Overview of the program. The M.S. in Agriculture program is housed in the Department of Agriculture within the College of Applied Science and Technology. The department also offers the B.S. in Agriculture program and a minor in agriculture. The graduate agriculture program has been substantially restructured and revised since the 2004-2005 program review. At that time the department offered an M.S. in Agribusiness. The program has since been renamed the M.S. in Agriculture, and program content has been broadened to prepare students for careers in agribusiness, agriscience, and agricultural education and leadership.

Description of the self-study process. The self-study process began in spring 2011 with department assessment committee meetings. In April 2012, the department chairperson designated three faculty members to coordinate review of the undergraduate and graduate programs. Data sets prepared by the Office of Planning, Research, and Policy Analysis on campus were organized and analyzed. Some information that had not been tabulated was requested directly from that office. In addition, data from intern employer surveys were tabulated and reviewed. In July 2012, a questionnaire was prepared and made available online to solicit feedback from program alumni. Data for comparator institutions were obtained from university websites, the Food and Agricultural Education Information System, and the Office of Planning, Research, and Policy Analysis. As data collection progressed, faculty was periodically asked for input. In August 2012, all faculty members were invited to participate in two open forums to discuss drafts of the program review documents. The self-study report was submitted to the department chairperson in early fall 2012.

Curriculum of the program. The M.S. in Agriculture program requires 36 or 37 credit hours depending on which sequence the student selects: agribusiness, agriscience, or agricultural education and leadership. Regardless of sequence, students take core courses in statistics and research in addition to a graduate seminar. All three sequences offer a thesis option or a non-thesis option that requires a research experience in the form of an independent study designed to enhance students’ critical thinking and quantitative reasoning skills. The agribusiness sequence builds a strong foundation in business by requiring nine credit hours of courses from the Master of Business Administration program and nine credit hours of advanced agribusiness courses. Students selecting the thesis option take six credit hours of thesis and six credit hours of electives. Students selecting the non-thesis option take three credit hours of independent study and nine credit hours of electives, culminating in a comprehensive examination. The agriscience sequence builds a strong foundation in science with courses in biostatistics and chemistry in addition to advanced science or agricultural science courses. Agriscience students may select a concentration in animal science, agronomy, or horticulture. Students selecting the thesis option take six credit hours of thesis and 17 credit hours of electives in agriculture, biological sciences, chemistry, or geology. Students selecting the non-thesis option take three credit hours of independent study and 20 credit hours of advanced science electives culminating in a comprehensive examination. Students in the agricultural education and leadership sequence take 14 credit hours in agriculture and nine credit hours in teaching and learning, technology, or other relevant disciplines. Students selecting the thesis option take six credit hours of thesis. Students selecting the non-thesis option take three credit hours of independent study and three credit hours of electives culminating in a comprehensive examination. The M.S. in Agriculture program is not offered at off-campus locations.

Faculty of the program or unit. As of spring 2012, the Department of Agriculture had 10 full-time tenured or tenure track faculty members, each with a Ph.D. Six faculty members held the rank of full professor and averaged 25.5 years of service to the University. The department also employed six non-tenure track lecturers, two with a Ph.D. and one with a doctoral degree in veterinary medicine. During the last five years, the number of peer-reviewed scholarly activities among tenured or tenure track faculty members has averaged about 31, compared to 21 in 2004. Faculty members have also been active in soliciting external funds for department programs and research. Between 2004 and 2011, faculty members submitted 114 grant applications, resulting in nearly $4.2 million in grant awards. In addition, faculty members have assumed leadership roles in national scientific societies and professional organizations. One faculty member currently serves as president of the American Association of State Colleges of Agriculture and Renewable Resources.
**Goals and quality measures for the program.** One of the goals of the Department of Agriculture is to provide a high-quality M.S. in Agriculture program, and this goal is measured by the quality of its students, time to degree completion, quality of faculty scholarship, currency of curriculum, strength of linkages between the program and business and industry, quality of facilities, job placement rates, and quality of internal systems used to assess the program. Student quality is measured by the number who complete theses, their scholarly accomplishments while in the program, and the number who pursue advanced graduate degrees after leaving the program.

