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Food and Agribusiness Management Education: Future Directions

National Food and Agribusiness Management Education Commission
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Kansas State University
Purdue University

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Michael Boland
Kansas State University

Jay Akridge
Purdue University
Editors

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Executive Summary

In 1989, the National Agribusiness Education Commission (NAEC) issued a set of recommendations for the future of agribusiness education in a report entitled "Agribusiness Education in Transition: Strategies for Change." Much has changed with respect to food and agribusiness education since that time as both the educational institutions involved in providing education and the firms hiring students from these programs continue to evolve in a dynamic food and agribusiness system. As the next 15 years bring even more change, a comprehensive review of food and agribusiness management education programs in the U.S. was needed. Kansas State University and Purdue University were charged by the United States Department of Agriculture to create a new National Food and Agribusiness Management Education Commission (NFAMEC) to conduct this comprehensive study. The specific objectives of NFAMEC were:

- Describe the current state of food and agribusiness management education at two and four year colleges and universities in the United States;
- Identify a set of key issues facing food and agribusiness management programs;
- Develop a set of recommendations on these issues; and
- Communicate these recommendations broadly through a national conference, professional meeting presentations, reports, and a web-site.

The 41 person Commission was comprised of faculty and program leaders from various universities and industry leaders from large and small firms from across the food and agribusiness markets. The full Commission was divided into six teams, with each team addressing a specific issue of importance to the future of food and agribusiness management education. A summary of the six issues and team recommendations is presented below.

Team 1: Curriculum Assessment and Revision

Food and agribusiness management programs serve a specific niche market. As a result, an on-going evaluation of the current curriculum is required to identify areas for improvement in order to meet the evolving needs of students and employers. After a careful review of current curricula in food and agribusiness management, recommendations include:

- Improve the integration across the curriculum of key concepts in the

areas of communication, team and interpersonal dynamics, problem solving, and ethics.

- Pursue strategies for broadening student understanding of diversity, and working in a multicultural business environment.
- Continue to support the inclusion of agricultural sciences in undergraduate food and agribusiness management programs.
- A course focusing on the international dimensions of public policy, international trade, finance, marketing, and strategy, all as they relate to the food and agribusiness manager.
- Require an internship, study abroad, or similar experience as part of an undergraduate food and agribusiness management major or degree.
- Encourage minors in food and agribusiness management that would be available to those majoring in agricultural sciences, or majors outside of colleges of agriculture.
- Support the development of teaching materials to provide the industry focus that food and agribusiness management programs need to be successful.

Team 2: Communication/Writing/Critical Thinking Skills

Interpersonal communication, critical thinking, and writing are among the most important skills that industry desires in new hires with the capacity to become leaders. Specific learning outcomes and teaching approaches were identified in five areas: oral communications, writing, teamwork, critical thinking, and ethics. The nature of these topics requires non-traditional teaching methods, and also recognition that co-curricular activities are an important way to build skills in these areas. Both have implications for faculty training and development. Specific recommendations include:

- Incorporate development of oral communications, writing, computer, teamwork, critical thinking, and ethics into courses at all levels of the curriculum.
- Recognize the role of co-curricular activities such as student clubs and academic teams in developing skills in these areas, and the implications here for counseling and faculty roles.
- Support faculty development in the non-traditional teaching approaches required to successfully teach these topics, including experiential learning, team based assignments, problem based learning, and management simulation games.
- Support research into the role of co-curricular activities in student learning, and effective models for integrating these experiences into the curriculum.
- Create a dialogue on the role of faculty in co-curricular activities and how that role is recognized in promotion and tenure activities.

Team 3: Industry Linkages

On-going interaction with industry is critical if food and agribusiness management programs are to remain relevant. Such interaction is needed to refine curricula and course content, maintain linkages for internships and job opportunities,

and provide resources for recruiting, course materials, and activities, and non-course experiential learning opportunities. Some recommendations for deepening industry relations include:

- Maintain NFAMEC or create some other forum for regular discussions between faculty and industry on issues of curriculum focus and structure.
- Increase industry visibility on campus with administration and increase industry involvement in food and agribusiness management programs.
- Create a Certified Internship template which would provide detailed guidelines for ensuring a productive internship experience for both student and industry.
- Encourage food and agribusiness program directors and faculty to aggressively pursue other forms of student-industry interaction including special projects, on-site visits, in-class lectures, virtual mentoring programs, and executive in residence programs.
- Develop a national database which catalogs food and agribusiness firms with certified internship programs, virtual mentoring programs, those willing to offer guest lecturers for classes, and similar activities. Such a database could also catalog the activities of food and agribusiness management faculty and their specific industry needs.

Team 4: Student Recruitment for Food and Agribusiness Management Programs

To a large extent, food and agribusiness management programs are only as good as the students who enroll. This means that food and agribusiness management programs must have productive recruitment strategies to insure a quality cadre of students is enrolled. Some recommendations for recruiting the quality students needed by the food and agribusiness industries include:

- Recognize the barriers and challenges to recruiting quality students including the perception that careers in agribusiness are unattractive; stereotyping of both professionals and students; a decline in the traditional student pool; a consolidating industry; and increased competition for students.
- Develop a clear, effective answer to the question: “Why should a student study food and agribusiness management?”. This value proposition for food and agribusiness management programs should become the foundation for recruiting strategies.
- Define and develop communication strategies for the high potential target audiences which might include traditional students, parents and counselors, international students, non-traditional students, community college students, and minority/underrepresented students.
- Utilize a variety of promotional strategies and tools to communicate the opportunities in the food and agribusiness industries including the Internet and industry involvement.
- Pursue a ‘culture of quality’ in food and agribusiness programs with a

major effort to keep programs in touch with industry needs. Industry advisory boards may be helpful here.
- Fund research into questions around the value of a food and agribusiness management degree; the mobility of the skill set provided in such programs; the key needs of the industry in new hires; and the relationship between program size and graduate quality.
- Continue USDA CSREES funding of initiatives to develop faculty to teach in food and agribusiness programs.

Team 5: Introductory and Capstone Undergraduate Courses

In many food and agribusiness management programs, an introductory course and a capstone course in food and agribusiness management form the foundation for the program. On-going review of such courses is important in order that course content and structure continue to meet the needs of students and industry. A general description of both courses was developed along with learning objectives for the courses. Key topics for inclusion in introductory and capstone courses were identified. Some key recommendations in this area include:

- Utilize active learning techniques in introductory and capstone food and agribusiness management courses including case studies, simulations, team assignments, student presentations, etc.
- Utilize strategies to keep course content relevant and focused on contemporary industry issues. Such strategies include readings from the current business press and industry guest speakers.
- Create a national forum (e.g., The Teaching Academy at the American Agricultural Economics Association annual meeting) for sharing teaching practices and materials for teaching food and agribusiness management.
- Pursue opportunities to develop faculty skills in non-traditional teaching methods, especially among young faculty. This could include writing case studies, short-term industry sabbaticals, and a mentoring program, paring new agribusiness faculty with effective veteran instructors.
- Fund the development of teaching materials which focus on the food and agribusiness industries. The needs here are broad and include case studies, management simulation games, text books, video support materials, and other educational materials. Updated textbooks in agribusiness management and agribusiness marketing (including cooperatives) are especially needed.

Team 6: Graduate Programs in Food and Agribusiness Management

While the primary focus of NFAMEC was undergraduate education in food and agribusiness management, there are a number of important issues facing graduate programs in the area. Some of these include the composition of an M.S. course in food and agribusiness management, the focus and structure of M.S.

programs in the area, and the focus of doctoral training in food and agribusiness management. Some recommendations here include:

- Encourage professional associations to create a forum for discussion of the content and structure of an M.S. program in food and agribusiness management.
- Encourage professional associations to create a forum for discussion of the structure and focus of doctoral training in food and agribusiness management.
- Insure that the *International Food and Agribusiness Management Review* and other key food and agribusiness journals are included in the Social Science Index.
- Encourage the continued focus of the USDA National Needs Fellowship program on developing faculty members to pursue doctoral training in food and agribusiness management. Consider a special program to fund training of agribusiness faculty specifically for American Association of State Colleges of Agriculture and Renewable Resources (AASCAR), 1890, 1994, Hispanic-Serving, Alaska-Native, Native-Hawaiian and similar educational institutions.
- Explore opportunities to utilize distance education to share doctoral courses in food and agribusiness management across institutions.

Concluding Comments

The recommendations of the National Food and Agribusiness Management Education Commission cover a wide spectrum of topics. As such, some recommendations are more easily implemented than others. And, the full set of recommendations will not apply to all programs, while other recommendations have already been implemented by some programs. Nonetheless, these recommendations help provide a roadmap for educators as they assess their current teaching programs and provide input for further revision of those programs in the future to help insure dynamic, vibrant, and relevant undergraduate and graduate programs in food and agribusiness management.

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Introduction

Background

A number of previous commissions have analyzed the state of agribusiness management education in the United States (1961, 1962, 1974, 1989, 2004).

Beginning in 1961, there have been a number of studies conducted that have analyzed the state of agribusiness management education in the United States (1961, 1962, 1974, 1989, 2004). In 1989, the National Agribusiness Education Commission (NAEC) issued a set of recommendations for the future of agribusiness education in a report entitled "Agribusiness Education in Transition: Strategies for Change." Much has changed with respect to food and agribusiness education since that time as both the educational institutions involved in providing education and the firms hiring students from these programs continue to evolve in a dynamic food and agribusiness system.

The next 15 years will bring even more change.

As the next 15 years bring even more change, a comprehensive review of food and agribusiness management education programs in the U.S. was needed. In 2002, the U.S. Department of Agriculture (USDA) provided funding for a new commission entitled the National Food and Agribusiness Management Education Commission (NFAMEC). Kansas State University and Purdue University were charged by the United States Department of Agriculture to create this Commission in order to conduct this comprehensive study. The specific objectives of NFAMEC were:

- Describe the current state of food and agribusiness management education at two and four year colleges and universities in the United States;
- Identify a set of key issues facing food and agribusiness management programs;
- Develop a set of recommendations on these issues; and
- Communicate these recommendations broadly through a national conference, professional meeting presentations, reports, and a web site.

The findings and recommendations of the National Food and Agribusiness Management Education Commission are summarized in this report.

Current State of Undergraduate Agribusiness Programs

As part of the NFAMEC initiative, curriculum for 140 agribusiness and agricultural economics programs were reviewed and compared with a 1985 study

by Carmen and Pick and Franklin. While some progress has been made in addressing the key recommendations from earlier studies (Boland, Lehman, and Stroade: Dooley and Fulton), it would be best characterized as marginal. Several key findings emerged from this review (Boland and Akridge 2004b):

- Agribusiness degree programs were three times as likely to require business finance relative to agricultural economics programs and twice as likely to require business marketing.
- Over time, programs have increased the number of business school courses which can count toward degree requirements. However, less than 25 percent of the agribusiness programs reviewed required courses in organizational behavior, human resource management, or marketing management.
- A core curriculum requirement in agricultural sciences exists in almost all agribusiness programs today.
- Agribusiness management is tied with agricultural policy as the third most commonly taught undergraduate course in agricultural economics departments (after agricultural marketing and agricultural finance).
- Seventeen courses in business strategy are now taught compared with almost none in 1985. Business strategy courses typically play an integrative role in agribusiness programs (Hall et al.).
- Required courses that explore the international dimensions of finance, management, marketing, policy, trade, or similar topics are rarely found in agribusiness degree programs.

Most agribusiness programs remain heavily focused on agricultural economics with few required courses in agribusiness management.

Despite these moves to bring more management concepts into the curricula, most agribusiness programs remain heavily focused on agricultural economics with few required courses in agribusiness management. Most agribusiness curricula include an introductory course in agribusiness management and a few offer food marketing or logistics. While some programs require a capstone business strategy course that integrates various management, finance, and marketing concepts, most still lack depth in management concepts. In addition, traditional agricultural economics courses still concentrate on production agriculture. For example, most agricultural policy courses focus on domestic agricultural policies on production agriculture rather than the impacts for food and agribusiness firms.

In summary, most agribusiness curricula remain rooted in agricultural economics. Business management courses tend to be more the exception than the rule. Undergraduate curricula could be best characterized as collections of courses rather than cohesive programs. The issue is whether this model will continue to be effective in preparing students for careers as leaders in these industries.

Industry Steering Committee

Another part of the NFAMEC's charge was to explore the current state of and future directions for food and agribusiness management education. An Industry

An Industry Steering Committee was assembled to provide insight on key challenges facing the food and agribusiness industries.

Steering Committee (Appendix B) was assembled to provide insight on key challenges facing the food and agribusiness industries; skills and capabilities desired from food and agribusiness program graduates; and perceived strengths and weaknesses of food and agribusiness management programs (Boland and Akridge 2004a). The 26 executives on the Industry Steering Committee represented a broad range of food and agribusiness organizations, with eight "food" and twelve "agribusiness" executives from a variety of multinational and regional investor-oriented firms and cooperatives. Six other leaders from various industry associations and government and non-government organizations that have frequent contact with graduates of agribusiness programs were on the Steering Committee. The group was chaired by Dr. Dave Downey, Purdue University, who directed the earlier NAEC. Telephone interviews were conducted with each member of the Steering Committee. Some of the key findings of those interviews are summarized here.

The Future Business Environment

Consolidation and globalization were the main themes that surfaced from the executive's responses.

