

Department of Agribusiness and Applied Economics

North Dakota State University

Annual Report 2006



*Morrill Hall
North Dakota State University*

The Mission of the Department of Agribusiness and Applied Economics

The mission of this Department is to provide objective economic analysis to support informed decision making in areas of resource allocation, business management, and public policy for the people of North Dakota and beyond. Faculty and staff shall provide high-quality education programs for undergraduate and graduate students and for audiences across the state reached through University outreach efforts.

from:

*Departmental Mission and Goals
April 19, 2005*

TABLE OF CONTENTS

INTRODUCTION AND DEPARTMENTAL OVERVIEW	3
A. INSTRUCTION AND STUDENT SUCCESS	5
1. Teaching Trends, Initiatives, and Innovation.....	5
2. Advising Initiatives and Innovation	7
3. Curriculum Development (new programs, program deletions, administrative changes)	8
4. Accreditation or Other Reviews.....	8
5. Activities in Student Recruitment/Retention, Enrollment Management, and Other Student Activities	9
6. Distance Education and On-Line Initiatives	11
7. Assessment.....	11
8. Awards and Recognition of Faculty/Students.....	11
B. RESEARCH AND SCHOLARSHIP	12
1. Research and Creative Activity.....	13
<u> Highlights of Cooperative Extension Activities</u>	<u>16</u>
2. Grants/Contracts/Research.....	18
3. Articles/Books/Publications (Calendar year 2006).....	19
4. Presentations	25
5. Technology Transfer	31
C. OUTREACH	31
1. Professional Service	31
2. Alumni Events and Other Community-Related Activities.....	32
3. Fund-Raising Accomplishments	32
4. Other Outreach Activities	32
D. SPECIAL INITIATIVES	32
1. Diversity	32
2. Cooperative Programming/Interinstitutional Activities.....	33
3. International Activities.....	33
4. Interdisciplinary Activities.....	33
5. Economic Development Efforts.....	34
6. On-line Courses and Programming.....	34
E. PLANNING.....	34
F. ENROLLMENT AND FTE DATA	36
G. OTHER RELEVANT DATA AND MATERIALS.....	40

INTRODUCTION AND DEPARTMENTAL OVERVIEW

The Department of Agribusiness and Applied Economics strives to improve public and private decision making through teaching, research, and outreach activities soundly based on economic science.

Faculty and Staff Highlights for 2006

Teaching

- The Assessment Report for 2006 found a close correspondence between the skills employers of our students are seeking and the level of skill attainment by our graduates.
- Student recruitment has led to a slight increase in the number of undergraduate majors in the department. The number of majors has increased from 161 in 1990 to 179 in the fall of 2006.
- The department continues to be a major contributor to undergraduate teaching at NDSU, generating over 16 student FTEs in 2006.
- Several faculty continue to provide distance education courses to reach this growing market segment. Approximately 335 students enrolled in departmental distance courses in 2006.
- The outstanding quality of teaching by faculty in the department was recognized by faculty be awarded the Peltier Award for Innovation in Teaching (Eric DeVuyst) and receipt of the NDSU Apple Polisher Award (Becky Leitch).
- Student surveys of advising continue to praise the commitment of several faculty to providing excellent student advising. The shift in departmental focus three years ago recognizing the importance of advising for beginning students contributed to Becky Leitch's winning of the CAFSNR Excellence in Advising Award.
- Recognition of the importance of international educational opportunities underlies the department's continued participation in the summer agribusiness program with our French partner university. In addition, Bob Hearne responded to student requests by organizing and leading a study trip during spring break to observe Brazilian agribusiness and farming operations.
- Won Koo received the highly prestigious and highly competitive Fulbright Award, enabling him to spend the fall 2006 semester teaching at Korea University in Seoul.

Research

- Publications continue to be high in the department, increasing from the average of 14 peer-reviewed articles in 1999 to 32 in 2006 (a fall from the 34 and 36 published in 2005 and 2004, respectively). Contributors to the list of published articles reflects a growing proportion of faculty involved in scholarly research, overcoming a shortcoming identified in the CSREES 2000 review in which a small subset of faculty were identified as primary contributors to published research.
- The Center for Agricultural Policy and Trade Studies continues to provide timely analyses of trade, farm program, and natural resource issues vital to state and national policy makers.

- The long-standing contribution of agricultural and agribusiness research spearheaded by Bill Wilson culminated in a joint public/private funding effort for the Center for Agribiotechnology, with a concentration on oilseed research for improved biodiesel and bioproduct production and utilization.
- Research by Larry Leistritz and Nancy Hodur continues to lay the groundwork for expanding markets for North Dakota farmers by commercialization of agricultural biomass for energy and industrial use. Continued federal funding was augmented by the 2007 North Dakota legislature in approving additional funds to advance this important research.
- The Quentin Burdick Center for Cooperatives was revitalized in 2006 with the addition of Greg McKee, the new Director of the Center. New research conducted by the Center investigating factors underlying Cooperative success has been well-received by the QBCC's Advisory Board.
- International recognition for the department results from two faculty members, Dragan Miljkovic and David Lambert, serving as editors of two leading field journals, the *Journal of International Agricultural Trade and Development* and the *Journal of Agricultural and Resource Economics*, respectively. Dr. Miljkovic also serves as the associate editor of the *Journal of Agricultural and Applied Economics*.
- Faculty continue to be successful in obtaining competitive grants, contracts, and federal earmarked funds. New external funds received in 2006 totaled \$1.4 million.

Extension and Outreach

- Kathy Tweeten received recognition for the economic development efforts of the Center for Community Vitality by winning the AGSCO Excellence in Extension Award, the Communicator of the Year Award, and the Small Group Award of the North Dakota Extension Service.
- Involvement by the Extension Economics faculty (Tim Petry, George Flaskerud, Dwight Aakre, Andy Swenson, Ron Haugen, and also including Cole Gustafson) in providing management, marketing, and finance education to women in agriculture was recognized by their receipt of the Large Group Award of the North Dakota Extension Service.
- Both Extension and research faculty continue to be invited to share research findings and educational materials around the state and region. Programs addressed farm adjustments to increasing input costs and to drought conditions, to new opportunities for farmers and investors in producing biofuels and other bioproducts, and strategies for rural communities to retain and attract new businesses.

Additional information about the Department and its associated research and outreach Centers can be found at:

The Department of Agribusiness and Applied Economics at North Dakota State University:

<http://www.ext.nodak.edu/homepages/aeddept/>

The Center for Agricultural Policy and Trade Studies:

<http://www.ag.ndsu.nodak.edu/capts/>

The North Dakota State Data Center:

<http://www.ndsu.nodak.edu/sdc/>

2006 Annual Report
Department of Agribusiness and Applied Economics

A. INSTRUCTION AND STUDENT SUCCESS

1. Teaching Trends, Initiatives, and Innovation

Courses, Teaching Faculty, and Enrollment Trends

Courses taught and FTEs generated for both AY06 and for the fall and spring terms of AY07 are listed in Appendix A. One new course (ECON 410/610 – Econometrics) was added and taught for the first time in the fall of 2006. The course serves both advanced undergraduates and is the first econometrics class in the two-semester econometrics series for graduate students.

Faculty Teaching Loads, AY06.

Instructor	Generated	Appointment	Overload
Deckard, B	0.07	0.00	0.07
DeVuyst, C	0.11	0.30	-0.19
DeVuyst, E	0.81	0.35	0.46
Garosi, J	0.79	0.80	-0.01
Gustafson, C	1.46	0.80	0.66
Hearne, R	0.24	0.20	0.04
Herren, R	1.32	1.00	0.32
Kaitibie, S	0.02	0.00	0.02
Koo, W	0.23	0.10	0.13
Lambert, D	0.36	0.35	0.01
Leitch, R	1.90	1.00	0.90
Lim, S	0.89	0.80	0.09
Mack, L	3.59	1.00	2.59
McKee, G**	0.14	0.23	-0.08
Miljkovic, D	0.34	0.30	0.04
Nganje, W	0.54	0.50	0.04
Saxowsky, D	0.46	0.50	-0.04
Taylor, R	0.13	0.00	0.13
Tolliver, D	0.00	0.00	0.00
Vachal, K	0.08	0.00	0.08
Wachenheim, C	0.77	0.40	0.37
Wilson, W	0.24	0.32	-0.08
Totals	14.45	7.93	7.33

* - Indicate faculty from other units or nonteaching faculty. Discrepancies between faculty loads and department totals reflect courses such as those offered through Continuing Education that do not count towards an instructor's appropriated teaching appointment.

** - Dr. McKee joined the department in December 2005. His annual teaching appointment is 0.45.

Enrollment Trends by Academic Year - Student FTEs Generated, AY94-AY07 (Based on course enrollment figures maintained in the Department).

Year	105, 201, & 202	105, 201, & 202 - DCE	200 (excl 201&202)	300	400	600 & 700	Total FTEs
AY94	2.09	-	1.03	1.54	0.88	0.45	6.68
AY95	1.86	-	1.16	1.77	0.85	0.5	6.87
AY96	2.73	-	1.18	1.74	1.08	0.71	7.89
AY97	2.28	-	1.39	1.85	0.72	0.45	7.17
AY98	2.58	-	1.07	1.95	0.8	0.72	7.37
AY99	2.44	-	1.44	2.17	0.93	0.79	8.16
AY00	2.76	-	1.14	2.07	1.17	0.39	8.04
AY01	3.8	-	1.3	2.82	1.18	0.76	10.12
AY02	7.16	-	1.24	4.05	1.29	0.74	15.08
AY03	7.33	-	1.03	4.18	1.22	0.88	14.63
AY04	8.25	-	1.3	3.82	1.44	1.37	16.18
AY05	8.45	-	1.35	3.7	1.15	1.12	15.76
AY06	7.18	1.75	1.40	3.86	1.27	0.97	16.43
AY07 ^p	7.49	1.24	1.59	3.82	1.47	1.29	16.89

AY07^p – Preliminary

Student FTEs are reported by academic (fall semester through summer terms) rather than calendar year.

The student FTEs reported in the table illustrate both the increase in student FTEs generated by the department (increasing over 153% between AY94 and AY07) and a change in the composition of courses delivered. Over half of the student FTEs are generated in the lower level principles classes, as opposed to about 30% in these classes at the beginning of the period. The large increase in 300 level class enrollments beginning in AY02 reflects addition of ECON classes to the department. Continuing strength in 400 level courses reflects attractiveness of the upper division economics classes, the growing number of Economics majors, as well as enrollment growth in AGEC 420 (Integrated Farm and Ranch Management).

FTEs generated in graduate courses (600 and 700 level) have about doubled between AY94 and AY07. This increase resulted from steady to slightly increasing student numbers, reliance of several interdisciplinary programs on courses taught in the department, and teaching of graduate courses in the department rather than in the former Economics department.

Initiatives and Innovations

The Department continues limited cohort scheduling in 2006. This practice, initiated in 2004, limits one section each of ECON 201 (Microeconomics) and 202 (Macroeconomics) to majors in Agribusiness, Agricultural Economics, and Economics. ECON 201 had 29 students in the fall of 2005 and Econ 202 had 27 students in the spring, 2006 semesters. The smaller student/teacher ratio possible in these designated courses improves student exposure

to economic concepts considered essential to our majors, as well aids in recruitment and retention of students to the program.

Online offerings of the Elements of Economics (ECON 105) and the Principles of Microeconomics (ECON 201) and Macroeconomics (ECON 202) continued in 2006. Commencing in the fall of 2005, students have had the option of enrolling in online offerings of ECON 105 or ECON 202 either through the Distance and Continuing Education program or through as regular in-load NDSU enrollment.

2. Advising Initiatives and Innovation

The structure of student advising changed in 2004. All incoming freshmen were assigned to Becky Leitch, a senior lecturer in the Department. Student surveys of advising indicate Becky is an excellent advisor. As the main contact for new students, Becky provides students an excellent introduction to the Department and instills in them a habit of working with their advisors to ensure satisfactory progress through our four year program. Becky is also the instructor of the small section of ECON 201 dedicated to serving our majors, further strengthening personalization of our students' educational experience.

Fall 2006 Advising Assignments

Advisor	Freshmen	Sophomores	Juniors	Seniors	Total
Devuyst,C			1	5	6
Devuyst,E	6	6	4	5	21
Garosi, Justin	1	2	1		4
Gustafson,C		2	2	6	10
Hearne,R			2	11	13
Herren,R		2	4	17	23
Koo,W					0
Lambert, D					0
Leitch,B	45	4	7	9	65
Lim, Siew	3	4	3		10
Mack,L				2	2
McKee,G					
Miljkovic,D		6	3	3	12
Nganje,W	1	2	2	3	8
Saxowsky,D		4	9	5	18
Wachenheim,C		3	3	7	13
Wilson,W			1		1
Total	56	35	42	73	206

Advising evaluations are administered online. The spring 2007 evaluation reports activities for AY07. Feedback was received from 49 current students in the program providing comments on seven faculty advisors. Results indicated divergence in students' perceptions of advising effectiveness by the different faculty. Some advisors rate very highly in all categories. Students rate some faculty as not providing useful information in course selection, career planning, university life, or commitment to students. Aggregated results for the Department are listed below:

My Advisor is well prepared to help me with:	Agree Strongly	Agree	Neutral	Dis-agree	Dis-agree Strongly	Mean (Std. Dev.)
Course selection	29	17	2	0	0	4.51 (0.68)
Career planning	23	22	3	1	0	4.37 (0.70)
University life	17	22	9	0	0	4.17 (0.72)
My advisor cares about me	29	14	6	0	0	4.47 (0.71)
I would recommend my advisor to others	32	12	4	1	0	4.53 (0.74)

3. Curriculum Development (new programs, program deletions, administrative changes)

Content of AGECE 339/346 was modified to provide a unified set of topics in decision making and economic analysis. Course modification began with the fall 2005 offering of AGECE 339 and continued through revision of AGECE 346 in the spring of 2006.

ECON 410/610 (Econometrics) was approved at the department level in the fall and finally received university approval in May 2006. The course is designed for top students in our undergraduate majors and for beginning M.S students. M.S. students will now be able to receive two semesters of Econometrics, taking ECON 710 in the spring semester. The increased coverage of econometrics will enhance undergraduate students' abilities to perform quantitative economic analysis, and will greatly enhance graduate students' familiarity with advanced econometric techniques should they elect to take both courses in the sequence. ECON 410/610 was offered for the first time in the fall 2006 semester. Seventeen students enrolled in the class.

