

**ANNUAL REPORT**  
**RESEARCH PROGRAM**  
**2012/13**

Department of Agricultural and Applied Economics  
College of Agricultural Sciences and Natural Resources  
Texas Tech University

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Compiled by

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## General Summary

This report highlights research and related outreach activities of the Department of Agricultural and Applied Economics - Texas Tech University during fiscal year 2012/13. The overall research program of the Department of Agricultural and Applied Economics has been characterized by its flexibility in addressing varied issues of economic significance and is applied in nature, although there are strong disciplinary elements within it. We allocate slightly over one-third of departmental full-time faculty resources to research (approximately 6.00 FTEs out of 16.00 FTEs on a 12 -month basis), including our two 25% research appointments with the Texas AgriLife Research– Lubbock, Texas A&M University. Research projects in the department cover a wide range of subject matter areas: production economics (including finance and risk management), market economics, natural resource (including environmentally related issues) economics, international economics, economic policy analysis, and consumer economics.

Fiscal year 2012/13 was a busy year for research activity in Agricultural and Applied Economics. In FY 2012/13 a total of 53 individual research projects were active in the department. Appendix A contains the individual annual progress reports of each active research project in fiscal year 2012/13. Our research program continues being quite diverse reflecting the varied interests and expertise of the faculty. Also, the overall research program continues to possess a good balance among state, regional, national and international research projects.

Total funding secured by faculty in the department for research projects carried out in fiscal year 2012/13 was \$1,264,623 (Table 1), a 25% reduction when compared to the \$1.69 million level of FY12. The single most important reason for this significant drop in funding was due to the fact that we did not receive funding for our federally funded global cotton research program. Although funds for this program have been appropriated for some time, they have yet to be distributed. Details regarding the funding of specific research projects in 2012/13 are provided in both Appendix A and B. Of the over \$1.26 million research expenditures in 2012/13, slightly over 56% came from state sources, slightly over 22% came from federal sources, and the remaining 23% came from private sources. It is relevant to highlight here that “privately sponsored” funding almost TRIPLED from \$91,795 in 2011/12 to \$261,144 in 2012/13. As depicted in Table 1, and shown in Figures 1 and 2, overall total research funding had been quite stable in the last seven or eight years, until this past year. The three year moving average research funding level has been above \$1.75 million per year for the past eight years.

Research funding represents one aspect of the departmental research program; i.e. one of the inputs required in the research process. The output side is composed of the awarding of graduate degrees, the education of graduate and undergraduate students, and the dissemination of research results. Thus, the teaching and research missions of the department are in numerous ways highly

complementary in nature, and research activity has proven to be quite valuable to our students when they finish their programs.

Before FY 2009/10, an average of 7 graduate degrees had been awarded per year by the department; nearly 5 Master degrees, and slightly more than 2 Ph.D. degrees per year, respectively (Table 2). As shown in Table 2, 2012/13 proved to be a very good year again for the department, in terms of the number of graduate degrees awarded. In FY 2012/13 a total of 14 graduate degrees were awarded: 7 Ph.D. degrees, 4 MAB, and 3M.S. Much of the increase in graduate degrees awarded in the last three or so fiscal years is due to the increased commitment of the departmental faculty towards Texas Tech University's goal of reaching Tier I research status. The department financially supported approximately 35 graduate students from research funds in 2012/13 (we had a total enrollment of 42 graduate students). In addition to graduate student training and degrees awarded, nearly a dozen undergraduate students were supported from research project funds in 2012/13.

Another component of the output side of the research program is the number and quality of publications and presentations. Table 3 presents a summary of the departmental publications and presentations for the 1979/80 to 2012/13 fiscal years. As indicated in Table 3, 2012/13 proved to be the BEST EVER in terms of published journal articles with a total of 53 (over THREE times the number published in 2011/12, and almost TWICE as many as the two previous best years in 2006/07 and 2010/11 with 27 and 28, respectively). Appendices C and D contain a comprehensive list of all the 2012/13 publications and presentations, respectively.

The department uses a research advisory committee for perspective in guiding the development of the program. Committee members are identified in Appendix F, and a summary of the advisory committee meeting held in Fall 2012 is provided in Appendix E.

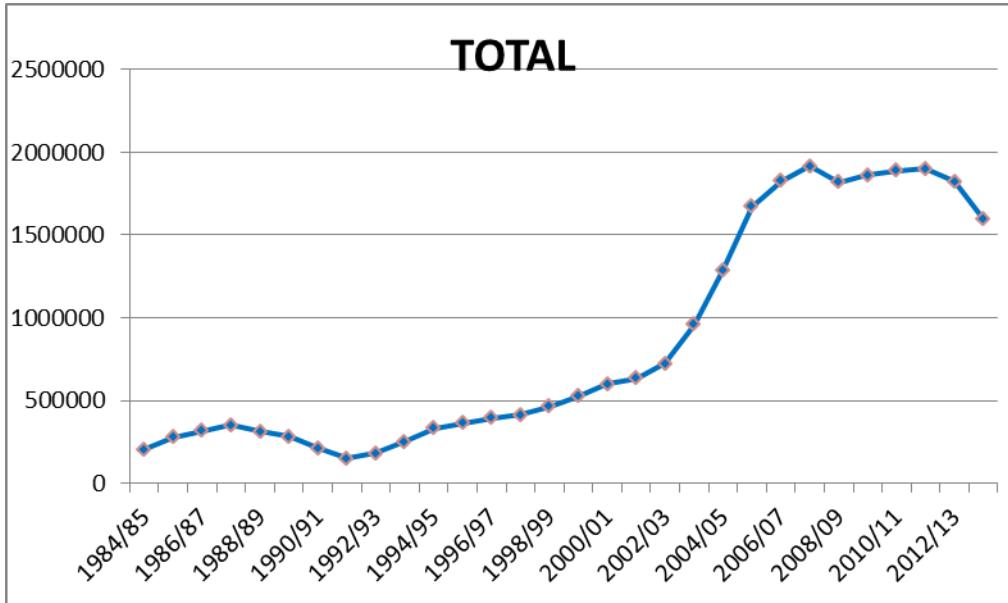
The remainder of the report provides an overview of research activities and accomplishments of several identifiable major components or thrusts of the overall research program. These thrusts are (a) the Cotton Economics Research Institute, (b) the Larry Combest Agricultural Competitiveness Endowed Chair; (c) the Thornton Agricultural Finance Institute, (d) the Risk Management/Crop Insurance initiative, (e) the Center for North American Studies – Texas Tech Component, and (f) the Water Resource Economics initiative.



Table 1. Department of Agricultural and Applied Economics Research Funding by Source, 1981/82 to 2012/13 (in dollars)						
Year	State	Federal	Private	Total		
1981/82	148,983	2,000	27,180	178,163		
1982/83	127,105	19,424	19,650	166,179		
1983/84	167,660	70,413	29,687	267,760		
1984/85	164,292	174,065	68,837	407,194		
1985/86	165,413	80,067	33,381	278,911		
1986/87	173,392	138,077	54,400	365,869		
1987/88	123,265	155,202	22,700	301,167		
1988/89	102,134	78,533	0	180,667		
1889/90	99,531	57,700	3,000	160,231		
1990/91	72,221	25,000	12,525	109,746		
1991/92	109,437	40,000	123,475	272,912		
1992/93	171,429	75,379	121,825	368,633		
1993/94	115,776	130,699	106,250	352,725		
1994/95	197,947	60,054	109,686	367,687		
1995/96	251,932	145,576	64,500	462,008		
1996/97	236,607	104,377	67,400	408,384		
1997/98	287,576	116,750	121,232	525,558		
1998/99	302,788	116,239	227,016	646,043		
1999/00	371,803	126,400	130,705	628,908		
2000/01	322,057	203,386	109,734	635,177		
2001/02	349,003	457,508	95,508	902,407		
2002/03	547,904	787,186	89,321	1,342,474		
2003/04	256,145	1,258,791	93,072	1,608,008		
2004/05	225,835	1,740,348	104,167	2,070,350		
2005/06	281,205	1,406,603	113,416	1,801,224		
2006/07	443,437	1,381,152	45,233	1,869,922		
2007/08	812,706	942,682	30,167	1,785,555		
2008/09	608,033	1,214,264	104,114	1,926,411		
2009/10	659,067	1,259,125	32,069	1,950,261		
2010/11	659,574	1,117,118	46,810	1,823,502		
2011/12	730,582	867,647	91,795	1,690,024		
2012/13	716,052	287,427	261,144	1,264,623		

\* The total reflects funding of the specific research projects (in Appendix A), funding associated with cooperative research projects, and other departmental research activities.

**Figure 1. 3 Yr. Moving Average of Total Funding**



**Figure 2. 3 Yr. Moving Average of State and Federal Funding**

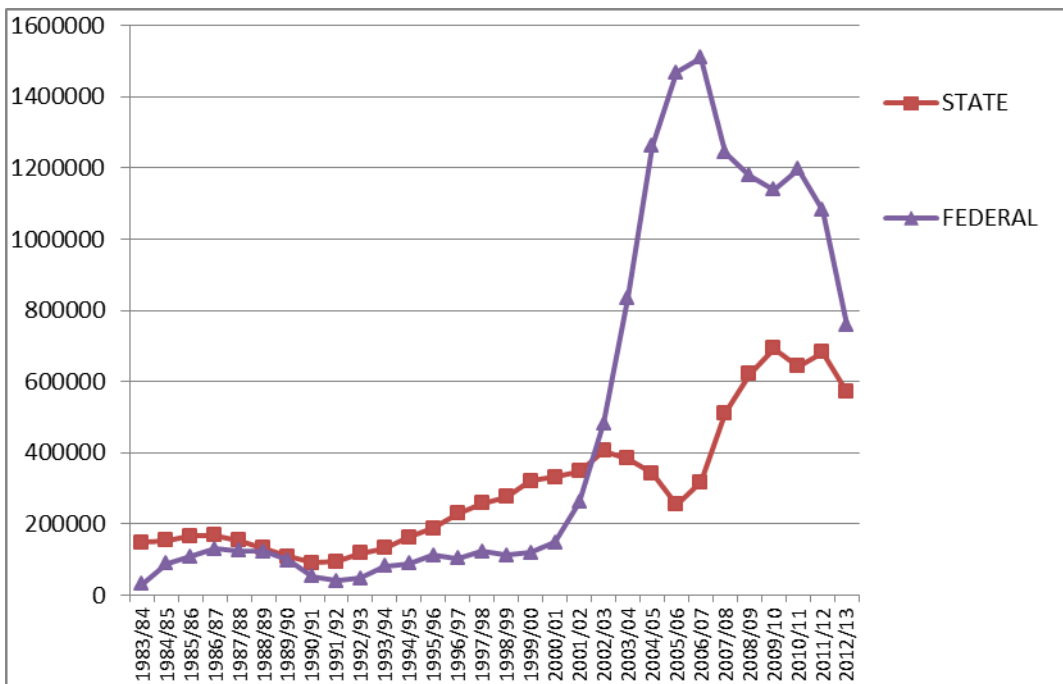


Table 2.		Graduate Degrees Awarded, Department of Agricultural and Applied Economics, 1982/83 to 2012/13				
Year	Master of Agribusiness	Master of Agriculture	Master of Science	Ph.D.		
1982/83	0	1	5	1		
1983/84	0	0	3	0		
1984/85	0	1	3	1		
1985/86	0	3	10	0		
1986/87	0	0	8	0		
1987/88	0	1	6	3		
1988/89	0	1	5	4		
1989/90	0	0	5	0		
1990/91	0	0	5	0		
1991/92	0	1	5	4		
1992/93	0	2	4	1		
1993/94	0	4	5	3		
1994/95	0	1	3	2		
1995/96	0	2	5	2		
1996/97	0	3	5	2		
1997/98	0	0	4	0		
1998/99	0	0	4	2		
1999/00	0	1	3	0		
2000/01	0	0	3	1		
2001/02	0	1	4	0		
2002/03	0	1	3	2		
2003/04	0	0	5	2		
2004/05	0	0	4	2		
2005/06	0	1	6	1		
2006/07	1	0	3	3		
2007/08	0	0	4	3		
2008/09	0	0	6	1		
2009/10	3	1	8	6		
2010/11	3	0	6	2		
2011/12	4	0	10	5		
2012/13	4	0	3	7		

Table 3. Department of Agricultural and Applied Economics Publications and Presentation, 1979/80 to 2012/13							
Year	Journal Articles	Books & Chapters	Technical Res. Reports	Proceeding Papers	Abstracts	Presentation	
1979/80	1	0	5	1	2	3	
1980/81	3	2	9	4	2	5	
1981/82	4	5	10	2	1	4	
1982/83	5	6	9	4	3	3	
1983/84	5	1	10	6	5	2	
1984/85	4	1	19	3	13	6	
1985/86	11	4	16	5	13	8	
1986/87	6	1	16	8	8	7	
1987/88	12	3	9	8	9	10	
1988/89	11	3	3	5	5	9	
1989/90	9	0	3	4	9	12	
1990/91	14	2	4	5	10	19	
1991/92	7	1	6	12	11	17	
1992/93	9	3	1	9	14	10	
1993/94	5	2	15	17	9	7	
1994/95	7	1	16	16	19	21	
1995/96	10	1	3	28	8	12	
1996/97	9	0	14	17	9	22	
1997/98	9	0	11	12	4	23	
1998/99	18	1	14	11	2	16	
1999/00	14	3	16	13	3	12	
2000/01	15	3	18	21	1	24	
2001/02	16	0	19	18	26	8	
2002/03	23	7	14	12	8	4	
2003/04	19	1	13	23	11	13	
2004/05	16	1	7	16	5	16	
2005/06	21	5	16	11	10	33	
2006/07	27	2	11	11	7	32	
2007/08	20	0	8	16	4	23	
2008/09	20	1	10	8	11	42	
2009/10	21	2	7	17	14	41	
2010/11	28	1	9	19	26	38	
2011/12	17	1	2	18	16	46	
2012/13	53	1	4	10	20	21	

## **Cotton Economics Research Institute**

The Cotton Economics Research Institute (CERI) coordinates and fosters economic research activities on all aspects of cotton within Texas Tech University and with other research entities. The primary focus is on economic matters, but we collaborate and cooperate with other research efforts, both economic and non-economic in their primary intent. CERI focuses both on conducting research and the dissemination of research results to users. Within CERI, the following topics/issues are addressed on a regular basis: production and management, processing, manufacturing, transportation, pricing and marketing, and trade and policy analysis. The policy component of the program has become a more prominent part of CERI's activities.