Members of the Steering Committee were asked to describe some of the most important business challenges/opportunities in their industry as they looked to 2008 and beyond. Consolidation and globalization were the main themes that surfaced from the executive's responses Technology evolution was mentioned as continuing to be a major influence in their respective business environments. Those executives with food companies responded that their industries will face increased food safety/security and/or traceability issues. Market access in a broad sense (intellectual property rights, international trade issues, technology acceptance) was another challenge/opportunity. Some raised concerns about biotechnology and customer changes/changing consumer demands. Other issues that were mentioned by at least two executives included stagnant U.S. population growth, energy costs, and international trade issues.

Technology, the global business environment, and food safety and security were also highlighted as key themes for the future.

Several points are important here. Future leaders in food and agribusiness industries must be prepared to address an increasingly broad set of issues. While the ability to deal with internal firm concerns will remain important, the ability to understand and manage a much wider set of issues external to the firm will become increasingly so. Second, technology, the global business environment, and food safety and security were highlighted as key themes for the future. Undergraduate agribusiness programs must address each of these areas in some fashion. Finally, firm consolidation and the push for efficiency means expectations of new graduates will continue to escalate. There is simply less time and fewer resources devoted to preparing new hires for their positions – firms increasingly expect new employees to 'hit the ground running'.

Capabilities Needed for Future Leaders

Executives were asked to rate 16 capabilities on a scale of 1 (not important) to 5 (absolutely essential) in terms of their importance for new hires with leadership potential (figure 1). Interpersonal communication skills and critical thinking were cited by virtually every executive as being the most essential capabili-

Interpersonal communication skills and critical thinking were cited by virtually every executive as being the most essential capabilities of new employees and future leaders.

ties of new employees/future leaders. Writing skills and computer skills ranked second. When compared with previous surveys, the rank of these most important capabilities has not changed much over time. It is instructive to note that "knowledge of the food and agribusiness markets" ranked in the middle of this list (9th), while "production agriculture experience" ranked last. For educational programs aimed at the food, farm, and agribusiness industries, these attitudes on the part of senior leaders should be a source of concern.

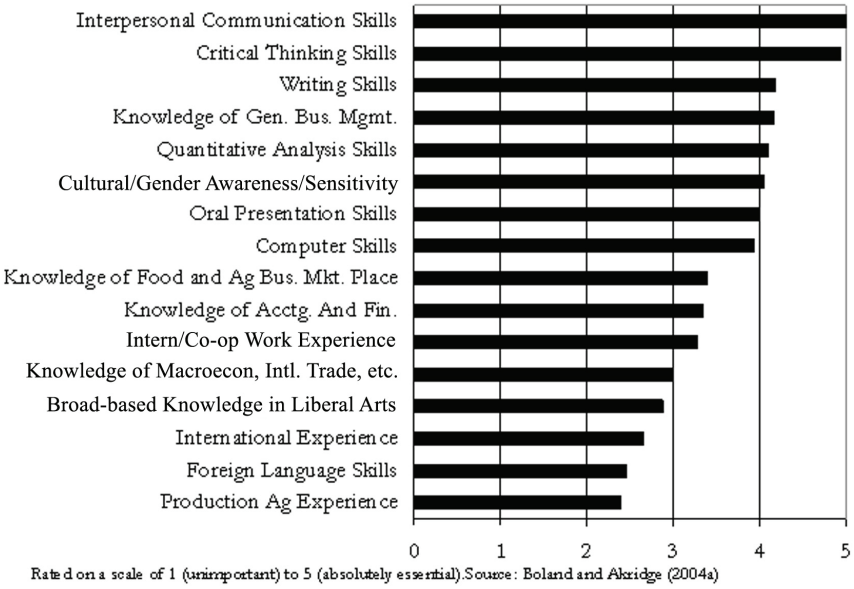


Figure 1. Ratings of Skills, Capabilities, and Experiences Sought in New Hires with the Potential to become Future Company Leaders

Unique Characteristics of Students in Agribusiness Programs

Some of the characteristics included knowledge and intelligence, good communication skills, strong work ethic, good attitude, leadership skills, strong business understanding, and motivation.

The executives and industry leaders were asked to indicate the characteristics that distinguish individuals who graduate from food and agribusiness management programs. The responses were quite varied. Some of the characteristics mentioned by two or more executives included knowledge and intelligence, good communication skills, strong work ethic, good attitude, leadership skills, strong business understanding, and motivation. At least one respondent listed possessing strong analytical skills, being results-oriented, and being able to translate what was learned in the classroom into an actual work environment as distinguishable characteristics. One person also cited being a team player as a distinguishing characteristic. This executive stated that the individuals he has hired from agribusiness programs are often asked to be on various teams as they are formed, which according to that person, is an indicator that they are 'delivering something valuable.'

Weaknesses of graduates from food and agribusiness programs were also explored. Again, many different thoughts emerged. It is also important to note

Lack of familiarity with other cultures was another weakness.

that for this question it was often not easy to separate comments about food and agribusiness management program graduates from comments about newly hired graduates in general. Three respondents cited the need to improve communication skills. One executive stated new employees who graduate from agribusiness programs tend to be less assertive and aggressive than those from other programs. Lack of familiarity with other cultures was another weakness. Another executive observed that agribusiness graduates, generally speaking, tend to have a more narrow view of the world. Other weaknesses that were mentioned one time each were ability to work in teams, problem solving, self-confidence, and leadership skills.

Suggestions for Agribusiness Program Leaders

The executives were asked what suggestions they have for food and agribusiness program leaders. Three broad categories of responses emerged. First, increasing the level of exposure to diversity (i.e., thought, race, gender, and culture) was an area that needed improvement. Each of the executives who identified this problem said that they were willing to work with universities to help bring more diversity into their programs. Second, many programs are geared towards past rather than future careers. It was pointed out that jobs will exist in five years that are not even considered professions now and curricula need to prepare students. Third, universities should work together more closely – sharing resources, courses, faculty, etc. They encouraged more consistency in the quality of student preparation and course content among universities. One executive said that having a higher quality pool of students for firms to recruit from is necessary. Additional suggestions and advice include providing more group and team experiences, ensuring faculty remain current and not become insulated from the reality of the marketplace, and involving more industry representatives on boards and advisory and steering committees.

Increasing the level of exposure to diversity (i.e., thought, race, gender, and culture) was an area that needed improvement.

The National Food and Agribusiness Management Education Commission

Based on the background research on the current state of food and agribusiness management programs and the results of the Steering Committee interviews, a set of issues of importance to the future of food and agribusiness management education were identified. These issues were to be the focus of the National Food and Agribusiness Management Education Commission (NFAMEC). The NFAMEC's general charge was to develop a response to these issues, and then communicate that response to interested academic and industry audiences. There were six general issues of importance identified:

1. Assessing and revising food and agribusiness management curricula;
2. Developing communication/writing/critical thinking skills;
3. Improving industry linkages;
4. Recruiting students for food and agribusiness management programs;
5. Introductory and capstone undergraduate courses; and

6. Graduate programs in food and agribusiness management.

The primary work activity of the NFAMEC was a two-day workshop where the full Commission was broken into six teams.

The 41 NFAMEC members were chosen to represent a broad spectrum of faculty from 1862, 1890, and 1994 land grant universities, as well as a broad spectrum of food and agribusiness firms (Appendix A). The primary work activity of the NFAMEC was a two-day workshop where the full Commission was broken into six teams. Each team focused on a key issue, developed an initial set of recommendations, presented the initial recommendations to the full Commission, then refined their recommendations into a report (included in this Final Report). Each Commission member was provided a set of background materials including information on:

Each team focused on a key issue, developed an initial set of recommendations, presented the initial recommendations to the full Commission, then refined their recommendations into a report.

- Undergraduate curriculum information for agribusiness management degrees;
- Doctoral research in agribusiness management;
- Graduate course content in agribusiness management courses;
- Introductory and advanced agribusiness management course content;
- Extension programs in agribusiness management; and
- Masters degree research in agribusiness management.

Each Commission member was asked to select a first and second choice among the six issues described above, then team assignments were made according to 1) interests of the Commission member; and 2) balance across industry and academic membership for each team. This 2-day workshop was conducted in St. Louis, MO in October 2003 (Appendix C).

The initial reports from the six teams formed the foundation for a preconference at the American Agricultural Economics Association (AAEA) meetings in Denver (July 2004). Over 100 people attended which was the largest preconference ever held by AAEA (Appendix D). This preconference provided another opportunity to dialogue on the recommendations developed by the six NFAMEC teams.

Over 100 people attended the NFAMEC preconference at the 2004 AAEA meetings.

A final opportunity to reflect on the NFAMEC recommendations was provided at the 2006 Annual Meetings of the AAEA in Long Beach (July 2006) (Appendix E). Three discussants representing the perspective of a college of business, a college of agriculture, and USDA offered observations on NFAMEC recommendations, and a discussion period followed.

The final recommendations from the six teams are presented in the remainder of this report. The full set of NFAMEC publications and presentations is presented in Appendix F.

Concluding Comments

The recommendations of the National Food and Agribusiness Management Education Commission cover a wide spectrum of topics. As such, some recommendations are more easily implemented than others. And, the full set of recommendations will not apply to all programs, while other recommendations have already been implemented by some programs. Nonetheless, these recommendations help provide a roadmap for educators as they assess their current teaching programs and provide input for further revision of those programs in the future to help insure dynamic, vibrant, and relevant undergraduate and graduate programs in food and agribusiness management.

Team Members

Dave Schaffner
California Polytechnic State University
San Luis Obispo, California
(Team Leader)

Penny Deibel
Oregon State University
La Grande, Oregon
(Team Recorder)

Mike Gumina
Pioneer Hi-Bred International Inc.
Johnston, Iowa

Tu Jarvis
University of California – Davis
Davis, California

Joe Kozlarek
Land O'Lakes, Inc.
St. Paul, Minnesota

Steve Miller/Wilder Ferreira
Clemson University
Clemson, South Carolina

Marvin Miller
Ball Horticultural Company
West Chicago, Illinois

Curriculum Assessment and Revision

Issue

Food and agribusiness management programs serve a very specific niche market. Some of the important questions for an effective curriculum serving this niche include:

- What set of ideas/concepts/issues should be a part of any undergraduate food and agribusiness management curriculum to insure that these niche programs serve the needs of employers? The intermediate and longer term career needs of students and their employers must be considered.
- Interviews with industry executives have indicated that less emphasis is being placed on industry-specific knowledge and background, with more emphasis on the critical thinking and communication skills of the individual, when looking for future leaders. What are the implications for food and agribusiness management programs? What is the right balance of 'general content' with 'industry-specific' content?
- Thinking about a model curriculum, how much emphasis should each of the following areas receive: basic sciences (biology, chemistry, etc.); agricultural sciences (food science, agronomy, etc.); math and statistics; communications; economic theory; accounting/ finance; management (marketing, human resources, strategy, etc.); food or agribusiness industry issues; food or agribusiness management concepts; free electives? What specific courses/areas/topics should be included in a world-class program?

Situation

- "One-size-fits-all" is not a useful approach to curriculum design for food and agribusiness management programs, as great diversity exists in institutional milieus, program size, geography, and which sectors of the food and agribusiness industries particular programs serve.
- The emphasis in curriculum revision must be on integrating concepts, not proliferating courses. Academic programs are typically "at capacity" in the total number of units or in units permitted in an academic area. Generally, when adding a new course, another course

must be removed in a form of zero sum game. This is not to say that curricula should not be subject to careful review and scrutiny, simply that adding new courses without carefully reviewing existing offerings is not likely to be productive or viable.

- If students emerge from the university with strong performance in a core set of food and agribusiness management courses, they can be viable employees.
- There are areas that need strengthening in food and agribusiness management curricula. In particular, the industry members of Team 1 stated that human relations/interpersonal skills are noticeably weak in recent graduates. Recognition of the importance of graduates having a strong skill set in interpersonal communications/human relations is not a recent phenomenon, having been documented a decade and a half ago by Litzenberg and Schneider via their survey instrument, the *Agri business Management Aptitude and Skill Set Survey (AGRI-MASS)*. Perhaps academic institutions did not take these earlier findings to heart, or perhaps these human relation abilities, having as a prerequisite that amorphous quality known as "maturity" are more difficult to acquire. Or, perhaps the skill requirements in this area have continued to escalate over time, at a faster pace than improvements in student preparation.

Human relations and interpersonal skills are noticeably weak in recent graduates.

- The information provided by the NFAMEC Working Paper *A Summary of Undergraduate Curriculum in Agribusiness Management Degrees* gives rise to the question of whether students are receiving a core set of business management courses in many Bachelor of Science Agribusiness Management (BSABM) programs. For example, while virtually all BSABM programs have a course in agricultural marketing or food marketing, only about two-thirds of the programs require agricultural finance and fewer than 50 percent require agricultural policy.

Recommendations

Integrative Concepts

Resources need to be devoted to assisting agribusiness faculty to incorporate activities and approaches that will bring key concepts into the classroom across the curriculum. Students should develop greater strengths in the following interpersonal/communication/critical thinking-problem solving areas:

Students should develop greater strengths in interpersonal/ communication/critical thinking-problem solving.

- Team and interpersonal dynamics skills
- Writing skills (executive summaries, business letters, proposals, email)
- Presentation skills
- Ethics – "business ethics is the accumulation of personal ethics"
- Negotiation skills and coping with conflict
- Problem solving - Introduced early as a way of thinking about and approaching agribusiness, as well as a framework by which students can better understand the various opportunities for which agribusiness degree prepares them.

Diversity of Thought and Experience

The environment in which agribusiness and food system managers operate is rich in diversity.

Today, more than ever, the environment in which agribusiness and food system managers operate is rich in diversity. This idea of diversity refers not only to gender and ethnicity, rather to the broader context of dealing with colleagues and customers who often simply approach a situation or problem from different frames of reference.