4. Accreditation or Other Reviews

No departmental accreditation or other reviews were conducted during 2006.

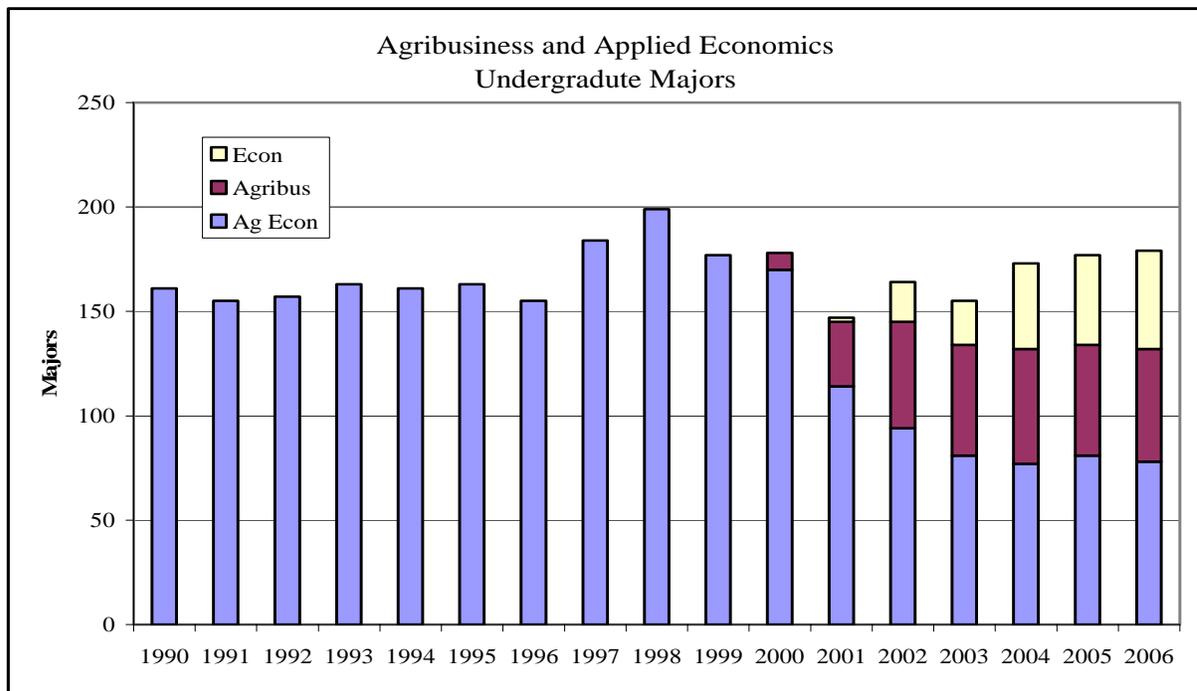
5. Activities in Student Recruitment/Retention, Enrollment Management, and Other Student Activities

Student Recruitment/Retention

Undergraduate Majors and Graduate Students

	2002	2003	2004	2005	2006
Ag Economics	94	81	77	81	78
Agribusiness	51	53	55	53	54
Economics	19	21	41	43	47
Total - Undergrads	164	155	173	177	179
Graduate Students	23	19	18	18	21

Source – CAFSNR Handouts (2007)



Student numbers in Agricultural Economics (and Agribusiness beginning in 2001) have declined approximately 18% between 1990 and 2006. Most of this decline (18.5%) occurred between 2000 and 2001, probably reflecting graduation of the large increase in student numbers occurring four years earlier (the number of majors in 1997 was 18.7% larger than the number of majors in 1996). However, a trend line fitted to the logarithm of student majors in these two majors reveals a long term downwards trend of approximately 1.3% per year.

The total number of Economics majors at NDSU have increased slightly since 1990 (from 35 in 1990 to 47 in 2006). Following the disbanding of the Economics program in 2000, there were only two students identified as Economics majors in 2001 at NDSU. Fitting a trend to the number of Economics majors since 2001 displays an annual increase of approximately 54% in the number of Economics majors. The numbers are of course heavily

biased because of the institutional changes implemented in 2000, yet do reflect a growing interest in establishing a strong Economics program on campus.

We continue to distribute fact sheets in ECON 201 and 202 promoting the Economics major and the ease of double-majoring in Economics and another area. There has been an increase in double majors since 2003, so this effort seems to be effective.

Graduate Students

Fourteen new graduate students entered the program during the 2006 academic year (1 in spring 2006, 13 in the fall of 2005). Of the 14 students, one withdrew after the first semester and one has yet to complete his program. Twelve of the 14 have successfully defended their theses and have either successfully filed their theses with the Graduate School or are completing final editing before gaining Graduate School approval of the finished thesis.

Eleven students enrolled in the Graduate program in the fall of 2006. One has already successfully defended his thesis and will be entering Medical School in the fall of 2007.

Enrollment Management

Enrollment management records are maintained by our office support staff and are also the responsibility of advisors.

Other Student Activities

Clubs – The primary clubs for agricultural economics majors are the Agribusiness Club, the student chapter of NAMA, and Collegiate Farm Bureau and Farmers' Union Chapters. The Agribusiness Club hosts many fundraising and social events during the year. David Saxowsky assumed lead role as advisor to the Agribusiness Club in 2005. Given new responsibilities in the Graduate School, William Njanje was recruited to advise the Club in 2006. His departure in December of 2006 has left a void, and an active faculty advisor needs to be assigned for the fall 2007 semester.

The NAMA chapter was reinvigorated this year with the assignment of Cheryl DeVuyst as the instructor of AGEC 450/451, the academic home for the NAMA team. The courses were not offered in academic year 2006 due to lack of enrollments. Student numbers in the courses increased to 17 in the fall of 2006 (AGEC 450) and to 19 in the spring of 2007 (AGEC 451). The chapter's efforts culminate in presentations at the annual NAMA competition. The NAMA chapter was not officially sanctioned to attend the 2006 national conference, though members did go to observe. A student team did enter in and compete at the 2007 national conference held in Dallas.

Scholarships - The Department of Agribusiness and Applied Economics has one of the most successful scholarship programs on campus, awarding approximately \$40,000 each year to students in our different programs. A continuing need in the scholarship area is to increase availability of scholarship funds for Economics majors.

6. Distance Education and On-Line Initiatives

The Department continues to adopt new technology to enhance teaching. All classes are available to students via BlackBoard. Adoption and use of webpages, online resources, and other features of web-based instruction vary by instructor. Several instructors have incorporated PRS devices into their courses. In addition, several instructors have adopted Podcasts as a means to increase student access to course materials.

Web-based courses offered in the 2006 academic year included ECON 105 (Elements of Economics), ECON 202 (Principles of Macroeconomics), AGE 350 (AgriSales), and AGE 375 (Agricultural Law).

7. Assessment

Assessment activities in 2006 focused on identifying the set of skills most sought by employers of our graduates. The focus stemmed from the excellent review of Agribusiness education culminating in the publication of the report, "Food and Agribusiness Management Education: Future Directions," prepared by the National Food and Agribusiness Management Education Commission and edited by Michael Boland (Kansas State University) and Jay Akridge (Purdue University). Factors reported in the Commission's report served as a starting point for identifying skills desired by employers participating in the 2006 Sigma Alpha Career Fair. Results of the assessment study are attached as Appendix II.

The 2006 Assessment Report score received June 7, 2007 indicated significant room for improvement exists in the department's efforts to assess student learning. We received a 2 out of a high possible score of 10.

8. Awards and Recognition of Faculty/Students

The following faculty and staff awards were received during calendar year 2004:

- Dwight Aakre. North Central Extension Award for "Cropping Decisions2006" Program.
- Eric DeVuyst. North Dakota Farm Bureau Distinguished Service to Agriculture Award.
- Eric DeVuyst. NDSU Peltier Award for Teaching Innovation.
- Eric DeVuyst. Preferred Agriculture Instructor Award, CAFSNR Student Activities Council.
- George Flaskerud. Epsilon Sigma Phi Meritorious Service Award. NDSU Extension Service.
- Robert Hearne. Inducted into the NDSU Chapter of Gamma Sigma Delta Honor Society of Agriculture in recognition of high scholarship, outstanding achievement, and/or service.
- Stan Herren. Elected President-Elect of the Missouri Valley Economics Association
- Won Koo. Fulbright Scholar. Korea University, Seoul, South Korea.

- David Lambert. Selected as Editor of the *Journal of Agricultural and Resource Economics*.
- Larry Leistritz. Inducted into the NDSU Chapter of Gamma Sigma Delta Honor Society of Agriculture in recognition of high scholarship, outstanding achievement, and/or service.
- Becky Leitch. CAFSNR William J. and Angelyn A. Austin Advising Award for Excellence.
- Becky Leitch. NDSU Apple Polishers' Award.
- Sandy Osborne. CAFSNR Donald and Jo Anderson Clerical Staff Award for Excellence.
- Tim Petry. AAEA Extension Outlook "*Premier Forecaster Award*" in recognition of superior forecasting of Poultry Production and Prices for 2005-2006.
- Tim Petry, George Flaskerud, Dwight Aakre, Andy Swenson, Ron Haugen, and Cole Gustafson. 2006 NDSU Extension Program Excellence Award - Large Team Category for Annie's Project.
- Tim Petry. Inducted into the NDSU Chapter of Gamma Sigma Delta Honor Society of Agriculture in recognition of high scholarship, outstanding achievement, and/or service.
- Kathy Tweeten. CAFSNR AGSCO Excellence in Extension Award (Senior Career).
- Kathy Tweeten. Communicator of the Year Award presented by the NDSU Agriculture Communication Department and the ND Association for Communication Excellence
- Kathy Tweeten. 2006 NDSU Extension Program Excellence Award - Small Team Category

B. RESEARCH AND SCHOLARSHIP

The mission of this unit is to provide objective economic analysis and to support informed decision making in areas of resource allocation, business management, and public policy for the people of North Dakota and beyond (from the Department's mission statement adopted February 26, 1992).

In addition to contributing new knowledge, economics research is essential to the maintenance of effective and relevant educational and outreach efforts. Individual faculty members are encouraged to develop research programs in their areas of specialization to increase the value of their contributions to the people of North Dakota.

1. Research and Creative Activity

Departmental research addresses a wide variety of issues important to American producers and consumers:

The Role of Genotype in Cattle Performance (Eric DeVuyst, Jay Mitchell, and Marc Bauer)

Perhaps the most important research finding relates to the bio-economics of leptin genotyping of beef cows. Eric DeVuyst, Jay Mitchell, Dr. Marc Bauer found that fat genotype cows 1) wean heavier calves; 2) stay in beef herds longer; and 3) have significant economic advantages over lean genotype cows. These results have the potential to change replacement selection criteria in the Northern Plains.

Malt Barley Insurance Research and Education (Cole Gustafson)

Malt barley crop insurance research and education program lead to 50 percent increase in policies sold in 2006 (917 to 1,450). Summary of credit assessment research will be lasting legacy for agricultural finance academics and professionals.

Developing a Biomaterials Industry in North Dakota (F. Larry Leistritz and Nancy M. Hodur)

North Dakota has tremendous potential for capitalizing on the emerging biobased products and fuels industry. Utilizing technologies to produce bioproducts from crop residues, specifically wheat straw, researchers in Agribusiness and Applied Economics, in conjunction with MBI International, are currently engaged in a project to commercialize the use of very small cellulose fibers (nanofibers) to make a bio-based cellulose reinforced composite that could be used in place of fiberglass reinforced composites. Over the next 10 years, the growth of bio-based chemicals and materials is expected to generate \$160 billion in new revenues annually. As one of the top three ranking states for available low-cost biomass, North Dakota is uniquely positioned to become a key player in this emerging industry.

Preliminary results include:

- Wheat straw is a preferred feedstock for a biorefinery as it has a higher content of both cellulose and lignin than alternative feedstocks, such as switchgrass
- Wheat straw can be supplied to a North Dakota biorefinery at costs lower than for alternative feedstocks (e.g., corn stover, switchgrass)
- A biorefinery producing 50 million gallons of ethanol per year would use 900,000 tons of wheat straw annually, employ 77 workers, and result in more than \$50 million in annual payments to North Dakota businesses
- At an ethanol price of \$1.80/gallon (2005 average), the biorefinery would earn a positive net return (7%)
- Adding CNW production to the biorefinery would add several jobs and would enhance the profitability of the venture.

Lessons from an Unsuccessful Cooperative Venture (Greg McKee)

A case study of the Spring Wheat Processors Cooperative was done to provide a series of generalizable lessons which can be transferred to current and future cooperative ventures. The information discovered can be used to review the decision making process used to form and operate a cooperative and provide organizational and operating guidelines to others with a similar opportunity to form a cooperative.

The Economic Impact of Cooperatives (Greg McKee)

Greg McKee and the Center for Cooperatives conducted research about the economic impact of cooperatives. A measure of the economic impact of the cooperative business sector would be useful to many groups as they justify their investment in cooperative development. Cooperative trade associations are interested in estimates of the business volume and economic impacts of the broad cooperative sector. These associations can use information to underscore the importance of their membership and to justify political support. Leaders of rural communities are often involved with attracting or developing value-added cooperative businesses. These individuals are interested in forecasting economic impact to justify incentive packages. Finally, economists and other scholars are interested in determining whether cooperatives generate a different level of economic impact relative to alternative forms of business organizations.

The Role of Capital Structure on Cooperative Success (Greg McKee and William Nganje)

Alternative capital structures of cooperatives are an important topic to cooperative managers and investors. Drs. McKee and Nganje compared the success of two relatively new approaches, demutualization and the effect of new financial statutes on the returns available to cooperative investors. This research expands our understanding of the effect of these types of capital structures on the relative merits of investments in cooperatives.

Invasive Pest Management Strategies for Agriculture (Greg McKee)

Research on invasive species led to the development of a theoretical and empirical approach that allows policymakers to formulate environmental policies that best respond to invasive species. This approach facilitates an empirical assessment of the effects of such regulations on the welfare of affected economic agents and on the efficacy of control of the pest. It also suggests the types of information that would be most valuable for improving the economic efficiency of regulations as the invasion persists.

