day and the Spring Academic Open House. In addition, the Department has a presence at the Royal Winter Fair, the Science Olympics, the Technology and Trade Career Showcase and (new in 2012) the Career Showcase.

Opportunities/Challenges:

The main challenge faced by the Department is the need to increase our exposure to prospective students as well as improve the marketing of the diploma, undergraduate and graduate programs offered by Plant Agriculture. In this respect the Department is attempting to broaden its reach through as many opportunities as possible to interact with not only students but with teachers as well. The provincial initiatives in the high school curriculum to develop High Skills majors in various areas in agriculture and the environment are significant opportunities for broadening our direct interaction with high school students and teachers.
Strategic Goal 7: Broadcast departmental educational program strengths.

Objectives:

7.1 Attract additional students to Plant Agriculture’s courses and majors.

*The Chair will appoint a faculty champion by April 2012 to coordinate participation in University and College recruitment opportunities in events such as Science and Engineering Sunday, Royal Winter Fair, Spring Open House and Reach Ahead activities, and recognize this contribution with an appropriate DOE.*

7.2 Develop high quality display materials/posters in high-traffic areas (e.g. the glass cases located at the entrances to the Crop Science and Bovey buildings) to advertise our majors and courses.

*The Undergraduate Teaching Committee will work with the Liaison Committee and the College Communications and Public Affairs Coordinator to design and produce display materials by September 2012. The group will also develop a replacement schedule for the materials to keep them current and attractive.*

7.3 Develop a high school outreach program, including the development of a program of Departmental Ambassadors (comprised of graduate students) who will give a presentation on plant agriculture in their former high schools in Ontario.

*The Liaison Committee will work with the Undergraduate Teaching Committee, the Graduate Student Liaison Committee and the College Liaison Officer to explore the development of an action plan by September 2012.*

COMMUNICATION, SERVICE AND TECHNOLOGY TRANSFER

Currently, the department of Plant Agriculture communicates with its members and constituencies in several ways. The Department web page has been an important source of information about our faculty, the research we conduct and student and staff information. The faculty web pages are often cited as the source of information about the Department’s research activities by international graduate student applicants. Recently, the Departmental Newsletter was replaced by a Blog that is attached to the website. Over the last 7 months The Blog has averaged almost 800 page views per month and has readers in Canada, the United States, India, Ethiopia, Peru, China, United Kingdom, Thailand and Australia. Communication within the Department of Plant Agriculture is also fostered through bi-annual Departmental retreats and Feed Forward Staff Workshops, as well as the winter guest-seminar series and student seminars.
Opportunities/Challenges:
While the Departmental web page is a rich source of information the currency of the information is variable and the page has been modified so often that it lacks a coherent and clean structure. Also, individual faculty lack comprehensive, up-to-date web pages, which may mean lost opportunities for graduate student recruitment. The research strengths of the Department and the technologies that it has to offer could be showcased much more effectively through both electronic and print means. While participation in the Departmental seminar and colloquia series, retreats and workshops, is encouraged, broader participation by Departmental members is often desired.

The City of Guelph has a major commitment to developing Ag Innovations and many of the businesses that have clustered around the University are related to our research programs. An effort to connect with City and local industries may have significant benefits for our research programs and our students.

Strategic Goal 8: Enhance communication among ourselves, our constituencies and society.

Objectives:

8.1 Enhance the effectiveness of our web communication.

8.1.1 Enhance, renew and keep Departmental and individual faculty web pages updated on an annual basis.

8.1.2 Develop a web page focusing on current publications with a short description of the findings and relevance in commonly understood language.

8.1.3 Develop web pages that highlight international projects and recognize the diversity of service to the Department, College, University, science communities, and agricultural sectors.

The Computer Committee and the Liaison Committee will work with the Chair to facilitate enactment by December 2012.

8.2 Enhance connections with the City, local companies and government agencies by participating in and/or initiating events and meetings to discuss/showcase Plant Agriculture activities, accomplishments and goals.

8.2.1 Use the Urban Center for Organic Agriculture and the GTI as vehicles to promote local interactions.

8.2.2 Encourage meetings and develop workshops to engage municipal/ provincial/ federal politicians and industry.

The Chair will invite industry and government representatives to give short presentations to faculty meetings to increase mutual awareness. Over a period
of 5 years a few Public/ University workshops/ seminar series will be organized by the Executive Committee to explore the desirability of regularizing such events.

8.3 Develop a vehicle for technology transfer to primary producers and OMAFRA extension personnel.

The Liaison Committee will work with representatives from the OMAFRA Knowledge and Technology Transfer (KTT) committee to explore possible models for a co-ordinated Plant Agriculture extension activity and report to the faculty by May 2013 with plans for implementation by Dec 2013.

8.4 Continue to enhance the Feed Forward Staff Workshops and Departmental Retreats to build community and familiarity with the variety of responsibilities and experiences people have in the Department.

8.5 Continue to encourage participation in intellectual exchange by continuing the Winter Seminar series, organizing a Graduate Poster Day, and encouraging broad attendance at public Colloquia and Graduate Research Proposal Seminars.

