

Significant Department Advancements and Accomplishments Since 2002

Strategic Planning

Since the last review in 2002, the department has developed a culture of frequent, ongoing strategic planning for each of our mission areas. The following department retreats were held to develop a collective vision to improve program content and delivery.

Department future directions	Spring 2001
Department CSREES review preparation	Fall 2001
CSREES review of Purdue Agronomy	Spring 2002
Undergraduate/graduate curriculum review	Spring 2003
Graduate program review	Spring 2005
Crop Science strategic planning	Winter 2006
Cropping Systems extension curriculum planning	Spring 2006
Research program review	Spring 2006
Department strategic goals assessment (Advisory Committee)	Summer 2006
Department future directions	Fall 2007
Departmental assessment of mission areas	Fall 2008
Departmental CSREES review preparation	Spring 2009

Strategic planning is fully integrated in the department. The department head frequently meets with faculty, staff, and graduate students throughout the year to discuss issues. It is through a combination of these frequent meetings and retreats that a shared department vision is developed and program assessment, evaluation, and improvements are made.

The following are examples of department advancements and accomplishments that have been made since the last review in 2002 as a result of these discussions. In addition, our response to the review team recommendations in 2002 are found in Appendix D.

Faculty Hires

Since 2002, we have hired 14 faculty. This was one of the most aggressive periods of faculty hiring in the history of the department. Of these hires, 10 were assistant professors, one was an associate professor, and three were full professors. Only five of the 14 faculty positions were replacement hires to fill vacancies, the other nine positions were new. We also recognized that expertise was needed in integrative modeling of systems. Consequently, several recent hires either develop or use modeling in their research approaches. The 14 faculty positions are:

Cale Bigelow – turfgrass	Jianxin Ma – SB genetics
Laura Bowling – watershed hydrology	Dev Niyogi – climatology
James Camberato – fertility extension	Phillip Owens – pedology
Melba Crawford – remote sensing	Torbert Rocheford – maize genetics
Shawn Conley – SB extension*	Lori Snyder – crop science
Kevin Gurney - biogeochemistry	Mitch Tuinstra – maize breeding
Yiwei Jiang – physiology	Qianlai Zhuang – biogeochemistry

* Position currently vacant. Active search occurring.

During that same period, we acquired five new USDA-ARS adjunct faculty in Agronomy. These scientists are:

Gary Heathman – watershed hydrology
 Karen Hudson – SB genetics
 Elizabeth Pappas – watershed hydrology
 Steven Scofield – small grain pathology
 Doug Smith – watershed hydrology

The opportunity to hire so many faculty in a short period of time has allowed the department to develop new or enhanced thrust areas. These areas of research compliment existing programs to address fundamental and applied science based approaches to solving complex problems at multiple scales. This has placed Purdue Agronomy in a unique and enviable position nationally to be the place to invest in research and education. These new thrust areas are:

Turf physiology	Climatology
Biogeochemistry	Fertility extension
Watershed hydrology	Landscape scale modeling
Maize genetics/breeding	

Other Faculty Positions: Prior to 2002, the department had no chaired faculty positions. Since then, we have created one endowed chair and three named professorships. In addition, we have two new distinguished professors in Agronomy. These positions are:

Endowed Chair: The F.L. Patterson Chair in Translational Genomics in Crop Improvement
endowed by the Lilly Corporation: Torbert Rocheford

Named Professorships:

The Chair of Excellence in Earth Observation: Melba Crawford

The Wickersham Chair of Excellence in Agricultural Research: Scott Jackson

The Wickersham Chair of Excellence in Agricultural Research: Mitch Tuinstra

Distinguished Professors:

Small Grains Breeding: Herb Ohm

Sorghum Breeding: Gebisa Ejeta

Soil Physics: Suresh Rao (prior to 2002)

Faculty Support Programs

Faculty Development: Faculty development is essential to keep the department on the cutting edge of learning and discovery. Faculty development comes in many forms to meet a myriad of needs of individual faculty. Some are workshops to address an acute need such as grant writing; others require a long-term investment of time and funding to retool an area of expertise. We have a culture in the department that encourages our faculty to participate in multiple development programs.