How do we prepare tomorrow's food and agribusiness leaders for this environment? Approaches are most likely going to be multifaceted, ranging from participation in international travel and study abroad opportunities or broadening one's perspective and gaining maturity through internships, to involvement in classroom discussions and exercises that challenge conventional wisdom and belief systems.

Knowledge of Agricultural Science

Food and agribusiness management students need to develop some knowledge area in an agricultural science. As a guideline, it is recommended that at least ten percent of agribusiness degree program units be devoted to the science of agriculture and the food system. The ten percent would include major and "support" units, not those units institutions require that are commonly referred to as General Education (GE) courses.

It is expected that agribusiness degree students will complete a minor and/or a coherent set of courses in the sciences of agricultural production and the food system. Examples of minors include, but are not limited to: food science, animal science, crop science, soil science, human nutrition, water resources and management, horticulture, forestry, dairy processing technology, dairy science, pest control.

Content/Course Recommendations

Along with the currently broadly accepted core courses, such as microeconomics, finance, and marketing, agribusiness degree programs must address the following course/subject areas in some depth.

- *Interpersonal Communication/Team Building Skills for the Agribusiness Manager:* Suggested course content includes motivation, communication styles, communication and listening skills, personality types and leadership, starting hard conversations, decision making and group problem-solving, leading a diverse team.
- *Public Policy in Agribusiness:* The politics and economics of regulation as they affect the firm should be introduced. Case studies should be employed to demonstrate the implications for specific agribusinesses, along with the integration of business ethics and responsibility. This course is different from the typical agricultural policy course that focuses on federal farm support programs. Rather, it should take a broad view of policy decisions as they impact the entire food system, from input supplier through consumer, and integrate the social, political, and economic dimensions of public

policy decisions at the international, federal, state, and local levels.

- *International Agribusiness Trade and Marketing:* Awareness of differences among cultures and development of management tools that work in a world environment is the focus here. Understanding the World Trade Organization (WTO) and other multilateral and bilateral trade agreements is important. Forming an understanding, from the perspective of the food and/or agribusiness firm, of how to implement international trade and marketing programs should be addressed. Because this type of course virtually does not exist in current agribusiness management programs, the content and sample syllabus for such a course could be developed by a committee led by the Agribusiness Economics and Management (AEM) section of American Agricultural Economics Association (AAEA).

Awareness of differences among cultures and development of management tools that work in a world environment is critical.

- *Agribusiness Strategy /Other Capstone Course:* A capstone course that utilizes case studies or other methodologies such as simulations to bring together the various functional areas of an agribusiness in formulating strategic decisions is important. Understanding the food and agribusiness firm as part of a larger integrated system and where and how value is created in the system should be covered in such a course.

Internships or Other Experiences

It is recommended that internship or outside the classroom experiences be made a requirement of the agribusiness degree. As expressed by one industry participant, "internships are as valuable as a year of college." Programs need to devote sufficient resources to internships or other experiences (i.e., international study abroad, etc.) to properly structure the experience and supervise it while the student is in the field. Additionally, upon return to the institution there must be some culminating experience, such as a formal presentation or written project that results in an integration of experiential learning with classroom theory and practice.

The Agribusiness Minor in the 21st Century

Although the major focus of Team 1 was examining and suggesting changes aimed at improving the educational outcomes of the agribusiness degree, students' needs for Agribusiness Minors (or, in the absence of a formal minor, a set of courses [15-21 semester units] for students matriculating in College of Agriculture majors other than Agribusiness or Agricultural Economics) was also addressed.

Agribusinesses today find that employees with technical degrees in the agricultural sciences also need the basics of food and agribusiness management, whether their career path remains technically oriented, or, as many find, after a few years their career and work activities take on a decidedly managerial bent.

Agribusiness Management minors must be accessible (that is, not having unnecessary and burdensome prerequisites) to the students in the agricultural sci-

Agribusiness Management minors must be accessible to other departments.

ences. While Team 1 did not specify a model Agribusiness Minor Curriculum, an examination of Figure 23 from the NFAMEC Working Paper *A Summary of Undergraduate Curriculum in Agribusiness Management Degrees* suggests that a typical minor might be structured as follows:

Principles of Ag Economics	3
Agricultural Finance/Management	3
Agricultural/Food Marketing	3
Agribusiness Electives*	3-6
Total Semester Credits	12-15

*Sample electives might include: Farm Management, International Agribusiness Marketing and Trade, Public Policy in Agribusiness, and Agribusiness Strategy.

Concluding Comments

Food and agribusiness management programs serve a very specific niche market.

Food and agribusiness management programs serve a very specific niche market. Many of the curriculum materials (e.g., textbooks, simulation games, etc.) needed to serve this niche are outdated or simply not available. Further work of NFAMEC could include organizing an effort to seek funding through USDA CSREES to develop updated materials for a 21st century food and agribusiness management curriculum. These are vitally needed in order to provide the foundation for the niche market focus that these degrees offer students and employers.

Team Members

Cynda Clary
New Mexico State University
Las Cruces, New Mexico
(Team Leader)

Jim Hagen
Cornell University
Ithaca, New York
(Team Recorder)

Bob Broeckelman
USAgBank
Wichita, Kansas

David Gordon
Elanco Animal Health
Indianapolis, Indiana

Karen Howard
Land O' Lakes, Inc.
St. Paul, Minnesota

Jodie Smith
Fort Peck Community College
Poplar, Montana

Jim Zellner
Tropicana Products
Bradenton, Florida

Communication/Writing/Critical Thinking Skills

Issue

Interpersonal communications, critical thinking, and writing are among the most important capabilities/skills that industry is looking for in new hires that have the capacity to develop into future business leaders. As food and agribusiness programs work to meet industry requirements in these areas, some of the most important questions include:

- What specific types of communication skills are required of an effective food and agribusiness manager? More generally, what types of critical thinking skills are required, and what decisions are most common, for food and agribusiness managers?
- What types of courses and work/leadership experiences which build (and demonstrate) communications and critical thinking skills are food and agribusiness firms looking for when reviewing resumes/interviewing job candidates?
- What can be done in food and agribusiness management curricula to encourage development of these capabilities/skills? This includes both course requirements, and teaching tools, methods, experiences, etc. within courses.
- What are the implications of needed changes in these areas for training and development of food and agribusiness management faculty? What are the implications of needed changes in these areas for promotion and tenure processes and faculty retention?

Situation

- Specific training which builds skills and capabilities is increasingly needed as flatter organizational structures have led to fewer middle managers who once were able to dedicate more time to on-the-job-training and mentoring.
- The NFAMEC Industry Steering Committee report *Primary Themes from Interview Reponses* specifically comments on the limitations of communications skills in new hires and the importance of these skills within organizations.
- The food and agribusiness work environment is increasingly collaborative.
- The pace of change, increased complexity in the workplace, and lean

organizations have created a situation where effective problem-solvers are needed at every level.

- There is real pressure to insure that students have the opportunity to graduate in a timely fashion. This dictates that curricula be structured judiciously to address these interpersonal communications, critical thinking, and writing concepts in courses outside of the food and agribusiness program, and within courses inside the food and agribusiness program, not by simply adding courses.

There is real pressure to insure that students have the opportunity to graduate in a timely fashion.

- Skills in communications and critical thinking are often developed through student participation in co-curricula activities such as student clubs, professional organizations, academic teams, and so on. In general, faculty involvement in such activities is not highly valued in promotion and tenure decisions.
- Food and agribusiness management faculty receive little formal training in teaching pedagogy. And, they receive virtually no training in experiential learning pedagogy, development of learning outcomes, and learning assessment. Experiential learning and other engaging teaching approaches are an integral part of teaching communications and critical thinking. The utilization of learning outcomes and learning assessment are prominent themes across higher education.

Experiential learning and other engaging teaching approaches are an integral part of teaching communications and critical thinking. The utilization of learning outcomes and learning assessment are prominent themes across higher education.

- These issues must be addressed in an environment of larger class sizes, increased teaching loads by agribusiness faculty, and increased research and engagement expectations of these faculty.

Recommendations

Communications effectiveness draws from and contributes to critical thinking, and such skills as having curiosity and appreciating diversity of ideas are crucial to both. Effective business communication requires interpersonal skills such as attention to word choice, body language, active listening, conscious attention to team dynamics and the individual's ability to deliver and receive various types of communication. Specific skills related to effective oral and written communication may be taught in separate communication courses, but should also be emphasized in content-based courses and in co-curricular activities. USDA can encourage implementation of NFAMEC's recommendations through financial support of educational material development and program staffing, as well as by emphasizing these areas in CSREES reviews of food and agribusiness programs.

For each of oral communication effectiveness, writing skills, teamwork skills, critical thinking skills, and ethics, desired learning outcomes are identified, as well as ideas for developing student skills and capabilities in these areas. The implications for faculty training and development are discussed. More broadly, recommendations and observations include:

- Success at these skills includes a broad range of competencies such

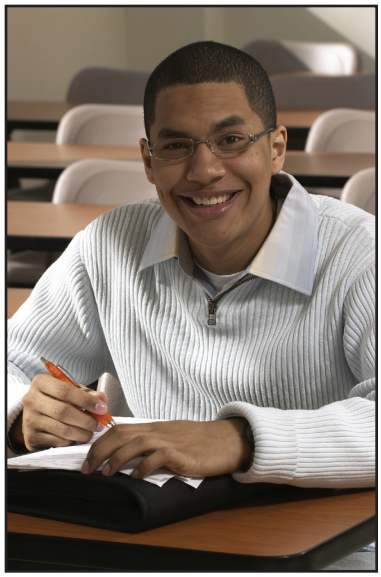
as self-confidence, curiosity, and appreciation of diversity.

- Development of these skills should be incorporated into individual and team activities in introductory, capstone, and intermediary courses.
- Expectations of students with respect to these skills should be consistent across courses in a program's curriculum.
- The role of co-curricular activities such as student clubs, professional associations, academic teams, etc. in developing skills in these areas must be recognized and incorporated into student advising as well as faculty and staff roles.
- Skills development in the communications, critical thinking, teamwork, and ethics areas could be enhanced by specific inclusion of this type of skill development in CSREES and similar program review standards. USDA CSREES or other funding could be used to support writing workshops and/or workshops on other topics which would build faculty skills to teach in these areas.

Oral Communication Effectiveness

Desired Outcomes

- Successful communication includes identifying the problem, generating the solution, implementing the solution, and influencing others.
- Successful communication includes group interpersonal and intra-group interaction, where such skills as active listening and effective use of body language are critical.
- Successful communication requires that the sender know the facts, be confident in their knowledge and judgment, communicate their position efficiently and influentially, and listen to others.
- Competency at important and difficult communications is needed. Giving/receiving feedback, conflict resolution and the ability to deliver unpopular messages are important. Self-awareness around how to respond while delivering or receiving difficult communications is also important.
- Sensitivity to others (including working with supervisors) is important for successful communication. There should be awareness that some are not good communicators.
- Diversity (in all dimensions, including age) within an organization is good business policy as it facilitates communication with all stakeholder groups and enhances broadminded creative thinking. Students should understand the challenges of introducing diversity to some communities, such as when minorities and women are hired into an agricultural position that has been traditionally held by a white male. Tolerance here is not enough. Understanding cultural difference is important. For example, a Hispanic student who does not appear to be active in extra-curricular activities may actually be very active in caring for other family members. A tribal person shows respect by not looking an elder in the eyes, etc.



Skill Development

- Oral communications must be integrated throughout the curriculum.
- Teachers of business and agribusiness content should be aware of what their students are learning in other communications courses, so the faculty can give the same consistent message to students in their classes to reinforce the learning of oral (and written) communication techniques.
- Familiarity with trends in business thinking and practice can be enhanced by staying current with publications being read by business leaders.
- Role playing can be helpful in building oral communications skills, and can include videotaping so students can observe their own strengths and weaknesses in group dynamics.
- Situational communications in business should be explored and cultivated. Skill development in this area might be tied to experiences outside the curriculum.
- Mentoring (including communication modeling/advising) can be helpful in building oral communication skills, with industry personnel mentoring students and upper division students mentoring freshmen.

Writing Skills

Desired Outcomes

- Strong business writing skills must be cultivated, where effectively getting the point across clearly and efficiently is key.
- Students should be familiar and comfortable with business-writing styles for different purposes (e.g., legal, proposals, letters, e-mail, memos, presentations, reports, etc.)
- Students should have a positive and respectful attitude about the importance of written communication skills to job performance and in career success.

Skill Development

- The importance of effective writing in the food and agribusiness industries should be stressed across the curriculum. Curriculum design should ensure that students get extensive practice writing, not just in a writing course, but in every (appropriate) course in the curriculum. Examples of skill development strategies include having students write the same content in different formats (e.g., report, abstract, memo, etc.) or requiring that all internships include a written report.
- Faculty may need to be re-trained on current business communications practices. As technology has evolved, both the way written communications happens (e-mail, text messages, etc.) and the format of that communication (presentation and report styles) continues

Faculty may need to be re-trained on current business communications practices.

to change.

- Faculty may need additional training in evaluation of writing. And, such training should consider approaches to evaluation, strategies for evaluating writing in large classes, and available resources to assist faculty in this task.
- Peer review of writing may be a promising approach to helping students improve writing skills. Use of writing peer review may be another area where faculty could use additional training.

Teamwork

Desired Outcomes

- Students and faculty should recognize that simply putting a group of people together doesn't make it a "team".
- Team success is enhanced by diversity in member selection and coaching skills to help team members develop cooperation strategies.
- To be a good team member, a person must also be a good individual thinker/achiever and be accountable for actions.
- Mindfulness of different personality types and strategies for working with those various types can enhance a person's performance in a team.