**Budget planning process.** Budgeting for the program is driven by five strategic plan goals derived from the department vision and mission statements. Each goal has associated actions and budgets that are reviewed regularly by faculty members and the department chairperson. Each year the chairperson assigns faculty teams to individual goals, and teams report their action and budget recommendations to the full faculty and chairperson. Recommended actions and budget items are approved by majority vote of the faculty. The chairperson then makes budget decisions based on available funds.

**Description of any accreditation this program receives.** There is no professional accreditation or approval agency for this program.

**Summary and effectiveness of the student learning outcomes assessment plan.** In preparing for the program review self-study process, the Assessment Advisory Council on campus reviewed the assessment plan for the M.S. in Agriculture program and rated it as developing in all categories. Based on council recommendations, the program completely revised the plan and initiated its implementation in 2012-2013. The revised plan aligns more closely with program goals as well as with department, college, and university strategic plans. The revised plan assesses the effectiveness of the program in educating students to effectively contribute to their profession and communicate at an advanced level, instilling in them the knowledge and skills needed to make scholarly contributions to society, and cultivating their intellectual curiosity and an appreciation of life-long learning.

**Actions taken since the last program review including responses to recommendations for program improvement.** The 2004-2005 program review recommended that the Department of Agriculture revise its mission, vision, and goals; redefine the agriculture sequence in the M.S. in Agribusiness as a separate M.S. in Agriculture Science program and identify comparator and aspirational programs for it; develop and support graduate-level courses in agriculture science; and promote a culture of research among students. Department administration and faculty members have taken extensive actions in response to each recommendation. Three consultants from nationally-renowned agriculture programs were hired to review both the undergraduate and graduate programs in the department. Based on input from the consultants, the mission, vision, and goals of the department were reviewed and revised and have since been reviewed and updated every two years. The consultants recommended streamlining and refocusing the graduate program and increasing resources allocated to it. Faculty subsequently decided to change the name of the program from the M.S. in Agribusiness to the M.S. in Agriculture to reflect the breadth of the expanded program, establish consistency with the baccalaureate degree, and enhance student recruitment. Faculty also revised the program to focus more on statistics and research. A new sequence in agricultural education and leadership was added, and core courses for all sequences were revised. To increase resources, particularly assistantships, stronger efforts to obtain external grant funds have been encouraged. Faculty has subsequently identified graduate agriculture programs at other institutions to serve as benchmark and aspirational programs. Faculty has also expanded opportunities for students to be more directly involved in research and dissemination of scholarly outcomes. In 2004, graduate students co-authored six scholarly works with program faculty. In 2011, that number increased to 28. The newly-required graduate seminar has served as a venue for helping students improve their presentation skills. In addition to these responses to previous program review recommendations, the department has worked extensively on facility upgrades since 2004. A key facility in the department is the University Farm at Lexington, Illinois. The farm provides opportunities for hands-on learning and research. In 2007, 14 metabolism crates were installed in the hog farrowing facility to enhance swine nutrition studies and attract grants that support such research. Comprehensive renovation of agriculture teaching facilities on campus has also been completed since 2004. A wireless network has been installed in the Ropp Agriculture Building on campus, and 34 laptop computers have been purchased with contributions from the Archer Daniels Midland company.
**Description and assessment of major changes in the program or discipline since the last program review.**

Agriculture remains a significant part of the Illinois economy. The state has approximately 76,000 farms covering more than 26 million acres, and its food and fiber industry employs nearly 1 million people. Illinois ranks second nationally in the export of agricultural commodities with nearly $4 billion worth of goods shipped to other countries each year. Changes in agriculture since 2004 include increased emphasis on food safety and a greater need to balance increased output with protecting and preserving soil, water, and the ecosystem. Scientists will be needed to manage biotechnology and nanotechnology related to food safety and to maintain the health of livestock herds. The growing world population continues to increase the demand for food, requiring higher-yielding crops and more animal protein. More intensive agriculture continues to place pressure on natural resources utilized or impacted by agricultural production. In addition, production of renewable energy from crops is expected to increase.