Mentoring/Protégé Program: Our faculty mentoring program was developed and implemented in 2002. All assistant and associate professors are assigned a three- to four-member mentoring committee consisting of senior faculty. These mentoring teams meet with the protégé throughout the year to offer advice and provide guidance. The goals of the program are to educate our faculty about available resources and the Purdue culture, help each faculty be effective and efficient, become an integral member of the department, avoid pitfalls, develop a network, develop a support group, and develop a professional portfolio; e.g., promotion document, annual reports.

Among the suggested activities, mentoring teams are expected to:

1. Discuss short and long term career goals and professional interests
2. Share information on academic and student support services
3. Discuss effective educational techniques, outreach/course development
4. Explore research and sponsored funding opportunities and writing publications
5. Discuss departmental policies and university governance structure
6. Discuss student issues
7. Share experiences on managing time, handling stress, and balancing workload
8. Preparing for tenure and promotion
9. Address special needs, questions, and provide guidance in difficult situations
10. Be an advocate during the early years and at promotion and tenure

The mentoring/protégé team remains active until the faculty member is promoted to full professor. Faculty find this program beneficial in providing guidance for establishing a productive and successful career at Purdue. The mentoring program has been used as a model by other departments within the College of Agriculture who are considering development of mentoring programs.

Formative and Summative Feedback: We developed a new system in 2005 to increase constructive feedback from our senior faculty to our junior faculty. The department promotion and tenure committee (also known as the primary committee) meets twice each year; once in May to provide formative feedback on all assistant and associate professors and again in October to decide on promotion issues. In May, the primary committee provides feedback through surveys of individual assessment (Appendix B) and from discussion by the primary committee about the progress of each faculty member. A recommendation is made by the primary committee on which faculty to consider for promotion and tenure in the fall. In October, the primary committee decides on promotion and tenure. Decisions are based on

satisfactory professional progress as evidenced in the promotion documents, outside letters, and through open discussion by the primary committee. The mentoring teams are fully integrated in the promotion and tenure system. Assistant and associate professors are expected to work with their respective mentoring groups to assist in development of promotion and tenure documents. The mentoring teams serve to represent the respective faculty member at both spring and fall meetings.

Our senior faculty recently developed and approved a set of professional values that they have articulated as desirable qualities for faculty programs. These were formulated to provide additional guidance for our Assistant and Associate Professors in development of their programs. These values are listed in Appendix C.

Sabbaticals/Enhancing Expertise: Purdue recognizes that to remain at the forefront of teaching and research, faculty must be afforded the opportunity to develop new professional skills and to enhance their professional growth. Sabbaticals and a relatively new program called, “Study in a Second Discipline,” are encouraged of all faculty in the department. Sabbaticals are opportunities to leave campus to develop intellectually in a different environment. The Study in a Second Discipline is separate and distinct from the sabbatical program and is another opportunity provided by the university to assist faculty in developing new discipline areas. With this program, faculty remain on campus but work with a colleague in a different department to learn a new technique or to enhance expertise in a different field of science. Each college/school is limited to two faculty nominees per academic year. Fellowships are awarded for one or two semesters by the Provost’s Office to support travel, equipment, software, and other expenses but the study must take place on the West Lafayette campus.

The following is a listing of faculty who have participated in sabbaticals and study in a second discipline since the last review.

Sabbatical

Doerge, Rebecca	2005-2006	Cold Spring Harbor - New York
Ejeta, Gebisa	2006-2007	Gates Foundation; Kenya, Africa
Graveel, John	2007-2008	Colorado State University
Housley, Tom	2006	West Lafayette, write a book
Jackson, Scott	2008	France
Joern, Brad	2003	Michigan State
Kladivko, Eileen	2003-2004	Poland and Iowa State
Nakatsu, Cindy	2002-2003	Tsukuba, Japan
Ohm, Herb	2003	University of Western Australia, Perth
Rao, Suresh	2006-2007	Adelaide, South Australia
Reicher, Zac	2008-2009	University Visits
Szymanski, Dan	2007	University of British Columbia
Van Scoyoc, George	2002	St. Istvan University, Hungary; Michigan State University
Vorst, James	2002-2003	West Lafayette, Certified Crop Advisor Program
Vyn, Tony	2005-2006	Western Australia, Geraldton, WA and University of Nebraska-Lincoln

Study in a Second Discipline (conducted on Purdue campus)

Sylvie Brouder	Sp 2004/F 2005	Department of Statistics
Dan Szymanski	Sp 2007	Department of Biology

Program Support

Support for our three mission areas of teaching, research, and outreach is the number one goal of administration. To do their job to the best of their abilities, our faculty must have sufficient support from the university. With limited resources, support is usually provided for efforts that have the greatest potential to benefit multiple people and is made available as direct financial assistance to a program or programs, seed money for exploratory research, purchase of common use equipment for research and education, renovation of out-dated facilities, and professional development. Some examples of programs and opportunities resulting from institutional and faculty investments are presented below.