### Summary of CERI Activities

CERI has not received federal funding for two consecutive years, although new funding is expected this year. However, through funding by Cotton, Inc. and other sources, we were able to continue on-going projects. Two important projects completed were estimation of textile demand in China (a joint project with the Economic Research Service) and we completed a four year USDA project on Brazil. This project culminated with a study abroad class for students. A total of 13 students traveled to Brazil for a two-week agricultural tour. Results of other projects related to CERI are outlined in the publications and output sections of this report.

### **Larry Combest Agricultural Competitiveness Endowed Chair**

The Larry Combest Endowed Chair in Agricultural Competitiveness (Chair) was endowed and filled in August 2008. Dr. Darren Hudson was named the initial chair holder at that time.

1. The Chair is supporting two Ph.D. students examining the future water issues related to agricultural productivity and profitability on the High Plains and the interaction between managers and boards of directors in cooperatives and their performance relating to merger and acquisition activities.
2. Other on-going research is related to land value, managerial/board relations and firm performance in cooperatives, and edible oil demand in Europe.
3. The Chair along with Dr. Jeff Johnson are working on a joint relationship with the United States Military Academy in the area of agricultural economic development and conflict mitigation in Africa and beyond. Hudson and Johnson will be guest lecturing at West Point in the spring and a joint development tour is planned with USMA cadets and Texas Tech students.

## **Thornton Agricultural Finance Institute**

The mission of the Thornton Agricultural Finance Institute is to focus faculty research on important topics regarding agricultural finance, provide support for courses and research in agricultural finance and related areas, and facilitate public service functions related to agricultural finance and banking. Dr. Phillip Johnson is the Director of the Thornton Agricultural Finance Institute.

In FY 2012/13, the institute conducted activities in both the research and service areas. The following sub-sections summarize the activities in those areas.

### Research

The Institute provides a focus for research on important topics in agricultural finance which is a broad area that relates to a number of research projects within the Department of Agricultural and Applied Economics, the College of Agricultural Sciences and Natural Resources and the College of Business Administration.

Research projects sponsored by or related to the Institute's mission include:

- An Integrated Approach to Water Conservation for Agriculture in the Texas Southern High Plains
- Texas High Plains Initiative for Strategic and Innovative Management and Conservation

### Service

The Institute co-sponsored the 40<sup>th</sup> Annual Bankers Agricultural Credit Conference in

November, 2012, which addressed issues and topics related to agricultural lending, the agricultural economy, legal and regulatory issues, commodity outlook and other issues of interest to rural bankers and lenders (Appendix I). The conference is directed by a board of directors made up of representatives from area banks as shown in Appendix I. Dr. Phillip Johnson serves on the Texas Agricultural Cooperative Council (TACC) board of directors. He serves on the Executive Board of Directors, is vice-chair of the Services Section, and a member of the Educational and Member Services Committee. Dr. Johnson participated in numerous TACC activities which included Cooperative Director Development Programs, the Managers Conference, and the TACC Annual Meeting.

## **Agricultural Risk Management**

The agricultural risk management initiative at Texas Tech University was launched in 2002 with support of "Excellence" funding from the state of Texas. The status of this research thrust in the Department of Agricultural and Applied Economics was further solidified in 2010, with establishment of the Emabeth Thompson Professorship in Agricultural Risk Management. Dr. Thomas O. Knight was named the first holder of this professorship. A majority of the research activities under the program have focused on improving the performance of the Federal Crop Insurance

Program. Results from several projects conducted under the program have been directly implemented in the Federal Crop Insurance Program. A wide range of other risk management issues have been addressed including climate change, risk management education, and risk mitigating effects of general farm programs.

#### Summary of Activities

In 2012/13 there were no active, funded projects under this initiative. This is a result of Federal budget uncertainties, especially relating to potential research or education initiatives of the Risk Management Agency-USDA. This uncertainty is unlikely to be resolved until a new farm bill is enacted. Work has continued under the initiative in spite of these funding issues. Three research papers were published this year in strong agricultural economics journals. One of these papers examined how procedures used in determining crop insurance yield guarantees affect the benefits of individual yield insurance products to producers. A second project focused on estimating trends and structural change in US insurance loss experience and incorporating this information into rating procedures. A third paper examined methods to account for short samples and heterogeneous loss experience in developing crop insurance premium rates. These research publications are noted with an “R” superscript in Appendix C and presentations are noted with an “R” superscript in Appendix D. Service activities and education/training of students are also important parts of the risk management initiative. The program provided support for one Ph.D. student during the 2012/13 fiscal year.

#### **Center for North American Studies; Texas Tech Component**

The department collaborates in the Center for North American Studies with Texas A&M, Louisiana State, and New Mexico State Universities. The original objectives of the CNAS program were to facilitate trade within NAFTA by conducting applied research and educational outreach on trade issues between the U.S., Mexico, and Canada. The objective was later expanded to other geographical areas, including partnerships in Central America and the Caribbean (CAFTA). TTU responsibilities concentrate on cotton and textiles, grains, and livestock products traded, primarily with Mexico.

Collaboration with other foreign Universities includes Chapingo University in Mexico through faculty and student exchange, data sharing, and joint project design. Cooperation is especially important on policy and trade analysis methodologies and data. A Collaboration agreement was implemented in 2011 with Zamorano, Pan American Agriculture School in Honduras, one of the top agricultural schools in Latin America. This agreement allows for research collaboration on the impacts of the CAFTA-DR free trade agreement between the US and Central American countries, as well as for faculty and student exchange.

CNAS funds were not extended for FY 2013 as part of changes under new legislation. The four University partners involved in the project continue their interaction and cooperation expecting to possibility to access alternative sources of funding in the future. In the meantime, TTU continues some activities established with partner foreign schools. A Master student from Mexico's Chapingo University was hosted for four months to finish her research with TTU. Two Zamorano School students (Honduras) will be coming to our department to perform their last year research under TTU-AAEC faculty supervision. Two department faculty members have been invited to teach short graduate courses at Chapingo University this summer.

### **CASNR Water Center**

A highlight of FY13 was the awarding of the **2012 Save Texas Water Blue Legacy Award in Agriculture to the Texas Alliance for Water Conservation**. The Water Conservation Advisory Council recognizes award winners for successfully promoting and incorporating water conservation through efforts in their operations.

Scientists associated with the CASNR Water Center continue to be involved with research activities in all aspects of water issues related to agriculture and natural resources. Several CASNR scientists are actively involved in the USDA ARS Ogallala Aquifer Program (OAP) which is a multidisciplinary, multi-institutional, multi-state project that is focused on sustaining rural economies through new water management technologies. The projects funded through this program emphasize collaborative research across state and institutional lines that will lead to improvement in water management in irrigation technologies, water management, and agricultural production systems in addition to other areas of study.

Researchers continue to be very active in the Texas Alliance for Water Conservation (TAWC) and working with area producers and other researchers to develop techniques and strategies that will reduce groundwater depletion while maintaining or improving agricultural production and economic activities. The researchers from several CASNR departments work with producers on 24 sites in Floyd and Hale counties through on-farm demonstrations of cropping and livestock production systems. These demonstrations showcase technologies and production practices in a commercial farming setting and illustrate best management practices.

Scientists from the CASNR Water Center were involved in research activities that included 10 refereed journal articles and 17 presentations at multidisciplinary meetings. Funding included 2 projects for a total of \$291,730 in research funding from state and federal sources.



## Summary of Annual Reports

	2009	2010	2011	2012	2013
<b>Research Funds</b>					
<b>External</b>					
Federal (#/\$)	8 / \$742,040	11/\$706,629	1 /\$ 50,000	1/\$60,000	1/\$67,500
State (#/\$)	1 / \$100,000	3 /\$ 73,076	1 /\$ 78,067		1/\$224,230
Other (#/\$)		2 /\$ 95,000	2 / \$111,123		
<b>Publications</b>					
Refereed Journal	3	2	1	1	10
Abstracts	-	-	3	1	-
Proceedings	10	8	15	8	-
Presentations	5	7	2	-	17
Reports	2	1	5	-	-
<b>Theses/Dissertations</b>	4	5	0	-	2

**Recent Significant Research Findings/Impact Statements**  
**Department of Agricultural and Applied Economics**  
**Texas Tech University**

- For farmers who are entering into contracts to grow guar as a new crop, the following attributes were found to be most important in determining whether a farmer will accept the contract: an annual contracts rather than a multiple-year contract, a lower minimum quality threshold with a higher premium for higher quality, a bushel contract rather than an acreage contract, and a harvest delivery rather than a buyer's call. Expected income, provision of inputs and provision of services did not affect the farmer's likelihood of accepting the contract.
  
- The study "Differentiated Products Demand Estimation and its Implications for Price Competition and Welfare Effects: The Case of the Salty Snack Industry" has shown the following:
  - It is important to consider the heterogeneity of consumers when modeling the demand for this product. For instance, high income earners, consumers above 35 years old, and those who have one or more members of the household who are 18 years old and below, and female consumers are shown to be more price sensitive.
  - Consumers generally tend to view calorie per serving of salty snack favorably but higher income consumers and those approaching their 50's, especially those 65 years old and older, exhibit more sensitivity to calorie content.
  - Most consumers value sodium content in a negative way.
  - The analysis on firm strategic pricing behavior indicates that dominating firms such as Frito-Lay and Procter and Gamble exercise some market power under each alternative pricing model.
  - Although P&G potato chip brands have higher prices, on average, their markups are smaller because of the higher marginal costs for these brands, and their brands' higher price elasticities compared to Frito-Lay brands.
  - In terms of model comparison, a cooperative pricing behavior appears to outperform the other models of conduct.
  - Simulating the effects of taxes on the quantity demanded of salty snack products suggests that any of the five scenarios of taxation (5% and 10% ad valorem taxes, specific taxes such as 1 cent, 5 cents, 10 cents per pound) considered in this study leads to a decline in the quantity demanded of the salty snack products, with an ad valorem tax of 10% having the most impact.
  - In terms of the effects of these taxes on consumer welfare, a 10 cent per pound is shown to have the most substantial negative impact on consumer welfare, whereas the other variants of specific tax shows the least impact on consumers, as well as overall welfare.

- The study “Time Series Analysis of the Generation Fuel Mix of Electricity Market in ERCOT Region of Texas” has shown the following:
  - Greater penetration of renewable energy into the electric grid, in other words, the integration of electric grid with renewable sources of energy has led to destabilization of the grid.
  - The intermittent nature of wind has put additional pressure on fossil fuel sources like coal and gas, and has affected their growth and efficiency levels.
  - The past two years, the evolution of the power production pattern from coal and gas has witnessed noticeable swings for different hours of the day and also for different days of the week.
  - Even nuclear power which tends to act as the base load generator for the grid is disrupted with both planned and unplanned repair and maintenance schedules and the associated power deficiency is compensated by coal and gas fired generators.
  
- Price of coal and gas affects the power production pattern depending on whether the fuel had been used for the residential, commercial, or industrial power generation.
  - The study “Female Labor Force Participation in Pakistan and Some MENA countries” has shown the following:
    - Literacy and urbanization rates have positive and statistically significant effect on female labor participation.
    - Fertility rate and per capita GDP have negative effects on female labor participation.
    - Female education and trade openness do not have a statistically significant effect on female labor participation.
  
- Results confirmed that curb appeal has a positive impact on residential house value, with landscape and house appearance approximately equal in impact.
  
- With improved curb appeal, house price can increase up to 17%.
  
- All the prices for a multiple product biorefinery using cotton gin waste as the biomass input are expected to rise over the next 5-15 years.
  
- Short run risks are large however, so installing a small electric power plant and slowly adding products is the best strategy to secure market position.
  
- The shared capital among all products in a multi-product biorefinery implies that electricity is a strong platform as it shows returns of 18-30%. The value added of additional products increases returns to 28-30%

- The spatial adoption of irrigation is largely tied to land type and water availability. This limits the usefulness of traditional “word of mouth” technology diffusion which may mean a limited role for agencies like NRCS or the extension service in fostering future technology adoption decisions.
- Payments for carbon sequestration and carbon taxes will have little impact on the types of crops grown on the High Plains. However, carbon taxes would significantly reduce net farm income. The reason is that there are fewer cropping alternatives on the High Plains compared with other parts of the country.
- Mergers and acquisitions in agricultural and natural resource-based firms tend to be more carefully planned and beneficial to long-term investors as opposed to mergers that benefit managers and executives in other industries.
- In years of low precipitation during the growing season, growing dryland sorghum in clumps can dramatically increase yields and revenue by as much as 70% over planting in spaced rows, but in years of average or greater precipitation during the growing season, the advantages are not as dramatic at 15%.
- A change in irrigation management for cotton on drip systems by increasing volume per application and decreasing frequency increases the wetted volume of soil to enhance root development, which helps plant extract more nutrients and builds a larger root system to take advantage of rainfall events.
- For pivots equipped with Low Elevation Precision Application (LEPA), if the sprinkler heads are in the bubble mode water penetrates deeper in the root zone with lower evaporation rates versus when the sprinkler heads are in the spray mode.
- Data from soil moisture probes show that slowing down a pivot increased the penetration of moisture in the soil profile. This is especially important in dry years when it is difficult to move moisture deeper in the soil profile to facilitate root development.
- Sampling variability due to use of a short time series of historical yields to establish crop insurance yield guarantees has a potential to reduce the benefits producers realize from individual yield and revenue insurance coverage. However, this potential loss in producer welfare is more than offset by use of yield substitution and yield floor provisions which tend to bias insure yields upward.
- Survey results indicate that a majority of crop producers in Mississippi and Texas do not believe that climate change has been scientifically proven.

This skepticism about climate change is less pronounced among producers in North Carolina and Wisconsin. However, even in these latter two states, fewer than 40% of producers either agree or strongly agree that climate change has been proven.