Employment forecasts for 2010-2015 project that 29,300 agriculture graduates from all disciplines and degree levels will be available to fill 54,400 positions requiring their expertise. The largest area of employment growth for agriculture graduates is expected to be management and business, in which 12,100 agriculture and natural resource graduates will be available to fill 25,700 jobs. The United States Department of Agriculture projects 6,200 jobs in agriculture-related education, communication, and governmental services from 2010-2015 but only 3,900 graduates qualified to fill those positions. Individuals with expertise in multimedia and social media will be most in demand.

**Description of major findings and recommendations as a result of this program review.**

The restructured and redesigned M.S. in Agriculture program at Illinois State University is contributing to the agriscience, agribusiness, and agriculture education fields by preparing highly-qualified graduates for the growing number of jobs in the agriculture sector. The decline of program enrollment that started in 2002 and bottomed in 2006 has been reversed. The quantity and quality of research produced by students in the program has increased since 2004. Of the 43 students graduating between 2004 and 2011, 88 percent wrote theses. One received the college outstanding thesis award and was runner-up for the campus award. Students have been listed as co-authors with faculty members on 96 manuscripts or presentations since 2004. Three graduates have since earned doctoral degrees, six are enrolled in doctoral programs, and one is enrolled in veterinarian school. With major restructuring complete, program faculty will focus on refining and enhancing the program in the coming years.

**Actions to be taken as a result of this program review including a summary of initiatives and plans for the next three to five years.**

Based on findings in this program review, faculty of the M.S. in Agriculture program plans to update the assessment plan, monitor qualifications of admitted students, increase communication with alumni, address gender and ethnic imbalance among the faculty, and enhance interaction between students and agribusiness professionals. Specific actions to be taken include establishing a standing assessment committee to monitor implementation of the revised assessment plan, increasing the number and amount of graduate stipends and assistantships to recruit students with stronger credentials, regularly surveying alumni to obtain program feedback and document successes after graduation, and focusing on diversity in faculty hiring to achieve gender and ethnic balance comparable to other agriculture programs. Faculty will also establish a standing advisory board of agribusiness experts including department alumni to help assess program content and to participate in career and professional development activities for students.

**Review Outcome.** The Academic Planning Committee, as a result of this review process, finds the M.S. in Agriculture to be in Good Standing.

The committee commends the program for its work to respond to previous program review recommendations through program revisioning, program restructuring, and curriculum revisions. The committee thanks the program for a thoughtful and critical self-study, including a needs analysis that provides context for the program and a thorough and insightful analysis of benchmark institutions that identifies further opportunities for program improvement. The committee recognizes the strong integration of library resources and services into the curriculum and commends the program for the opportunities it provides for student participation in faculty research. The committee recognizes the collaborative nature of the program across allied disciplines and the related challenges and opportunities.

The committee recognizes recent efforts by the program to revise its assessment plan to encompass all sequences. The committee asks that the program work with University Assessment Services to finalize and implement its new assessment plan and to document results of its efforts in a follow-up report to the Provost’s Office. The committee asks that the department submit its report to the Provost’s Office by October 1, 2014.
**Recommendations.** The Academic Planning Committee makes the following recommendations to be addressed within the next regularly scheduled review cycle. In the next program review self-study, tentatively due October 1, 2020, the committee asks the program to describe actions taken and results achieved for each recommendation.

- Assess effectiveness of curricular changes made in conjunction with program restructuring in 2008, looking particularly at viability of the sequences, opportunities for adding 400-level courses, and alternatives for the chemistry requirement.
- Raise the academic credentials of admitted students so they meet or exceed university-wide averages, selecting credentials that are most predictive of academic and career success in the discipline.
- Continue efforts to improve contacts with and tracking of program graduates.
- Continue to focus on increasing underrepresented groups when hiring new faculty members, with a goal of achieving faculty diversity comparable to faculty diversity at other American Association of State Colleges of Agriculture and Renewable Resources member institutions.
- Assemble a program advisory board of agribusiness experts to help the program remain contemporary, provide guidance to students with career and professional development activities, and provide students with additional opportunities for networking with prospective employers.
- Dialogue with Milner Library faculty regarding library support for faculty research and, subject to budget constraints, implement priority enhancements identified in the discussions.

**Comparative Data, M.S. in Agriculture (01.0000)**

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*Note: This program was titled M.S. in Agribusiness (01.0102), prior to fall 2008.*