Grants Support Office: Initiated in 2005. See page 51 in Background Information section for further description.

Grant Writing: All faculty must become skilled in writing grants to be successful. Purdue offers workshops throughout the year that address grant writing for specific federal agencies such as NSF and NIH. These workshops are open to all faculty and in particular, our non-tenured faculty are encouraged to attend. In addition, department resources are provided our non-tenured faculty to participate in off-campus grant writing workshops.

In 2005, we hosted a half-day grant writing workshop in the department designed specifically for our assistant and associate professors. This workshop was developed and delivered by Ron Turco and Lesley Oliver of the Office of Agriculture Research Programs and focused on fundamentals of successful grants. We are currently working with Sally Bond, a professional grant writer at Purdue, to provide ongoing workshops and individualized assistance in grant writing techniques to our faculty.

In addition, there is considerable informal grant writing support provided our junior faculty by our senior faculty. Either through the mentoring teams or by colleagues, senior faculty offer feedback on proposals written by their junior faculty colleagues. Many of our senior and junior faculty are co-PI on grants and this collaborative approach to grant writing also results in improved writing skills.

Salary savings program: A salary savings program was developed in FY 03-04 to create an incentive for faculty to generate more dollars for their programs and for the department through grantsmanship. Prior to 2003, any money included as salary savings in a grant went directly to the department, none went to directly support the PI's program. A new program has been established in which after 5 percent of a faculty member's salary is covered through salary savings, the remaining salary savings generated through grants is split 50/50 between the PI and the department. This new policy has resulted in increased total salary savings generated through grants and increased dollars to the PI program and to the department. The following table shows the annual generation of salary savings before and after the policy was implemented (Table 2.1).

Table 2.1. Salary savings history in agronomy; FY 02-03 to FY 07-08

FY	Total Salary Savings	Salary Savings to Faculty	Salary Savings to Department
02-03	\$53,377	\$0	\$53,377
03-04*	\$77,327	\$20,584	\$56,743
04-05	\$81,607	\$18,892	\$62,715
05-06	\$99,570	\$26,766	\$72,804
06-07	\$137,084	\$47,625	\$89,459
07-08	\$152,346	\$61,538	\$90,808

* FY 03-04 was the first year the new salary savings program was initiated.

Facility Enhancement: Much of the laboratory space in the department located in Lilly Hall underwent significant renovation in the late 1990s. In contrast, space in the Lilly annex known as the Plant and Soils Building did not undergo similar renovation. Additionally, the renovations to Lilly improved the quality of space but did not increase the quantity of useable square footage. Despite the renovations, expansion of facilities due to increase in faculty hires and increased laboratory focus of research programs has been a challenge. The Plant and Soils Building offers an opportunity for expansion but only following selective renovations of outdated laboratories. Department resources have been combined with outside support to convert facilities in Plant and Soils into state-of-the-art laboratories and seed storage. In addition, private donations were obtained, and considerable effort has been placed on renovating and upgrading facilities and equipment to support our research and educational programs. Significant renovations and buildings are listed with sources of funds:

- Seed handling facility, various rooms in Plant and Soils, university funding, \$500,000
- Long-term cold storage of seed, Plant and Soils Building, private donations, \$250,000
- Beck Agriculture Center, Agronomy Center for Research and Education, private donations, \$5.2 million
- Acquisition of 4 acres for wetland research and education at the acre, university funding, \$400,000
- Acquisition of 140 acres for agronomic research at the ACRE, university funding, \$900,000
- Turf laboratory renovation, Plant and Soils Building, department funding, \$200,000
- Extension lab renovation, Plant and Soils Building, department and college funding, \$400,000
- USDA lab renovation, Plant and Soils Building, USDA, college, and department funding, \$400,000
- Genomics laboratory renovation, Whistler Building, college and department funding, \$75,000
- Long-term soil storage, Agronomy Center for Research and Education, department funding, \$10,000

There has been verbal administrative approval to build a seed and tissue handling facility south of Lilly Hall. It is envisioned that this would be a 30,000 square-foot facility that would allow for the drying, cold storing, processing, and treating of seed and tissue for the college. A classroom and associated teaching laboratory would also be included to accommodate courses in seed technology. Private gifts will be sought to cover more than 50 percent of the \$11 million price tag.