- Fast growing per-capita consumption of meat in China reached 50% of the US equivalent in 2012.
- Under conservative scenarios, China and India's demand for soybeans may exceed current projected supply availability by 2022.
- While the US has been the traditional source of Japanese sorghum imports (+80%), its share of the Japanese market reached its lowest historical record in 2012 (11%) .
- Mexico, the largest importer of US grain sorghum has been continuously increasing its domestic sorghum production since 2000 and importing reduced amounts from the US.
- Ukraine legalized private ownership of land in 1991, shortly after declaring its independence. However, despite the new laws, landowners could not sell or buy land due to a moratorium imposed on the sale of land. As a result of land privatization, 6.9 million citizens became owners of agricultural land shares with an average area of 4 ha. However, the moratorium on the sale of land is still in place. Due to that, leasing of agricultural land has become a common practice among all types of agricultural enterprises in Ukraine.
- Current analysis allows a comparison of technical efficiency (TE) of the Ukrainian crop sector after the passage of 16 years. In 1994, Ukrainian average TE scores were 0.731 (SFA) and 0.836 (DEA) (Murova et al., 2004). In 2010 TE in Ukraine had increased to 0.902 (SFA) and to 0.937 (DEA). This increase in TE shows that there has been progress in more efficient utilization of resources used in crop production. Thus, it can be concluded that production practices are improving and the recent and current economic policies in Ukraine have overall had a positive impact on TE.
- The TE scores vary considerably across Ukrainian regions; however the majority of Ukrainian regions are efficient in crop production. Nine regions in the country operate at levels below the average efficient level of crop production. The underperforming regions include northern regions with low soil fertility and where crops require a longer growing period.
- The results show that an increase in the amount of land leased by all agricultural enterprises decreases inefficiency or increases efficiency. The

category of all agricultural enterprises includes a variety of private, collective, and state enterprises. Many do not have sufficient expertise and means (in terms of equipment and labor) to organize efficient crop production, so they lease their land to other enterprises.

- The average cost of certified emission reductions (CERs) through various types of projects financed under the Clean Development Mechanism (CDM) of the Kyoto Protocol decreases with the project scale and duration, scale and duration effects significantly vary across project types, and there is an upward trend in costs.
- The distribution of the projects in the portfolio of the Clean Development Mechanism (CDM) of the Kyoto Protocol or a given location does not quite follow the relative cost structure, and the distribution of the CDM projects in different regions or host countries does not strictly follow the principle of comparative advantage. More than 60% of the CDM portfolio consists of energy projects with higher cost of CERs, while 25% of the projects are in the least cost categories such as industrial gas reduction and methane avoidance. The costs of CERs are similar in Asia and Africa, yet more than 80% of the projects are located in Asia; more than 65% of the projects are in China and India alone.
- The incidence and extent of the Clean Development Mechanism (CDM) of the Kyoto Protocol are significantly higher for the developing countries with higher levels of sequestration potential, human capital, emissions, and excess demand for electricity, but lower for the countries with higher levels of transaction costs, vulnerability to climate change impacts, and per capita income.
- For both the developing and industrialized countries, CDM adoption increases over time, initially at an increasing rate but eventually at a decreasing rate as the first commitment period nears the completion, thus demonstrating a logistic pattern.
- Extension of the Kyoto Protocol's commitment period, proper functioning of the carbon market and specific incentive mechanism for selected group of countries are crucial for further expansion of the CDM.
- Farm size, farm location, age of the farmer, and farmer's exposure to extension activities influences the adoption of precision agricultural practices among the cotton producers in Texas.
- The adoption of efficient irrigation technologies like center pivot and sub-surface drip enhances the likelihood of adoption of precision farming practices among Texas cotton producers.

- Yield and profitability of cotton under deficit irrigation can be enhanced by optimal temporal allocation of irrigation water in Texas High Plains.
- The profit maximizing temporal allocation of irrigation water for cotton in Texas High Plains is to allocate all the available water from first bloom to first open boll when the irrigation water availability is 12 acre-inches or less.
- The profit-maximizing temporal allocation of irrigation water for cotton in Texas High Plains is not sensitive to variation in price of cotton lint and farmer's attitude towards risk.
- Per capita income does not appear to be an important factor in predicting the presence of a farmers market or in predicting the number of farmers markets in a county. However, counties that possess an urban are associated with a greater likelihood of market existence while both urban settings and level of support for the democratic presidential candidate are associated with a greater number of markets.
- The social costs of alternative milk packaging are quite similar, with high density plastic having the lowest cost except under relatively extreme reuse and return rates for glass packaging.
- Most people in the United States are obese or overweight, but they incorrectly consider their weight status. For example in a recent of 2 West Texas communities, 49% of the sample was obese, and, of this obese group, only 12% correctly identified their weight as obese with 66% only considering themselves only overweight.
- Based on economic analysis of costs and benefits, taking a regular regime of low-dose aspirin and calcium should be beneficial at small incremental costs to help prevent colorectal cancer.





**Appendix A**

PROJECTS

2012/13

<b>Project Title</b>	A Bioeconomic Model for Grazing Old-World Bluestem
<b>Principal Investigators</b>	Aaron Benson and Cody Zilverberg
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Plant and Soil Sciences, Texas Tech University; Natural Resource Management, South Dakota State University
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	December 2010
<b>Ending Date</b>	February 2013
<b>Project Objective</b>	Determine the profit risk of sustainably grazing Old World Bluestem (OWB) grasses given several sources of production uncertainty and complexity
<b>Project Summary and Accomplishments</b>	<p>Dryland production practices are risky economically and ecologically. Understanding how sustainable practices (those that reduce ecological risk) affect economic risk (i.e. the distribution of profit) is necessary for ranchers and other agricultural producers to appropriately make the transition to dryland agriculture.</p> <p>We find that sustainability constraints significantly limit the profit distribution of ranchers who graze dryland OWB. Limited irrigation of OWB might have significant positive effects on the profit distribution</p>
<b>Keywords</b>	Dryland ranching, profit risk, biological complexity

<b>Project Title</b>	Irrigation Efficiency in an Endogenously Growing Economy
<b>Principal Investigators</b>	Aaron Benson and Ray Huffaker (University of Florida)
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Texas Tech University; Food and Resource Economics, University of Florida
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	November 2006
<b>Ending Date</b>	November 2012
<b>Project Objective</b>	Identify the effects on economic growth of water conservation policies that increase agricultural irrigation efficiency.
<b>Project Summary and Accomplishments</b>	<p>We built a multi-sector general equilibrium growth model that incorporates a water resource and analyzed the effects on economic growth of increasing irrigation efficiency. We find that, even in an economically optimal central planner model, increasing irrigation efficiency can have the dual consequence of decreasing water available outside of the agricultural sector <i>and</i> decreasing economic growth. Policies that aim to mitigate negative economic effects of drought by improving irrigation efficiency may actually harm economic growth.</p> <p>We develop simple tax instruments designed to guarantee optimal economic growth and incorporate the user cost of irrigation water in agricultural production decisions, thus inducing farmers to reduce water consumption. We find that increasing irrigation efficiency may be an appropriate policy, but only insofar as it reduces water consumption – which requires a reduction in water withdrawals as efficiency increases.</p>
<b>Keywords</b>	Irrigation Efficiency, Economic Growth

<b>Project Title</b>	The Economic Effects of Early Snowmelt Due to Aeolian Dust Deposition
<b>Principal Investigators</b>	Aaron Benson, Ryan Williams and Rahul Kanungoe
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Texas Tech University
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	December 2010
<b>Ending Date</b>	May 2013
<b>Project Objective</b>	Develop and apply a model to determine the costs of early snowmelt.
<b>Project Summary and Accomplishments</b>	<p>In many parts of the Western United States, and semi-arid areas of the world, a substantial portion of irrigation water is snowmelt from nearby mountainous regions. Agricultural activity can cause windborne dust to settle on higher-elevation snowpack, which reduces the albedo, or reflectivity, of the snow. The snow then absorbs more solar radiation and heats up faster than it would otherwise. Studies in the San Juan mountains in Southern Colorado estimate that dust from ranching and agriculture on the Colorado plateau cause the snowpack to melt 2 to 3 weeks earlier than in absence of the dust.</p> <p>We develop a simple model of a river system, with a reservoir for irrigation and flood control that is fed by high-elevation snowpack. The river system has a set capacity for holding water, and the timing of the snowmelt is crucial in determining the amount of water in the system. We use the model to determine the cost to the system (and producers who rely on the irrigation water) of an early snowmelt, which can be used in later studies to determine an optimal policy, if any, that can be applied to agricultural producers that generate the dust – even if those are the same producers who rely on the snowmelt water for irrigation.</p> <p>We find that early snowmelt fails to have any effect on irrigation water deliveries in our simplified model, except in the case when the capacity of the reservoir has been significantly decreased (by more than 35%).</p>
<b>Keywords</b>	Snowmelt, integrated watershed management

<b>Project Title</b>	Playa Lakes and Ecosystem Services
<b>Principal Investigators</b>	Aaron Benson, Dacheng Bian, Ryan Williams
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Texas Tech University
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	March 2011
<b>Ending Date</b>	None
<b>Project Objective</b>	Identify and determine the value of the various ecosystem services provided by the playas of the Southern High Plains
<b>Project Summary and Accomplishments</b>	<p>Playa lakes cover a significant portion of the Southern High Plains, but their benefits are not well understood and are often ignored in developing management plans.</p> <p>We develop a model of Ogallala aquifer recharge at a well that uses well drawdown as a (negative) proxy for recharge. The surface area of playa lakes within a given radius is included as a variable that affects recharge. We use data from wells in three Texas counties to determine the marginal effect of an increase in playa surface area on well drawdown. We use a cotton production model to value the decrease in drawdown. We find that additional playa surface area has a miniscule value for irrigated cotton producers. Due to data limitations, our results can only be viewed as preliminary. A complete study would require more data on the management and status of the playas near each well, and would require data on well drawdown.</p> <p>The playa lake region provides habitat for migratory waterfowl. The extent and/or distribution of playas within the region may have an effect on the ability of the region to supply this service. We are developing a network model of playas within the playa lake region to identify the optimal spatial extent/location/areas for playa preservation and restoration.</p>
<b>Keywords</b>	Playa lakes, ecosystem services

<b>Project Title</b>	The Effects of Contract Attributes in the Guar Processing Industry
<b>Principal Investigators</b>	Bing Liu, Ryan Williams, Aaron Benson
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Texas Tech University
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	None
<b>Project Objective</b>	Identify and determine the contract attributes most important in farmer decisions to accept a contract to grow guar on Southern High Plains
<b>Project Summary and Accomplishments</b>	<p>Guar gum is used in many hydraulic fracturing fluid systems as a thickening agent. Because the crop is extremely drought tolerant, and adapts to a wide range of soil conditions, it is considered suitable to be grown on the Texas High Plains. In addition, resulting from the dramatic increasing demand of guar gum in the energy industry, the price for oilfield-grade guar gum is driven up in the recent two years. US-based oil and gas producers would benefit from a more robust domestic guar supply, but do not know the best way to construct farmer contracts to secure a guar supply at less volatile prices.</p> <p>Traditionally, production contracts are considered to provide the contracting parties with an intermediate level of control and risk sharing. However, not all contract aspects may be viewed positively by growers. Thus, contractors must properly structure contract terms to reflect the potential costs and risks associated with the guar production to induce farmer acceptance of production contracts.</p> <p>The objective of this project is to examine different contract choices that farmers could face in a certain guar production contract. A principle-agent model is established to simulate the incentives inherit in guar production contracts. Then, we conduct a choice-based experiment to observe producers' preferences over different contract attributes. The results of this survey are expected to reveal the value producers place on the different attributes. Finally, the ultimate goal of this study is to determine an efficient contract that will attract sufficient producer participation to ensure a steady supply of high quality guar seed.</p>
<b>Keywords</b>	Guar, hydraulic fracturing, choice-based experiment

<b>Project Title</b>	Differentiated Products Demand Estimation and its Implications for Price Competition and Welfare Effects: The Case of the Salty Snack Industry
<b>Principal Investigator/s</b>	Margil Funtanilla and Benaissa Chidmi
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Type</b>	N/A
<b>Funding Amount</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To analyze several aspects of a differentiated products oligopoly, with a focus on the salty snack industry in United States
<b>Project Summary Accomplishments</b>	This research seeks to understand why and how oligopolistic firms compete in multiple dimensions. In this market structure, pricing has been the common marketing instrument used by firms to influence demand for its brands and its market share but this research incorporates non-price tools such as advertising and promotions. Besides demand and market share considerations, this study underscores the strategic interactions as firms choose their optimal product prices, advertising, and promotion levels. Moreover, the analysis is cast in a dynamic framework but a corresponding static analysis is also provided.
<b>Keywords</b>	differentiated products, discrete choice, price competition, tax, salty snack
<b>Publication</b>	Texas Tech University dissertation

<b>Project Title</b>	Time Series Analysis of the Generation Fuel Mix of Electricity Market in ERCOT Region of Texas
<b>Principal Investigator/s</b>	Bhalla Kushal and Benaissa Chidmi
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Type</b>	N/A
<b>Funding Amount</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To analyze several aspects of a differentiated products oligopoly, with a focus on the salty snack industry in United States
<b>Project Summary Accomplishments</b>	The electricity market in Texas had undergone significant changes with the inclusion of renewable sources of energy, especially wind into the generation fuel mix. The installed wind capacity continues to expand at a higher rate as a result of declining costs, various government subsidies and tax credits. Penetration of renewable sources of power generation into the electrical grid changes the proportion and share of various other fossil fuel sources. Such transitions affect the price of electricity and related carbon emissions from various fossil fuel generators. This dynamic scenario makes an interesting case to study the pattern of either growth or decay of various sources of power generation in the electrical grid of ERCOT. Interesting predictions could be generated about the future behavior of various energy sources after carefully studying their past. This study assumes that the electric power produced from various sources of power generation like coal, natural gas, hydro, nuclear, and wind may have some internal structure that needs to be accounted for. The internal structure could be the presence of trends, autocorrelation, seasonal variation, and cycles, that represent the dynamics of the true underlying system. Therefore, time series analysis could be conducted with an intention to discern the behavioral pattern of the time series, which would help in short term forecasting and aid in making business decisions.
<b>Keywords Publication</b>	time series, Kalman filter, vector autoregressive Texas Tech University dissertation