Skill Development

Best practices for participating in and leading a team can be taught.

- Best practices for participating in and leading a team can be taught.
- Team composition and learning objectives are important. While most teams are not self-selected, allowing students to self-select at least once teaches that teams of 'friends' are not always the best. Activities should help demonstrate that a diversity of perspectives can improve team outcome. Team selection can also help show that it is helpful if each member uniquely possesses deep knowledge in different areas.
- The use of personality inventory tests can help students appreciate differences between people, and assist in identifying challenges/developing strategies for group cooperation. Testing and analysis early in a student's university experience will likely have a positive effect on their career development at the university.
- Reflection on team experiences should ensure that students are accountable. When teams do case assignments, they should analyze their intra-team dynamics. Students should be able to recognize problems in intra-team dynamics. Faculty should acknowledge that allowing team failure can be an important teaching device.
- Faculty should recognize that building team skills goes far beyond the academic curriculum and requires coaching or counseling for a portfolio of experiences. Coaching can help a person improve his/her skills at contributing to team-based problem-solving. Effective counseling can help such co-curricular

experiences build in some logical fashion toward a deeper appreciation of effective teams.

Critical Thinking Skills

Desired Outcomes

Students must develop the ability to make decisions in ambiguity.

- Information-gathering skills must be cultivated. Students should know how to gain access to necessary resources to base decisions on fact, not assertion.
- Students must develop the ability to make decisions in ambiguity. This involves identifying the most important assumptions in a particular decision. And, it involves recognizing when not enough information is available to make a decision, and that it is time to stop and regroup.
- Techniques for framing complex decisions such as decision trees and consequences tables should be introduced.
- Students should be able to communicate the results of their critical thinking effectively. For example, they should be able to show their method for making decisions and express the outcome of the process clearly and concisely in written and oral form.

Skill Development:

Faculty may need additional training in effective use of these teaching techniques.

- There are a variety of teaching tools which can help students develop critical thinking skills. Critical thinking skills include simulations, case studies, and experiential learning/service learning. Faculty may need additional training in effective use of these teaching techniques.
- Utilization of open-ended problems can develop effective critical thinking skills. Students can be graded on how the question was approached rather than on the specific answer obtained. Writing business or marketing plans can be an effective way to build skills in this area.
- Faculty can make heavy use of current events as a way to encourage curiosity by referencing newspaper articles, Internet news, trade press pieces, etc. In the process, they can model curiosity, another important element of critical thinking.
- Quantitative skills must be integrated into critical thinking preparation. Spread-sheet development, model building, and quantitative analysis more broadly can contribute to critical thinking skill enhancement.
- Building strong Internet information skills is important to development of critical thinking skills. This includes data collection and search skills, as well as evaluating the quality of the information obtained.
- The fact that students are increasingly employed provides real opportunity to use their work/life experiences in the classroom when teaching critical thinking.

Ethics

Desired Outcomes

- Students must develop an attitude of 'doing the right thing'. They need to understand the importance of ethical decision-making to one's career and the importance of ethical decision-making in the business of food and agribusiness.
- Students should develop a respect for the complexities of decision-making as commercial, legal, and ethical perspectives are considered.
- The ability to frame problems through a broader lens (commercial, legal, ethical) is a skill that programs must cultivate.

Skill Development

Ethics is a topic that should be integrated across the curriculum.

- Ethics is a topic that should be integrated across the curriculum. Any course that involves decision-making provides an opportunity for ethics to become part of the course content.
- Even courses which do not involve decisions can integrate ethics into the outcomes in terms of ethical behavior in school - attributing sources of information, acknowledging rules of behavior, and reinforcement of ethical principles with respect to group interaction, etc.
- Courses should take advantage of working students and their life experiences in helping them understand ethical decision-making.
- Courses should draw on current events in the food and agribusiness industries and the broader business community to illustrate trade-offs, ethical dilemmas, etc.
- Programs may want to consider a separate course on ethics as a way to draw attention to the subject area. It is noted that a separate course on ethics is not a substitute for integration of ethics across the curriculum.

Faculty Training and Development

Building student skills requires non-traditional teaching techniques to be effective.

As indicated above, building student skills in the areas of oral and written communications, teamwork, critical thinking, and ethics requires non-traditional teaching techniques to be effective. Also, building skills in these areas is not done exclusively in a classroom – student participation in co-curricular activities may be as, or more, important than classroom training. Both of these points raise important issues for faculty training and development, and for promotion and tenure processes. Some specific recommendations relating to training faculty for success in the classroom, and for promotion and tenure processes, follow.

- The American Agricultural Economics Association (AAEA), International Food and Agribusiness Management Association (IAMA), Food Distribution Research Society (FDRS), and other professional associations should be encouraged to make

pre-conferences, organized symposia, invited speakers, etc. focused on developments in teaching communications, teamwork, critical thinking, and ethics a priority. Some of these ideas could be woven into The Teaching Academy developed by the Teaching, Learning, and Communications (TLC) section of the AAEA to help prepare new faculty as they begin their food and agribusiness management teaching careers.

Some of these ideas could be woven into The Teaching Academy developed by the Teaching, Learning, and Communications (TLC) section of the AAEA.

- The AAEA, IAMA, FDRS and other professional associations should be encouraged to open a dialogue, perhaps through organized symposia or other annual meeting sessions, on the role of co-curricular activities in the broader education of students; the role of the faculty member in these activities; measuring contributions by faculty through involvement in co-curricular activities; and how co-curricular activities should be evaluated in promotion and tenure decisions. If we believe these activities contribute significantly to student learning and that the achievement of student learning is a fundamental responsibility of the academy, then we need to create a culture of rewarding excellence in these areas - and we need to establish expectations for faculty involvement, just as we do for other areas of faculty scholarship.
- The AAEA, IAMA, FDRS, and other professional associations should be encouraged to explore the areas of learning outcome development and learning assessment as they relate to food and agribusiness management programs. Mechanisms for sharing best practices in these areas, training faculty on key developments in outcome development and learning assessment, and publishing research on impact of such developments are all fruitful areas of work.
- The USDA CSREES and other funding agencies should be encouraged to provide grant funds for research into utilizing co-curricular activities as an instructional vehicle for building skills in these areas. Likewise, funding organizations should be encouraged to sponsor workshops, pre-conferences, and speakers who can address these topics with food and agribusiness management faculty.

Concluding Comments

Interpersonal communications, critical thinking skills, and writing skills are among the most important capabilities/skills that industry is looking for in new hires that have the capacity to develop into future business leaders. In addition, the ability to work effectively in teams and a respect for ethical behavior are also important to cultivate in students. These skills and attitudes may need to be taught using techniques that many faculty may not be familiar with. Several of these topics have been the subject of recent preconferences conducted by the Agribusiness Economics and Management (AEM) and TLC sections of AAEA. Previous workshops should be reviewed to determine if there are additional needs in these areas. A workshop on teaching ethics should be considered. And,

There is additional need for new teaching materials across all of these areas.

there is additional need for new teaching materials across all of these areas. There are important questions to discuss with regard to the role of co-curricular activities in building student skills, and the role of faculty in co-curricular activities. Enhancing the ability to build student skills and capabilities in all of these areas can pay important dividends for programs serving the food and agribusiness industries.

Team Members

Lisa House
University of Florida
Gainesville, Florida
(Team Leader)

Eluned Jones
Texas A&M University
College Station, Texas
(Team Recorder)

David Parker
Agri Business Group, Inc.
Indianapolis, Indiana

Scott Swenson
Sioux Nation Ag Centers
Sioux Falls, South Dakota

Randy Westgren
University of Illinois
Urbana, Illinois

Todd Zehner
Deere & Co.
Moline, Illinois

Industry Linkages

Issue

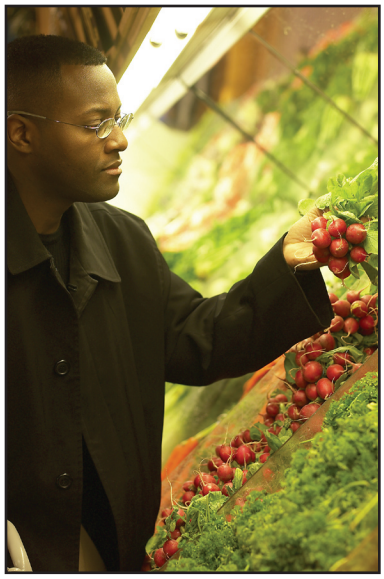
On-going interaction with industry is critical if food and agribusiness management programs are to remain relevant. Such interaction is needed to help refine curricula and course content, maintain linkages for internship and job opportunities, and provide resources for recruiting, course materials and activities, and non-course experiential learning opportunities. Some of the key questions in this area include:

- What innovative ways can food and agribusiness management programs create meaningful interactions with industry? How do these interactions move beyond guest speakers in classes and traditional ways of engaging and involving industry? Where do scholarships, internships, and case studies fit? What new avenues for relationship building are possible?
- What barriers now exist to effective industry/academic interactions? How can these barriers be addressed?
- How can food and agribusiness management programs best demonstrate the unique value associated with their niche product to the food and agribusiness industries?

Situation

It is clear that industry is willing/wants to be involved in food and agribusiness management education.

- It is clear that industry is willing/wants to be involved in food and agribusiness management education. They have a clear, vested interest in insuring that these programs attract quality students, and prepare them effectively for a career in the food and agribusiness industries.
- Many universities are pushing faculty and departments to deepen industry connections for a variety of reasons including providing career opportunities for students, providing scholarships for students, developing possibilities for research collaboration, among others.
- There is considerable opportunity to draw on alumni at most institutions in facilitating industry contact. These individuals are typically excited at the possibility to assist their alma mater.
- Technology makes it easier to pursue linkages with industry. This takes a variety of forms including databases to track alumni, use of e-mail for newsletters, video conferencing technology to bring speakers into the classroom, electronic mentoring, etc.



- The importance of having a directed work experience/internship in preparing for a career is increasingly clear. Such work experiences/internships require industry linkages.
- Industry can be involved in course structure/pedagogy in a variety of ways. Tools such as experiential learning, case studies, and role play demand industry engagement to assure relevance.
- Faculty need to seek out new opportunities for industry interaction as some traditional means are not as effective as they once were. For example, industry attendance/participation in disciplinary professional meetings has declined over time.

Recommendations

The following summary of the recommendations focuses on three main areas: faculty-industry liaisons; student-industry interactions; and facilitation of student-industry and industry-faculty relationships. The summary concludes with a brief discussion of how food and agribusiness management programs can improve their ability to demonstrate their unique value.

Increased interaction between industry and faculty and industry and students can benefit all parties involved.

Increased interaction between industry and faculty and industry and students can benefit all parties involved. Some of the key recommendations of this team include: 1) continuation of the NFAMEC as an on-going entity with 2-year terms to increase frequency of communication between industry and academe, including investigating the possibility of a mini-forum on a more regular basis; 2) creation of a template for a "certified internship"; and 3) formation of a database that would facilitate contact between industry professionals and companies with faculty and students.

Faculty-Industry Liaisons

The first step in facilitating any relationship between food and agribusiness management programs and industry (specifically focused on student-industry relationships) is to improve faculty-industry relations. Inhibitors to effective faculty-industry relationships include: 1) lack of "incentives" for faculty members to spend time fostering industry relationships within the promotion/tenure structure of universities; and 2) lack of understanding by university administration as to the importance of faculty-industry relations. Industry must be considered as a key stakeholder of the university. Maintaining effective relationships with key stakeholders is crucial to success, both to stay current with respect to developments and to remain focused on clientele needs.

Industry must be considered as a key stakeholder of the university.

Five suggestions are offered as ways to deepen faculty-industry linkages: 1) maintain the National Food and Agribusiness Management Education Commission (NFAMEC) as an on-going committee with rotating industry representatives (with 2 year terms); 2) hold a mini-forum on an annual or bi-annual basis where faculty and industry representatives can meet to discuss issues of mutual interest; 3) increase industry "face-time" with university administration by

having industry representatives meet with administration whenever they visit a campus; 4) increase industry input into course content through the mechanisms suggested above, along with other approaches; and 5) increase faculty face-time with industry by allowing release time for faculty to visit and collaborate with industry.

Maintaining NFAMEC is important.

The maintenance of the NFAMEC is suggested as a forum for fostering ongoing dialogue between industry and the food and agribusiness education sector. Additionally, this entity could be responsible for organizing a mini-forum that would bring interested educators together with human resource managers, recruiters, and other interested parties from industry. At the mini-forum, a number of activities could occur, including time for faculty to discuss their course content with industry members with a dual purpose of informing industry what students in food and agribusiness are learning and informing teaching faculty what industry hopes to have new employees know as they enter the job market.

Student-Industry Interaction

Internships may be the most commonly thought of student-industry relation, however, there are other types of interaction between students and industry that should be considered as well. Benefits of student-industry interactions for industry include: 1) training of students before they are employees on specific company procedures and cultural issues; 2) ability to garner more information about specific potential employees than a traditional interview provides at a relatively low cost; 3) exposure of the company to multiple students in a university who might otherwise have not known about employment potential with the company; and 4) potential to increase retention of good students in the food and agribusiness sector. Benefits of student-industry interactions for students include: 1) increased marketability of the student to the company involved; 2) increased marketability to other companies because of industry experience; and 3) increased knowledge about careers and specific jobs in the food and agribusiness sector.

Create standardized internship formats

Inhibitors to student-industry interactions include: 1) lack of knowledge on some companies part on how to (as well as the ability to) develop and manage internship programs; 2) lack of connections between faculty and industry that would lead to other types of student-industry relations (such as guest lectures in classes); and 3) lack of opportunities to have contact with industry members. Recommendations here focus on two main areas: 1) creating a standardized internship format; and 2) identifying other potential industry-student interactions and educating teaching faculty and industry members about these options.