CAFTA (Won Koo and CAPTS)

A study on the impacts of CAFTA on the U.S. sugar industry has been used by the U.S. sugar industry and US trade representatives to develop the proposal on sugar trade in the regional and bilateral trade negotiations.

Estimate of Production Losses in North Dakota Due to 2006 Drought Conditions (Dwight Aakre, George Flaskerud, and Tim Petry)

The NDSU Extension Director was asked by the Governor's office to provide an estimate of the impact of the drought conditions across much of central and southwestern North Dakota. Aakre, Flaskerud, and Petry estimated the impact on both crop and livestock producers and provided this information to the governor's office and the congressional delegation.

Conclusions:

Livestock impact	\$31,135,000
Crop impact	\$403,612,000
Crop insurance indemnity payments	<u>\$292,873,000</u>
Estimated Net Direct Loss	\$141,874,000

The data we provided was used by the Governor to lobby for financial assistance to affected producers in North Dakota. USDA released emergency funding for livestock producers that lost forage production of which North Dakota received approximately \$50 million. Efforts to obtain crop disaster payments have not been successful to date, but continue in Congress.

The Potential Role of Selenium-Rich Foods in Cancer Prevention (Cheryl Wachenheim)

Selenium is an element which has been scientifically proven to show some cancer preventative characteristics, thus livestock and grain producers are exploring potential high-selenium food marketing opportunities. This is particularly relevant for producers in the Dakotas because they include large production areas with high-selenium soils.

A choice experiment with national participation was conducted to identify characteristics of market segments that show interest in a high-selenium beef product. The objective was to identify preferred level of selenium beef attributes including price, origin of selenium, and label-claim made regarding the value of selenium as a cancer preventative. Consumers preferred a lower priced product. Health claims indicating a high-selenium product had a negative effect on preference for steak. This is hypothesized to be due to the general lack of knowledge among consumers about selenium and its role in the diet, and mention of cancer in the health claim. Labeling indicating selenium origin by location (North Dakota or unspecified) or source (natural or fortified) was ineffective. Market segments were identified that would potentially value high-selenium beef (higher income, more educated consumers).

Lessons learned from this research are critical to North Dakota producers and organizations looking to develop markets for their high-selenium product. They are urged to focus on consumer education and market segments, particularly exploiting existing marketing channels for functional foods. Further, careful attention must be paid to actual label wording.

Highlights of Cooperative Extension Activities

Cropping Decisions 2006 – Dealing with High Input costs

Numerous county agricultural improvement meetings were held around the state where the theme of the education program was how to deal with relatively high input costs and low commodity prices. Topics included rising input costs, yield variability and economic thresholds for fertilizer applications. These were multi-disciplinary educational meetings including agronomists, soil specialists, weed specialists and myself. Approximately 400 farmers attended nine meetings across the state. The locations were Portland, Cooperstown, LaMoure, Elgin, Bowman, Grand Forks, Page, Velva, and one video broadcast to several northeast county offices.

Annie's Project (North Dakota, South Dakota, and Minnesota)

Thirteen Annie's Project sites in North and South Dakota and in Minnesota concentrated on providing risk management tools for women involved in agriculture. Programs included presentations on multi-peril crop insurance, the farm program, and farm management decision making using the FAST spreadsheet programs. Nearly 200 women attended these ongoing series of meetings

Crop Insurance Conference

The annual crop insurance conference provides information on the latest changes in the industry. Insurance agents receive continuing education credits for this conference. All Extension faculty are involved in organizing this conference.

Agricultural Lenders Conferences

Conferences for agricultural lenders were held in four locations across the state. Approximately 260 lenders from North Dakota, Minnesota and South Dakota attended the four conferences. All Extension faculty are involved in organizing this conference.

Marketing Club Conferences

Marketing and Risk Management workshops were presented with strong educational components. Participants were expected to leave with a working knowledge of marketing, risk and farm management concepts and techniques.

Irrigation Workshop

These workshops were for beginning and potential irrigators. Aakre discussed the costs of irrigation investment as well as the cost and returns for various crop rotations under irrigation.

Best of the Best Wheat Schools

This was a series of four full day schools concentrating on production and marketing of wheat production. These schools were sponsored jointly by NDSU Extension Service and the North Dakota Grain Growers. Attendance included over 350 producers.

Advanced Crop Advisors Workshop

This is an annual workshop held for crop consultants to update them on the latest developments in crop production and protection. I discussed the marginal cost versus

marginal return of nitrogen fertilizer on wheat, corn and barley. Attendance was about 70 crop consultants.

Entrepreneurship and Business Retention and Expansion

Kathy Tweeten conducted agritourism workshops in Bottineau and Towner, a workshop on nature based tourism at Marketplace of Ideas in January, and a session on Rural Tourism Facilities and on starting a B&B in Dickinson.

Youth Entrepreneurship

Approximately 200 young people were involved in 30 hours of entrepreneurship “hands on” activity in 2006 in classrooms across the state. Other youth activities encouraging entrepreneurship included the creation of a Mini-Society camp/adult training in Grand Forks County and presentations at the Marketplace for Kids events in Bismarck and Cooperstown

Leadership Development

Development of Leadership Skills among rural and urban North Dakotans was encouraged through Fall Research and Extension conference opening session presentations on “Your Community’s Vitality, ” seminars presented to the RLND program, for Horizons Showcase in Wahpeton, and to the Stockmen’s Association for their agriculture mentors and students.

Extension Computer Classes

Andy Swenson and Ron Haugen continued to offer training in “Accounting for Farm, Home and Business,” with workshops offered in Towner, Minot, Cavalier, Cando, Devils Lake, LaMoure, and Lisbon. Andy and Ron led a one-day "Quickbooks" workshop in Watford City in 2005.

Tax Management for Ag Producers

Swenson presented via interactive video to multiple sites in ND. Swenson organized a panel of tax experts, prepared a brochure and news release, edited a tax booklet for participants, and moderated the program. Attendees included tax preparers, farmers, and other participants with professional interest in agricultural tax policy.

2. Grants/Contracts/Research

Department of Agribusiness and Applied Economics – 2006 Grants and Contracts

Investigator(s)	Agency	Project Title	Awarded
Leistriz, F. Larry	USDA/CSREES	Developing a Nanocomposite-Based Biomaterials Industry in North Dakota	\$164,826
Leistriz, F. Larry	ND Agricultural Products Utilization Commission	Developing a Nanocomposite-Based Biomaterials Industry in North Dakota	\$60,500
Wilson, William	USDA/CSREES	Market Mechanisms to Facilitate Commercialization of Genetically Modified Grains: Testing Tolerances, Segregation, Traceability and Contracting	\$137,526
Wilson, William	ND Wheat Commission	Marketing on Variety Basis	\$15,000
Wilson, William	ND Wheat Commission	Market Development and Support	\$18,000
Hearne, Robert	DOI/USGS	Assessing the Effectiveness of Local Water Institutions in Water Quality Protection	\$148,792
Rathge, Richard	Annie E. Casey Foundation	North Dakota Kids Count Continued Support	\$75,000
Leistriz, F. Larry	ND Petroleum Council	Contribution of the Petroleum Industry to the North Dakota Economy	\$25,865
Leistriz, F. Larry	DOE/University of North Dakota	Economics of Carbon Sequestration in the PCOR Region	\$24,957
Leistriz, F. Larry	ND Pharmacists Association	The Contribution of North Dakota's Pharmacies to the State's Economy	\$32,000
Nganje, William	USDA/ARS/North Carolina State University	Cost-Effective Intervention Strategies Food Production and Processing Food Production and Processing	\$18,750
Gustafson, Cole	Williston Economic Development Partnership	Williston Corn Feasibility Study	\$5,650
Leistriz, F. Larry	underwood Commercial Properties, Inc./NDSU Development Foundation	Analysis of the Economic Contribution of the Lignite Energy Industry to North Dakota	\$2,500
Koo, Won	USDA/CSREES	Analyzing U.S. Agricultural and Trade Policies and Their Impact on the U.S. Agricultural Economy and Competitiveness	\$142,330
Leistriz, F. Larry	ND Agricultural Products Utilization Commission	Contribution of the North Dakota Agricultural Products Utilization Commission Programs to the State Economy	\$24,800
Leistriz, F. Larry	DOE/University of North Dakota	Economics of Carbon Sequestration in the PCOR Region	\$24,956
Rathge, Richard	USDA/CSREES	Regional Center for Rural Development in North Dakota - 2006 Special Grant	\$106,285
Rathge, Richard	Annie E. Casey Foundation	Head Start Program Information (PIR) Data Project	\$37,134
Nganje, William	DHS/University of Minnesota	Reduction of Economic Impact to NCFPD	\$106,791
Nganje, William	DHS/University of Minnesota	Models of Interdependent Security in Supply Chains for Food	\$33,509
Leistriz, F. Larry	USDA/CSREES	Developing a Nanocomposite-Based Biomaterials Industry in North Dakota	\$163,588

Total Grants and Contracts \$1,368,759
 Number of Grants 21
 Average per Grant \$65,179

3. Articles/Books/Publications (Calendar year 2006)

The following list of publications provides an overview of the breadth of research conducted by faculty and staff in the Department of Agribusiness and Applied Economics during 2006.

With the exception of the peer-reviewed journal articles and books, all of these papers can be viewed from the departmental publications website:

<http://www.ext.nodak.edu/homepages/aeddept/aemisc/publist.htm>

Refereed Journal Articles (32 Total)

1. Anderson, J., C.J. Wachenheim, and W.C. Lesch. "Perceptions of Genetically Modified and Organic Foods and Processes. *AgBioForum* 9(3):1-15, 2006.
2. Baek, Jungho and W.W. Koo. "Price Dynamics in the North American Wheat Market." *Review of Agricultural and Resource Economics* Vol. 35, No.2 (2006):265-275.
3. Biénebe, E., and R. Hearne. "Public Preferences for Biodiversity Conservation and Scenic Beauty Within a Framework of Environmental Services Payments." *Forest Policy and Economics*, 9(4):335-348, December 2006.
4. Bullock, David W., William W. Wilson, and Bruce L. Dahl. "Strategic Use of Futures and Options by Commodity Processors." *International Review of Economics and Finance*.
5. DeVuyst, Cheryl S. "Designing an Agribusiness Internship Academic Experience Course." *NACTA Journal* 50(1):33-36, 2006.
6. DeVuyst, E.A., T. Foissey, and G. Kegode. "An Economic Analysis of Reduced-input and Traditional Cropping Systems in the Northern Plains." *Renewable Agriculture and Food Systems* 21(1):68-73, 2006.
7. Diersen, M.A., W.W. Wilson, and B.L. Dahl. "Additionality of Credit Guarantees for Wheat Exports." *Journal of International Agricultural Trade and Development* 2:2(2006).
8. Flaskerud, G.K. "Field Pea and Lentil Marketing Strategies for Northern Plains Producers." *Northern Plains Producers*, 2006.
9. Gustafson, Cole R. "[Engaging Producers in Risk Management Education.](#)" *Journal of Extension* 44(2), April 2006, Article #2IAW4.
10. Gustafson, Cole R., and William E. Nganje. "Value of Social Capital to Mid-sized Northern Plains Farms." *Canadian Journal of Agricultural Economics* 54(3):421-438, 2006.
11. Huso, Scott R., and William W. Wilson. "Producer Surplus Distributions in GM Crops: The Ignored Impacts of Roundup Ready® Wheat." *Journal of Agricultural and Resource Economics* 31(2):339-354, 2006.
12. Hodur, Nancy M., Dean A. Bangsund, F. Larry Leistritz, and John T. Kaatz. "Estimating the Contribution of a Multi-purpose Event Facility to the Area Economy." *Tourism Economics* 12(2):303-316(14), June 2006.
13. Hodur, Nancy M., F. Larry Leistritz, and Dean A. Bangsund. "Biological Control of Leafy Spurge: Utilization and Implementation." *Journal of Range Management* 59(5):445-452, September 2006.

14. Hodur, Nancy M., F. Larry Leistritz, and Dean A. Bangsund. "Evaluation of TEAM Leafy Spurge Project." *Journal of Range Management* 59(5):483-493, September 2006.
15. Jin, Hyun J., and Won W. Koo. "Offshore Hedging Strategy of Japan-based Wheat Trade under Multiple Sources of Risk and Hedging Costs." *Journal of International Money and Finance* 25(2):220-236, 2006.
16. Jin, Elder, and Koo. "A Re-examination of Fractional Integrating Dynamics in the Foreign Exchange Rates." *International Review of Economics and Finance* 15(1), January 2006.
17. Jin, Hyun J., W. W. Koo, and J. Mattson. "The Effect of Lost Exports caused by BSE Outbreak on U.S. Beef Prices." *Korean Journal of Agricultural Economics* 47-3 (2006): 1-20.
18. Jin, Hyun J., W.W. Koo, Sul. "The Effects of the Free Trade Agreement among China, Japan, and Korea." *Journal of Economic Development*, Vol.31, No. 2 (2006):1-18.
19. Koo, W.W. and Renan Zhuang. "U.S. Trade Deficit with China: the Role of Exchange Rate." *Western Economic Forum*, Vol. 5, No. 1 (2006): 10-14.
20. Koo, W.W. and Lynn Kennedy. "The Impact of Agricultural Subsidies on Global Welfare." *American Journal of Agricultural Economics*, Vol. 88, No 5 (2006):1225-1235.
21. Koo, W. , L. Kennedy, and A. Skripnitchenko. " Regional Preferential Trade Agreements: Trade Creation and Diversion Effects." *Review of Agricultural Economics* 28(3):408-415.
22. Lyonga, Agnes, William Nganje, Timothy Sellnow, Simeon Kaitibie, and Steven Vennette. "Human Factor Risk in Turkey Processing and High Reliability Culture." *Food Protection Trends*, 26(7)(August 2006):593-600.
23. Gregory McKee, Colin A. Carter, James A. Chalfant, and Rachael E. Goodhue. "Bioeconomic Modeling of Greenhouse Whiteflies in California Strawberries." 2006, 21(3) <http://www.choicesmagazine.org/2006-3/invasive/2006-3-02.htm>.
24. McKee, Gregory J., Frank G. Zalom, and Rachael E. Goodhue. "Management and Yield Impact of the Greenhouse Whitefly (*Trialeurodes vaporariorum*) on California Strawberries." *HortScience* (accepted for publication 9/20/06).
25. Miljkovic, Dragan. "Obesity: Health and Food Policy Dilemma." *Choices* 21(1)::37-40, 2006.
26. Miljkovic, Dragan. "Organizational Portfolio Theory and International Not-for-Profit Organizations." *Journal of Socio-Economics* 35(1):142-150, 2006.
27. Miljkovic, Dragan, and Hyun Jin. "Causes of Changes in Composition and Quality of Imports in Japanese Beef Import Markets." *Agricultural and Resource Economics Review* 35(2):276-284, 2006.
28. Nganje, William E., Mounir Siaplay, and Simeon Kaitibie. "Predicting Food Safety Losses in Turkey Processing and Economic Incentives of HACCP Intervention." *Agribusiness: An International Journal* 22(4):475-489, October 2006.
29. Novak, Julie, Timothy Sellnow, Steven Vennette, and William Nganje. "Perceptions of Risk Communication Messages: Applications in a Food Processing Environment." *Journal of Food Protection Trends* 26(4)(April 2006):236-243.