<b>Project Title</b>	Female Labor Participation in Pakistan and some MENA Countries
<b>Principal Investigator/s</b>	Abbas Aboohamidi and Benaissa Chidmi
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Type</b>	N/A
<b>Funding Amount</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To analyze the effect of factors, such as literacy rate, education, fertility rate, urbanization, trade openness, and per capita GDP on the rate of female labor participation; while accounting of the endogeneity of fertility and literacy rates in some Islamic developing countries.
<b>Project Summary Accomplishments</b>	The low-labor force participation rate of female in the MENA countries has been recognized and investigated by many researchers. The multidimensional nature of the issue demands a thorough investigation of different aspects of a region to better understand the factors that affect and, or influence the female labor force participation of that region. We follow the data panel procedure to study the effect of factors, such as literacy rate, education, fertility rate, urbanization, trade openness, and per capita GDP on the rate of female labor participation; while accounting of the endogeneity of fertility and literacy rates. The empirical results of the random effects model indicate that literacy and urbanization rates have positive and significant effects on female labor participation. Variables such as fertility rate and per capita GDP have negative and significant effects on female labor participation. Finally, female education enrollment and trade openness do not have a significant effect on FLFP in the countries considered in this study.
<b>Keywords</b>	
<b>Publication</b>	female labor participation, MENA countries Southern Agricultural Economics Association Annual Meeting, 2013

<b>Project Title</b>	The Dynamics of Grain Prices in United States
<b>Principal Investigator/s</b>	Benaissa Chidmi
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Type</b>	N/A
<b>Funding Amount</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To study the dynamic behavior of the U.S. prices of corn, wheat, and soybean, using the state space framework and applying Kalman filter methodology.
<b>Project Summary Accomplishments</b>	Understanding the dynamics of grain prices and their implication is a key issue for farmers, marketers, and policy makers in better forecasting the movements of these prices and device tools that can hedge against the risk of uncertainty related to demand, supply, and weather conditions. A practical question to answer involves the relationships between the prices of different grains, that is whether these prices are correlated, and the direction and magnitude of this correlation. Furthermore, the question of whether the grain prices are moved by the same underlying unobserved dynamic factors that is unobserved state space variables is of great empirical importance. Therefore, this paper proposes to study the dynamic behavior of the prices of corn, wheat, and soybean using the state space framework and applying Kalman filter methodology.
<b>Keywords</b>	Dynamic prices, state space, Kalman filter

<b>Project Title</b>	The Effects of 2008 Financial Crisis on United States Households Savings and Wealth
<b>Principal Investigator/s</b>	Abbas Aboohamidi and Benaissa Chidmi
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Type</b>	N/A
<b>Funding Amount</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To explore the effects of the 2008 financial crisis on US households savings and wealth
<b>Project Summary Accomplishments</b>	The U.S. personal savings started to gradually decrease by early 1980s. Despite the strength of the U.S economy in the 1990s, the decreasing trend of personal savings continued to the next decade and it became negative in 2005 (Federal Reserve, 2009). According to the Federal Reserve, the historical declining trend of the U.S. personal saving can be attributed, in part, by the bull markets in stocks and housing, which are regarded household “net wealth” for over the last half century. Despite the fall of savings rates in U.S., this regarded household wealth stayed, for most part, constant in the recent decades. But with the 2008 financial crisis, this wealth declined sharply (by the fall of the value of both housing and investment portfolios), which caused the consumers in the U.S. to slow their spending, reduce their debt levels, and increase their saving. And as a result, according to the U.S. Bureau of Economic Analysis (BEA), the personal savings rate rose to 6.9% in 2009.
<b>Keywords</b>	Savings, financial crisis, net wealth

<b>Project Title</b>	Curb Appeal Impact on the Price of Single-Family Houses
<b>Principal Investigators</b>	Emmett Elam
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	This research was conducted to evaluate the impact of curb appeal on house value. A hedonic house price model was specified with house price expressed as a function of house characteristic variables and a curb appeal variable with curb appeal conceptualized as having two components—house curb appeal and landscape curb appeal.
<b>Project Summary and Accomplishments</b>	It is well understood in the real estate industry that “curb appeal” affects house values, but a quantitative estimate of the size/magnitude of the effect is not available. This study developed a quantitative indicator of curb appeal, included it in a hedonic house pricing model, and determined its independent effect on values. Results confirmed that curb appeal has a positive impact on house value, with landscape and house appearance approximately equal in impact. With improved curb appeal, house price can increase up to 17%. Two journal articles were published (in 2009 and 2012).
<b>Keywords</b>	Curb appeal, residential house price, hedonic house price model.

<b>Project Title</b>	Commercialization of a Multi-product Biorefinery on the Southern High Plains
<b>Principal Investigators</b>	Michael C. Farmer
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$62,370 (\$25,000 this year)
<b>Funding Agency</b>	USDA – Rural Development Grant
<b>Beginning Date</b>	May 2012
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	Make a Biorefinery using cotton gin waste more profitable by producing products beyond electric power in non-drought years. During droughts little can be produced, so the capital expenditure on electricity is reduced. This leaves excess, unused waste in most years. Making other products with lower (or shared) capital demands provides a higher valued outlet for much of waste following more normal growing seasons. The objective is to isolate added risks incurred by expanded capital and whether the added products make the system more profitable. The products include electric power, bio-fertilizer, ammonia, and durable machine biodiesel 1 (e.g. not auto-transport vehicles).
<b>Project Summary and Accomplishments</b>	As a portfolio, total revenues are rising for the biorefinery. Products examined however tend to move in concert, making the revenue stream of a multi-product biorefinery more varied. Using market cointegration analysis, we found bio-energy subsidies have affected the price relationship between energy sectors and agriculture and the markets are far more integrated. Expectations for the next 5 years show a rising market but not immediately a highly profitable one. Building a multi-product biorefinery piecemeal allows a gin to take advantage of the immediate profitability of a small power island and bolt on additional products over the period. This assumes no bioenergy pricing subsidies or investment sharing by the public sector. Long term prospects for the 5 – 15 year horizon are quite favorable.
<b>Keywords</b>	Biorefinery, cotton gin trash, operations research, peaking power electricity.
<b>Important Publications and Presentations</b>	The Relationship between Gasoline, Agricultural Feedstocks and Exchange Rate: A Cointegration Analysis. Tangaoui, A and Farmer, MC 2013. <i>Journal of Economics and Finance</i> . (in press)

<b>Project Title</b>	Transition to Dryland and Policy Reforms
<b>Principal Investigators</b>	Michael C. Farmer and Aaron Benson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2009
<b>Ending Date</b>	December 2012
<b>Project Objective</b>	Extension centers on perverse effects of irrigation restrictions and the influence of fixing criteria (50/50 rule) without detailing a full suite of social objectives.
<b>Project Summary and Accomplishments</b>	Analyses show irrigation restrictions motivate producers to quite irrigated agriculture much sooner. Hardest hit are those with the least water but still irrigating.  It is anticipated a 50/50 program will lower incomes of producers in the future, rather than improve them, cause the length of time in irrigated agriculture to shorten rather than lengthen as producers abandon a less profitable activity sooner.
<b>Keywords</b>	Dynamic optimality, hoteling extraction, marginal user, cost producer irrigation decisions

<b>Project Title</b>	Rationalizing Water Reallocation Processes in Texas
<b>Principal Investigators</b>	Michael C. Farmer
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	Not funded
<b>Funding Agency</b>	George McMahon, Arcadis International and Larry Prather, U. S. Corps of Engineers - Dallas
<b>Beginning Date</b>	August 2013
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	<p>As economic development advances from the construction of hydropower dams, water supply for residential and industrial uses grows. Ecological flows also grow in importance. This requires reservoir operations update their water release schedules. That operational update is called reallocation.</p> <p>Texas adopted the same process as the US Corps of Engineers to evaluate and implement reallocation, more or less guided by the Water Supply Act of 1958.</p> <p>The objective is to assess the implications of adopting the WSA.</p>
<b>Project Summary and Accomplishments</b>	<p>WSA has several economically perverse provisions that slow reallocation. The mechanisms to compensate power producers for lost revenue overcharges by as much as an order of magnitude.</p> <p>This process forces municipalities to seek alternative impoundments. So more dams at a smaller level are constructed, making water far more expensive and exponentially increasing ecological damages. More water also leaves the system, potentially threatening reliability of future water supplies. This explains in large part the plans for more reservoirs across the state where the USACOE must follow the WSA under current regulations; the State of Texas adopts it voluntarily.</p>
<b>Keywords</b>	Water supply act, water reallocation, ecological flows, Texas water planning

<b>Project Title</b>	Methods to Utilize Ecological Fieldwork During Severe Climatic Stress
<b>Principal Investigators</b>	Michael C. Farmer, Gad Perry (NRM), Kerry Griffiths-Kyle (NRM), and Rasika Ramesh (Auburn)
<b>Departmental Involvement</b>	Agricultural and Applied Economics Natural Resource Management Auburn University
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2012
<b>Ending Date</b>	May 2014
<b>Project Objective</b>	<p>Methods to conduct ecological fieldwork have tended to fail if conducted during extreme weather. Yet ecological tipping points take place exactly at those times. Frequently data is discarded or grants funds for fieldwork are delayed.</p> <p>This work examines the benefits of conducting fieldwork during the record 2011 drought on the Texas High Plains to examine if anurans (a powerful indicator group) were actively mating. Mating was virtually zero across all urban playas examined.</p>
<b>Project Summary and Accomplishments</b>	<p>Even with a very high dispersion of zero mating events in 17 of 23 sites and seldom more than one anuran species observed in 2011, we identified simple statistical techniques that predicted the order of most likely to least likely to respond positively to the return of precipitation. Using the observations at only 7 sites, of the 17 urban lakes were no mating occurred in 2011, 9 were lumped together as very unlikely to respond well to precipitation, 4 with a greater likelihood and 4 more far more likely to respond. 2012 was still a very low precipitation year, but 5 lakes showed the return of mating behavior. Those five included all four sites predicted to be most responsive, with the fifth among the next group of four sites. Multiple advanced techniques were employed that gave largely the same result as a simple logistic regression, making it accessible to most field ecologists. What seemed to be unnecessarily detailed fieldwork proved valuable in making robust predictions, estimates useful to prioritize management responses in emergencies.</p>
<b>Keywords</b>	Playa ecology, numerical ecology, ecological impacts of drought
<b>Important Publications and Presentations</b>	Ramesh, R., K. Griffiths-Kyle, G. Perry, and M. Farmer. 2012. "Urban Amphibians of the Texas Panhandle: Baseline Inventory and Habitat Associations in a Drought Year" <b>Reptiles &amp; Amphibians</b> 19.4 243–253.



<b>Project Title</b>	The Impacts of Biofuels on the Infrastructure of the U.S. Cotton Industry
<b>Principal Investigators</b>	Darren Hudson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$8,000 (\$7,138 Spent through 9/1)
<b>Funding Agency</b>	Cotton Inc.
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	To examine the impacts of changing cotton acreage resulting from biofuels mandates and other reasons on the structure and costs of cotton ginning in the United States.
<b>Project Summary and Accomplishments</b>	Dramatic shifts of cotton acreage that has occurred especially in the Midsouth and Southeast regions are having significant impacts on affiliated sectors such as ginning. This project is examining those changes. Currently, we have identified relevant data and are in the process of estimating models of these changes that can be used in further cost/policy analysis.
<b>Keywords</b>	Cotton, cotton gins, policy analysis

<b>Project Title</b>	Emerging Cotton Issues in World Policy
<b>Principal Investigators</b>	Darren Hudson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$3,000 (\$0 Spent through 9/1)
<b>Funding Agency</b>	Cotton Inc.
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	To examine and document the role of internal subsidization of cotton production in global cotton markets.
<b>Project Summary and Accomplishments</b>	As a part of this project, we have completed and released a revised version of the “Subsidy Handbook” that documents the use of differing trade policies and internal subsidization across global agriculture. In addition, we began work on country specific analyses of policies and programs.
<b>Keywords</b>	Cotton, cotton gins, policy analysis

<b>Project Title</b>	A Comparative Analysis of the Economics of Cotton Farming: Subsidies and Production Costs of the World's Leading Producers
<b>Principal Investigators</b>	Darren Hudson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$7,500 (\$6,692 Spent through 9/1)
<b>Funding Agency</b>	Cotton Inc.
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	To examine and document differing production costs, subsidies, and market outcomes in the world's leading cotton producing countries.
<b>Project Summary and Accomplishments</b>	We began in-depth country analyses of cotton and other agricultural production systems, markets, and subsidies. We have a draft of these reports for Central Asian countries and have a beginning draft of the same for Ukraine. These reports will be completed and published early next fiscal year.
<b>Keywords</b>	Subsidies, agriculture, costs of production, marketing systems, policy analysis

<b>Project Title</b>	Larry Combest Endowed Chair Research
<b>Principal Investigators</b>	Darren Hudson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$19,233
<b>Funding Agency</b>	Various donations
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To conduct research relevant to the long-term competitiveness of Texas and U.S. agriculture.
<b>Project Summary and Accomplishments</b>	This project supports a number of projects related to agricultural competitiveness and other research as the need arises. Currently, the Chair is supporting one Ph.D. student's research on agricultural land values.
<b>Keywords</b>	Agricultural competitiveness

<b>Project Title</b>	Economic Research, Education, and Outreach in Brazil
<b>Principal Investigators</b>	Darren Hudson, Sukant Misra, A.C. Correa
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$59,835 (\$59,700 Spent by 9/1)
<b>Funding Agency</b>	USDA – CSREES
<b>Beginning Date</b>	September 2010
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To conduct research on Brazilian agriculture and conduct policy education seminars in Brazil.
<b>Project Summary and Accomplishments</b>	We travelled to Brazil in summer 2010 for our initial meetings and conducted research in the Bahia and Northeast regions of Brazil. We traveled again in 2011 and meet with members of the transportation, cotton ginning, and research industries in Brazil. In 2012, we hosted a group of EMBRAPA research scientists at Texas Tech. In 2013, we culminated our experience with a study abroad program from 13 Tech students who traveled all over Brazil and experienced different types of agricultural production.
<b>Keywords</b>	Cotton, Brazil, infrastructure