Internships

Not all food and agribusiness companies are aware they can create internships with universities, or, even if they are aware of internships, they may not know how to structure a successful internship and intern program. One of the keys to a successful internship is for both the student and the company to have a posi-

A certified internship model is an important idea.

tive experience, which includes the company determining the internship is not a "cost" in terms of productivity. A recommendation here would be to form an internship task force. This task force would consist of three or four industry members from companies with successful internship programs and three or four faculty members with successful experience in supervising student internships.

The goal of this task force would be to create a standardized format for a "certified internship". Companies that adopt the "certified internship" model would follow a specific protocol so the students and faculty would have some assurance that the experience would be valuable to the student. At the same time, the company would benefit by having a standardized procedure as well as being able to attract good students seeking positive industry experiences. Some characteristics of the "certified internship" would likely be a template of measurable outcomes for both the industry and university, including competency in project identification; customer satisfaction; communication skills; problem solving; and finance and budgeting. Some of the recommended components of a "certified internship" include: a structured orientation for new interns; a visit to company headquarters (or meetings with upper management in the case of a single-location company); a mid-term progress review; an exit interview with an oral presentation to the company; and a written paper to be turned in to the university.

Other Student-Industry Interactions

Recognizing that not all students and companies will be able to have an in-depth interaction such as an internship, a list of other interactions that would benefit both students and industry by exposure to each other is offered. These student-industry interactions include:

Create opportunities for industry, faculty, and students to interact.

- Special projects: Case studies or in-class projects where students are required to have contact with industry to work on a specific problem. This would likely be for credit in a class (either within a class or as a class for larger projects) and would often involve participation from industry in the form of time and information sharing rather than financial resources (though an hourly wage might be appropriate for a student working on a specific project). The benefit of these types of projects are that a small group of students get exposure to a company and a problem-solving activity, much like a mini-internship, but without the cost of leaving campus and the inability to take classes concurrently.
- On-site visits: The general model here is to bring a number of students to companies to learn about the company and their business in trips that involve one or two hours of travel time. This option would involve some cost for student travel, and would provide limited exposure, but would introduce larger groups of students to a company and what working there might be like.
- In-class lectures: Bringing industry members into the classroom to discuss their experiences and company is a relatively low cost, potentially high impact model. This would involve travel of the

industry member to campus and would likely reach larger numbers of students for shorter time periods than the above projects or visits. These lectures could also be done via videoconferencing technology or by conference call.

- Virtual mentoring programs: The establishment of a virtual mentoring program would allow students to interact on a one-on-one basis with an industry member in a field of interest. This would allow students to develop a working knowledge of a part of the agribusiness sector, as well as have a personal contact that could assist the student in career planning decisions. The cost of this program could be minimal with the use of e-mail and Internet, though the possibility of having an annual conference where mentors could meet their mentees would be an attractive option.
- Executive in residence programs: The focus here would be programs where industry members come to a campus for a multiple day stay and have in-depth sessions involving a wide range of students. Such a program could be linked with some of the other alternatives offered above.

Facilitation of Faculty-Industry and Industry-Student Interaction

Create a database of industry and faculty interests to foster better relationships.

Many of the ideas proposed above involve joint projects that are not likely to be initiated if there is not some way for the two interested parties to meet each other. To facilitate such meetings, a database should be developed and maintained that would include listings of companies with:

- Certified internships
- Interest in and an ability to work with universities on special student projects
- Willingness to host on-site company visits

The database would include listings of industry members who are willing to:

- Serve as a virtual mentor to students
- Guest lecture in classes
- Be an executive-in-residence

The database could also include information on food and agribusiness management faculty including:

- Information on courses taught and what guest lectures would be useful
- Interest in special projects and information about the type of students (i.e., undergraduate or graduate) that would be participating
- Willingness to serve as virtual mentors to students

Such a database would facilitate the matching of faculty and industry members with mutual academic and career interests as well as geographical needs and interests, thus developing linkages and potentially providing opportunities for faculty to take sabbaticals in industry.

Industry linkages are critical. Industry leaders want to be involved.

Concluding Comments

Industry linkages are critical and an important aspect of a modern university and curriculum, especially one with a niche focus such as food and agribusiness. These linkages are a source of information that can help faculty better educate students about future careers and skills needed by present employers. They can also assist faculty in developing a food and agribusiness research program. Industry leaders want to be involved and it is important that programs find ways to utilize their knowledge within existing curriculum and to pursue curricula changes that would make such involvement more feasible. The NFAMEC Workshop held in St. Louis provided an excellent forum that brought industry and academe together working toward the common goal of food and agribusiness management curriculum improvement. This type of on-going activity could make important contributions toward a vibrant, relevant food and agribusiness management curriculum.

Team Members

Chris Peterson
Michigan State University
East Lansing, Michigan
(Team Leader)

Paul Patterson
Arizona State University
Mesa, Arizona
(Team Recorder)

Elle Grothaus
Cargill, Inc.
Minneapolis, Minnesota

Donald McDowell
North Carolina A&T State University
Greensboro, North Carolina

Bob O'Toole/Ann Baron
CoBank
Greenwood Village, Colorado

Kevin Still
Midland Co-op, Inc.
Danville, Indiana

Student Recruitment for Food and Agribusiness Management Programs

Issue

To a large extent, an undergraduate program is only as good as the students who enroll. This means that food and agribusiness management programs must have productive recruitment strategies to insure a quality cadre of students is enrolled. Some of the key questions in this area include:

- How can academe and industry work together to insure that high quality students are interested in careers in the food and agribusiness industries?
- What specific steps can industry and academe pursue to recruit the right students into food and agribusiness management programs? What is the role of the university? Where can industry contribute? Attention must be given to resource requirements and potential sources of the required resources in developing an effective recruiting program.

Situation

A variety of situational factors create a challenging environment for the recruitment of food and agribusiness students. These factors include the perception that careers in food and agribusiness are unattractive; the need to enhance the perceived quality of food and agribusiness students; questions about the mission of food and agribusiness programs; recruiting barriers placed by industry stereotypes; a decline in the traditional student pool; consolidation in the industry; and increased competition for students. Faculty of food and agribusiness programs and representatives from the industries they serve must work together to address these challenges. The future viability of food and agribusiness programs is at risk if a "business as usual" attitude is brought to the problem.

Many view careers in agribusiness to be an unattractive life pursuit.

- *Careers in agribusiness are perceived to be unattractive*. Today, 'agriculture' is often viewed negatively by much of society. With less that two percent of the U.S. population engaged directly in agricultural production and with the remaining population several generations removed from any family involvement in agriculture, this sector is largely misunderstood. While some may still hold sentimental views towards the U.S. agricultural sector, characterized by idyllic images of life on the family farm, many more view it as an

unattractive life pursuit. It is perceived to be hard, dirty, risky work offering limited opportunities for financial rewards. Media attention to controversial issues, such as genetically modified organisms, are often sensationalized and simplified in a manner that further damages the image of the agribusiness sector. More recently, the food industries have come under fire as a contributor to the national obesity problem. Because of this narrow, unfavorable, and misinformed view, the typical prospective student does not fully comprehend the breadth of opportunities in the food and agribusiness sector, which accounts for about 20 percent of the U.S. gross domestic product. This is due partly to the sector's failure to effectively enunciate the diverse opportunities available. While many industry firms have developed inspirational messages, primarily for public relations objectives, these messages have not effectively reached prospective students - potential future employees. Academia should also share in the blame for failing to effectively define and promote the opportunities that await prospective students.

Typical prospective students do not fully comprehend the breadth of opportunities.

- Perceived quality of food and agribusiness students needs to be enhanced. Industry firms have expressed some displeasure or skepticism over the quality of students graduating from food and agribusiness programs in terms of their core business competencies and their broader general education. Some readily admit to recruiting from business programs first, as they perceive these programs to offer better skill sets and a broader perspective on the challenges facing our global community. While this concern may be addressed through enhancements in curriculum design, there remains the underlying question on whether food and agribusiness programs are attracting students of the quality industry desires. Given the industry image problem and the business-first approach to recruiting employees, food and agribusiness programs are currently at a competitive disadvantage to business school programs in recruiting undergraduates.

Perceived quality of food and agribusiness students needs to be enhanced.

- Mission of agribusiness programs. Not unrelated to the concerns about the quality of students studying food and agribusiness management is the fundamental question of "why should a student study agribusiness"? If the premise that businesses want business skill sets first, and that expertise (familiarity) with agricultural sciences and the food and agricultural industries is less essential is accepted, the recruitment challenge facing food and agribusiness programs is amplified. Would students, even those with a strong interest in the food and agricultural sector, be better served by studying business in a business school? To be effective recruiters, the academic community must effectively answer these questions. Indeed, this concern speaks to the root of the mission of

Why should a student study agribusiness?

most food and agribusiness programs.

Agribusiness professionals are stereotyped as "conservative (very conservative), middle aged, white men." Food and agribusiness is not perceived to be a diverse work environment.

- Stereotyping of professionals and students. Perceptions held by students of industry professionals and perceptions held by industry professionals of students further limit recruitment and placement opportunities. From the student's perspective, many food and agribusiness professionals are stereotyped as "conservative (very conservative), middle aged, white men." In short, food and agribusiness is not perceived to be a diverse work environment. From the industry professional's point of view, students studying food and agribusiness are stereotyped as "nice rural kids." They are perceived to lack a global perspective and the savvy social skills required in today's business environment. However, food and agribusiness professionals do believe that students from farm and rural backgrounds often have a very strong work ethic, which is desirable.

The situation calls for a serious consideration of where to find non-traditional target audiences for recruiting.

- Traditional student pool is declining. With the share of the population living on the farm declining, the pool of traditional students entering food and agribusiness professions is also declining. The situation thus calls for a serious consideration of where to find non-traditional target audiences for recruiting.

- Industry is consolidating. The food and agribusiness sector is also continuing to consolidate. The consolidation of firms results in fewer job opportunities for majors. Furthermore, conglomerates with interests outside of food and agribusiness hold many of the consolidated companies. The managers and leaders of these corporations typically are not from food and agribusiness programs and often have little familiarity with these programs.

- Increased competition for students. Today, the recruitment of quality students is not only the concern of food and agribusiness programs, but also a major enterprise of most academic institutions. Thus, food and agribusiness management programs find themselves competing not only with business school programs, but also with every other academic program on their campus for quality students.

Recommendations

Undergraduate and graduate programs in food and agribusiness management provide students with the opportunity to develop core business skills, while also developing knowledge of the food and agricultural sector. It is this industry focus that differentiates such programs from traditional business administration programs. While this differentiation should be perceived as an opportunity to

add value, it may also create impediments for student recruitment and ultimately student placement. Identifying these impediments is the first step to developing strategies that will allow for more effective recruitment strategies. It also provides a foundation for related activities, such as food and agribusiness management curriculum development.

The situational factors that are creating impediments for recruitment were defined above. Strategies for overcoming these impediments, appropriate for undergraduate and graduate programs, are defined in this section. Finally, recommendations are offered on areas of future research that would provide valuable insights on recruiting students to study food and agribusiness and for program development.

Targets for Undergraduate Recruiting

The population of students from farm backgrounds still represents a viable target for recruitment efforts.

Traditional students – Although declining, the population of students from farm backgrounds still represents a viable target for recruitment efforts. Furthermore, students from rural and even urban areas with an interest in agriculture, as expressed through activities such as 4-H or FFA, continue to represent strong prospects for food and agribusiness programs.

Broader high school population - The broader high school student population, once they understand the opportunities available in the sector, is also a viable target recruitment market. Indeed, students with strong interests in physical sciences (biology) or social sciences (economics, political science) should easily understand how their interests potentially match select opportunities in the food and agribusiness sector.

Parents and counselors – Just as important as it is to convey to students the opportunities that exist in the sector, it is also important to convey to those advising these students (parents and counselors) on these opportunities. These authority figures play an important role as opinion leaders in the prospective student's life and choice of college program.

On-campus, undecided majors – Not unlike the uninformed high school student, students already enrolled at many universities are often unfamiliar with the food and agribusiness programs on their own campus and the career opportunities available in this sector. They too could discover how multidisciplinary food and agribusiness curriculums match their interests in the physical or social sciences.

International students – In many developing nations, agriculture remains the primary industry in the economy. Here, prospective students may possess a greater familiarity with this sector and the opportunities therein. Thus, these students are more receptive of majoring in food and agribusiness, as they readily see it as a part of life in their homeland. Furthermore, differences in cultural views on the sector may make students in non-U.S. industrialized countries more recep-

tive towards the idea of studying food and agribusiness management. For example, in Europe, where urban centers are much denser, it is more common for individuals to have stronger links to either their own agricultural heritage or an affinity for the rural sector. The challenge, therefore, is to develop opportunities for such students to study food and agribusiness management in the U.S.

Non-traditional students – Many universities are seeing growing numbers of returning or adult students. This group of students may be an attractive recruitment target, as their maturity will allow them to more readily understand the opportunities available in the broad food and agribusiness sector.

Community colleges – Similar to the on-campus, undecided major, community college students represent another attractive recruitment target. Many are searching for an opportunity to connect with a major at the institution they will eventually join.

Minority (under represented) students – The food and agribusiness industries are looking to diversify their workforce through new hires of minority population students. From the perspective of academic programs, some of these students, such as Native Americans and Hispanics, may come from communities that are very involved in food and agribusiness enterprises, and in need of college graduates with expertise in this area.

Undergraduate Student Recruitment Tactics

The question becomes, how much value does this industry focus and additional science coursework add?