30. Wachenheim, Cheryl J., Patrick Novak, Eric A. DeVuyst, and David K. Lambert. "Demand Estimation for Agricultural Processing Coproducts." *Great Plains Research* 16(Spring):85-94, 2006.
31. Wilson, William W., and Bruce L. Dahl. "Costs and Risks of Segregating GM Wheat in Canada." *Canadian Journal of Agricultural Economics* 54(2006):341-359.
32. Wilson, William W., William E. Njanje, and Robert Wagner. "Hedging Strategies for Grain Processors." *Canadian Journal of Agricultural Economics* 54(2):311-326, June 2006.

BOOKS and BOOK CHAPTERS

1. Miljkovic, Dragan (ed.), *New Topics in International Agricultural Trade and Development*. Nova Science Publishers, Inc., New York, 204 pp., 2006.

AGRIBUSINESS AND APPLIED ECONOMICS REPORTS (20 Total)

1. 2006 No. 596
[*Dynamics in the Macroeconomy and the U.S. Agricultural Trade Balance*](#), Baek, Jungho, Won W. Koo
2. 2006 No. 594
[*The Development, Operation, and Dissolution of a Value-added Cooperative: United Spring Wheat Processors*](#), McKee, Gregory J.
3. 2006 No. 593
[*Marketing Mechanisms to Facilitate Co-existence of GM and Non-GM Crops*](#), Henry, Benjamin, William W. Wilson, Bruce L. Dahl
4. 2006 No. 592
[*Empirically Analyzing the Impact of U.S. Export Credit Programs on U.S. Agricultural Trade*](#), Rienstra-Munnicha, Paul, Kranti Mulik, Won W. Koo
5. 2006 No. 591
[*2006 North Dakota Agricultural Outlook: Representative Farms, 2006-2015*](#), Taylor, Richard D., Won W. Koo, Andrew L. Swenson
6. 2006 No. 590
[*Preliminary Feasibility Analysis for an Integrated Biomaterials and Ethanol Biorefinery Using Wheat Straw Feedstock*](#), Leistritz, F. Larry, Donald M. Senechal, Mark D. Stowers, William F. McDonald, Chris M. Saffron, Nancy M. Hodur
7. 2006 No. 589
[*2006 Outlook of the U.S. and World Sugar Markets, 2005-2015*](#), Koo, Won W., Richard D. Taylor
8. 2006 No. 588
[*Financial Characteristics of North Dakota Farms 2004-2005*](#), Swenson, Andrew L.
9. 2006 No. 587
[*Substitution between U.S. and Canadian Wheat by Class*](#), Mulik, Kranti, Won W. Koo
10. 2006 No. 586
[*2006 Outlook of the U.S. and World Wheat Industries, 2005-2015*](#), Koo, Won W., Richard D. Taylor

11. 2006 No. 585
[*The Role of the U.S. Dollar in International Trade*](#), Baek, Jungho, Kranti Mulik, Won W. Koo
12. 2006 No. 584
[*Production Risk and Crop Insurance in Malting Barley: A Stochastic Dominance Analysis*](#), Wilson, William W., Cole R. Gustafson, Bruce L. Dahl
13. 2006 No. 583
[*Modeling the Effect of Spatial Externalities on Invasive Species Management*](#), McKee, Gregory J.
14. 2006 No. 582
[*Forces Reshaping World Agriculture*](#), Mattson, Jeremy W., Won W. Koo
15. 2006 No. 581
[*An Economic Analysis of Genetic Information: Leptin Genotyping in Fed Cattle*](#), Bullinger, Jared, Eric A. DeVuyst, Marc Bauer, Paul Berg, Daniel Larson
16. 2006 No. 580
[*Ethanol's Impact on the U.S. Corn Industry*](#), Taylor, Richard D., Jeremy W. Mattson, Jose Andino, Won W. Koo
17. 2006 No. 579
[*The Mexican Sweeteners Market and Sugar Exports to the United States*](#), Andino, Jose, Richard D. Taylor, Won W. Koo
18. 2006 No. 578
[*Analysis of the 2002 Farm Bill and New Farm Bill Alternatives*](#), Taylor, Richard D., Won W. Koo
19. 2006 No. 577
[*Contracting Strategies for EU Traceability Requirements*](#), Wilson, William W., Xavier Henry, Bruce L. Dahl
20. 2006 No. 576
[*The Expected Value of Genetic Information in Livestock Feeding*](#), Lambert, David K., Eric A. DeVuyst, Charles B. Moss

STAFF PAPERS (7 Total)

1. AAE 06008
[*Agricultural Value Added: Prospects for North Dakota*](#), Lambert, David K., Siew Hoon Lim, Kathleen Tweeten, F. Larry Leistritz, William W. Wilson, Gregory J. McKee, William E. Nganje, Cheryl S. DeVuyst, David M. Saxowsky
2. AAE 06007
[*When Do Students Work?*](#) Gustafson, Cole R.
3. AAE 06006
[*Contributions of the North Dakota Agricultural Products Utilization Commission Programs to the State Economy*](#), Hodur, Nancy M., F. Larry Leistritz, Tarrand Hertsgaard
4. AAE 06005
[*Growing and Maintaining Viable Student Chapters of Professional Organizations: The Case of the National AgriMarketing Association*](#), Wachenheim, Cheryl J.

5. AAE 06004
[*Results of the North Dakota Land Valuation Model for the 2006 Agricultural Real Estate Assessment*](#), Aakre, Dwight G., Harvey G. Vreugdenhil
6. AAE 06002
[*North Dakota Lignite Energy Industry's Contribution to the State Economy for 2005 and Projected for 2006*](#), Coon, Randal C., F. Larry Leistritz
7. AAE 06001
[*Developing the Nature-based Tourism Sector in Southwestern North Dakota*](#), Hodur, Nancy M., F. Larry Leistritz, and Kara L. Wolfe

POLICY BRIEFS

CENTER FOR AGRICULTURAL POLICY AND TRADE STUDIES (5 Total)

1. No. 596
[*Dynamics in the Macroeconomy and the U.S. Agricultural Trade Balance*](#), Baek, Jungho, Won W. Koo
2. No. 592
[*Empirically Analyzing the Impact of U.S. Export Credit Programs on U.S. Agricultural Trade*](#), Rienstra-Munnicha, Paul, Kranti Mulik, Won W. Koo
- No. 591
[*2006 North Dakota Agricultural Outlook: Representative Farms, 2006-2015*](#), Richard D. Taylor, Won W. Koo, and Andrew L. Swenson, August 2006
3. No. 589
[*2006 Outlook of the U.S. and World Sugar Markets, 2005-2015*](#), Won W. Koo and Richard D. Taylor, August 2006
4. No. 587
[*Substitution between U.S. and Canadian Wheat by Class*](#), Kranti Mulik and Won W. Koo, August 2006
5. No. 585
[*The Role of the U.S. Dollar in International Trade*](#), Jungho Baek, Kranti Mulik, and Won W. Koo, August 2006
6. No. 586
[*2006 Outlook of the U.S. and World Wheat Industries, 2005-2015*](#), Richard D. Taylor and Won W. Koo, July 2006
7. No. 582
[*Forces Reshaping World Agriculture*](#), Jeremy W. Mattson and Won W. Koo, May 2006
8. No. 580
[*Ethanol's Impact on the U.S. Corn Industry*](#), Richard D. Taylor, Jeremy W. Mattson, Jose Andino, and Won W. Koo, March 2006
9. No. 579
[*The Mexican Sweeteners Market and Sugar Exports to the United States*](#), Jose Andino, Richard D. Taylor, and Won W. Koo, March 2006

10. No. 578
[Analysis of the 2002 Farm Bill and New Farm Bill Alternatives](#), Richard D. Taylor and Won W. Koo, March 2006
11. Special Report 06-1
[21st Century Farm Policy: Challenges and Opportunities \(Executive Summary\)](#), Jeremy W. Mattson and Won W. Koo, eds., March 2006

EXTENSION/OUTREACH PUBLICATIONS (23 Total)

1. Aakre, Dwight, Greg Lardy and Karl Hoppe; “What is the Value of Standing Corn for Grazing”, August 2006.
2. Aakre, Dwight; “What is the Value of a Standing Corn Crop for Silage?” August 2006 (Revised).
3. Aakre, Dwight G. and Harvey G. Vreugdenhil; “Results of the North Dakota Land Valuation Model For The 2006 Agricultural Real Estate Assessment”, AAE 06004, August 2006.
4. Haugen, Ron, Tim Petry, George Flaskerud and Dwight Aakre; “Plotting a Course for 2006”, EC-1090 (Revised), January 2006.
5. Haugen, R., A.L. Swenson and R. Ashley. February, 2006. “Projected No-Till 2006 Crop Budgets Southwest North Dakota,” NDSU Extension Service, Fargo.
6. Janzen, Ed, George Flaskerud, Jay Fisher and Eric Bartsch. “Pulse Crop Marketing Guide.” Extension Circular 1277, North Dakota State University, August 2006, 35 pages.
7. Landblom, D.G., G.P. Lardy, C.J. Wachenheim, and T.A. Petry. 2006. “Does Pre-breeding Fat or Protein Supplementation Improve Re-breeding Performance.” Beef Cattle and Range Research Report. NDSU. pp19-22
8. Landblom, D.G., G.P. Lardy, R. Fast, C.J. Wachenheim, and T.A. Petry. 2006. “Effect of Hay Feeding Methods on Cow Performance, Hay Waste, and Wintering Cost.” Beef Cattle and Range Research Report. NDSU, pp 10-15
9. Petry, T. A., R. Haugen, D. Aakre, and G. Flaskerud. 2006. “Plotting a Course 2006, Short-term and Long-term Agricultural Planning Prices for North Dakota 2006.” EC-1090. NDSU Extension Service, NDSU, Fargo, ND 58105.
10. Petry, T.A. 2006. “Cyclical Expansion in US Cattle Herd Continues.” The Ranch Hand, Volume 13, Number 2, NDSU Extension Service, Fargo, ND.
11. Petry, T.A. 2006. “Should Livestock Producers Be Concerned About Bird Flu?” The Ranch Hand, Volume 13, Number 4, NDSU Extension Service, Fargo, ND
12. Petry, T.A. 2006. “Forced Sales of Livestock Due To Drought Have Tax Implications.” The Ranch Hand, Volume 13, Number 8, NDSU Extension Service, Fargo, ND
13. Petry, T.A. 2006. “Make Plans For Fall Calf Marketing.” The Ranch Hand, Volume 13, Number 10, NDSU Extension Service, Fargo, ND

14. Petry, T.A. 2006. "Marketing and Price Risk Management." 2006 Dairy Cow College. NDSU Extension Service, Fargo, ND
15. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets Northwest North Dakota," NDSU Extension Service, Fargo.
16. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets North Central North Dakota," NDSU Extension Service, Fargo.
17. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets Northeast North Dakota," NDSU Extension Service, Fargo.
18. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets North Valley North Dakota," NDSU Extension Service, Fargo.
19. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets East Central North Dakota," NDSU Extension Service, Fargo.
20. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets Southwest North Dakota," NDSU Extension Service, Fargo.
21. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets South Central North Dakota," NDSU Extension Service, Fargo.
22. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets Southeast North Dakota," NDSU Extension Service, Fargo.
23. Swenson, A.L. and R. Haugen. 2006. "Projected 2007 Crop Budgets South Valley North Dakota," NDSU Extension Service, Fargo.