<b>Project Title</b>	Creating a Searchable Database of Foreign Subsidies
<b>Principal Investigators</b>	Darren Hudson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$10,000 (\$8,900 Spent by 9/1)
<b>Funding Agency</b>	Cotton Inc.
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	To develop a searchable database of foreign agricultural subsidies.
<b>Project Summary and Accomplishments</b>	The database is now online and regular modifications are being made. It is publicly available at the CERI website.
<b>Keywords</b>	Foreign agricultural subsidies, database

<b>Project Title</b>	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY12
<b>Principal Investigators</b>	Billy B. Golden - Kansas State University, Steve Amosson - Texas A&M University (TCE) Jeff Johnson - Texas Tech University Lal Almas - West Texas A&M University
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	Total funding \$240,000; TTU portion \$60,000
<b>Funding Agency</b>	USDA – Agriculture Research Services
<b>Beginning Date</b>	January 2012
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	<p>The research objectives for this project include a four-pronged approach of industry impacts and emerging issues. During this time, the EAI team will utilize stakeholder input to assist in identification and prioritization of emerging issues in future research objectives. Objectives for this project specifically are:</p> <ol style="list-style-type: none"> <li>1) Evaluate water use and importance of the small grains industry to the economy of the Southern Ogallala Region;</li> <li>2) Estimate the potential value of water for use by future generations;</li> <li>3) Conduct a risk analysis with respect to yield and income over time coupled with rainfall variability;</li> <li>4) Analyze the potential groundwater conservation associated with the development of water markets (also referred to as cap and trade policies).</li> </ol>
<b>Project Summary and Accomplishments</b>	This is an on-going project. No results are available yet.
<b>Keywords</b>	Water policy, Ogallala Aquifer, regional economics.

<b>Project Title</b>	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY11
<b>Principal Investigators</b>	Billy B. Golden - Kansas State University, Steve Amosson - Texas A&M University (TCE) Jeff Johnson - Texas Tech University Lal Almas - West Texas A&M University
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	Total funding \$270,000; TTU portion \$67,500
<b>Funding Agency</b>	USDA – Agriculture Research Services
<b>Beginning Date</b>	January 2012
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	The research objectives for the project include a four-pronged approach of evaluation of water conservation policies, industry impacts, emerging issues, and economic analysis of irrigation studies. Objectives specifically are: <ol style="list-style-type: none"> <li>1) Evaluate impact of compensated water use restriction on water use and farm level income and determine compensation levels.</li> <li>2) Evaluate water use and economic impact of the feed grain industry</li> <li>3) Evaluate value of water for agricultural and non-agricultural use as well as non-use valuation</li> <li>4) Conduct comparative economic analysis of adoption of SDI and center pivot irrigation systems for alternative crop mix scenarios</li> </ol>
<b>Project Summary and Accomplishments</b>	This is an on-going project. No results are available yet.
<b>Keywords</b>	Water policy, Ogallala Aquifer, regional economics.



<b>Project Title</b>	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY10
<b>Principal Investigators</b>	Billy B. Golden - Kansas State University, Steve Amosson - Texas A&M University (TCE) Jeff Johnson - Texas Tech University Lal Almas - West Texas A&M University
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	Total funding \$200,000; TTU portion \$50,000
<b>Funding Agency</b>	USDA – Agriculture Research Services
<b>Beginning Date</b>	January 2011
<b>Ending Date</b>	December 2012
<b>Project Objective</b>	The research objectives for this project are to 1) evaluate the water use and economic impact of the swine industry and 2) provide economic analysis of experimental results from five studies <ul style="list-style-type: none"> <li>a. Economic analysis of agriculturally based ET weather networks,</li> <li>b. Growing dryland sorghum in clumps,</li> <li>c. Characteristics of complementary forage systems,</li> <li>d. Economic analysis of sorghum silage potential,</li> <li>e. Understanding climate variability for improving management decisions.</li> </ul>
<b>Project Summary and Accomplishments</b>	<p>The portion of the project for which the TTU team was responsible was the economic analysis of growing dryland sorghum in clumps.</p> <p><b>Significant Findings:</b> In years of low precipitation during the growing season, growing dryland sorghum in clumps can dramatically increase yields and revenue by as much as 70% over planting in spaced rows, but in years of average or greater precipitation during the growing season, the advantages are not as dramatic at 15%.</p> <p><b>Summary:</b> This economic analysis used the results of Bandaru et al. (2006) who compared results of planting grain sorghum in clumps with conventional evenly spaced plantings in rows at Bushland, Texas in 2002, 2003, and 2004. Planting densities per acre were consistent within each year but changed between years. Assumptions for this study were that both treatments had the same inputs and the only differences in expenses were due to harvest costs for different yields of the treatments. Planting for the clump treatments was assumed to be accomplished not by hand but mechanically by planters adapted to drop seeds in clumps as appropriate distances. The results demonstrated that in 2002 and 2003, which were</p>

relatively dry years, yields and revenue for sorghum planted in clumps was over 70% higher than for sorghum planted in evenly spaced rows. In 2004 which was a year with average rainfall during the growing season, the yields and revenue for sorghum planted in clumps was 25% greater than for sorghum planted in evenly spaced rows. These results are consistent with Bandaru, et al. (2006) and provide evidence that changing the plant geometry to clumps will benefit sorghum producers especially in years of lower than average rainfall during the growing season.

**Keywords**

Water policy, Ogallala Aquifer, regional economics

<b>Project Title</b>	Improving Management Practices for Olive ( <i>Olea europaea</i> L.) Oil Production in Texas (Fourth Phase)
<b>Principal Investigators</b>	Thayne Montague – TTU Plant and Soil Science, Cynthia McKenney - TTU Plant and Soil Science Jyotsna Sharma - TTU Plant and Soil Science Jeff Johnson – TTU AAEC
<b>Departmental Involvement</b>	Plant and Soil Science Agricultural and Applied Economics
<b>Funding Amount</b>	Total funding \$79,994; TTU AAEC portion \$4800
<b>Funding Agency</b>	TDA Specialty Crop Block Grant
<b>Beginning Date</b>	October 2012
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	The purpose of this study is to continue the identification of environmental impact and management practices for initiation and continued cropping of sustainable olive orchards in Texas and to develop a budget model that will allow for economic analysis of olive production decisions
<b>Project Summary and Accomplishments</b>	This is an on-going project. No results are available yet.
<b>Keywords</b>	Water policy, Ogallala Aquifer, regional economics

<b>Project Title</b>	Texas High Plains Initiative for Strategic and Innovative Management and Conservation
<b>Principal Investigators</b>	Phillip Johnson, David Doerfert, Steve Maas, and Rick Kellison - TTU Steve Walthour – North Plains Groundwater Conservation District
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Agricultural Education and Communications, Plant and Soil Science
<b>Funding Amount</b>	Expenditures 9/12 – 8/13                      \$133,970 Total Expenditures 9/11 – 8/14              \$146,098
<b>Funding Agency</b>	USDA-NRCS - \$250,000; HPUWCD \$125,000; and Netafim \$12,000 (AAEC part 25% ~ \$100,000)
<b>Beginning Date</b>	September 2011
<b>Ending Date</b>	August 2014
<b>Project Objective</b>	The <i>purpose</i> of this Conservation Innovation Grant (CIG) is to demonstrate strategic irrigation and crop system management technologies and practices which will result not only in water savings and best practices that are applicable nationwide to regions facing similar resource concerns. The <i>primary objective</i> is to quantify water savings that can be realized from strategic irrigation management.
<b>Project Summary and Accomplishments</b>	<p>This project is a joint effort with the North Plains Groundwater Conservation District. The 2013 crop year represents the 2<sup>nd</sup> year of the project. Nine producers with a total of 1,220 acres in 12 sites (8 pivot and 4 SDI) have been included in the project. Irrigation monitoring equipment from McCrometer® and PivoTrac® has been installed on 11 of the 12 sites. This equipment allows for real time monitoring and data collection of water flow meters on the systems, pivot system location in the field, sub-surface drip zone monitoring, and rainfall amounts.</p> <p>Soil moisture probes have been installed by AquaSpy®, John Deere Water® and Eco-drip. These probes allow for monitoring of soil moisture on a daily basis by remote access communication. Three of the sites will have a side by side comparison of two types of probes. The project co-sponsored radio spots giving daily evapotranspiration estimates for cotton, corn and grain sorghum in conjunction with the TAWC project. The purpose of the radio spots was to provide producers with information regarding current crop conditions and irrigation needs.</p>
<b>Keywords</b>	irrigation, water policy, resource allocation

<b>Project Title</b>	An Integrated Approach to Water Conservation for Agriculture in the Texas Southern High Plains
<b>Principal Investigators</b>	Vivien Allen, David Doerfert, Phillip Johnson, Eduardo Segarra, Rick Kellison, Calvin Trostle, Steven Klose, and Jim Conkwright
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Agricultural Education and Communications, Plant and Soil Science
<b>Funding Amount</b>	Expenditures 9/11 – 8/12                      \$ 90,550 Total Expenditures 9/04 – 8/13            \$586,321
<b>Funding Agency</b>	Texas Water Development Board - \$610,565 (AAEC part of \$6.8 million)
<b>Beginning Date</b>	September 2004
<b>Ending Date</b>	April 2014
<b>Project Objective</b>	The overall objective of this project has been to develop environmentally sustainable and economically feasible integrated production systems that will ensure the viability of agricultural activities in the Texas High Plains.
<b>Project Summary and Accomplishments</b>	The 2012 crop year represented the 8th year of the project. The primary responsibility of the Economic Task has been to develop and maintain profitability records along with various agronomic and economic components for each demonstration site and system within the project. Analyses have been conducted on how irrigation interacts in the profitability of the systems and the management options available to producers. The Fieldprint calculator from Field to Market has been used to analyze agricultural production sustainability related to energy, carbon, soil, and water use. Web based decision tools have been developed to assist producers in allocation of available irrigation water. The decision tool optimizes available water to maximize net income and will assist producers as they plan cropping decisions under declining water resource conditions. The decision tool is part of the web based TAWC Solutions which also includes an irrigation scheduling tool based on ET measurement and soil water balance. These tools are in integral part of the implementation phase of the TAWC project.
<b>Keywords</b>	Irrigation, water policy, resource allocation  Accomplishments include the completion of a Ph.D. dissertation titled “Farm Level Financial Impacts of Water Policy on the Southern Ogallala Aquifer.” Presentations have been presented at the annual meeting of the WAEA, the Beltwide Cotton Conference, University Council on Water Resources, and other industry forums.

<b>Project Title</b>	Economic Considerations for Sorghum Management in the Southern High Plains
<b>Principal Investigators</b>	Phillip Johnson, Justin Weinheimer, and R. Louis Baumhardt
<b>Departmental Involvement</b>	Agricultural and Applied Economics – Texas Tech University and USDA-ARS, Bushland, TX
<b>Funding Amount</b>	Expenditures 9/11 – 8/12                      \$0 Total Expenditures 9/09 – 8/14            \$7,316
<b>Funding Agency</b>	United States Department of Agriculture – Agriculture Research Services - \$15,000
<b>Beginning Date</b>	September 2009
<b>Ending Date</b>	August 2014
<b>Project Objective</b>	The overall objective of this project has been to develop environmentally sustainable and economically feasible integrated production systems that will ensure the viability of agricultural activities in the Texas High Plains.
<b>Project Summary and Accomplishments</b>	Date collected at the USDA-ARS site in the Texas Panhandle will be evaluated using enterprise budgeting procedures to associate economic determinants with management practices. Variations in simulated and field level yields and revenue; and dryland and irrigated management practices will be analyzed for economic and profitability comparisons within different field practices and irrigation treatments.
<b>Keywords</b>	Grain sorghum, irrigation, management

<b>Project Title</b>	Economic Viability of Integrated Dryland Cropping Systems
<b>Principal Investigators</b>	Phillip Johnson, Justin Weinheimer, and R. Louis Baumhardt
<b>Departmental Involvement</b>	Jeff Johnson and Eduardo Segarra, Agricultural and Applied Economics – Texas Tech University and USDA-ARS, Bushland, TX
<b>Funding Amount</b>	Expenditures 9/11 – 8/12                      \$0 Total Expenditures 9/09 – 8/14            \$7,316
<b>Funding Agency</b>	United States Department of Agriculture – Agriculture Research Services \$15,000
<b>Beginning Date</b>	September 2009
<b>Ending Date</b>	August 2014
<b>Project Objective</b>	The objective of this study is to determine the economic viability of two dryland wheat, sorghum, fallow (SWF) rotations and how stocker cattle grazing can be included to maximize grain yields and revenue.
<b>Project Summary and Accomplishments</b>	Date collected at the USDA-ARS site in the Texas Panhandle will be evaluated using enterprise budgeting procedures to analyze the WSF rotation with grazing and without grazing and under two tillage practices.
<b>Keywords</b>	Grain sorghum, cropping systems

<b>Project Title</b>	Effects of Sampling Variability in Short Historical Yield Series on the Producer Welfare Benefits of Crop Insurance
<b>Principal Investigators</b>	Thomas O. Knight
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2009
<b>Ending Date</b>	March 2013
<b>Project Objective</b>	In order to be effective, the individual yield insurance products offered under the Federal Crop Insurance Program need to provide coverage based on reasonably accurate yield guarantees. Ideally, such guarantees would offer each producer insurance protection at a yield level reflecting the producer's expected yield in the insurance year. This is challenging because limited farm-level yield data are available to support development of accurate guarantees. Sampling variability, based on a short historical yield series for the farm, can result in guarantees that are either above or below the true expected yield. The objective of this project is to examine the effect of sampling variability in yield guarantees on producer welfare. Our analysis of yield variability takes into account yield substitution, a policy provision designed to set a minimum yield for each year in the producer's yield history, and yield floors, which set an overall minimum on the guarantees for farms in a county.
<b>Project Summary and Accomplishments</b>	Our results indicate that sampling variability can decrease producer welfare while increasing actuarially fair premium rates and insurance subsidies. However, when yield substitution and yield floors are applied producer welfare, with sampling variability, is greater than would be achieved with an accurate yield guarantee. What this means is that the yield substitution and yield floor provisions overcompensate for down-side sampling variability, increasing producer welfare but also increasing the government cost of these insurance programs.
<b>Keywords</b>	yield guarantees, sampling variability, yield substitution, yield floor