The seminar series, Colloquia and Graduate Research Proposal Seminars will be organized by the existing groups (Seminar Committee and graduate faculty, respectively) and the Graduate Poster Day will be organized by the Graduate Committee. Organizers will be encouraged by the Chair to make the events as widely publicized as possible.
APPENDIX

Total FTE=MTCU + OMAFRA + Research Chairs

2007-2010 Averages

Figure 1. Eligible graduate students per total faculty FTE. OAC, Ontario Agricultural College; UofG, University of Guelph, APS, Animal and Poultry Science; SEDRD, School of Environmental Design and Rural Development; SES, School of Environmental Science; FARE, Food Agricultural Resource Economics, FS, Food Science, PA, Plant Agriculture.

Figure 2. Undergraduate students taught per MTCU faculty FTE. OAC, Ontario Agricultural College; UofG, University of Guelph, APS, Animal and Poultry Science; SEDRD, School of Environmental Design and Rural Development; SES, School of Environmental Science; FARE, Food Agricultural Resource Economics, FS, Food Science, PA, Plant Agriculture.
<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Area of Research</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Bowley, Stephen</td>
<td>Crop Science Bldg.</td>
<td>Perennial forage crop breeding</td>
<td>Joint appointment with BDO</td>
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<tr>
<td>Bozzo, Gale</td>
<td>Bovey Bldg.</td>
<td>Postharvest biochemistry &amp; physiology</td>
<td>Currently, contractually limited</td>
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<tr>
<td>Cline, John</td>
<td>Simcoe &amp; Vineland</td>
<td>Pomology &amp; tree fruit production</td>
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<tr>
<td>Dale, Adam</td>
<td>Simcoe</td>
<td>Breeding, genetics &amp; management of berry crops</td>
<td></td>
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<tr>
<td>Deen, Bill</td>
<td>Crop Science Bldg.</td>
<td>Cropping systems &amp; plant-soil interactions</td>
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<tr>
<td>Earl, Hugh</td>
<td>Crop Science Bldg.</td>
<td>Oilseeds physiology &amp; agronomy</td>
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<tr>
<td>Gillard, Chris</td>
<td>Ridgetown</td>
<td>Dry bean agronomy</td>
<td></td>
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<tr>
<td>Grodzinski, Bernard</td>
<td>Bovey Bldg.</td>
<td>Photosynthesis, translocation</td>
<td></td>
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<tr>
<td>Hooker, David</td>
<td>Ridgetown</td>
<td>Field crop agronomy</td>
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<tr>
<td>Jordan, Katerina</td>
<td>Bovey Bldg.</td>
<td>Turfgrass science and nematology</td>
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<td>Lee, Elizabeth</td>
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<td>Maize breeding and genetics</td>
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<td>Lukens, Lewis</td>
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<td>Bioinformatics, genome evolution, QTL mapping</td>
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<td>Lyons, Eric</td>
<td>Bovey Bldg.</td>
<td>Turfgrass science and physiology</td>
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<td>Martin, Ralph</td>
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<td>McDonald, Mary</td>
<td>Crop Science Bldg.</td>
<td>Crop protection of vegetable crops</td>
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<tr>
<td>Ruth</td>
<td></td>
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<td>OMAFRA Research Program Co-Director - Plants</td>
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<tr>
<td>McKeown, Alan</td>
<td>Simcoe</td>
<td>Vegetable production &amp; physiology</td>
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<td>Micallef, Barry</td>
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<td>Plant Physiology, greenhouse vegetables</td>
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<td>Mohanty, Amar</td>
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<td>Paliyath, Gopi</td>
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<td>Biochemistry and molecular biology of fruit development; fruit and vegetable processing</td>
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<td>Pauls, Peter</td>
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<td>Development and application of molecular biology and tissue culture techniques to crop improvement</td>
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<td>Raizada, Manish</td>
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<td>Rajcan, Istvan</td>
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<td>Robinson, Darren</td>
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<td>Field crop pest management</td>
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<td>Vineland</td>
<td>Tree Fruit Genetics and Breeding</td>
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<td>Sullivan, Alan</td>
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<td>Native flower, Fragaria, <em>Rubus</em> breeding, genotype x environment, interspecific hybridization, fall-bearing</td>
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<td>Van Acker, Rene</td>
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<td>Wolyn, David</td>
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<td>Breeding, tissue culture, cytoplasmic male sterility, homeosis, mitochondria, molecular genetics</td>
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**Figure 3.** Changes in Full Time Equivalent (FTE) Plant Agriculture positions since 1999/2000. Faculty numbers do not include faculty located at Ridgetown or faculty seconded to administrative positions.
<table>
<thead>
<tr>
<th>Faculty</th>
<th>Departure</th>
<th>Area of Research</th>
<th>Replacement or new Position</th>
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<tr>
<td>Kasha</td>
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<td>Souza Macahdo</td>
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<td>Hort. Systems</td>
<td>Dionne/Lyons</td>
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<td>Hunt</td>
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<td>Martin</td>
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<td>2011</td>
<td>Hooker</td>
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<td>Crop Production Systems</td>
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<td>2012</td>
<td>Gillard</td>
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<td>Dry Bean Agronomy</td>
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Figure 4. Research funding in the Plant Agriculture Department. Values do not include research funding obtained by faculty located at Ridgetown, which add approximately $2M to the total.