4. Presentations

Research and Outreach Presentations by Research/Teaching Faculty (97 Total – Note multiple presentations)

1. Bangsund, D., E.A. DeVuyst, and F.L. Leistritz, 2006. "An Economic Assessment of Flood Mitigation in the Red River Valley," Selected Paper for presentation at the Western Agricultural Economics Association 2006 Annual Meeting, Anchorage, AK, June 28-30.
2. Gustafson, C. 2006. "Malt Barley Crop Insurance Risk Management Education" selected paper, AAEA annual meeting, Long Beach, CA, July 23-26, 2006
3. Gustafson, C. 2006. "Premium Subsidy Changes and Demand for Crop Insurance", NC-1014 Agricultural and Rural Finance Markets in Transition, Washington DC, Oct. 2-3, 2006
4. Gustafson, C. 2006. "Personal and Business Planning" Regional Women in Ag. Conference, Spearfish, SD, Sept. 29-30, 2006
5. Gustafson, C. 2006. "Macroeconomic Outlook" Agricultural Lenders Conferences, ND – Grand Forks (Oct. 24), Minot (Oct. 25), Bismarck (Oct. 31), Fargo (Nov. 1),
6. Gustafson, C. 2006. "Malt Barley Crop Insurance" Agricultural Lenders Conferences, Grand Forks (Oct. 24), Minot (Oct. 25), Bismarck (Oct. 31), Fargo (Nov. 1)

7. Hearne, R. 2006. Consumer demand for high-selenium beef. Paper presented at the WERA 072 annual meeting for 2006. (with Scott Hovde, Cheryl Wachenheim, William Nganje, and Tim Petry presented by Cheryl Wachenheim). Las Vegas, Nevada, June 18-20.
8. Hearne, R. 2006. "Interbasin Transfer to Reduce Flooding: The Case of Devils Lake, North Dakota" Presented at the University Council on Water Resources Conference. Santa Fe, NM. July 18, 2006
9. Hearne, R. 2006. "Water Quality Monitoring Among Local Agencies in The Red River of the North Basin" (with Chalres Fritz) 2006 National Monitoring Conference. San Jose, Ca. May 10 2006.
10. Hearne, R. 2006. "Public Preference For Biodiversity Conservation And Scenic Beauty Within A Framework " (with E Biénabe) Paper Presented at the Graduate Seminar Departamento de Economia, Administração e Sociologia ESALQ/USP. Piracicaba Brazil March 2006
11. Hearne, R. 2006. "The Use of Attitudinal Responses as Explanatory Variables in Choice Experiments." Paper presented at the W-1133 Meeting Western Benefits and Costs Multistate Research Project Meeting San Antonio February 2006
12. Hearne, R. 2006. "Criteria and Indicators for Effective Water Management Institutions." Paper Presented at the Red River Basin Conference. Winnipeg, Manitoba, January 12, 2006
13. Herren, R. 2006. "Contrasts and Comparisons: Eisenhower versus Clinton CEAs" presented at the 2006 meeting of Southwestern Economics Association
14. Herren, R. 2006. "Challenges of Teaching History of Economic Thought at a Land-grant University" presented at the 2006 meeting of the History of Economics Society.
15. Herren, R. 2006. "Labor Markets in Macroeconomic Analysis before Milton Friedman's Natural Rate Theory" presented at the 2006 meeting of the Missouri Valley Economic Association
16. Koo, W. 2006. The Role of Exchange Rate on U.S. – Sino Bilateral Trade, 2006 International Conference on Business, Honolulu, Hawaii, May 25-28,2006.
17. Koo, W. 2006. Forces reshaping the world agriculture, May 11, 2006, Department of Agricultural Economics, the University of Indices
18. Koo, W. 2006. The Impact of sugar trade liberalization on the world sugar industry, May 12, 2006, Department of Agricultural Economics, the University of Indices
19. Koo, W. 2006. The Role of the Mississippi River System for the U.S. Soybean Exports, March 27, Department of Industrial Engineering and Department of Agricultural Economics, MSU
20. Koo, W. 2006. The Impact of Agricultural Subsidies on Global Welfare, Principal paper session, AAEA, Long Beach, California, July 24, 2006.
21. Koo, W. 2006. Ethanol's Impact on the U.S. Corn Industry, Organized Symposium, AAEA, Long Beach, California July 24, 2006.
22. Koo, W., and J. Baek. 2006. The J-Curve Phenomenon: Myth or Reality, Selected paper session, AAEA, Long Beach, California, July 24, 2006.
23. Koo, W. 2006. Impacts of Sugar Free Trade Agreement on the U.S. sugar Industry, selected paper session, AAEA, Long Beach, California, July 25, 2006.

24. Koo, W. 2006. Empirically Analyzing the Impact of U.S. Export Credit Program on U.S. agricultural Competitiveness, selected paper session, AAEA, Long Beach, California, July 25, 2006.
25. Koo, W. 2006. The Potential Impact of Doha Round on Grains, Organized Symposium, AAEA, Long Beach, California, July 25, 2006.
26. Koo, W. 2006. Effects of the Panama Canal on U.S. Competitiveness in Asian Soybean Market, Selected paper session, AAEA, Long Beach, California, July 26, 2006.
27. Koo, W. 2006. Identifying Macroeconomic Linkages to U.S. Agricultural Trade Balance, selected paper session, AAEA, Long Beach, California, July 26, 2006.
28. Koo, W. 2006. The impact of Brazil and Argentina's Currency Devaluation on U.S. soybean Trade, Selected paper session, AAEA, Long Beach, California, July 24, 2006.
29. Koo, W. 2006. The impact of Chinese Economic Growth on the World Economy, Chung-Ang University, September 8, 2006.
30. Koo, W. 2006. The Korean Economy under Globalization: Issues and Challenges, Graduate School of Business Management, Dongkuk University, October 5, 2006.
31. Koo, W. 2006. The 2007 U.S. Farm Bill: Direction and Constraints, Korean Rural Economics Institute, October 19, 2006.
32. Koo, W. 2006. Forces reshaping the world agriculture, College of Bio-science, Korea University, October 29, 2006.
33. Koo, W. 2006. U.S.-Korea Free Trade Negotiations and U.S. Trade Policy, Seokyeong University, November 19, 2006.
34. Lambert, D.K. "Short Run Responsiveness of U.S. Agriculture to Energy Price Changes." Department Seminar. Fargo, ND, March 6, 2006.
35. Lambert, D.K. "Short Run and Long Run Responsiveness of U.S. Agriculture to Energy Price Changes." Selected Paper for presentation at the Western Agricultural Economics Association 2006 Annual Meeting, Anchorage, AK, June 29-30.
36. Lambert, D.K. and E.A. DeVuyst. "The Expected Value of Genetic Information in Livestock Feeding." Selected Paper for presentation at the Western Agricultural Economics Association 2006 Annual Meeting, Anchorage, AK, June 29-30.
37. Leistritz, L. 2006. "Developing a Biomaterials Industry in North Dakota," presentation to North Dakota Grain Growers Annual Conference, Bismarck, January 9, 2006.
38. Leistritz, L. 2006. "Economic Contribution of the sugarbeet industry in North Dakota, Minnesota, and eastern Montana," presentation at 36th Annual Sugarbeet Research Reporting Session, Fargo, January 10, 2006
39. Leistritz, L. 2006. "Developing a Biomaterials Industry in North Dakota," presentation at Marketplace, Fargo, January 18, 2006
40. Leistritz, L. 2006. "Assessing the Economic Impact of Event Tourism," presentation at Marketplace, Fargo, January 18, 2006
41. Leistritz, L. 2006. "Methods for Assessing the Economic Impact of Festivals and Events," presentation at Departmental Seminar, Dept. of Agribusiness & Applied Economics, NDSU, Fargo, January 18, 2006

42. Leistriz, L. 2006. "Production and Marketing Practices of Northern Great Plains Livestock Producers," presentation at Hettinger Research/Extension Center (HREC) Sheep and Beef Field Day, Febr. 8, 2006
43. Leistriz, L. 2006. "Multiple-Use Management of Agricultural Lands," panel presentation at Agri-International Expo, Bismarck, February 14, 2006
44. Leistriz, L. 2006. "Principles of Economic Impact Assessments for Events and Festivals," presentation to Rural Leadership North Dakota, Hettinger, March 3, 2006 (IVN presentation)
45. Leistriz, L. 2006. "NDSU/MBI Biomaterials Initiative," presentation for Ransom/Sargent Co. group hosted by Pam Gulleon (Sen. Dorgan) and Scott Stofferahn (Sen. Conrad), Fargo, March 10, 2006
46. Leistriz, L. 2006. "Principles of Economic Impact Assessments for Events and Festivals," presentation for NDSU Extension Spring Conference, Bismarck, March 22, 2006
47. Leistriz, L. 2006. "NDSU/MBI Biomaterials Initiative," presentation for Cavalier Co. JDA, Langdon, April 21, 2006
48. Leistriz, L. 2006. "North Dakota's Oil and Gas Industry: Its Contribution to the State Economy," presentation at Energy Forum, Rocky Mountain Section, American Association of Petroleum Geologists Annual Conference, Billings, MT, June 11, 2006
49. Leistriz, L. 2006. "Developing a Biomaterials Industry in North Dakota," presentation at Biomass '06 Workshop, Energy & Environmental Research Center, Grand Forks, July 19, 2006
50. Leistriz, L. 2006. "Studies to Support Development of the Livestock in North Dakota," presentation to Value Added Agriculture Roundtable, Bismarck, November 15, 2006
51. Leistriz, L. 2006. "Contribution of the North Dakota Agricultural Products Utilization Commission Programs to the State Economy," presentation to ND Agricultural Products Utilization Commission, Fargo, November 17, 2006
52. Lim, S. 2006. "Profit and Productivity of U.S. Class I Railroads," with C.A.K. Lovell. Institute for Operations Research and the Management Sciences (INFORMS) Annual Conference, Pittsburgh, November 5 – 8, 2006.
53. Lim, S. 2006. "Profit and Productivity of U.S. Class I Railroads," with C.A.K. Lovell. The 43rd Missouri Valley Economic Association, Minneapolis, MN, October 26 – 28, 2006.
54. Lim, S. 2006. "Productivity in U.S. Trucking Industry: A Two-Stage, Semi-Parametric Approach." The North American Productivity Workshop's Junior Researcher Session, Stern Business School, New York University, June 26 – 30, 2006.
55. McKee, G.J., P. Kenkel, and B. Henahan. "Challenges in Measuring the Economic Impact of Cooperatives." NCERA-194, November 2-3, 2006. Minneapolis, MN.
56. McKee, G.J., R.E. Goodhue, J.A. Chalfant, C.A. Carter. "Spatial Externalities, Invasive Species, and Management Institutions." American Agricultural Economics Association, July 23-26, 2006. Long Beach, CA.
57. McKee, G.J., R.E. Goodhue, J.A. Chalfant, C.A. Carter. "Pesticide Resistance and Optimal Invasive Species Management." June 28-30, 2006, Western Agricultural Economics Association, June 28-30, 2006. Anchorage, AK.

58. Miljkovic, Dragan: "U.S. and Canadian Livestock Prices: Market Integration and Trade Dependence," AAEA Annual Meetings, July 23-26, 2006, Long Beach, CA.
59. Miljkovic, Dragan: "U.S. and Canadian Livestock Prices: Market Integration and Trade Dependence," NCCC-134 Conference on Applied Commodity Price Analysis, Forecasting, and Marketing Risk Management, April 17-18, 2006, St. Louis, MO.
60. Wachenheim, C, with Scott Hovde, William Nganje, Robert Hearne, and Tim Petry. Consumer demand for high-selenium beef. WERA 072 annual meeting for 2006. Las Vegas, Nevada, June 18-20.
61. Wachenheim, Cheryl J. Organizer and Moderator. Panel Discussion: Teaching tips from award-winning teachers; Practicing the craft of agribusiness education. WERA 072 annual meeting for 2006. Las Vegas, Nevada, June 18-20.
62. Wachenheim, Cheryl J. Marketing Crops and Livestock; An empirical learning exercise. North Dakota Farm Bureau Young Farmers and Ranchers Annual Meeting, February 4th, 2006, Fargo, ND.
63. Wachenheim, Cheryl J. Communicating in agriculture. North Dakota Farm Bureau Young Farmers and Ranchers Annual Meeting, February 4th, 2006, Fargo, ND.
64. Wilson, W. 2006. Invited Presentations to the CIMMYT Workshop on Wheat Quality, Mexico City, Dec 7, 2006, titled: Grades, Segregation and Traceability; and Strategies in Variety Development and Release. Mexico City, Dec 7, 2006.
65. Wilson, W. 2006. Economic and Marketing Implications of Excessive DON in Wheat, 2006 National Fusarium Head Blight Forum, Durham, NC, Dec 10, 2006
66. Wilson, W. 2006. Economic Impacts of AgBioterrorism, to the National Center for Food Protection and Defense (a Homeland Security Center of Excellence), August 31, 2006. Minneapolis, Minn
67. Wilson, W., with Bryan Lohmar and Yibiao Bu. 2006 "Wheat Marketing Reform and Quality Enhancement Policies in China" to the annual meetings of the International Association of Agricultural Economics (IAAE), Australia, and to the ABARE , August 2006.
68. Wilson, W. 2006. Managing Your Wheat Supply Chain, to the US Wheat Associates, Latin American and Caribbean Wheat Buyers Conference, Los Cabos June 29, 2006.
69. Wilson, W. 2006. USDA/NRI. Ag Markets and Trade Project Directors Meeting, "Market Mechanisms to Facilitate DC Commercialization of Genetically Modified Grains: Test Tolerances, Segregation, Traceability and Contracting" June 15, 2006.
70. Wilson, W. 2006. US Grains Council, Integrating options into grain procurement decisions US Grains Council Futures workshop, Guangzhou and Jinan May 15-19, 2006
71. Wilson, W. 2006. US Grains Council, Monte Carlo Simulation Models to Analyze Risk in Grain Trading US Grains Council Futures workshop, Guangzhou and Jinan May 15-19, 2006
72. Wilson, W. 2006. FAMPS S-1016. Wheat Quality and Changing Market Structures, to the FAMPS Seminar on Guiding Food and Ag Marketing Policy in the Face of Changing Market Structures, March 21-22, Washington DC. Sponsored by the AAEA.
73. Wilson, W. 2006. "Malt Barley Risk Management Strategies", 2006 American Agricultural Economics Association (AAEA) Annual Meeting in Long Beach, July 23-26. .

74. Wilson, W. 2006. U of Manitoba invited seminar to the faculty of agriculture. Quality guarantee in international grain marketing, January 18, Winnipeg.
75. Wilson, W. 2006. Factors Impacting Demand and Competition for Hard Wheats: Functional demands, AWB and CWB To the NDSWC County Rep Meeting Bismark, Dec 14, 2006
76. Wilson, W. 2006. Canola Research to Increase Oil Production, to the Canola Biodiesel Forum, Dec 13, 2006, Minot.
77. Wilson, W. 2006. "Energy Development Alternatives for Farmers and Ranchers as Economic Opportunities". To the Board of Directors for the North Dakota Rural Rehabilitation Corporation, November 16
78. Wilson, W. 2006. Canola and Oilseed Initiative at NDSU- to the 2006 Extension Conference, Cropping Systems in the 21st Century, NCI Auditorium, NDSU, Nov. 7, 2006
79. Wilson, W. 2006. COE In AgBiotechnology and Futures Issues Impacting Biotech, to the Growers for Biotechnology annual meeting, Oct 30, 2006, Fargo.
80. Wilson, W. 2006. Northwest Feed Mfg Association, Oct 10, Longer term implications of ethanol on feeding, Wilmar, Mn.
81. Wilson, W. 2006. AgCountry Hail Kickoff, May 25 at Fairhills Resort. China and Its Impact to US Agriculture
82. Wilson, W. 2006. Economic Implications of Vomitoxin: State, Regional and Global Impacts Scab Summit, Minot Research Stations, April 25 2006
83. Wilson, W. 2006. Fargo Kiwanas Club: China, Brazil and World Trade: Implications for ND, April 12, Fargo,
84. Wilson, W. 2006. North Dakota State Wheat Commission, GM Wheat Marketing Strategies, Fargo, March 6.
85. Wilson, W. 2006. Demand for End-Use Traits–Keynote Speech, Wheat Quality Council Annual Meeting, Feb 22, 2006 Kansas city
86. Wilson, W. 2006. Challenges and Opportunities in Biotech Wheat Marketing, to the Wheat Quality Council Annual Meeting, Feb 22, 2006 Kansas city
87. Wilson, W. 2006. Wheat Quality Council annual meeting, challenges and opportunities in GM Wheat marketing Kansas City, Feb 22, 2005
88. Wilson, W. 2006. Wheat Quality Council annual meeting, Demand for end-use traits Kansas City, Feb 22, 2005
89. Wilson, W. 2006. Bayer CropScience Cereal Grains Media Summit, February 3 – 4, 2006, in San Antonio. Longer Term Challenges and Opportunities in Wheat Marketing,
90. Wilson, W. 2006. Center of Excellence Commission. Center of Excellence in Agbiotechnology: Oilseeds, Bismarck, January 24.
91. Wilson, W. 2006. ND Grain Growers Association annual meeting, Opportunities and Challenges in AgBiotechnology, Bismark, Jan 9, 2006
92. Wilson, W. 2006. BNSF Railroad, Longer Term Projections for PNW Grain shipments, Dallas, January 11, 2006.