<b>Project Title</b>	A Public-Private Partnership for Cancer Prevention in Rural Communities
<b>Principal Investigators</b>	Conrad Lyford Barrent McCool
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$292,339 (9/12 - 8/13 \$73,085)
<b>Funding Agency</b>	Cancer Prevention Research Institute of Texas
<b>Beginning Date</b>	March 2011
<b>Ending Date</b>	February 2013
<b>Project Objective</b>	The primary purpose of this project is to develop, implement, and evaluate a multi-tiered approach designed to enhance primary cancer prevention in the targeted rural communities. The secondary purpose is to help cancer survivors reduce their risk for cancer recurrence. The targeted population is defined by its distance from the resources of metropolitan areas and is a population that is currently underserved in terms of access to a proper diet, education, and medical services for cancer prevention. This program will be delivered to this population by working with a major supermarket chain that serves these rural areas.
<b>Project Summary and Accomplishments</b>	At this point, the intervention phase of the project is complete and data in the intervention and control communities have been collected to assess the effect of the multi-tiered intervention approach including providing customized cancer prevention information and a health information for selected community members, media (e.g. newspaper articles, posters, etc.). Two peer reviewed publications have been completed with more expected. Future projects are planned in the area.
<b>Keywords</b>	Prevention, cancer, rural health

<b>Project Title</b>	Fun in the Lunch-Room: A Nudge to Develop Healthy Taste Buds
<b>Principal Investigators</b>	Conrad Lyford and Janani Thapa
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$30,000 (9/12 - 8/13, \$5,000)
<b>Funding Agency</b>	The Cornell Center for Behavioral Economics in Child Nutrition Programs – Small Grants Program
<b>Beginning Date</b>	July 2013
<b>Ending Date</b>	June 2014
<b>Project Objective</b>	<p>Despite efforts at the federal level to improve the nutritional status of lunch served in school lunch room, childhood obesity is pervasive in the United States. A key problem is that healthy foods, such as fruits and vegetables (F&amp;V), are not chosen by children and it is frequently not eaten even when served. This research modifies the elementary school lunch room choice architecture to change the focus of the decision maker (lunch room participants) from food alone to food “with fun”. The research project will encourage the selection of healthy F&amp;V while an associated intervention of a reward-based game in the lunch room will nudge students to finish their serving. The hypothesized outputs are increased elementary school children’s consumption of F&amp;V during the four weeks of intervention and after. The fun based choice and reward-based consumption of F&amp;V by elementary school children is hypothesized to increase their post project F&amp;V consumption compared to pre-project consumption. Making students familiar with the taste of fruits and vegetables will help them develop healthy taste buds.</p>
<b>Project Summary and Accomplishments</b>	<p>At this point, the institutional review board has approved the method for our data collection, and we will start implementing the project at a local school. The data from the first (of two) schools is planned to be collected this fall semester.</p>
<b>Keywords</b>	Prevention, obesity, schools, rural health

<b>Project Title</b>	Great Plains Sorghum Improvement and Utilization Center – Economic Analysis
<b>Principal Investigator</b>	Jaime E. Malaga
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	To maintain the economic modeling tools that will provide the US sorghum industry with information relevant to domestic and international policy strategies pertaining to the profitability of grain sorghum.
<b>Project Summary and Accomplishments</b>	The Texas Tech’s partial equilibrium international trade model for grain sorghum (GS) had been updated and maintained despite the lack of funding for the 2012-2013 year. The expectation is that the available tools could be maintained and expanded in the future with funding from international agencies and private groups. The USDA resources were discontinued after 5 years. The model needs to be expanded to include new relevant exporters like Argentina and Australia and equations for new markets like Sub Saharan Africa and the European Union. The Texas Tech trade sorghum model can forecast ten years of impacts on future sorghum supply, demand, and trade of alternatives scenarios for key exogenous variables. US supply equations were estimated at regional level (Texas, Kansas, and other states). The current model includes supply, demand, trade, and price transmission equations for the US, Mexico, and Japan. Simulations included impacts of corn prices, poultry production in Mexico, sorghum yield improvements, expansion of exports to other countries, and derived demand from the US ethanol industry.
<b>Keywords</b>	Grain sorghum, international trade, trade forecasting models

<b>Project Title</b>	Analysis of the Japanese Demand for Quality Sorghum
<b>Principal Investigator</b>	Jaime E. Malaga
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Cooperating Agency</b>	N/A
<b>Beginning Date</b>	September 2013
<b>Ending Date</b>	August 2014
<b>Project Objective</b>	To analyze recent changes in Japanese demand for sorghum that emphasizes quality over price.
<b>Project Summary and Accomplishments</b>	Japan used to be the top market for US sorghum until NAFTA prompted Mexico to that rank. The market share of the US sorghum in Japan has been declining constantly to reach only 11% in 2012. Australia is now the largest supplier of Japan who pays a premium for Australian sorghum. A Japanese doctoral student will be working on this project using Japanese, Australian and US data sources. Expected results include recommendations to US sorghum exporters to keep their market share in Japan and other high quality sorghum markets.
<b>Keywords</b>	International marketing, demand analysis, sorghum, grain quality differentiation

<b>Project Title</b>	Analysis of Potential Future Impacts of BRIC countries on World Food Markets
<b>Principal Investigator</b>	Jaime E. Malaga
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Cooperating Agency</b>	N/A
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2014
<b>Project Objective</b>	To forecast and simulate the potential effects of the growing participation of BRIC countries (Brazil, Russia, India, and China) on world food markets
<b>Project Summary and Accomplishments</b>	The Globalization process that began in the mid 1990's is bringing about important shifts on the participation of the BRIC countries on traditional food markets. With almost 45% of world's population, high levels of per capita income growth and increasing preference for animal protein foods, their share of food commodities markets is growing at a fast pace. The research is exploring potential future scenarios in world food markets given current consumption, population, and income growth trends in those countries. Three papers have been presented at international conferences (Moscow, Mexico City, and Delhi). The analysis emphasizes the impacts on soybean, corn, and wheat markets.
<b>Keywords</b>	Global food demand, international trade

<b>Project Title</b>	Agricultural Land Policy of Ukraine: Current State, Legislation and Efficiency Analysis
<b>Principal Investigators</b>	Olga Murova
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	Fall 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	The objective of this project is to provide a descriptive analysis of current land legislation and land policies in Ukraine and to analyze how current land policies impact technical efficiency of the agricultural production in Ukraine.
<b>Project Summary and Accomplishments</b>	<p>This project provides a qualitative analysis of land legislation and land policies in Ukraine. Also, quantitative data on Ukrainian crop production for 2010 are collected through the Ukrainian Ministry of Statistics website. Technical efficiency scores for 25 Ukrainian regions are estimated.</p> <p>Results show that overall technical efficiency has increased over time. However, there is a great deal of variation in performance across 25 regions. Current moratorium on land sales leads to widespread leasing practices across agricultural enterprises. The results of the analysis show that an increase in the amount of land leased by all agricultural enterprises decreases inefficiency. However, due to high transaction costs, land rented by farming enterprises decreases efficiency of crop production in Ukraine.</p>
<b>Keywords</b>	Ukrainian land policies, land market, technical efficiency, lease of land

<b>Project Title</b>	Women in Texas Agriculture: Current Status and the Challenges for Sustainability
<b>Principal Investigators</b>	Olga Murova, Shaikh Mahfuzar Rahman, Erica Irlbeck, Cindy Akers, and Sukant Misra
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Agricultural Education and Communications
<b>Funding Amount</b>	\$5000
<b>Funding Agency</b>	College of Agricultural Sciences and Natural Resources
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	The objective of this project is to assess the current economic and social status of women in Texas agriculture, identify competitive advantages they hold and challenges they face, explore solutions to overcome challenges, and offer resources to enhance their knowledge for making the system more sustainable.
<b>Project Summary and Accomplishments</b>	This project will enhance the knowledge system of the women in agriculture for economic, social, and environmental sustainability. This will be accomplished through a statewide survey of female operators, agribusiness managers, entrepreneurs, and community leaders. The survey data analysis will allow the researchers to identify the significant factors that contribute toward the success of women in agriculture and the socio-economic issues they face. Qualitative research and case studies will contribute to this understanding and help to explore potential solutions to the problems. The research findings will be extended to the target audience through resources like: workshops, printed materials, websites, and other.
<b>Keywords</b>	Economic and social status of women, Texas agriculture, economic, social and environmental sustainability

<b>Project Title</b>	Economic Impact and Industry Cluster Analysis of South Plains, Texas
<b>Principal Investigators</b>	Aman Khan, Katharine Hayhoe, Olga Murova and Gregg G. Murray
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Political Science
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	Lubbock Economic Development Agency
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	Ongoing
<b>Project Objective</b>	The objective of this project is to conduct a comprehensive analysis of key economic activities of the South Plains, encompassing a 15-county region centered around Lubbock, Texas, with an emphasis on: 1) identifying the industry clusters in the region; 2) analyzing the economic impact of various industries in the region; and 3) highlighting opportunities to strengthen existing industries and develop new ones.
<b>Project Summary and Accomplishments</b>	This project will determine the effect that group of activities have or are likely to have on the economy of a given geographic area. The economic impact analysis will be applied to the seven major industries: healthcare and bio-sciences, advanced technologies and manufacturing, agriculture, financial services, energy, higher education, tourism and hospitality. After identification of activities where the region has the greatest strengths, the areas of greatest economic opportunities for future economic growth and development will be identified.
<b>Keywords</b>	Economic impact, industry cluster analysis



<b>Project Title</b>	National Center for Innovation in Small Drinking Water Systems
<b>Principal Investigators</b>	Venkatesh Uddameri (PI), Audra Morse, Donna Hamilton, Annette Hernandez, W. Andrew Jackson, David Klein, Shaikh M. Rahman, Anthony Vercellino, Stephen Morse, and Kartik Venkataraman
<b>Departmental Involvement</b>	Texas Tech University, Tarleton State University, McLennan Community College
<b>Funding Amount</b>	\$881,493 (requested)
<b>Funding Agency</b>	Environmental Protection Agency (EPA)
<b>Beginning Date</b>	June 01, 2014 (if accepted)
<b>Ending Date</b>	May 31, 2017 (if accepted)
<b>Project Objective</b>	The Center seeks to carryout research to develop and demonstrate new technologies that treat most common contaminant classes, which will advance the ability of Community Water Suppliers (CWS). The Center will also focus on developing integrative water management frameworks and models and develop decision support tools that address source water protection and socio-economic aspects on a watershed scale. The Center aims to foster innovations across the entire life-cycle of the water supply chain starting from raw water sources, to treatment and distribution, and sludge management.
<b>Project Summary and Accomplishments</b>	<p>The Center is organized into five thrust areas - 1) Public Policy and Economics; 2) Source Vulnerability and Characterization; 3) Chemical Characterization and Monitoring; 4) Treatment Technology Development; and 5) Education and Outreach. The Center represents an integrated interdisciplinary effort, which brings together a diverse group of researchers from Civil and Environmental Engineering, Biology, Environmental Health and Toxicology, and Applied Economics, to deal with pressing problems faced by water supply corporations. The Center will leverage state-of-the-art laboratory and computing facilities available at Texas Tech University, Tarleton State Universities, and McLennan Community College.</p> <p>The Center will work closely with the Wind Power enabled Water Treatment Demonstration Facility (WTDF), in development at the Reese Technology Center (RTC) Lubbock, TX, to carryout pilot testing of developed water desalination technologies using renewable wind energy. Additionally, the Center will seek to transfer knowledge to CWS operators and managers, and train and develop well-rounded next</p>

generation scientists and engineers, who will understand not only the technological and scientific aspects of water supply but are also trained to work in an ever changing regulatory milieu.

**Keywords**

Small drinking water systems, sustainability, emerging contaminants, modular treatment trains, reuse, watershed management

**Project Title** Understanding Gross System Uncertainty using Cross Model Ensembling Techniques to Predict Long Run Land Use Changes under Shifting Climate Conditions

**Principal Investigators** Michael Farmer, Katharine Hayhoe, Sujit Ghosh, Donald Lacombe, and Shaikh M. Rahman

**Departmental Involvement** Texas Tech University, North Carolina State University, West Virginia University

**Funding Amount** \$149,954 (requested)

**Funding Agency** National Science Foundation (NSF)

**Beginning Date** June 01, 2014 (if accepted)

**Ending Date** May 31, 2018 (if accepted)

**Project Objective** The key objective of this work is to assess better the gross uncertainty regarding key outcomes by integrating regional natural-human system models as tightly coupled systems. Specific objective 1 is to adapt each regional model to reduce uncertainty surrounding the long run outcomes of each system by: a. integrating greater heterogeneity of system processes into each model; and, b. conducting model predictions as stochastic processes. Specific objective 2 is to use the information from each model to predict the distribution of key outcomes by ensembling the several regional models for each particular key outcome.

**Project Summary and Accomplishments** First a finite element groundwater-surface water model is amended from its deterministic form to a stochastic model. Second, land use change is modeled as a hierarchic discrete choice process. Using state-of-the-art spatial statistics and Bayesian sampling the choice process from thousands of random walk cellular automata simulations generates a long run distribution of land use changes. Third, four regional climate change models, downscaled from alternate global climate models, will be ensembled using the same method that ensemble land use, weather and hydrology models. This adds efficiency to downscaled climate prediction, especially at the extremes.