Commitment to mission – For any recruitment activity to be effective the faculty of the food and agribusiness programs must be committed to the mission of the unit. They must be ready to answer the question posed by students and businesspersons alike - "Why should a student study food and agribusiness management"? Prospective industry employers have emphasized that they desire business skills in their new employees and that knowledge of the sector is less important. However, they do not totally dismiss the value of studies in agricultural sciences or business courses focused on the agricultural sector. The question becomes, how much value does this industry focus and additional science coursework add? What is the value proposition?

It might be justly argued that the food and agricultural sector is becoming more complex as new production, processing, transportation, and information technologies are developed. These technologies have expanded the boundaries for trade in food and agricultural products, creating new opportunities and threats for domestic producers. At the same time, the sector faces increasingly demanding consumers and more regulations on production processes intended to protect the environment or consumer health. To effectively compete in this complex business environment, the sector needs managers with a full knowledge of the policies affecting business and familiarity with the technologies available for use. Effective food and agribusiness management programs will provide this base of industry-specific knowledge.

This is a sector, owing partly to its conservative foundations, that still places a premium on achieving a balance between work and life.

Promotion message – The story of opportunities needs to be told to potential students, beginning with an emphasis on the diverse positions and experiences offered by the industry and rewards comparable to other sectors. Also, this is a sector, owing partly to its conservative foundations, that still places a premium on achieving a balance between work and life, promoting a work environment that values the quality of life.

Careers in the food and agricultural sector can also be characterized as a socially valuable professional calling, providing members of this sector the opportunity to "nourish the world". This view is consistent with the agrarian philosophy that shaped and continues to influence our nation's culture. A renewed understanding of the sector will allow students to rediscover their own agrarian roots.

The food and agribusiness sector is an integral part of our global economy.

However, students should not be lulled into taking too provincial a view of the food and agribusiness sector. Indeed, the sector is an integral part of our global economy and careers in this sector afford individuals the opportunity to develop extensive international experience. This is an opportunity that should excite the many students who are interested in international business. Likewise, consolidation of the sector has created many of the world's largest corporations and a career in any one of these global giants will carry all of the pressure, politics, upward mobility and reward that a career in any global multinational would possess.

The globalization of the food and agribusiness sector was driven by advancements in communications and transportation technologies. However, these technologies and new production technologies are transforming the sector into a high-tech, science-based one. This is a message that needs to be conveyed to students that would also help overcome some of the stigmas associated with the sector - it's not just 'cows and plows'.

Promotion tools – These messages of opportunity, though, must be effectively conveyed to prospective students. In general, food and agribusiness academicians and professionals have not been aggressive with the use of even the most rudimentary promotional tools, such as posters in high school counselor offices. In additional to basic promotional approaches, this message of opportunity must be conveyed to students through media that captures much of their time and attention - the Internet. The promotional materials and informational websites could be sponsored by professional associations, either academic or industry oriented. Industry, through corporate activities and producer organizations, has already shown an interest in promoting careers in food and agribusiness through some of their agriculture in the classroom and school garden programs.

Industry and academia could do even more in promoting agribusiness and enhancing the image of this sector.

Industry and academia could do even more in promoting agribusiness and enhancing the image of this sector. Industry leaders could be called upon as recruiters to promote education in food and agribusiness through presentations in high schools. They could bring prospective students to their work sites, so that they could get a better understanding of the professional environment. They

could also serve as mentors to prospective students, even if it is done virtually through e-mail exchanges. Academic programs could also do more in developing summer experiences on campus for high school students.

Culture of quality – For industry to be compelled to enter into a partnership with academia in promoting undergraduate food and agribusiness education, they must be convinced that their efforts will eventually produce the graduates they seek to hire. The programs must graduate students with the skills industry desires. Given that business programs are already a source for prospective employees for food and agribusiness firms, agribusiness programs cannot afford to be second-rate business programs. Efforts to enhance and insure the quality of academic programs could arise through reviews by new accreditation boards with expertise in food and agribusiness management or existing business accreditation bodies.

Agribusiness programs cannot afford to be second-rate business programs.

At the local level, some programs have found it to be very helpful to actively engage industry in curriculum planning/development and program monitoring through advisory boards, as a means of improving the quality of their program. This gives the program the opportunity to develop meaningful working relations with industry in producing graduates with the skills they seek. Furthermore, the resulting relationships can create new opportunities for student placement.

As food and agribusiness programs seek to enhance their quality and the quality of their graduates, they will find it necessary to seek out and recruit high quality students. And, programs may find it necessary to become smaller academic units with academic curriculums that are more responsive to industry needs. Specifically, the curriculum must be designed to enhance students' sophistication in communication skills, interpersonal skills, critical thinking skills, and professional skills. The student's level of professionalism and perspective on the world could also be broadened through international study experiences or internships.

The student's level of professionalism and perspective on the world could also be broadened through international study experiences or internships.

Curricular initiatives - The on-campus undecided major may be recruited to food and agribusiness programs through the development of stimulating courses, which introduce students to the opportunities in agribusiness. This technique requires the very best faculty instructors. It is yet another venue to tell the story of opportunity in the industry and attract new majors. Opportunities to increase student credit hours can also arise through the development of certificate programs, specializations, concentrations, or minors in food and agribusiness management.

Graduate Student Recruitment Tactics

The challenge in recruiting students for graduate programs is eased partly since this is a target audience that already self-selects to a certain degree. Therefore, recruitment efforts can be targeted toward this group more precisely. However, food and agribusiness programs, particularly, masters degree programs, should give some careful thought to their value proposition. Some may argue that the

The recruitment efforts for graduate food and agribusiness programs should target undergraduate majors in non-business related disciplines.

value added in terms of skills for students who majored in business, economics, agricultural economics, or agribusiness as undergraduate students is fairly modest, particularly if the student is entering the graduate program directly from their undergraduate program. This would suggest that recruitment efforts for graduate food and agribusiness programs should target undergraduate majors in non-business related disciplines, such as the agricultural science majors (e.g. animal science, agronomy).

Industry employers have also commented that to justify the salary premium expected for an advanced degree, they want to see some work experience coupled with the degree. Thus, not unlike some MBA programs, prior work experience could be considered in selecting graduate program students. These employers also indicate that they are interested in developing the talent of their current employees and sometimes offer support for further education.

These program offerings could be modeled after existing business school executive education programs.

Recruiting graduate students with prior work experience or those currently working may require food and agribusiness programs to develop special, flexible degree offerings that meet the needs of these students. This may require compressed class schedules, night or weekend course offerings, alternative locations, or distance education. These program offerings could be modeled after existing business school executive education programs.

International students have traditionally represented important constituents of graduate programs in agricultural economics and agribusiness. The need for graduate education in this field remains strong, particularly in developing countries, as discussed above.

At the Ph.D. level, student recruitment is becoming more critical with greater demand for food and agribusiness faculty and in particular, teachers. However, the supply of candidates with Ph.D.'s is limited, and those with an industry background is exceedingly thin. In addition, smaller schools have real needs in this area and struggle to find acceptable candidates. One suggestion would be to have a part of the USDA National Needs Fellows program specifically targeted for training faculty for smaller 1862, 1890, and 1994 and AASCAR institutions to help meet their needs for faculty with doctorates.

Needs for Further Research

This reflection on student recruitment should prompt new discussions on curriculum planning and on the core mission of food agribusiness programs. These issues and other questions suggest the need for some new research related to the development of sector-focused programs that meet the needs of today's marketplace.

First, related directly to the fundamental question of "Why study food and agribusiness management?" is the research question of how does such education contribute to personal and business success. A comparative study of business

Are skills learned in agribusiness programs different than business school programs?

leaders with educational backgrounds in business and food and agribusiness could be developed.

Second, do the skills acquired through business or food and agribusiness programs allow the business professional to move easily across positions in either the food and agribusiness sector or other sectors of the economy? Is the potential for movement symmetric - can a person with a background in food and agribusiness management move just as easily across the sectoral divides as someone with a background in business?

Specific business courses are the key factors differentiating agribusiness programs from business programs.

Third, how would a food and/or agribusiness employer build the ideal new associate? What are the skills desired and how should curriculums be designed to meet these needs? Should the student even study food and agribusiness management?

Finally, while the emphases on agricultural and general sciences and the sector-specific business courses are the key factors differentiating agribusiness programs from business programs, many such programs also have the advantage of being relatively smaller. This too may be an important point of differentiation, as it allows for the development of different classroom and co-curricular environments. This raises yet another researchable question on the relative effectiveness of these programs.

Concluding Comments

Student recruitment efforts will be critical to the future of all food and agribusiness management programs.

Student recruitment efforts will be critical to the future of all food and agribusiness management programs. As this report has suggested, the situational factors contain a number of threats for the future of such programs. Student recruitment is becoming increasingly difficult as students are faced with more options in curriculums across the country. In some cases, the names of curriculum (i.e., agricultural economics) may not convey an image that non-traditional students understand.

Opportunities also exist, but they will demand pursuit of strongly proactive strategies in the recruiting arena to be realized. The key question upon which the success of future recruitment turns is the one regarding why - why should students study food and agribusiness management? Or put another way, what is the value proposition that these programs bring to the student and to the potential employer? If this question can be answered, then recruitment efforts will have purpose, focus, and increased likelihood of success.

Team Members

John Foltz
University of Idaho
Moscow, Idaho
(Team Leader)

Gary Brester
Montana State University
Bozeman, Montana
(Team Recorder)

Allen Anderson
Cenex Harvest States Cooperatives
St Paul, Minnesota

Pat O'Rourke
Illinois State University
Normal, Illinois

Lee Rulon
Beck's Superior Hybrids
Atlanta, Indiana

Surendra Singh
Tennessee State University
Nashville, Tennessee

Todd Smith
ConAgra
Omaha, Nebraska

Introductory and Capstone Undergraduate Courses

Issue

In many food and agribusiness management programs, an introductory course and a capstone course in food and agribusiness management are important components of the program. Non-majors may only take the introductory course in food and agribusiness management. Hence, these two courses are typically the foundation of these programs. As such it is important that the focus and content of these courses be regularly reviewed to insure they will continue to meet the needs of students and employers. Some important questions are raised:

- What set of ideas/concepts/issues should be a part of undergraduate food and agribusiness management courses (introductory and capstone) to insure that the courses serve the needs of students and employers? The intermediate career needs and longer term needs of both the student and the employer must be considered.
- What specific topics/experiences should be included in these two courses? What is the content map for a one semester introductory course, and a one semester capstone course in food and agribusiness management?

Situation

- A course in food and agribusiness management must start with the premise that agribusiness management is distinctly different from "business management." The definition proffered by Sonka and Hudson, summarizes some of the features of food and agribusiness that distinguish it from other economic sectors.
- Many universities have resources to offer a limited number of 'food and agribusiness management' courses and these typically are an introductory course and a capstone course.
- Food and agribusiness management courses play an important service role within colleges of agriculture as many physical science programs require some coursework in business to help their majors prepare for commercial careers.
- At many institutions, food and agribusiness management courses are popular, leading to large enrollments. This places some constraints on teaching methods.
- Capstone experiences are increasingly required by college curricula, and demanded by research into factors driving

curriculum quality.

Materials for food and agribusiness courses are scattered and outdated.

- Materials for food and agribusiness courses are scattered, outdated, and draw almost exclusively on general business course materials which can undermine the niche focus of programs.
- Given the fact that most 'food and agribusiness faculty' are trained in economics, the background of faculty and their work experiences may not be aligned with the content of management courses.

Recommendations

A central question is what material should be covered in undergraduate introductory and capstone courses in food and agribusiness management? More specifically, what are the learning objectives for each of the two courses? And, what is the structure and method of teaching the courses that would achieve the learning objectives? Each of these areas is presented in more detail below.

Introductory Course

Introductory courses show that agriculture and food are a major contributor to the economic engine of the U.S. and world economies.

An introductory course in food and agribusiness may be a student's first exposure to many industry issues. As such, the course should introduce the scale and breadth of the industry and serve as an introduction to food and agribusiness career paths. Such courses can also help to introduce the fact that this industry is a major contributor to the economic engine of the U.S. and world economies. This introductory course should emphasize the applications of economic theory to management decision-making. Finally, the student should leave the course with a deeper appreciation of the functions of management.

This introductory course should give an overview of food/agriculture/agribusiness, including current issues such as structure and consolidation. This objective is important in today's business environment of fast-paced change regarding rationalization within the food and agribusiness industries. An introductory course should highlight linkages across the vertical chain, from input suppliers to production agriculture to consumers.

Introductory agribusiness courses can help students understand the practical application of economics. This is another important objective of the course, as students can then see the usefulness of the concepts and theory behind economics. The introduction of analytic tools used in management and economics should be another objective of an introductory agribusiness course. This starts to build the skill set needed by students for their collegiate and professional careers.

Introductory food and agribusiness courses may also contribute to student recruitment and retention.

Introductory food and agribusiness courses may also contribute to student recruitment and retention. For students who are unsure of their college major, a well-taught introductory course can help solidify and confirm their choice. For the student that is degree "shopping," an introductory course can help "sell" them on majoring in food and agribusiness management.

Capstone Course

Capstone courses utilize experiential learning techniques.

A capstone course (typically taught at the senior level) can help assimilate the various skills and concepts of an undergraduate education. Such courses often incorporate challenges students will encounter upon employment including the need to: (1) gather and analyze facts; (2) define problems or obstacles given ill-defined parameters; (3) make management decisions in the face of insufficient information; (4) communicate findings, strategies and decisions in a concise manner using both oral and written communication skills.