93. Wilson, W. 2006. US Army Corps of Engineers Annual NETS Seminar. Longer term forecasting of grain flows, Salt Lake City, January 13, 2006
94. Wilson, W. 2006. US Army Corps of Engineers Annual NETS Seminar. Longer term Container Flow Study, Salt Lake City, January 13, 2006
95. Wilson, W. 2006. Tunisian grain marketing. September 6, 2006. NCI. Presentations covering the grain handling and marketing infrastructure for the U.S., basic hedging principles and impacts of liberalizing import markets.
96. Wilson, W. 2006. AAEA Selected paper 2006, Production risk and Crop Insurance in Malting Barley: A Stochastic Dominance Analysis, Long Beach, Ca, July 25, 2006.
97. Wilson, W. 2006. AAEA special session. Future Challenges in Marketing. March 21, 2006, Washington DC.

5. Technology Transfer

Ongoing economic analysis in the department assisting the development of commercialization and/or product transfer includes Larry Leistritz's work with MBI on commercialization of the process to convert crop residues to industrial inputs, including nanowhiskers, chemicals, and fuels.

Bill Wilson is the Director of the newly designated Center of Excellence in Agbiotechnology. Center research and technology transfer focuses on the development of unique oilseed traits through biotechnology that have potential as biodiesel, biofuels, lubricants, health care, and food products. Short term focus is on canola based biodiesel, but longer term objectives include development of specialty oil traits and non-food uses of soybean and other oil crop oils. The Center is a partnership of several major agribusiness firms, the state of North Dakota, and North Dakota State University.

C. OUTREACH

1. Professional Service

Several faculty members occupy national or regional positions in professional organizations. Cheryl DeVuyst continues her three year term as an elected member of the Board of Directors of the Western Agricultural Economics Association. Larry Leistritz replaced Eric DeVuyst on the Advisory Board of the Hettinger Research and Extension Center in 2005. Stan Herren is the book review editor for the *Journal of Economics*. Larry is also a member of the Conference Sponsorship Committee for the International Association for Impact Assessment. Richard Rathge is an associate editor of *Rural Sociology* and serves on the steering committees for the National State Data Center Program and for the National Kids Count Program. Dave Lambert continues to serve his three-year term to the Board of the Council on Food, Agricultural, and Resource Economics in 2004 and was selected to serve as editor of the *Journal of Agricultural and Resource Economics* at the end of December 2005, with duties running from April 2006 to December 2009. Dragan Miljkovic is an associate editor for the *Journal of Agricultural and Applied Economics* and is the founding editor of the *Journal of International Agricultural Trade and Development*. Kathy Tweeten served as the President of the National Association of Community Development Extension Professionals in 2005.

2. Alumni Events and Other Community-Related Activities

Department faculty are active in agricultural fraternities and sororities, attend graduation, reunions, and honors banquets, and participate in agricultural shows and events in which College alumni are frequently present.

3. Fund-Raising Accomplishments

The Department of Agribusiness and Applied Economics continues to offer one of the largest departmental scholarship programs on campus. Over \$40,000 was granted to students in the Department this year. Coordination and judging of applicants is done by Becky Leitch.

Fund-raising for individual department-sponsored events, such as travel of the student NAMA chapter to the annual national competition, was conducted by students with organizational oversight by individual faculty members. New donations to the department scholarship fund maintained by the NDSU Foundation exceeded \$110,000 in 2005.

4. Other Outreach Activities

Department faculty continue to provide talks, lead discussions, and provide media information to a variety of state and national requests. Faculty serve as volunteers for a number of community and business organizations (Boards of Directors for Dakota Montessori School, Northland Educators Federal Credit Union), or serve in advisory positions to governmental groups (Governor's Census Committee, Advisory Council on State Revenue Forecasting).

D. SPECIAL INITIATIVES

1. Diversity

The Department reflects and encourages diversity of opinion and belief, cultural background, and phenotype. Tenured and probationary faculty countries of origin include Serbia, Korea, Malaysia, and Cameroon. National backgrounds of assistant research professors in the Department during 2005 included Sierra Leone, Korea, India, Honduras, and China. Active university commitment to strengthening ties with Belize begun in 2005 will culminate in the arrival of three Belizean female graduate students in the fall 2006 semester. The International Agribusiness M.S. program strengthens ties with France and the European Union to increase educational and research opportunities for faculty and students. Undergraduate and graduate students in 2005 came from France, Russia, Korea, India, Sri Lanka, China, Canada, Cameroon, and Japan. Cheryl DeVuyst, one of the department's three women faculty members, is active in national professional organizations promoting the role of women in agricultural economics, and is currently chair of the Committee on Women in Agricultural Economics. William Njanje is an active participant in the NDSU TOCAR effort.

2. Cooperative Programming/Interinstitutional Activities

Below is a listing of multistate research projects in which departmental faculty were involved in 2006:

Principal Investigator	Regional Committee/Title
DeVuyst, Cheryl S.	S-1019, Fruit and Vegetable Marketing Innovations and Demand Assessment
DeVuyst, Cheryl S.	W-1177, Enhancing the Competitiveness of U.S. Meats
DeVuyst, Eric A.	Economically-Sustainable Management Strategies for Northern Great Plains Farms and Ranches
Gustafson, Cole	NC-1014, Agricultural and Rural Finance Markets in Transition
Hearne, Robert	W-1190, Interfacing Technological, Economics, and Institutional Principles for Managing Inter-Sector Mobilization of Water
Koo, Won	S-1016, Impacts of Trade and Domestic Policies on the Competitiveness and Performance of Southern Agriculture
Lambert, David	NC-1034, Impact Analyses and Decision Strategies for Agricultural Research
Leistritz, F. Larry	NE-1011, Rural Communities, Rural Labor Markets and Public Policy
Rather, Richard	W-1001, Population Change in Rural Communities
Wilson, William W.	NC-1016, Economics Assessment of Changes in Trade Arrangements, Bio-Terrorism Threats and Renewable Fuels Requirements on the U.S. Grain and Oilseed Sector

3. International Activities

The department continued to participate in the summer undergraduate program with *l'Ecole Supérieure d'Agriculture* in Angers, France. Brenda Deckard of Plant Sciences organized the 2006 summer program and accompanied the students to France. Dragan Miljkovic is the 2007 faculty advisor for the trip, commencing recruitment and organization of the trip during the fall of 2006. Won Koo received a Fulbright Award, enabling him to spend the fall 2006 semester teaching at Korea University in Seoul. In response to student requests, Bob Hearne organized and led a study tour of eleven students to Brazil during spring break in 2006. Tours of agribusinesses, farms, and agricultural research universities highlighted the trip. Bill Wilson made presentations on wheat market differentiation and criteria for release of new wheat varieties at several international conferences in 2006, and discussed a variety of grain trade topics to NCI Trade Teams Tunisia. Dave Lambert accompanied a trade mission of North Dakota food-grade soybean producers to Singapore, Malaysia, and Thailand in March 2006, visiting as well with university and study abroad advisors in these countries about undergraduate and graduate study opportunities at NDSU with prospective students.

4. Interdisciplinary Activities

Eric DeVuyst continues his collaboration with faculty in Animal and Range Science on the economic implications of leptin gene traits in cattle.

Larry Leistritz collaborates with process engineers in his analysis of conversion potential of crop residue to industrial products.

Bill Wilson joined with Phil McLean of Plant Science as Directors of the new Center for Agbiotechnology, with a focus on canola and other oilseeds for the production of biodiesel.

Cole Gustafson and scientists in Agricultural and Biosystems Engineering have joined in their efforts to assess the feasibility of biofuels facilities.

William Nganje works with a wide range of social and natural scientists in his work on food safety and on the contamination of food supply networks.

5. Economic Development Efforts

One of the primary missions of the department is to aid in economic development efforts in North Dakota. Several faculty members are directly involved in economic development as a major component of their job responsibilities. Many of the grants, publications, presentations, and workshops listed earlier in the annual report reflect these efforts. Larry Leistritz and Kathy Tweeten have primary responsibilities in economic development. Kathy Tweeten serves as Director of the Center for Community Vitality, an umbrella for numerous economic and business development activities in the state. Her activities in 2005 included developing an online food entrepreneurship certificate course, coordinating six listening sessions for agri-tourism operators to better understand their needs for state and county programming, leading Nature based tourism workshops and sessions, coordinating and facilitating Entrepreneurship listening sessions, and serving on the planning team for the first state wide community/economic development conference. As director of IBID, Kathy responds to numerous calls for assistance with new and start up business information. Collaboration with various departments on campus, including the Small Business Institute, Computer Science, Hospitality and engineering, enhances the Center's impact.

Larry and his staff of Nancy Hodur, Dean Bangsund, and Randy Coon continue to provide research-based materials to public and private entities affecting economic development efforts in the state. Earlier cited publications and presentations have addressed the development of new industries in the state (e.g., crop residue conversion to industrial and energy products), the importance of Cooperatives in rural economies, pecuniary returns from events and festivals, the impacts of selected commodities on the state's economy (e.g., the wheat industry).

6. On-line Courses and Programming

The Department continues to adopt new technology to enhance teaching. All classes are available to students via BlackBoard. The mix of webpages, downloadable files, and other features of web-based delivery vary by instructor.

Web-based courses in the Department include ECON 105 (Elements of Economics), ECON 202 (Principles of Macroeconomics), AGECE 350 (AgriSales), and AGECE 375 (Agricultural Law). Occasional distance offerings of courses to Dickinson State University (e.g., AGECE 374. Cooperatives) have continued.

E. PLANNING

The department will be facing significant institutional change over the next two years. The department chair for over eight years, David Lambert, has requested to step down effective June 30, 2007 conditional upon selection of an acceptable replacement. The department will be

leaving Morrill Hall and the main NDSU campus in 2009 to share a newly purchased building in downtown Fargo with the College of Business, offering many new opportunities to strengthen agribusiness and economics teaching and research due to possible collaboration with faculty and students in the College of Business. Needs identified and pursued in earlier planning efforts (Program review in 1999 and the CSREES review in 2000, a faculty retreat in 2003, and adoption of a new strategic plan in 2005) need to be revisited in light of the changing institutional arrangements, as well as continuing changes in faculty, faculty interests, and the needs of our various stakeholders.

The Dean of the College suggested that a request in the fall of 2006 to schedule a CSREES review be postponed until the arrival of a new department chair. Departmental discussions should address both short and long run strategies to benefit from the upcoming changes.

F. ENROLLMENT AND FTE DATA

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Fall 2006						
Mack, L	ECON	105	Elements of Economics	3	133	0.499
Gustafson, C	ECON	105	Elements of Economics	3	117	0.439
Gustafson, C	ECON	105	Elements of Economics-DCE	3	83	0.311
Leitch, R	ECON	201	Principles of Microeconomics	3	232	0.870
Leitch,R	ECON	201	Principles of Microeconomics	3	231	0.866
Leitch, R	ECON	201	Principles of Microeconomics	3	33	0.124
Gustafson	ECON	202	Principles of Macroeconomics	3	76	0.285
Mack, L	ECON	202	Principles of Macroeconomics	3	174	0.653
Gustafson, C	ECON	202	Principles of Macroeconomics-DCE	3	26	0.098
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	42	0.210
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	42	0.210
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	40	0.200
Herren, R	ECON	324	Money & Banking	3	47	0.259
Herren, R	ECON	324	Money & Banking	3	46	0.254
Lambert, D	AGEC	339	Quant Methods & Decision Making	3	40	0.221
Lim, Siew	ECON	341	Intermediate MicroEconomics	3	45	0.248
Saxowsky, D	AGEC	342	Agbusiness Mgmt I	3	23	0.127
Garosi, J	ECON	343	Principles of Macroeconomics	3	39	0.215
Garosi, J	AGEC	347	Principles of Real Estate	3	40	0.221
Garosi, J	BUSN	347	Principles of Real Estate	3	54	0.298
Saxowsky, D	AGEC	375	Applied Agricultural Law	3	41	0.226
Berwick, M	AGEC	378	Intr/Transport & Logistics	3	30	0.165
Lim, Siew	ECON	410	Intro to Econometrics	3	7	0.039
Wilson, W	AGEC	444	Crops Marketing	3	17	0.094
McKee, G	AGEC	445	Agribusiness Industry Strategy	3	15	0.083
DeVuyst, C	AGEC	450	NAT Agrimarketing Assoc (NAMA) 1	1	17	0.031
Herren, R	ECON	476	Monetary Theory and Policy	3	21	0.116
Hearne, R	ECON	481	Natural Resource Economics	3	38	0.210
DeVuyst, C	ECON	491	Sr Agribusiness Seminar	2	8	0.029
Herren, R	AGEC	494	Individual Study/Tutorial	3	1	0.006
DeVuyst,C	AGEC	496	Field Experience	3	1	0.006
Lambert, D	AGEC	496	Field Experience	3	1	0.006
Lim, Siew	ECON	610	Intro to Econometrics	3	10	0.104
Wilson, W	AGEC	644	Crops Marketing	3	1	0.010
Herren, R	ECON	676	Monetary Theory and Policy	3	2	0.021
Hearne, R	ECON	681	Natural Resource Economics	3	7	0.073
Lim, Siew	ECON	793	Individual Study/Tutorial	3	1	0.010
Lambert, D	ECON	701	Research Philosophy	3	11	0.115
Miljkovic, D	ECON	711	Adv. Topics/Econometrics	3	1	0.010
Wilson,W	AGEC	711	Sdv Topice/Risk Analysis	1	11	0.038
Hearne, R	AGEC	741	Adv Microeconomics	1	10	0.035
Wilson, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.024
Nganje, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.024
Totals				SCH:	5558	8.295