In addition, a final model of current weather inside a given season will convert simple krieging of weather events between dispersed stations by drawing on information from land use and hydrology to predict inter-station outcomes. These models will be ensembled, in turn, from one direct and two inferred marginal predictions of land use, hydrologic and climate outcomes. Finally the multivariate outcome distributions are used in two ways. First Bayesian extrapolation from a high

resolution forest growth and ecological services experiments on long leaf pine conducted by the Duke FACE project is used to assess future forest ecology outcomes under different policies and climate stress. Next, key results are presented by email survey to citizens who demonstrate some familiarity with water allocation issues in the region. We test for differences in willingness to reach consensus between these two information delivery mechanisms.

**Keywords**

Land use changes, climate, gross system uncertainty, cross model ensembling, Kriegering, downscaling

<b>Project Title</b>	An Assessment of the Impact of Extreme Weather Events on Beef Cattle Production Systems and Management Practices
<b>Principal Investigators</b>	Shaikh M Rahman, Luis Tedeschi, Eric Belasco, Michael Farmer
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$5,000
<b>Funding Agency</b>	College of Agricultural Sciences and Natural Resources
<b>Beginning Date</b>	September 2012
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	The main objective of this research project is to examine the impact of extreme weather events on pasture growth, stocking rates, and ranch, feedlot, and carcass performance of beef cattle. In addition the project assesses the future economic viability of ranch and feedlot operations in the face of extreme weather and viable land use alternatives, evaluate alternative feeding and health management practices that reduce weather stress on stocker and feeder animals, and evaluate effective herd management strategies.
<b>Project Summary and Accomplishments</b>	<p>Texas AgriLife Extension Service estimates the direct agricultural production losses from the 2011 drought to be \$5.2 billion, a record high; and losses included \$2.06 billion to the livestock industry. This raises a concern that protracted stress (another drought or merely a below median year) could accelerate the current decline of domestic herds that began in the mid-1970s. An assessment of extreme weather impacts on the beef production system is needed: how do ranchers and feedlot operators respond to extreme weather conditions in the short run and prepare for extreme weather in the long run? Are economic conditions strained such that a severe or protracted drought is sufficient to disrupt sustainable practices?</p> <p>The primary hypothesis of this research is that severe or protracted extreme weather conditions exert permanent influence on the economic and productive stability of beef cattle operations and overall herd size. Thus, a sustainable system may require lower mean stocking rates, herd size, and a shorter finishing regime. Moreover, the existing economic safety nets, such as drought insurance, might not provide sufficient incentives for sustainable practices and may exacerbate the problem of food security in this sector. A multidisciplinary approach, combining the perspectives of beef cattle nutrition, ecology, and economics, is adopted to assess the impacts of extreme weather conditions. A well-established decision support system model for beef cattle growth is employed to evaluate alternative animal feeding and health management practices. A</p>

Bayesian statistical technique is employed to assess the weather impacts and evaluate effective adaptive strategies. A stakeholder group will be established consisting of range scientists and their feedlot and rancher clientele. Results will be first communicated to the stakeholder group in order to assess the feasibility of given practices and adaptability, and then to producer groups to maximize the knowledge base for the sustainable practices accessed in this research.

**Keywords**  
management

Extreme, weather, impact, beef, cattle, production,

<b>Project Title</b>	Precision Agriculture in the Texas High Plains
<b>Principal Investigators</b>	Chenggang Wang
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$14,900 (\$3,000 from September 2012 to August 2013)
<b>Funding Agency</b>	Texas A&M University/Texas AgriLife Research – Lubbock
<b>Beginning Date</b>	June 2007
<b>Ending Date</b>	June 2014
<b>Project Objective</b>	The overall objective of this project has been to develop data analysis tools for site-specific management, taking into consideration interactions between soil nutrients and environmental factors. Specific objectives include: 1) developing cost-effective methods of identifying yield-limiting factors in the field; 2) evaluating profitability of site-specific management in the Texas High Plains.
<b>Project Summary and Accomplishments</b>	In the 2012-2013 project year we published a paper on the economics of deficit irrigation. The paper presents a model to determine the optimal extensity and intensity of irrigation on a farm facing limited water supply. The model was applied to a representative cotton farm in Hale county, Texas to evaluate the outcomes of government-sponsored cost-sharing programs aimed at improving irrigation efficiency.
<b>Keywords</b>	Precision farming, deficit irrigation

<b>Project Title</b>	Determine the Status of Precision Farming Technology Adoption by Cotton Farmers in the 2007-2008 Crop Season in 12 States – Texas
<b>Principal Investigators</b>	Chenggang Wang, Eduardo Segarra, and Jeff Johnson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$35,000 (\$8,000 from January 2013 – December 2013)
<b>Funding Agency</b>	Cotton Incorporated
<b>Beginning Date</b>	January 2009
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	Determine the status of precision farming technology adoption by cotton farmers in the 2007-2008 crop season in 12 states (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Missouri, North Carolina, South Carolina, Tennessee, Texas, and Virginia).
<b>Project Summary and Accomplishments</b>	In 2012 we conducted the third survey for use of precision farming technology by cotton farmers in 12 southern states of US. We also published a paper examining the impact of precision farming technology on cotton lint yield.
<b>Keywords</b>	Precision farming, technology adoption



<b>Project Title</b>	A Hydro-Econometric Analysis of Producer Water Use and Aquifer Hydrology in the Texas High Plain
<b>Principal Investigators</b>	Chenggang Wang, Jim Bordovsky, Jeff Johnson, Eduardo Segarra, and Zhuping Sheng
<b>Departmental Involvement</b>	Agricultural and Applied Economics, Texas Tech University and Texas AgriLife Research and Extension, Texas A&M University
<b>Funding Amount</b>	Total amount: \$261,662; TTU portion: \$160,087 (\$62,288 spent from September 2012 to August 2013)
<b>Funding Agency</b>	USDA/NIFA/AFRI
<b>Beginning Date</b>	September 2009
<b>Ending Date</b>	August 2013
<b>Project Objective</b>	The primary objective of the project is to develop a groundwater policy assessment model for the Texas High Plains aquifer system, in order that the impacts of water conservation policies can be soundly evaluated and better strategies developed to preserve the ground water resources.
<b>Project Summary and Accomplishments</b>	In the 2012-2013 project year, our effort has been focused on integrating the econometric model of water demand with the hydrologic model of Ogallala Aquifer in the Texas High Plains. A technical report has been prepared for USDA/NIFA.
<b>Keywords</b>	Groundwater, Texas High Plans, technology adoption, crop choice, land use

<b>Project Title</b>	Use of Alternative Water Sources for Bioenergy Crops
<b>Principal Investigators</b>	Chenggang Wang
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	\$10,000 (\$8,808 spent from September 2012 to August 2013)
<b>Funding Agency</b>	Sun Grant through Texas A&M AgriLife Research
<b>Beginning Date</b>	August 2011
<b>Ending Date</b>	December 2013
<b>Project Objective</b>	The purpose of this project is to assess profitability of cultivating bioenergy crops with marginal quality irrigation water in West Texas and Southern New Mexico.
<b>Project Summary and Accomplishments</b>	In the 2012 project year, we have been conducting the economic analysis of comparing profitability of alternative crops in West Texas and Southern New Mexico.
<b>Keywords</b>	Bioenergy crop, rural land use management

<b>Project Title</b>	The Energy-Water Nexus: Evaluating the Interstate Trade of Water Resources Through Electricity
<b>Principal Investigators</b>	Ryan Williams, Aaron Benson
<b>Departmental Involvement</b>	Agricultural and Applied Economics; Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2012
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Investigate the flow of fresh water resources within the continental United States from resource extraction, through the generation of electricity, to the consumption of electricity. Identify potential inefficiencies resulting from state and federal energy policy initiatives as well as incomplete grid connectivity.
<b>Project Summary and Accomplishments</b>	Preliminary work has been to obtain the necessary data to quantify water consumption by resource extraction technology and electricity generation technology. We estimate that over 2 trillion gallons of fresh water resources are consumed in the generation of electricity each year in the United States. States that have historically produced electricity by hydroelectric generation have experienced increases in the average water usage for electricity production in recent years. States that have invested in wind and solar electricity generation have experienced a decline in the average water usage per megawatt hour.
<b>Keywords</b>	Energy-water nexus, virtual water, water footprint

<b>Project Title</b>	An Economic and Climatic Analysis on the Future of Isolated Desert Wildlife Waters
<b>Principal Investigators</b>	Ryan Williams, Kerry Griffis-Kyle, Jeffery Kovatch (Marshall University)
<b>Departmental Involvement</b>	Agricultural and Applied Economics; Natural Resources Management
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	May 2012
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Create a tool for managers of isolated desert wildlife waters to use in response to increased climate variability in the Sonoran desert. The tool will be based upon how isolated desert waters respond to climate variations and the costs to maintain a sustainable volume of water. Additionally, this project aims to estimate the social value of actively managing isolated desert waters and attempts to generate a value for the ecological services provided by those waters.
<b>Project Summary and Accomplishments</b>	A proposal has been submitted to the Bureau of Reclamation Desert LCC. The proposal was not funded. We are looking for alternative funding sources for this project. A contingent valuation survey has been developed and is being reviewed by those actively managing the isolated desert waters.
<b>Keywords</b>	Isolated desert waters, contingent valuation, ecological services

<b>Project Title</b>	The External Costs of Wind Farm Development on the Great Plains: Are Developers Making an Effort to Minimize These Costs?
<b>Principal Investigators</b>	Ryan Williams
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2011
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Determine the extent to which wind farm developers have selected development sites which minimize the impact on avian species and human populations. Given that society is not being compensated for these external costs of wind farm development it
<b>Project Summary and Accomplishments</b>	The presence of human populations on the great plains neither increases nor decreases the likelihood of wind farm development. Additionally, the presence of human populations is not correlated with the size of wind farm development. The same results hold for sage grouse and prairie chicken habitat. As development relates to habitat for migratory waterfowl, there is an increased likelihood of development in good waterfowl habitat. However, the size of development is decreasing with the presence of such habitat.
<b>Keywords</b>	Wind energy, externalities, land use, avian habitats

<b>Project Title</b>	Evaluating the Factors Influencing Wind Energy Development
<b>Principal Investigators</b>	Ryan B. Williams, Eric J. Belasco (Montana State University), and H. Allen Klaiber (Ohio State University)
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	October 2009
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	This project aims to identify and quantify the factors which are important in a particular tract of land being selected as suitable for wind farm development. We are particularly interested in the role that Renewable Portfolio Standards (RPS) play in wind farm development.
<b>Project Summary and Accomplishments</b>	More appropriate statistical methods have been implemented and additional data collected. RPS, availability of appropriate wind, and access to electric transmission lines are statistically significant variables in siting wind projects. A voluntary RPS decreases the likelihood of development to the point that it negates the positive impact of the standard itself. Greater crop use in a region also decreases the likelihood of development. The extent of development (nameplate MW potential) is increased with RPS and the availability of electric transmission lines.
<b>Keywords</b>	Wind energy, land use, renewable portfolio standard

<b>Project Title</b>	Virtual Water and Limitedly Renewable Water Resources
<b>Principal Investigators</b>	Ryan Williams, Rashid Al-Hmoud
<b>Departmental Involvement</b>	Agricultural and Applied Economics; Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	September 2008
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Investigate the concept of virtual water as it relates to the production of agricultural commodities on the Southern High Plains of Texas. The project aims to provide a unique perspective on the virtual water concept due to the limitedly renewable nature of the primary water source for agricultural production in the region.
<b>Project Summary and Accomplishments</b>	We utilize high resolution data over a remarkably homogeneous production region to determine the water resources contained within the various agricultural commodities produced on the Llano Estacado of West Texas. The project demonstrates that the study region is a net exporter of water-intensive commodities, which is inconsistent with being a semi-arid region with a limitedly renewable water resource. Additionally, the project highlights that the measures of virtual water grossly overestimate water usage in this region.
<b>Keywords</b>	Virtual water, Ogallala Aquifer, water footprint

<b>Project Title</b>	Suicide Risk in Older Adults: Evaluating Models of Risk and Predicting Excess Zeros in a Primary Care Sample
<b>Principal Investigators</b>	Ryan Williams, Kelly Cukrowicz
<b>Departmental Involvement</b>	Agricultural and Applied Economics; Psychology
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2012
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Evaluate suicide risk in older adults utilizing a sophisticated modeling approach. Inform a more streamlined screening procedure for identifying suicide ideation amongst older adults in primary care setting.
<b>Project Summary and Accomplishments</b>	We employ a zero-inflated negative binomial regression to account for excessive zeros in the data. This statistical method is novel in the suicide literature and will potentially change the way in which researchers in this field analyze their data and interpret their results.
<b>Keywords</b>	Zero –inflated negative binomial, excess zeros, psychology, suicide



<b>Project Title</b>	Per Capita Income and Farmers' Markets: Searching For An Environmental Kuznets Curve for Environmental Attributes
<b>Principal Investigators</b>	Ryan Williams, Aaron Benson, Maria Mutuc
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Investigate the relationship between per capita income and the prevalence of farmers' markets as a possible example of the environmental Kuznets curve.
<b>Project Summary and Accomplishments</b>	Presented the preliminary research at the WAEA Annual Meetings in Monterey, CA in June 2013. We learned that the farmers' market data that we acquired was flawed for this type of analysis. We will be looking to adjust the data to account for the flaws.
<b>Keywords</b>	Environmental Kuznets curve, farmers' markets

<b>Project Title</b>	An Economic Valuation on the External Cost of Milk Packaging and Delivery Options
<b>Principal Investigators</b>	Ryan Williams, Clinton Neill (student), Aaron Benson
<b>Departmental Involvement</b>	Agricultural and Applied Economics
<b>Funding Amount</b>	N/A
<b>Funding Agency</b>	N/A
<b>Beginning Date</b>	January 2013
<b>Ending Date</b>	ongoing
<b>Project Objective</b>	Quantify the private and social costs of alternative milk packaging to establish total social costs for comparison.
<b>Project Summary and Accomplishments</b>	Presented the preliminary research at the Western Agricultural Economics Association Annual Meetings in Monterey, CA in June 2013.
<b>Keywords</b>	External costs, milk packaging