Education Programs

Our undergraduate and graduate education programs are discussed in detail in their respective sections of this review document. However, below are highlights of changes that have taken place in each of these programmatic areas since the last review.

Extensive Curriculum Review: We invited Dr. Robert Diamond, internationally renowned scholar on curricula design and assessment from Syracuse University, to work with our faculty in rethinking our undergraduate and graduate curriculum. Since then, through combinations of retreats, small working groups, and staff meetings, our faculty have used curricula assessment data to create new courses and develop new areas of graduate specialization that are responsive to the demands of the job market and students interests. We have designed courses that are team taught, are delivered to distant audiences, increase global awareness, incorporate community involvement activities, and expose our students to new technologies. We consistently refine our curriculum to include topics such as environmental stewardship, leadership, appropriate ethical behavior, the entrepreneurial enterprise, team approaches to problem solving, and respecting diversity of people and ideas. Many of these topics are integrated into existing courses using techniques such as case studies, internships, study abroad experiences, and service learning. This past spring semester, we significantly modified our department PhD program in Agronomy to focus on an outcomes based educational approach.

Undergraduate Education Program Highlights: Several of the improvements to our undergraduate programs have focused on enhancement of leadership skills, developing greater sense of community in the department, and experiential and enhanced classroom learning. These include the following:

- a. **Undergraduate study center.** This center offers students a quiet and dedicated space to work together on projects, and to study, and is located near the break room and the department conference rooms to increase the likelihood of greater interaction with faculty and staff. This space was provided to increase opportunities for student and faculty interactions.
- b. **Agronomy Ambassadors Leadership program:** Initiated in 2004, this prestigious and highly selective program is designed to develop young men and women into future leaders.
- c. **Increased study abroad participation:** The goal of the university is for 25 percent of all students to have had a study abroad experience prior to graduation. Currently, Agriculture is the only college at Purdue to have achieved this goal. Our faculty have contributed to this goal by developing and leading seven courses that have included study in nine countries.
- d. **Electronic forms of education:**

Distance education: Our first department-based course developed for distance delivery went online in 2006:

AGRY 210Y Fundamentals of Turfgrass Culture; Dr. Cale Bigelow, instructor. A second distance education course is under development by Dr. Lori Unruh-Snyder on Cropping Systems.

E-instruction: New technologies have been recently integrated in several of our classrooms. These include

- Adobe Connect
- Adobe Presenter
- Rugged Tablet PCs

Graduate Education Program Highlights: Additional improvements to our graduate program have focused on enhancement of curriculum, seeking increased financial support of stipends, recognizing outstanding performance, and increased diversity of students. These improvements include:

- a. **Enhanced graduate student orientation:** we now offer a one-day orientation program for our graduate students the week before fall classes. Topics include the scientific process, ethics, statistical and computer resources, relationship development with the major advisor and committee, journal articles management, and teaching and extension opportunities in the department. These topics are essential to development of outstanding professionals and they contribute to a successful and satisfying graduate education experience.
- b. **Increased graduate student diversity:** Graduate student gender and minority diversity has increased as a result of directed recruitment and retention programs. Since 2002, minority students have increased from 1 to 5 and female students have increased from 23 to 29.
- c. **Implemented graduate student exit interviews:** All graduate students complete and submit a written exit survey at the end of their program and many participate in an oral exit interview. The results are summarized and used to help direct the graduate program.
- d. **Implemented semi-annual graduate student town hall meetings:** The department head and assistant department head meet with all graduate students in a town hall format during the fall and spring semesters. Feedback is used to address short and long term issues.
- e. **Increased graduate student internships and stipend support from industry:** We have partnered with the private sector such as Dow Agro Sciences and Pioneer Hybrid International to offer internships for some of our graduate students and have solicited and received gifts from the fertilizer and seed industry totaling \$550,000 to support graduate student assistantships.