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Summer 2006						
Gustafson, C	ECON	105	Elements of Economics-DCE	3	32	0.120
Gustafson, C	ECON	105	Elements of Economics-DCE	3	25	0.094
Wachenheim, C	ECON	201	Principles of Microeconomics	3	15	0.056
Gustafson, C	ECON	202	Principles of Macroeconomics-DCE	3	20	0.075
Wachenheim, C	ECON	202	Principles of Macroeconomics	3	9	0.034
Gustafson, C	ECON	202	Principles of Macroeconomics-DCE	3	14	0.053
Herren, R	ECON	324	Money&Banking	3	47	0.259
Deckard, B	AGEC	360	International Agribus Exp.	3	6	0.033
Deckard, B	AGEC	379	Study Tour Abroad	3	6	0.033
Herren, R	ECON	494	Individual Study/Tutorial	3	1	0.006
Lambert, D	ECON	496	Field Experience	3	1	0.006
Leitch, R	AGEC	496	Field Experience	3	2	0.011
DeVuyst, C	AGEC	496	Field Experience	2	9	0.033
Gustafson, C	AGEC	496	Field Experience	3	1	0.006
Totals				SCH:	595	0.956

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Spring 2006						
Mack, L	ECON	105	Elements of Economics	3	137	0.514
Mack, L	ECON	105	Elements of Economics	3	167	0.626
Gustafson, C	ECON	105	Elements of Economics-DCE	3	66	0.248
Leitch, R	ECON	201	Principles of Microeconomics	3	215	0.806
Leitch, R	ECON	201	Principles of Microeconomics	3	228	0.855
Mack, L	ECON	202	Principles of Macroeconomics	3	158	0.593
Garosi, J	ECON	202	Principles of Macroeconomics	3	27	0.101
Gustafson, C	ECON	202	Principles of Macroeconomics	3	106	0.398
Gustafson, C	ECON	202	Principles of Macroeconomics-DCE	3	69	0.259
Wachenheim, C	AGEC	244	Agric Mktg, Livestock Emphasis	3	108	0.405
Mack, L	AGEC	246	Agricultural Finance I	4	36	0.180
Mack, L	AGEC	246	Agricultural Finance I	4	38	0.190
Herren, R	ECON	324	Money&Banking	3	47	0.259
Herren, R	ECON	324	Money&Banking	3	50	0.276
Nganje, W	ECON	341	IntermedMicro	3	48	0.265
Garosi, J	ECON	343	IntermedMacro	3	51	0.281
Miljkovic, D	AGEC	344	Agricultural Price Analysis	3	30	0.165
Nganje, W	AGEC	346	Agricultural Finance II	3	37	0.204
Wachenheim, C	AGEC	350	AgriSales Online	3	45	0.248
Hearne, R	AGEC	360	International Agribus Exp.	3	1	0.006
McKee, G	AGEC	374	Cooperatives	3	26	0.143
Saxowsky, D	AGEC	375	Ag Law	3	3	0.017
Hearne, R	AGEC	379	Study Tour Abroad	1	7	0.013
Devuyst, E	AGEC	420	Integrated Farm/Ranch Mngmt.	3	47	0.259
Gustafson, C	AGEC	446	Agribusiness Finance	3	11	0.061
Saxowsky, D	ECON	452	Food Laws & Regulations	3	2	0.011
Herren, R	ECON	456	History of Economic Thought	3	20	0.110
Lim, Siew	ECON	480	Industrial Organization	3	15	0.083
Taylor, R	ECON	484	Agricultural Policy	3	23	0.127
Leitch, R	AGEC	496	Field Experience	2	1	0.004
DeVuyst, C	AGEC	496	Field Experience	2	1	0.004
Herren, R	ECON	656	History of Economic Thought	3	1	0.010
Lim, Siew	ECON	680	Industrial Organization	3	1	0.010
Kaitibie, S	AGEC	739	Analytical Methods	1	14	0.024
Wachenheim, C	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	6	0.021
DeVuyst, C	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	6	0.021
Wilson, W	AGEC	744	Agbus I: Ag PR Mktg/Agbus Str	3	6	0.021
Lim, Siew	ECON	793	Individual Study/Tutorial	3	1	0.010
Totals				SCH:	5580	7.923

Instructor	Prefix	Course	Course Title	Credits	Students	FTEs
Fall 2005						
Lim, Siew	ECON	105	Elements of Economics	3	127	0.476
Gustafson, C	ECON	105	Elements of Economics	3	123	0.461
Gustafson, C	ECON	105	Elements of Economics-DCE	3	13	0.049
Leitch, B	ECON	201	Principles of Microeconomics	3	236	0.885
Mack, L	ECON	201	Principles of Microeconomics	3	227	0.851
Leitch, R	ECON	201	Principles of Microeconomics	3	29	0.109
Gustafson, C	ECON	202	Principles of Macroeconomics	3	141	0.529
Gustafson, C	ECON	202	Principles of Macroeconomics-DCE	3	27	0.101
Mack, L	ECON	202	Principles of Macroeconomics	3	169	0.634
Leitch, R	ECON	220	World Agricultural Development	3	30	0.113
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	41	0.205
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	37	0.185
Devuyst, E	AGEC	242	Intro/Agricultural Management	4	25	0.125
Herren, R	ECON	324	Money & Banking	3	52	0.287
Lambert, D	AGEC	339	Quant Methods & Decision Making	3	28	0.154
Lambert, D	AGEC	339	Quant Methods & Decision Making	3	10	0.055
Lim, Siew	ECON	341	Intermediate MicroEconomics	3	57	0.314
Saxowsky, D	AGEC	342	Agbusiness Mgmt I	3	18	0.099
Garosi, J	AGEC	347	Principles of Real Estate	3	40	0.221
Garosi, J	BUSN	347	Principles of Real Estate	3	34	0.188
Saxowsky, D	AGEC	375	Applied Agriculatural Law	3	61	0.336
Wilson, W	AGEC	444	Crops Marketing	3	13	0.072
Wilson, W	AGEC	445	Agribusiness Industry Strategy	3	11	0.061
Vachal, K	ECON	461	Economic Development	3	15	0.083
Herren, R	ECON	465	Labor Economics	3	20	0.110
Koo, W	ECON	472	International Trade	3	17	0.094
Hearne, R	ECON	481	Natural Resource Economics	3	17	0.094
DeVuyst, C	ECON	491	Sr Agribusiness Seminar	2	7	0.026
Gustafson, C	AGEC	494	Economic Research	3	1	0.006
Leitch, R	AGEC	496	Field Experience	3	1	0.006
Wilson, W	AGEC	644	Crops Marketing	3	2	0.021
Herren, R	AGEC	665	Labor Economics	2	1	0.007
Koo, W	AGEC	672	International Trade	3	3	0.031
Hearne, R	ECON	681	Natural Resource Economics	3	4	0.042
Lambert, D	ECON	701	Research Philosophy	3	14	0.146
Miljkovic, D	ECON	710	Econometrics	3	17	0.177
Hearne, R	AGEC	741	Adv Microeconomics	1	15	0.052
Wilson, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.024
Devuyst, C	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.024
Nganje, W	AGEC	746	Agbus 11/AgFin/Comm Tra	3	7	0.024
Wilson, W	AGEC	791	TTT/Spreadshst Dec Models	1	7	0.024
Totals				SCH:	5156	7.547

G. OTHER RELEVANT DATA AND MATERIALS

Fiscal Year 2007		Appointment		
		Extension	College	Station
<u>Faculty</u>				
1 Professor and Chair	Lambert,David	0.05	0.10	0.85
2 Associate Professor	Devuyst,Cheryl		0.30	0.70
3 Associate Professor	Devuyst,Eric		0.35	0.65
4 Professor	Flaskerud,George	1.00		
5 Assistant Professor	Garosi,Justin		0.80	0.20
6 Professor	Gustafson,Cole		0.80	0.20
7 Assistant Professor	Hearne,Robert		0.20	0.80
8 Professor	Herren,Robert		1.00	
9 Professor	Koo,Won W		0.10	0.90
10 Professor	Leistriz,F Larry			1.00
11 Assistant Professor	Lim,Siew Hoon		0.80	0.20
12 Assistant Professor	McKee,Gregory		0.35	0.65
13 Associate Professor	Miljkovic,Dragan		0.30	0.70
14 Associate Professor	Nganje,William		0.50	0.50
15 Associate Professor	Petry,Timothy	1.00		
16 Professor	Rathge,Richard			0.53
17 Associate Professor	Saxowsky,David		0.50	
18 Associate Professor	Wachenheim,Cheryl		0.40	0.60
19 Professor	Wilson,William		0.30	0.70
<u>Lecturers/Specialists</u>				
1 Senior Lecturer	Leitch,Rebecca		1.00	
2 Lecturer	Mack,Lawrence		1.00	
1 Extension Specialist	Aakre,Dwight	1.00		
2 Extension Specialist	Swenson,Andrew	1.00		
3 Extension Specialist	Tweeten, Kathy	1.00		
<u>Research Support</u>				
1 Assistant Research Professor	Baek,Jungho			1.00
2 Research Scientist	Bangsund,Dean A			1.00
3 Research Scientist	Dahl,Bruce L			1.00
4 Research Scientist	Hodur,Nancy			1.00
5 Research Scientist	Mattson,Jeremy			1.00
6 Research Scientist	Taylor,Richard			1.00
7 Assistant Research Professor	Zhuang,Renan			1.00

		Extension	Appointment College	Station
Professional Support				
1	Information Processing Specialist		0.05	0.95
2	Information Processing Specialist	0.70		
3	Information Processing Specialist		0.35	0.65
4	Administrative Assistant		0.05	0.95
5	Administrative Secretary	1.00		
6	Administrative Secretary		0.25	0.75
7	Information Systems Technician		0.25	0.75

Impacts and relevance of departmental research, teaching, and extension

Research and Extension. Please refer to highlights of departmental research and extension creative activities.

Teaching. Please refer to sections of teaching activities, pages 4-10, and the course information detailed in section F.

Appendix I. AY06-07 Assessment Report

This year's assessment focused on career skills required of entry level students by agribusiness firms. Last year's assessment report included rankings of desired skills resulting from a national survey of agribusiness companies. Results of the national survey were compared with subjective assessments of student skills in Agribusiness and Agricultural Economics by instructors in the Department's senior level capstone courses.

This year's assessment continues the assessment of career training of students in the College of Agriculture, Food Systems, and Natural Resources.¹ On-campus recruiters for 36 agribusiness companies were asked to rank the importance of various skills in hiring decisions of their companies. The importance to the companies of the skills was then compared with perceived levels of attainment of the different skills by students the companies have hired from NDSU.

The approach was developed by the Department's Undergraduate Program Committee. The survey instrument was designed by members of the committee and administered both to recruiters spending time within the Department in the early fall of 2006, as well as companies participating in the 2006 Ag Career Fair held in October 2006. This report summarizes the findings of the employer survey of student skills.

Background

The focus of the assessment report submitted September 1, 2005 was on subject matter skills of seniors in the Agribusiness and Agricultural Economics majors. Subjective assessment of student outcomes in communications, analytical ability and subject matter expertise was submitted by instructors of the Department's capstone courses.

Student mastery of communication skills, especially oral communications, working in teams, and preparing professional presentations and reports, was rated highly. Recommended actions in the 2005 report were to continue emphasis on student communication skills, and provide increased opportunities for students to develop their writing skills. Recent changes adopted in the NDSU Communications general education requirements are expected to help improve our students' communications skills.

Instructor assessment of analytical skills indicated areas where improvement was necessary. Weaknesses noted in student mastery of some skills, such as risk analysis and statistical analysis of economic data, led to modification of AGECE 339 and AGECE 346 in AY06 to provide a full year of training in deterministic and stochastic decision modeling and analytical methods. A related development was the addition of a new course, ECON 410 (Econometrics), in the fall of 2006.

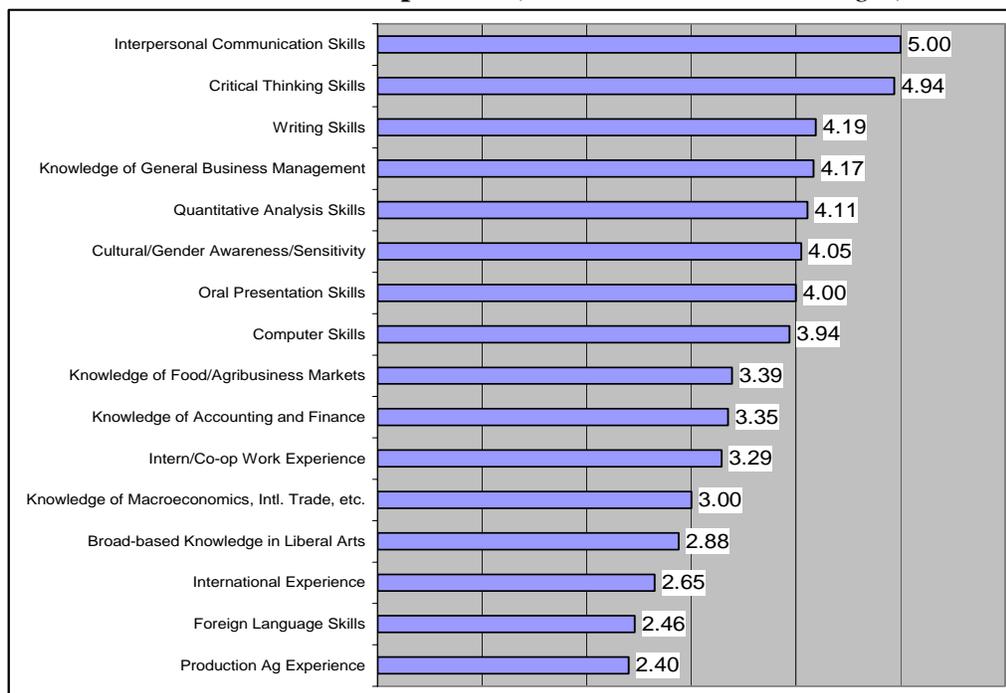
Assessment of subject matter expertise in the 2005 report focused on business management skills and knowledge of agricultural and food sciences. Subjective assessment indicated satisfactory achievement of skills in both areas. One concern was expressed that increasing the flexibility of the programs of study for both the Agribusiness and the Agricultural Economics degrees could

¹ Companies included in the survey were hiring from all majors within the College. Analysis of a subsample of companies indicating primary interest in Agribusiness or Agricultural Economics majors did not result in significant differences in either skills desired or skills achieved by new employees.

reduce student enrollment in some courses offered in the Department or in rigorous business or agricultural sciences courses.