**Appendix B**  
RESEARCH FUNDING  
2012/13

## Research Expenditures (\$), Department of Agricultural and Applied Economics, Texas Tech University

September 1, 2012 through August 31, 2013

	Internal				External									
	Applied Economics	Endowments	Other	TOTAL INTERNAL	State			Federal			Private		GRAND TOTAL	
					Outside TTU	CASNR	Other	TOTAL STATE	USDA	Other	TOTAL FEDERAL	PRIVATE		TOTAL PRIVATE
Benson	6,510		31,797	38,307								908	908	39,215
Carpio			20,322	20,322	683		14,000	14,683						35,005
Chidmi	20,804		38,612	59,416	655			655						60,071
Elam			10,188	10,188										10,188
Farmer									30,700		30,700	87,550	87,550	118,250
Hudson		29,141		29,141					120,870		120,870	28,040	28,040	178,051
Johnson, P		30,612		30,612	108,941		69,985	178,926				132,253	132,253	341,791
Johnson, J						4,520		4,520	65,057		65,057			69,577
Knight		55,609		55,609			13,620	13,620						69,229
Lyford	3,350			3,350	85,284	1,093	3,750	90,127						93,477
Malaga			1,625	1,625										1,625
Murova	6,750		5,970	12,720		5,000		5,000						17,720
Rahman			19,301	19,301		8,418		8,418						27,719
Segarra	20,960			20,960		7,581		7,581						28,541
Wang	4,650		25,797	30,447					70,800		70,800	12,393	12,393	113,640
Williams Gen. Operating			5,673	5,673										5,673
Operating	54,851			54,851										54,851
<b>TOTAL</b>	117,875	115,362	159,285	<b>392,522</b>	194,225	27,950	101,355	<b>323,530</b>	287,427	-	<b>287,427</b>	261,144	<b>261,144</b>	<b>1,264,623</b>

\* Includes general operating expenses, as well as allocations to Principal Investigators

**Appendix C**  
**PUBLICATIONS**

2012/13

## **JOURNAL ARTICLES**

Adhikari, S., T.O. Knight, and E.J. Belasco. "Yield Guarantees and the Producer Welfare Benefits of Crop Insurance." *Journal of Agricultural and Resource Economics* 38/1(2013):78-92.

Allen, V.G., C.P. Brown, R. Kellison, P. Green, C.J. Zilverberg, P. Johnson, J. Weinheimer, T. Wheeler, E. Segarra, V. Acosta-Martinez, T. Zoebeck and J.C. Conkwright. 2013. Integrating Cotton and Beef Production to Reduce Water Withdrawal from the Ogallala Aquifer in the Southern High Plains: I. Ten-year Effect on Water Use and Productivity. *Agronomy Journal*, in press.

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## **ABSTRACTS**

Abbas, A. and B. Chidmi. "Female Labor Force Participation in Pakistan and Some MENA Countries." Selected paper prepared for presentation at the Southern Agricultural Economics Association Annual Meeting, February 2-5, 2013, Orlando, Florida.

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### **THESES AND DISSERTATIONS**

Alamo-Gonzalez, Carmen. "Implications of Product Differentiation in Food Demand: Coffee Case United States". Dissertation, May 2013.

Bhalla, Kushal. "Time Series Analysis of the Generation Fuel Mix of Electricity Market in ERCOT Region of Texas." Dissertation, May 2013.

Bian, Dacheng. "The Value of a Playa Lake Ecosystem Service." MS Thesis, December 2012.

Funtanilla, Margil. "Differentiated Products Demand Estimation and its Implications for Price Competition and Welfare Effects: The Case of the Salty Snack Industry." Dissertation, August 2013.

Keeling, William. "Cotton Profitability as Influenced by Cultivar, Irrigation and Nitrogen Level, and Harvesting System". MS Thesis, December 2012.

Liu, Bing. "Essays on the Economics of Agriculture and Energy in Texas." Dissertation, May 2013.

Tewari, Rachna. Essays on Climate Change: Economic Impacts and Public Opinion Analysis. Dissertation, August 2013.

Wang, Haiyan. "Assessing the Effect of Knowledge and Attitudes on Skin Cancer Prevention in Rural Communities. MS Thesis, May 2013.

Wang, Qizhi. "Modeling Upland Cotton Yield Distributions in Texas: An Evaluation of Cotton GRP and STAX Programs". Dissertation, December 2012.

Wright, Andrew P. "An Examination of Issues and Policies Related to Groundwater Management in Three Essays". Dissertation, December 2012.





## **Appendix D**

**PRESENTATIONS THAT WERE NOT  
PUBLISHED IN ANY OUTLET**

2012/13

Aboohamidi, A. and B. Chidmi. "Female Labor Force Participation in Pakistan and some MENA Countries". Presented at the Annual Southwestern Agricultural Economics Association meetings.

Alamo C. and J. Malaga. "Coffee Demand at Retail Level and Marketing Strategies for the U.S. Market" Presented at the Annual Meetings of the Food Distribution Research Society. San Juan, Puerto Rico, October 2012.

Hudson, D. "Agriculture Outlook for Cotton." Presentation to the 2012 Bankers Agricultural Credit Conference, November 2012, Lubbock, Texas.

Hudson, D. "Chinese Textile Production and the Future of U.S. Cotton Exports." Texas Cotton Association Annual Flow Meeting, September 2012, Lubbock, Texas.

Hudson, D. "The General Agricultural Outlook." Presentation to the Farmers Cooperative Compress Annual Meeting, August 2013, Lubbock, Texas.

Hudson, D. "Grain and Feed Markets." Presentation to the Texas AgriLife Livestock Field Day, November 2012, Amarillo, Texas.

Hudson, D. "The Importance of Agriculture to the Local Economy." Presentation to the Lubbock Chamber of Commerce Agriculture Appreciation Luncheon, March 2013, Lubbock, Texas.

Hudson, D. "The Macro-Economy and Agriculture." Presentation to the AgTexas Annual Bank CEO Conference, October 2012, Lubbock, Texas.

Hudson, D. "Setting the State for a Policy Discussion." Presentation to the Plains Cotton Ginners Annual Meeting, August 2013, Lubbock, Texas.

Isengildina-Massa, O., S.D Zapata, C. Carpio and D. Lamie. "Does E-Commerce Help Farmers' Markets? Measuring the Impact of MarketMaker." Selected Poster presented at Annual Meetings of the American Agricultural and Applied Economics Association, August 4-6, 2013, Washington, D.C.

Johnson, P. "Data Plans for the Initiative for Strategic and Innovative Irrigation Management and Conservation." Presentation at the Water Management and Conservation: Database Workshop, April 26, 2013. Lubbock, Texas.

Lyford, C. Global Food Insecurity and Obesity: Everyone Loves French Fries. Texas Tech Health Science Center, November 5, 2012, Lubbock, Texas.

Lyford, C. A Multidisciplinary Effort Towards Preventative Health. Transdisciplinary Research Academy, Texas Tech University, November 1, 2012, Lubbock, Texas.

Lyford, C., B. McCool, E. Belasco, A. McCool, B. Pence and T. Carter. Working with the Local Supermarket to Bring Cancer Prevention Information and Encouragement to Rural Communities. Poster presented at the 2012 Innovations in Cancer Prevention and Research Conference, October 24-26, 2012, Austin, Texas.

Malaga, J. "Facing the World's New Challenges: The Search for Integrated, Efficient, and Sustainable Solutions." Participation at the 2013 CIUTI Forum, United Nations, January 2013, Geneva, Switzerland.

Malaga, J. and P. Martinez-Mejia. "Differentiation as an International Marketing Strategy: The Latin American Coffee Case." Presented at the Annual Meetings of the Food Distribution Research Society, October 2012, San Juan, Puerto Rico.

Pence, B., E. Belasco and C. Lyford. Combination aspirin and/or calcium chemoprevention with colonoscopy in colorectal cancer prevention: Cost-effectiveness analysis. AACR Frontiers in Cancer Prevention Research Conference, October 16-19, 2012, Anaheim, California.

Rahman, S.M. "Adoption of the Clean Development Mechanism of the Kyoto Protocol." Invited paper presented at the Economic Research Group, December 18, 2012, Dhaka, Bangladesh.

Rahman, S.M. and G. Kirkman. "Costs of Certified Emission Reduction under the Clean Development Mechanism of the Kyoto Protocol." The 2013 conference of European Association of Environmental and Resource Economics (EAERE), June 26-30, 2013, Toulouse, France,

Wright, A. and D. Hudson. "Spatial Analysis of Irrigation." Presentation to Ogallala Aquifer Project Group, December 2012, Amarillo, Texas.

Zapata, S., C. E. Carpio, O. Isengildina-Massa, and R.D. Lamie. "Producers' Willingness to Pay for the Services Provided by an Electronic Trade Platform: The Case of MarketMaker." Selected Poster presented at *Annual Meetings of the Southern Agricultural Economics Association*, Orlando, Florida, February 2013.



**Appendix E**

NOTES ON DEPARTMENT RESEARCH  
ADVISORY COMMITTEE MEETING

2012/13

**Agenda for AAEC Research Advisory Committee Meeting  
November 14, 2011**

- 7:00 a.m. Breakfast, Student Union, Mesa Room  
Welcome and Remarks by Interim Dean Michael Galyean  
Advisory Committee Members and Deans Office
- 8:00 a.m. Convene in AAEC Conference Room (Ag. Sci. 302)
- 8:15-8:45 Water Economics Research Update & TAWC activities  
Dr. Justin Weinheimer, Research Assistant Professor and Assistant Director of  
the Water Resources Center - CASNR
- 8:45-9:15 Agricultural Competitiveness and Cotton Economics Research Institute  
Dr. Darren Hudson, Larry Combest Endowed Chair in Agricultural  
Competitiveness
- 9:15-9:30 Break
- 9:30-10:00 Non-Traditional Departmental Research Areas: New Horizons for Human  
Health Related Research  
Dr. Conrad Lyford
- 10:00-10:30 Non-Traditional Departmental Research Areas: Alternative Feasible Sources  
of Energy  
Dr. Aaron Benson and Dr. Ryan Williams
- 10:30- 10:45 Brief Review of Past Year's Activities  
Dr. Eduardo Segarra
- 10:45-11:00 Break
- 11:00 a.m. Meet with students, research staff working on research projects (Ag. Sci. 302)
- Noon Lunch, Student Union, Mesa Room, Advisory Committee, PI's, Dean's Office,  
Mark Wallace – NRM (invited), Alon Kvashny – LA (invited), Leslie  
Thompson – AFS (invited), Steve Fraze – AEC (invited), and Rick Zartman –  
PSS (invited)
- 1:15 p.m. Reconvene in AAEC Conference Room (Ag. Sci. 302). Executive committee  
meeting - AAEC Research Advisory Committee (excluding department and  
college representatives).
- 2:00 p.m. Recommendations, etc., provided to the department; faculty encouraged to  
attend.
- 2:30 p.m. Adjourn

## **Notes on the AAEC Research Advisory Committee Meeting – November 22, 2010**

The committee convened for breakfast at 7:00 am. in the Mesa Room of the Student Union at Texas Tech University. In attendance were the following committee members: Mr. Todd Straley, Mr. Sam Hill, Dr. John R. C. Robinson, Mr. Bart Roye, Mr. Mike Mauldin, and Dr. Jaroy Moore. Also in attendance were Associate Dean Sukant Misra, Associate Dean Norman Hopper, and Dr. Eduardo Segarra. Introduction and brief remarks were made by Eduardo Segarra highlighting the role played by departmental advisory committees, and the importance of research partnerships efforts within and outside of the University. Also, he made brief remarks regarding university budgetary issues.

The Advisory Committee re-convened at 8:00 am. in Room 302 of the Agricultural Sciences Building to formally begin the AAEC Research Advisory Committee Meeting. The committee members had previously received a copy of the 2010-2011 Annual Research Report of the Department of Agricultural and Applied Economics. A copy of the Agenda for the meeting is attached to these notes. The meeting's agenda included presentations covering Water Economics Research Activities (Justin Weinheimer), Agricultural Competitiveness (Darren Hudson), and Non-Traditional departmental research areas such as Human Health (Conrad Lyford) and Alternative Feasible Sources of Energy (Aaron Benson and Ryan Williams). Each of these presentations highlighted the previous year's research projects included in each of these departmental research thrusts and briefly summarized some of the most significant findings. Then, Dr. Eduardo Segarra made a presentation highlighting the overall departmental research program for the past year. Several faculty members, as their schedules permitted, were present during these presentations.

Shortly after the research presentations were made by faculty, a meeting of the Research Advisory Committee with several of departmental Graduate Students, Research Associates, and Post-Doctorate Research Associates took place. This is important because it is imperative that the Research Advisory Committee members get to personally know our research staff and students who in many ways enable us to be able to make it possible for us to carry out our departmental research program.

The Advisory Committee members, Dean's office personnel, and departmental faculty had lunch in the Mesa Room of the Student Union at

Texas Tech University. The Advisory Committee re-convened at 1:15 pm. in Room 302 of the Agricultural Sciences Building and the Advisory Committee began its executive session to discuss the research program, and their observations and recommendations.

At 2:00 pm. several faculty members re-convened with the Advisory Committee to listen to comments and suggestions from the committee. Relevant issues addressed included:

- The Advisory Committee was pleased with the overall departmental research program and its multidisciplinary characteristics in addressing varied issues of relevance to agriculture and the Texas High Plains.
- Given the severity of the drought in 2011, the Advisory Committee recommended emphasizing water related research dealing with the short and long term impacts of drought as well as the role of technological development in agriculture.
- The Advisory Committee highlighted that the graduate students felt well supported and had excellent access to both, faculty and equipment to be able to accomplish their research related tasks.
- The Advisory Committee made several suggestions regarding academic programs including: making sure courses and comprehensive exams are well sequenced in the graduate program, microeconomic theory is taught in-house, efforts should be made to enhance the graduate students' ability regarding grant writing skills, seek to enhance internship opportunities for graduate students, and seek to obtain teaching assistant funds to be able to develop graduate students' teaching skills.
- The Advisory committee suggested the need to enhance the department's website to make it more attractive.

The meeting adjourned at 3:00 p.m.



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