Such a course will likely utilize experiential learning techniques to help students integrate and apply subject matter from across the curriculum. Heavy use of case studies based on actual industry problems, simulations, and/or 'consulting-type' projects helps students begin the transition from university to industry.

Learning Objectives

The two courses should have different learning objectives. The introductory course should have the following learning objectives: (1) help students better understand the agribusiness/food and fiber system; (2) assist students in learning about career opportunities in agribusiness management; (3) help students understand globalization and other driving forces influencing the food industry, production agriculture, and agribusinesses; and (4) serve as an introduction to how employers think and what they want from their employees.

There are different learning outcomes for introductory and capstone courses.

The capstone course should have the following learning objectives: (1) provide the students with a framework for integrating previous coursework in marketing, economics, accounting, finance, human resource management, farm management, and production/operations management; (2) help the student develop an appreciation for the interaction between the marketing, finance, operations, and human resource dimensions of the food and/or agribusiness firm; (3) build awareness of current, critical issues facing managers of food and agribusiness firms; (4) develop the ability to think strategically about business decisions; (5) enhance business problem-solving and decision-making skills; and (6) improve the ability to communicate effectively in both oral and written form.

Course Topics

The introductory and capstone courses should both cover the following topics (with the capstone course obviously digging deeper and spending more time on the areas): (1) financial analyses; (2) marketing and sales; (3) managerial economics; (4) interpersonal, oral, and written communication skills; (5) critical and analytical thinking skills; and (6) strategic business management.

Because of rapid changes occurring in technology, society and business management, several current topics would be worth exploring in a capstone course including:

- Diversity
- Gender equity

- Sexual/general harassment
- Ethics
- Food safety and food security
- Biotechnology
- Environmental issues
- Changing consumer demands
- Structural change (mergers, acquisitions, joint ventures, etc.)

This list would be expected to change over time as the issues of prominence within the industry change.

Structure/Methods Utilized

The choice of teaching techniques is important to the effectiveness of introductory and capstone courses.

The choice of teaching techniques is important to the effectiveness of both types of courses. The following lists of "less effective" and "more effective" teaching techniques and classroom environments are offered.

Less Effective	*More Effective*
Lecture	Student interaction/student lectures/presentations
Complacent (student)	Questioning, inquisitive, negotiations (student)
Theoretical	Practical/real-life/applications
Passive	Participative
Larger class size	Smaller class size
Problems	Case studies/simulations
Conceptual	Decision/problem/action focused
Teacher evaluated	Student/self-evaluated
Individual work	Team work
Structured	Flexible
Textbook	Current readings
Professor	Guest speaker/food and agribusiness manager

Although some educators feel that the more effective techniques are more easily implemented in upper level courses such as a capstone course, these approaches can also be successfully implemented in introductory courses by using smaller recitation type sections.

Obviously, in many cases the above list is not either/or. There are clearly situations where a textbook may be a much better resource than current readings, the professor may be more effective than a guest speaker, etc. But, the list provides some guidance for choosing techniques which are engaging, experiential ways to teach food and agribusiness management.

Faculty Preparation/Materials Development

Possible forums for sharing ideas and teaching techniques among educators and industry participants should be explored. Proposed forums include the American Agricultural Economics Association (AAEA) through the Teaching, Learning, and Communications (TLC) Section. Here, faculty could share syllabi, teaching techniques, etc. for effective teaching of food and agribusiness management. Another possible forum would be a special conference focused on food and agribusiness management education, which would include industry speakers and industry input as well as contributions from university faculty. The Case Study Forum of the International Food and Agribusiness Management Association (IAMA) and the Graduate Student Case Study Competition held by the AAEA provide an excellent opportunity for developing case studies as well as providing a source of food and agribusiness management cases.

Many faculty are trained as economists with little training or experience with business management.

As mentioned earlier, many faculty are trained as economists with little training or experience with business management. The above forums may be one way to bridge this gap between training and the subject matter they are teaching. Short-term industry sabbatics might be another way to help faculty become more familiar with industry issues and expectations. Writing case studies can help provide experience in industry problem-solving. A management faculty mentor program might be considered, pairing experienced food and agribusiness management educators with new Ph.D.'s who have been asked to teach management courses.

Materials development remains an important task.

Finally, materials development remains an important task. Many food and agribusiness courses draw almost exclusively on general business management materials. Such materials, while solid conceptually, do not provide the industry context a successful food and agribusiness management program needs to differentiate itself from general management programs. The needs here are broad: case studies, simulations, text books, video support materials, problem sets, etc.

Concluding Comments

Relevant and current course material and teaching methods were recognized as necessary means for engaging and educating students. Food and agribusiness management courses are a vital component of agricultural economics curricula in many departments. Both the agricultural economics profession and food and agribusiness industries need to continue to meet the needs of both students and employers. This is accomplished by continually updating course content, making use of available forums for discussion and interaction, and by regularly meeting with industry leaders to continue to take the pulse of the market.

Team Members

Tom Sporleder
The Ohio State University
Columbus, Ohio
(Team Leader)

Dennis Conley
University of Nebraska
Lincoln, Nebraska
(Team Recorder)

Bradley Clow, Sr.
Union Pacific Railroad
Omaha, Nebraska

Joe Coffey
Southern States Cooperative
Hernando, Florida

Ted McKinney
Dow AgroSciences
Indianapolis, Indiana

Siva Sureshwaran
SBIR Program, USDA
Washington DC

Graduate Programs in Food and Agribusiness Management

Issues

While the primary focus of NFAMEC was undergraduate education in food and agribusiness management, there are a number of important issues facing graduate programs in the area. These issues range from course and curricula issues, to issues regarding the staffing of such programs. Some of the key questions include:

- What set of ideas/concepts/issues should be a part of an M.S.-level food and agribusiness course to insure that the course serves the needs of employers? What specific topics/experiences should be included in this course? What are the intermediate and longer term needs of the student and the employer that such a course must address?
- More broadly, what is the role for M.S. programs (as opposed to a course) focusing on food and agribusiness management? Is this an area that deserves further attention? If so, what types of students should be targeted? Is a residential model best aligned with the target audience? Is a distance model aimed at individuals already in the work force a more appropriate model? What opportunities exist here?
- How do academic departments of agricultural economics replenish agribusiness faculty over time to staff graduate and undergraduate programs in food and agribusiness management? What are the implications for doctoral training in the area? What are the most important topics/subjects/ideas to address in a Ph.D. program with a focus on food and agribusiness management? What theoretical frameworks should form the foundation for such a program?

Situation

The context for these questions includes several assumptions regarding the future environment in which agricultural economics graduate programs might exist:

- Top M.S. food and agribusiness management students may choose to go to doctoral programs in general business rather than becoming doctoral students in agricultural economics (with a management concentration).

- Increasingly, some courses in food and agribusiness management at the undergraduate level may be outsourced by departments of agricultural economics to the business school.

A small percentage of the total faculties in departments of agricultural economics are specialized in food and agribusiness management.

- Currently, only a small percentage of the total faculties in departments of agricultural economics are specialized in food and agribusiness management.

- Departments of agricultural economics have difficulty hiring business school doctoral degree faculty because of the wide salary differences which exist between agricultural economics and business.

- Many managers cannot afford to place their careers on hold in order to attend a full time masters program. It is likely that traditional, residential MS degree programs will continue to be heavily focused on 23 to 25 year olds who are continuing from an undergraduate program while executive type/part-time programs will likely be used by the majority of employees in the food and agribusiness industries. These two types of programs have different missions and it is unlikely that most faculty can effectively teach in both programs. Departments that seek to operate executive/part-time programs will require faculty that understand the needs of these students which will likely require active engagement with industry.

There is a disconnect between the undergraduate and graduate programs.

- In many departments of agricultural economics there is a disconnect between the undergraduate and graduate programs. The tendency is for food and agribusiness to be a vital portion of the offerings at the undergraduate level but not at the graduate level.

Graduate research assistantships, especially at the M.S. level, are increasingly limited.

- Increasingly, the Social Science Citation Index will become a major factor in the promotion and tenure process. This puts even more pressure on the research productivity of new faculty.

- Funding for graduate research assistantships, especially at the M.S. level, is increasingly limited. More and more M.S. students are using loans and working to finance a master's degree. Yet, these students still need thesis supervisors and while rewarding for the student, such thesis projects can be time consuming for the supervisor and are less likely to lead to peer-reviewed research relative to work with doctoral students.

- There is an important need to better articulate what constitutes food and agribusiness economics and management research and the constituency for this research. This articulation would allow administrative heads, chairs, and others to better understand what constitutes excellence in scholarship and in this field. A key player in this articulation could be the American Agricultural Economics

The number of doctorates in agricultural economics has declined precipitously in the past ten years.

Association's (AAEA) Agribusiness Economics and Management (AEM) Section.

- Industry has a continuing need for master's level graduates, either MBA or M.S., especially if analytical skills are required. The popularity of undergraduate food and agribusiness management programs and of the MS/MBA/MAB-type degree programs point to a continuing demand for food and agribusiness faculty in departments of agricultural economics.

- The number of doctorates in agricultural economics has declined precipitously in the past ten years as seen in figure 2 in the appendix of this team's report. In particular, the number of doctorates for students in agribusiness has declined even faster.

Recommendations

There is a wide-ranging set of recommendations regarding graduate education in food and agribusiness management. These include defining a recommended set of topics for a M.S. course in food and agribusiness management; establishing guidelines for a M.S. program in the area; identification of the subject matter expertise required of a doctoral student in agribusiness; continuing the USDA National Needs Fellowship program in food and agribusiness management; and exploring the potential for coordination of distance education in agribusiness.

Recommended Topics for an Agribusiness Graduate Course

Many M.S. programs with an agribusiness focus offer a single course in food and agribusiness management, complemented by a wide range of business and economics coursework. What should be the topical focus of such a course? Agribusiness course syllabi were analyzed and it is apparent that a wide variety of concepts and topics are taught within such a course. Furthermore, some of these courses are being team taught. The textbook, *Economics of Strategy*, by Besanko, Dranove, Shanley, and Schaefer is the most widely used textbook in agribusiness graduate courses.

A graduate course should make heavy use of experiential learning through case studies.

Based on a review of syllabi, the following concepts represent a partial list of those that should be part of a M.S. level graduate course in food and agribusiness economics and management:

- The framework for strategic decision making
- Porter's framework of competitive analysis
- Resource theory of the firm
- Agency theory and transactions costs analysis
- Fundamentals of competitive strategy
- Financial analyses of performance and evaluation of strategic alternatives

In addition, the course should make heavy use of experiential learning through case studies or other 'consulting type' projects to insure that students have the capability to transfer theory and frameworks into complex decision analyses.

Guidelines for M.S. Programs

A variety of models for M.S. level training in food and agribusiness management exist. As program directors and faculty look to improve these programs longer term, some insight on the content and experiences and types of courses the program should include, will be highly useful. An organization such as the Agribusiness Economics and Management (AEM) Section of the AAEA or perhaps a task force of the International Food and Agribusiness Management Association (IAMA) could help define what ought to constitute a food and agribusiness option within an M.S. degree program.

Below is a partial list of the skills and expertise which are deemed important to graduates from a M.S. level program in food and agribusiness management:

- Analytic skills
- Decision-making skills, including decision-making under risk and uncertainty
- Understanding of applied economics, including transactions costs analysis and game theory
- Understanding of the functions of management, including business strategy, marketing, finance, operations/logistics, and human resource management
- Appreciation for contemporary issues facing food and agribusiness managers
- Communication skills, including both written and oral communications
- Comfort with networking (i.e. building social capital)

The subject matter specialties should include:

- Business management with a focus on strategic management
- Managerial finance/financial analysis
- Quantitative methods with a focus on probability and statistics and simulation
- Microeconomics/managerial economics
- Macroeconomics/international economics
- Business electives such as marketing management operations/logistics, human resource management
- Economics electives such as public policy, regulatory environment of the food system

Graduate programs must include some significant problem-solving experience as part of the program.

It is recognized that such skills and expertise and the subject matter specialties can be satisfied in a variety of ways, including courses in agricultural economics and economics, and business school courses.

It is also recommended that such programs include some significant problem-solving experience as part of the program. This does not need to be a thesis experience. But, it does need to be integrative, and focused on some problem of interest to industry.

Subject Matter for Doctoral Programs in Agribusiness Specialty

There is no common definition of what constitutes a field in agribusiness within doctoral programs in agricultural economics. An organization such as the AAEA Agribusiness Economics and Management (AEM) Section could provide leadership in developing some guidance on this topic. Any field in food and agribusiness management will likely include the following courses:

- A course in agribusiness economics and management. The content of this course will likely include: Porter's framework of competitive analysis; resource theory of the firm; agency theory and transactions costs analysis; and fundamentals of competitive strategy.
- A course in market structure/industrial organization/competition policy
- A course in the microeconomics of decision making, including topics such as game theory and real options.
- Electives such as marketing research including an introduction to limited dependent variables, experimental auctions, or survey methodology.

In addition to developing some guidance on the structure of an agribusiness specialty, there are other recommendations to build the credibility of the discipline within the broader community of agricultural economics scholars. Agribusiness faculty might also become proactive in ranking doctoral programs in agribusiness as part of the National Research Council of the National Academy of Science. The AEM Section of AAEA could designate a group or committee to become involved and build an on-going process of ranking programs. Along this line, there is a need for the International Food and Agribusiness Management Review (IFAMR) and other related food and agribusiness management journals to be included in the Social Science Index.

The need for increased emphasis on food and agribusiness management needs to be communicated to USDA CSREES.