- f. **Increased graduate student scholarships:** In addition to existing scholarships for graduate students that total \$8,000 in annual awards (George Scarseth and M.O. Pence), we have solicited and implemented several new endowments/scholarships since 2002 that provide an additional \$5,000 annually and include:

- Outstanding Graduate Student in Education
- Outstanding Student in Extension
- Outstanding MS Student in Research
- Outstanding PhD Student in Research
- Joe White Memorial Graduate Scholarship
- John Axtell Memorial Graduate Award
- Wayne Rothgeb Memorial Graduate Scholarship

We recognize the award recipients and the accomplishments of all our graduate students at a spring graduate student reception held in the department.

- g. **Increased graduate student stipends:** Graduate assistant stipends were increased in 2005 by \$2,000. This increase in stipends achieved our goal to be in the upper 25 percentile of similar departments in the Big Ten.

Extension Education Program Highlights: Improvements to our extension education and applied research program since the last review include:

- a. **Greater budget transparency and access:** Extension coordinators have developed a more transparent budget that has resulted in greater access to available dollars to support extension activities by our specialists. This has resulted in more consistent and equitable upgrades of equipment and purchase of new, multiuser equipment to support extension activities
- b. **Increased FTE in Extension faculty:** We added an additional extension specialist position to our faculty in the area of soil fertility.
- c. **Building state-of-the-art outreach facility at the ACRE:** A \$5.2M, 21,000 square foot educational facility was constructed in 2007 that focuses on educational programming for external stakeholders
- d. **Acquisition of additional land and irrigation capacity at the ACRE.** Nearly \$1.0M was spent to acquire over 140 acres of land at the ACRE and an additional \$150k was invested in irrigation to support field research.
- e. **Establishment of extension assistantships:** Department resources have been allocated to support graduate student participation in extension programming and information delivery.
- f. **Corn and Soybean Field Guide:** We have sold more than 60,000 field guides per year since 2007, representing at least a 50 percent increase in purchases.

- g. **Enhanced participation in Variety Testing Program:** The variety testing program underwent major structural and management changes in 2006 and is under the direction of a single manager. This has resulted in a 60 percent increase in entries in soybean and a 10 percent increase in corn entries since 2006.

Broad-based Department Initiatives

- a. **Initiated strategic plan in 2004:** The first department strategic plan was written in 2004 and provided goals, strategies, and metrics for each of our three mission areas (Appendix F). The strategic plan has served as a road map to guide hiring, resource allocations and program direction. As part of the strategic planning, benchmark institutions have been identified. These are listed in Appendix G.
- b. **Initiated Agronomy Advisory Council:** The Council was initiated in 2004 and consists of external stakeholders who advise the department in all aspects of program development and delivery. The council meets twice each year and meetings occur at multiple locations to expose members to the myriad of activities of our faculty. A listing of present and past committee members is found in Appendix H.
- c. **Initiated Department Head Advisory Committee:** The Department Head Advisory Committee was initiated in 2002 to provide feedback on department direction, new ideas, and assessment of the general climate in the department. The committee meets at least once per semester or more frequently if needed. Membership consists of the following:

Automatic Appointments:

Assistant department head
Graduate committee chair
Teaching committee coordinator
Extension coordinator

Selected by Vote of the Faculty (3-year staggered rotations):

Full professor
Associate professor
Assistant professor

Selected by Department Head for One-year Term:

At-large member

- d. **Initiated Curriculum Committee:** In response to the last CSREES review in 2002, we implemented a curriculum committee to continuously assess our undergraduate and graduate curricula and provide guidance to the faculty concerning programmatic or policy issues.
- e. **Created Agronomy Communications position:** This position was created to focus on enhancing the communication and the image of the department to our external clientele. The communications specialist designs and oversees the department Web site, department newsletters, faculty Web sites, several recruitment activities, and co-coordinates the Agronomy Ambassadors organization. Additional information about the initiatives from this position can be found on page 44 in the Background Information section.

- f. **Increased private giving to the department:** Annual gifts to the department have been consistently higher since 2002, ranging from 7.7 percent to 274 percent increases in private gifts since 2002. The breakdown in gifts is presented on page 36 in the Background Information section.