The design of the 2005 assessment process was to compare the subjective assessment of student skills in our capstone courses to skill identified in a national survey of agribusiness firms by Boland and Akridge to identify skills and capabilities sought by firms in hiring new employees. The conclusions from this report are presented again here:

Figure 1. Skills sought in new hires with the potential to become future company leaders: 5 = essential to 1 = unimportant (Source: Boland and Akridge²).



Boland and Akridge’s traits were categorized into four areas in the 2005 assessment report:

- Communication Skills
- Analytical Ability
- Subject Matter Knowledge
- “Benefits of a Liberal Education”

Figure 1 indicates that significant importance was placed on specific elements within each of the four major categories. Communication skills were probably the most important, with critical reasoning, quantitative analysis, and computer skills also rating highly. Subject matter expertise, including business management, knowledge of markets, and accounting and finance expertise, were important. The nebulous category indicating exposure to a broad range of educational and experiential opportunities included awareness of human resource concepts, sensitivity to diversity, international experience, and a broad-based knowledge in the liberal arts were also important in agribusiness careers.

² Boland, M.A. and J.T. Akridge. “Undergraduate Agribusiness Programs: Focus or Falter?” *Review of Agricultural Economics*. 26(Winter 2004):564-578.

The AY06-07 Assessment

National assessment of the importance of specific skills in agribusiness hiring decisions was provided in the Boland and Akridge *Review of Agricultural Economics* article.³ An objective assessment of students in Agribusiness and Agricultural Economics capstone courses was provided by faculty and formed the basis for the 2005 Departmental Assessment Report. Efforts to determine job force preparation of students in the Department continued with assessment activities in 2006 focusing on comparing skills and abilities desired by agribusiness firms when hiring new employees with the actual skills and abilities NDSU students bring to their new positions.⁴

Discussions were held with representatives from 36 agribusinesses in the fall of 2006. Several firms spent time in the Department visiting classes and talking to faculty and students about their firms. Other discussions were held with company representatives in the Memorial Union during the Sigma Alpha Ag Career Day held on October 17th.

Consistent with the categorization used in Boland and Akridge, skills in the 2006 survey were clustered under three main categories: (1) Quantitative Skills; (2) Communication and Qualitative Reasoning Skills and Experiences; and (3) Agriculture Specific Skills.

Employers were asked to rate skills within the three categories. Each skill was rated in terms of: (1) the companies desire that new employees will have mastered the skill; and (2) actual mastery of the skills by NDSU graduates hired by their companies. Answers were given on a 1 to 5 point scale, where 1 indicated the skills were of very low importance and 5 indicated a very high level was either sought or were brought to the positions by their new hires.

Results indicated the relative desirability of each skill within the three major categories. In addition, analysis of variance procedures determined if statistically significant gaps existed between the desired level of skill achievement and perceptions of actual skill levels of new hires. Gaps would indicate areas in which departmental (and College) efforts could be increased to enhance the value of NDSU graduates to agribusiness recruitment efforts.

Quantitative Skills

The highest ranked skill desired by employers within the quantitative skill set is an employee's ability to quantify and manage risk (table 1 and figure 2). Employers rated this skill an average 3.85 in importance. An assessment by the different companies of the actual ability of recent hires to quantify and manage risk was 3.48. Although desirability exceeded achievement by a difference of 0.37, the difference in the means was not statistically different. From table 1, the p-value, or the probability that a hypothesis of equal means should not be rejected, was 0.085. This is greater than the margin of 0.05 normally used to justify rejection of a null hypothesis. The discrepancy between desired and actual is the greatest for this skill among all of the quantitative skills assessed. The importance, and the reported skill gap, indicates that modifying

³ The final report of the National Food and Agribusiness Management Education Commission was published in December of 2006 and is available at:

<https://www.agecon.purdue.edu/cab/NFAMEC/NFAMEC%20Final%20Report.pdf>

⁴ Firms surveyed hired students from different agricultural disciplines at NDSU. Consequently, assessment of the specific skills of graduates from just the Department of Agribusiness and Applied Economics could not be isolated.

AGEC 346 to *Applied Risk Analysis* in 2006 was appropriate, and that emphasis in the class should be on improving student skills in techniques to quantify and manage risk.

Table 1. Quantitative Skills - Employer ratings of skills desired in new employees and actual achievement of new hires. *P-values* correspond to test of the hypothesis of equal means of desired and actual skill achievement.

<i>Ability to Quantify and Manage Risks</i>			
	Desired	3.85	<i>P-value</i>
	Actual	3.48	0.0850
<i>Spreadsheet Usage</i>			
	Desired	3.71	<i>P-value</i>
	Actual	3.62	0.6378
<i>Financial Performance/Ratio Analysis</i>			
	Desired	3.64	<i>P-value</i>
	Actual	3.48	0.4934
<i>Demand/Supply and Economic Analysis</i>			
	Desired	3.54	<i>P-value</i>
	Actual	3.42	0.6216
<i>Game Theory and Marketing Strategy</i>			
	Desired	3.41	<i>P-value</i>
	Actual	3.40	0.9577
<i>Operations Research</i>			
	Desired	3.16	<i>P-value</i>
	Actual	3.11	0.8342
<i>Regression Analysis</i>			
	Desired	2.71	<i>P-value</i>
	Actual	2.75	0.8710

The ability to use spreadsheets is the second most desired skill sought by employers. Concentration on spreadsheet usage in all applied classes in the Department, as well as increasing development of computer skills in K-12 education, probably contributed to the insignificant gap between desired and actual computer skill levels.

The next three categories (financial performance and ratio analysis, understanding markets and economic analysis, and game theory and marketing strategies) were rated about the same in importance by the respondents. Although actual skills were lower than desired, the differences in all three skills were not statistically significant based on the ANOVA results.

Operations research methods and regression analysis underlie much of the course material in upper division courses in Agribusiness and Applied Economics. Courses in regression methods, either STAT 331 or the new Econometrics course, ECON 410, are required in all three of the majors offered in the Department. Neither operations research nor regression analysis skills were rated as highly by survey respondents as the first five quantitative skills. At least two hypotheses may explain these results. First, operations research and regression methods are not

used by new hires in the 36 agribusiness firms included in the survey, and hence are not important in hiring decisions. A second hypothesis might be based on misunderstanding of the survey questions. It is possible that the use of operations research in agricultural logistics management, for example, or the central role of regression in statistical demand and supply forecasting, cost estimation, etc. was not explained to respondents so uncertainty or misunderstanding over the application of these quantitative skills clouded the responses.

Conclusions: Employers reported different levels of importance on various quantitative skills required of new employees. The ability to quantify and manage risk was rated as most important. This is not a surprising result given the important role of uncertainty in agricultural and food production and markets. Student understanding of risk and risk management could be improved based on the gap between desired and actual levels of achievement for this skill. The importance of spreadsheet skills supports continued reliance on computer labs in courses offered in the Department. In general, results indicate that student achievement of the seven quantitative skills was satisfactory given the insignificance of the gaps between desired and actual levels of the skill among potential new employees.

Communication and Qualitative Reasoning Skills and Experiences

Subjective assessments in the 2005 report indicated instructors in the Department's capstone courses were satisfied with their students' public speaking and verbal presentation skills. This year's survey results dispute last year's results. Respondents to the employer survey place high values on communication and qualitative reasoning skills, similar to Boland and Akridge's findings. Desirability for team work, critical thinking, verbal reasoning, and public speaking and writing skills were all rated at 4.0 or higher by employers (table 2 and figure 3). However, analysis of variance results indicate statistically significant gaps between desired and actual skills among new employees in most of the communication skills category. Exceptions include an insignificant gap between desired and actual skill achievement in relevant work experience and cultural awareness of our students.

Conclusion: Last year's assessment report concluded that additional focus was needed on improving writing skills throughout the curriculum. Employer responses support this conclusion, yet further add that oral presentation skills, team work, people skills, and other skills essential for effectively working with others must be stressed. Many courses in Agribusiness and Applied Economics require team projects, oral and written reports, and application of analytical methods and critical thinking to problems in finance, marketing, farm management, and agribusiness strategy. The Undergraduate Program Committee will develop procedures to assess the quality of these student skills within the context of specific classes during the current and the 2008 academic years.

Table 2. Communication and Qualitative Reasoning Skills and Experiences.

<i>Team Work and People Skills</i>			
Desired	4.43	<i>P-value</i>	
Actual	3.94		0.0237
<i>Critical Thinking Skills</i>			
Desired	4.40	<i>P-value</i>	
Actual	3.68		0.0030

<i>Verbal/Analytical Reasoning</i>			
Desired	4.22	<i>P-value</i>	
Actual	3.77		0.0327
<i>Public Speaking Skills</i>			
Desired	4.08	<i>P-value</i>	
Actual	3.50		0.0133
<i>Writing Skills</i>			
Desired	4.00	<i>P-value</i>	
Actual	3.42		0.0034
<i>Intern/Work Experience</i>			
Desired	3.90	<i>P-value</i>	
Actual	3.78		0.5882
<i>Negotiation Skills</i>			
Desired	3.77	<i>P-value</i>	
Actual	3.23		0.0464
<i>Cultural Awareness</i>			
Desired	3.64	<i>P-value</i>	
Actual	3.56		0.7569

Agribusiness Specific Skills

The national survey conducted by Boland and Akridge reported differences in the importance of agribusiness and agricultural skills in the career success of potential company leaders. For example, knowledge of food and agribusiness management, markets, and finance were rated between 3.35 and 4.17, indicating a relatively strong role of these skills in employee success (table 3 and figure 4). Conversely, experience in production agriculture was the least important of the 16 skills rated in the Boland and Akridge study.

Results from surveying employers at the Ag Career Day Fair found employers had a stronger desire for new employees to be knowledgeable production agriculture. The importance of production agriculture knowledge was rated 3.97, less than the most desired communication and qualitative reasoning skills, but reflecting a mean higher than the desirability of any of the quantitative skills assessed. This result probably reflects the strong programs in agriculture for which North Dakota State University is known, with a result that firms participating in the Ag Career Day Fair are largely interested in hiring new professionals in agricultural and agribusiness operations and management. Companies surveyed were involved in crop and animal science, biofuels and food processing, farm management consulting, agricultural equipment manufacturing and sales, and agricultural finance. Knowledge of production agriculture would appear to complement a new employee's quantitative and communication skills in these areas.

Table 3. Agribusiness Specific Skills.

<i>Knowledge of Production Agriculture</i>		
Desired	3.97	<i>P-value</i>
Actual	3.86	0.6434
<i>Logistics</i>		
Desired	3.14	<i>P-value</i>
Actual	3.09	0.8557
<i>Hedging Strategies</i>		
Desired	2.84	<i>P-value</i>
Actual	2.87	0.9143
<i>Food Safety and Quality Control</i>		
Desired	2.64	<i>P-value</i>
Actual	2.90	0.4868
<i>Grain Grading and Marketing</i>		
Desired	2.34	<i>P-value</i>
Actual	2.36	0.9530

Additional agribusiness skills included in the survey reflect areas of study emphasized in the department's programs of study. The low levels of importance placed on these narrowly defined skills probably reflect the breadth of companies included in the survey. For example, grain grading and marketing skills received a 1 by a firm involved in swine production, but was rated a 5 by an agricultural processing company. A frozen food processing company rated "Food Safety and Quality Control" a 5, yet the financial service agencies all gave this skill a 1 in importance for new employees. Apparently cross-cutting skills, such as critical thinking, team work, and speaking and writing proficiency are uniformly rated higher by this diverse group of respondents.

Respondents appeared satisfied with the level of production agriculture knowledge of new employees hired from NDSU. The high p-values reported in table 3 correspond to statistically insignificant differences between desired and actual skill levels of new employees. NDSU students hired by the companies do bring a level of production agriculture knowledge to their new jobs comparable to the levels desired by their new employers. Although rated lower in terms of importance to the full sample, assessment of actual skills of new hires in the other four categories under job-specific skill sets were also indistinguishable from levels desired by the companies.

Conclusions: Knowledge of production agriculture is a valued attribute for students hired by companies represented at the 2006 Ag Career Day. Assessment of student achievement of production agriculture knowledge was comparably high, reflecting the number of NDSU students having farm experience, as well as the concentration on production agriculture in the various programs of study offered in the CAFSNR. Student achievement of specific skills, such as knowledge of hedging strategies, were not rated uniformly highly by the respondents, probably reflecting the diversity of careers represented among the participating agribusiness firms. However, assessment of actual student achievement in acquiring these specific skills indicates that CAFSNR programs are doing well in matching students for specific labor market niches.

Conclusions

The Undergraduate Program Committee oversaw the assessment of student job skills by surveying companies recruiting for new employees in the fall of 2006. Results indicate that student preparation matched employer needs for specific skills grouped within the broad categories of Quantitative Skills and Agribusiness Specific Skills. Results support continued emphasis in the Department's courses on technical training supporting these skill sets.

Much research supports the importance of communication and interpersonal skills in agribusiness careers. The desirability of companies to hire students having these skills was supported by the research results. Statistically significant gaps between company desires and actual communication and interpersonal skills of new hires indicate a need to further stress these skills in our undergraduate program. It is hoped that incorporating and enforcing the upper division requirement in writing proficiency taking effect in the fall of 2007 will improve student writing skills. Continued emphasis on oral presentation skills is needed in the Department's classes, and objective assessment measures will be developed by the Undergraduate Program Committee as part of the AY07-08 assessment procedures.