USDA CSREES National Needs Graduate Fellowship Program

The USDA CSREES National Needs Graduate Fellowship Program has broadened the definition of management from its original focus on food business and agribusiness. The need for increased emphasis on food and agribusiness management needs to be communicated to USDA. The trends as shown in figure 2 have major implications for land grant universities. As indicated above, given the continued focus on agribusiness management, especially at the undergraduate level, there is an on-going need for faculty with training in the area. An AAEA symposia could be dedicated to this program and its impact on the agricultural economics profession and highlight the accomplishments of these agri-

business management fellows.

Coordination of Distance Education

Many opportunities exist for distance programs in food and agribusiness management. However, given the niche market for agribusiness management programming, especially at the M.S. and Ph.D. levels, the profession does not need many such programs. A variety of possibilities exist here. Individual courses could be taught by faculty at various universities and combined into a 'virtual program'. This program could be aimed at individuals in international regions (such as Africa) who cannot participate in on-campus programs. Individual courses could be shared within existing programs – i.e., a course at one university accepted for credit at another. A single 3 credit course could be broken into parts, with 3 universities each teaching one credit. Other models are possible, but the general idea is to make a wider array of courses available to a wider set of students, and to lever existing investments for distance education as heavily as possible. Again, some coordination could be provided through the AAEA or IAMA, with funding support from USDA.

Agribusiness management represents an important part of many graduate programs in agricultural economics.

Concluding Comments

Agribusiness management represents an important part of many graduate programs in agricultural economics. Many graduate students, especially those at the master's level, desire an agribusiness experience with regard to thesis research and courses. AAEA, through AEM, and IAMA can provide assistance by helping define for the profession what topics should be taught in a graduate course in agribusiness and what should comprise a field in agribusiness at the doctoral level. Agribusiness will increasingly become a more important part of graduate programs in the future and USDA should continue to invest in the development of faculty to staff these programs.

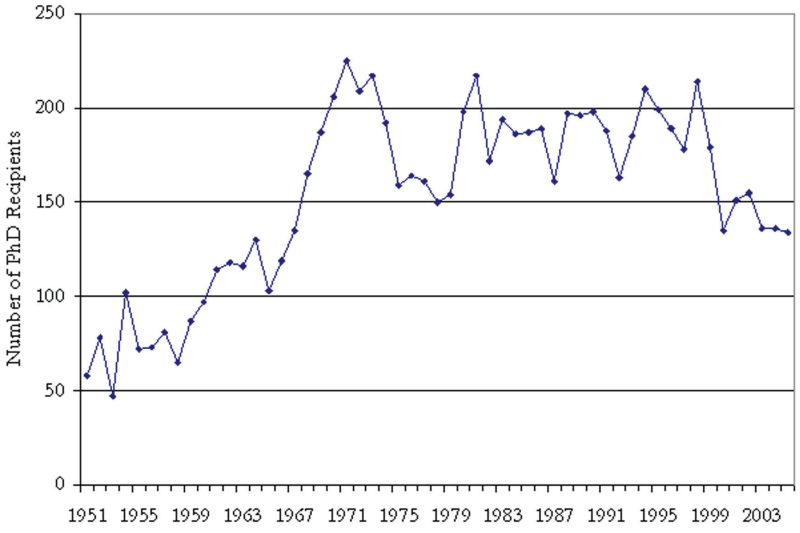


Figure 2. *Number of Doctoral Recipients in Agricultural Economics, 1951 to 2005 (updated from Boland and Akridge, 2004c)*

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Appendices

Appendix A

National Food and Agribusiness Management Education Commission Members

Co-Chairman
Jay Akridge
Purdue University
West Lafayette, Indiana

Co-Chairman
Mike Boland
Kansas State University
Manhattan, Kansas

Allen Anderson
Cenex Harvest States Cooperatives
St. Paul, Minnesota

Joe Coffey
Southern States Cooperative
Hernando, Florida

Gary Brester
Montana State University
Bozeman, Montana

Bob Broeckelman
USAgBank
Wichita, Kansas

Cynda Clary
New Mexico State University
Las Cruces, New Mexico

Bradley Clow, Sr.
Union Pacific Railroad
Omaha, Nebraska

Dennis Conley
University of Nebraska
Lincoln, Nebraska

Penny Deibel
Oregon State University
La Grande, Oregon

John Foltz
University of Idaho
Moscow, Idaho

David Gordon
Elanco Animal Health
Indianapolis, Indiana

Elle Grothaus
Cargill, Inc.
Minneapolis, Minnesota

Mike Gumina
Pioneer Hi-Bred International, Inc.
Johnston, Iowa

Jim Hagen
Cornell University
Ithaca, New York

Lisa House
University of Florida
Gainesville, Florida

Karen Howard
Land O' Lakes, Inc.
St. Paul, Minnesota

Tu Jarvis
University of California – Davis
Davis, California

Eluned Jones
Texas A&M University
College Station, TX

Joe Kozlarek
Land O'Lakes, Inc.
St. Paul , Minnesota

Donald McDowell
North Carolina A&T State University
Greensboro, North Carolina

Ted McKinney
Dow AgroSciences
Indianapolis, Indiana

Marvin Miller
Ball Horticultural Company
West Chicago, Illinois

Steve Miller
Clemson University
Clemson, South Carolina

Pat O'Rourke
Illinois State University
Normal, Illinois

Bob O'Toole
CoBank
Greenwood Village, Colorado

David Parker
Agri Business Group, Inc.
Indianapolis, Indiana

Paul Patterson
Arizona State University
Mesa, Arizona

Chris Peterson
Michigan State University
East Lansing, Michigan

Lee Rulon
Beck's Superior Hybrids
Atlanta, Indiana

Dave Shaffner
California Polytechnic State University
San Luis Obispo, California

Surendra Singh
Tennessee State University
Nashville, Tennessee

Jodie Smith
Fort Peck Community College
Poplar, Montana

Todd Smith
ConAgra
Omaha, Nebraska

Tom Sporleder
The Ohio State University
Columbus, Ohio

Kevin Still
Midland Co-op, Inc.
Danville, Indiana

Siva Sureshwaran, Ex-Officio
SBIR Program, USDA
Washington, DC

Scott Swenson
Sioux Nation Ag Centers
Sioux Falls, South Dakota

Randy Westgren
University of Illinois
Urbana, Illinois

Todd Zehner
Deere & Co.
Moline, Illinois

Jim Zellner
Tropicana Products
Bradenton, Florida

Appendix B

National Food and Agribusiness Management Education Steering Committee Members

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Dr. W. Dave Downey
Center for Food and Agricultural Business
Purdue University
West Lafayette, IN

Dr. Walter J. Armbruster
President
Farm Foundation
Oak Brook, Illinois

Ms. Anna Ball
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Ball Horticulture Company
West Chicago, Illinois

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Atlanta, Indiana

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Group Vice President Logistics
The Kroger Co.
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Concord, MA

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Union Pacific Corporation
Omaha, Nebraska

Mr. A. Charlie Fischer
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Dow AgroSciences
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Mr. Dave Fuhrman
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Foremost Farms USA
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Agri Business Group, Inc.
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Elanco Animal Health
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CEO
Treetop, Inc.
Selah, WA

Mr. Scott A. Swenson
CEO
Sioux Nation Ag Center
Sioux Falls, South Dakota

Ms. Sara Wyant
President
Agri-Pulse Communications
St. Charles, Illinois

Dr. Adel Zakaria
Senior Vice President
Deere & Company
Moline, Illinois

Appendix C

Agenda for NFAMEC Workshop
October 16 – 17, 2003, Hilton St. Louis Airport, St. Louis, Missouri

Thursday, October 16, 2003

2:00 Welcome Introductions, Project Overview
Roles, Assignment, Working Teams
3:00 Working Session - Work in Teams
5:30 Break
6:00 Working Dinner
7:00 Working Session - Work in Teams

Friday, October 17, 2003

7:00 Continental Breakfast Available
7:30 Debrief
8:00 Working Session - Work in Teams

Group Reports & Feedback
10:30 Team One
11:00 Team Two
11:30 Team Three
12:00 Lunch /Check-out

Group Reports & Feedback
1:00 Team Four
1:30 Team Five
2:00 Team Six

2:30 Wrap-up / Next Steps
2:45 ADJOURN

Appendix D

American Agricultural Economics Association NFAMEC Preconference
Food and Agribusiness Management Education:
Preparing Students for an Evolving Industry
Denver, Colorado - July 31, 2004

7:30 a.m.	Continental Breakfast/Registration
8:30 – 9:00 a.m.	**Setting the Stage** – Jay Akridge, Dave Downey (*Purdue University*) The State of Food and Agribusiness Programs – Mike Boland *(Kansas State University*)
9:00 – 10:15 a.m.	**The Changing Needs of a Global Food and Agribusiness Marketplace** Jay Akridge (facilitator), Charlie Fischer (*Dow Agro Sciences*), Todd Smith (*ConAgra*)
10:15 – 10:45 a.m.	Break
10:45 – noon	**Delivering Value: Differentiating Food and Agribusiness Curricula** Mike Boland (facilitator), Dave Schaffner (*California Polytechnic State*), David Parker (*ABG, Inc.*), Marvin Miller *(Ball Horticultural Company*)
Noon – 1:30 p.m.	**Preparing Future Leaders: The State of the Art** John Foltz (facilitator - *University of Idaho*), Rich Hughes (*The Center for Creative Leadership*)
1:30 – 2:45 p.m.	**Skill Set Development and the Challenge of Curricular Integration** Dave Downey (facilitator), Cynda Clary, (*New Mexico State University*), Karen Howard (*Land O'Lakes*), Penny Diebel (*Oregon State University*)
2:45 – 3:15 p.m.	Break
3:15 – 4:45 p.m.	**Food and Agribusiness Student Recruiting and Industry Engagement** Jay Akridge (facilitator), Chris Peterson (*Michigan State University*), Donald McDowell (*North Carolina A&T State University*), Lisa House (*University of Florida*), Todd Zehner (*Deere and Company*)
4:45 – 5:00 p.m.	**Food and Agribusiness Management Education: Next Steps** Mike Boland (*Kansas State University*), Jay Akridge (*Purdue University*)
5:00 p.m.	Reception

Appendix E

American Agricultural Economics Association Organized Symposia
Report of the National Food and Agribusiness Management Education Commission
Long Beach Convention and Entertainment Center July 24, 2006

10:30 Introduction (Jay Akridge, *Purdue University*)

10:35 Summary of NFAMEC Recommendations
(Michael Boland, *Kansas State University*)

10:55 Reaction to Commission Recommendations
(Dan Bernardo, Dean, College of Agriculture, Natural Resources, and Human Ecology, *Washington State University*)

11:10 Reaction to Commission Recommendations
(Brent Hathaway, Dean, College of Business, *University of Wyoming*)

11:25 Reaction to Commission Recommendations
(Frank Boteler, Deputy Administrator, Economics and Community Systems, *USDA CSREES*)

11:40 Dialogue with Audience (Jay Akridge and Michael Boland)

Appendix F

National Food and Agribusiness Management Education Commission
Publications, Presentations, Workshops

Note: All materials developed by the National Food and Agribusiness Management Education Commission available on the NFAMEC website at: http://www.agecon.purdue.edu/cab/NFAMEC/home.htm

Journal Papers:

Boland, M.A. and J.T. Akridge. "Undergraduate Agribusiness Programs: Focus or Falter." *Review of Agricultural Economics* 26,4(Winter 2004): 564-78.

Other Articles:

Akridge, J.T. "National Commission on Food and Agribusiness Management Education Report." *The Chain Letter*, May 2004, Vol. 3, Issue 2, pp. 3-4.

Working Papers:

Boland, M.A. and J.T. Akridge. "Industry Steering Committee Report: Primary Themes from Interview Responses." NFAMEC Working Paper, 2004.

Boland, M.A. and J.T. Akridge. "A Summary of Undergraduate Curriculum in Agribusiness Management Degrees." NFAMEC Working Paper #1, 2004.

Boland, M.A. and J.T. Akridge. "A Summary of Doctoral Degree Research in Agribusiness Management, Food Business, and Industrial Organization, 1951 to 2002." NFAMEC Working Paper #2, 2004.

Boland, M.A. and J.T. Akridge. "Graduate Courses in Agribusiness Managment." NFAMEC Working Paper #3, 2004.

Boland, M.A. and J.T. Akridge. "Introductory and Advanced Agribusiness Management Courses and Food Business Courses in Undergraduate Agribusiness Degrees." NFAMEC Working Paper #4, 2004.

Boland, M.A. and J.T. Akridge. "A Summary of Extension Programs in Agribusiness Management and Food Business." NFAMEC Working Paper #5, 2004.

Boland, M.A. and J.T. Akridge. "A Summary of Masters Degree Research in Agribusiness Management." NFAMEC Working Paper #6, 2004.

Presentations:

Boland, M.A. "National Food and Agribusiness Management Education Commission". Invited presentation to International Food and Agribusiness Management Association (IAMA) Annual Meetings, Montreux, Switzerland, June 2003.

Akridge, J.T. "The National Food and Agribusiness Management Education Commission: Update". NAAEA Meeting, Annual Meetings of the American Agricultural Economics Association, Denver, Colorado, August 2, 2004.

Organized Symposia:

Boland, M.A. and J.T. Akridge. "Report of the National Food and Agribusiness Management Education Commission." Organized Symposium, Annual Meetings of the American Agricultural Economics Association, Long Beach Convention and Entertainment Center, Long Beach, CA., July 24, 2006.

AAEA Pre-Conference Workshop:

Boland, M.A. and J.T. Akridge. Food and Agribusiness Management Education: Preparing Students for an Evolving Industry. Pre-Conference Workshop, Annual Meetings of the American Agricultural Economics Association, Denver, Colorado, July 31, 2004.