ANNUAL REPORT

RESEARCH PROGRAM

2011/12

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

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Complied by

Eduardo Segarra and DeeAnn Pruitt

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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 2011/12. 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 2011/12 was a busy year for research activity in Agricultural and Applied Economics. In FY 2011/12 a total of 58 individual research projects were active in the department. Appendix A contains the individual annual progress reports of each active research project in fiscal year 2011/12. 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 2011/12 was $1,690,024 (Table 1), slightly below the $1.82 million level of last year. Details regarding the funding of specific research projects in 2011/12 are provided in both Appendix A and B. Of the over $1.69 million research expenditures in 2011/12, slightly over 43% came from state sources, slightly over 51% came from federal sources, and the remaining came from private sources. As depicted in Table 1, and shown in Figures 1 and 2, overall total research funding has been quite stable in the last six years. The three year moving average research funding level has been around $1.8 million per year for the past seven 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 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, 2011/12 proved to be the best year ever for the department, in terms of the number of graduate degrees awarded. In FY 2011/12 a total of 19 graduate degrees were awarded: 5 Ph.D. degrees, 4 MAB, and 10 M.S. Much of the increase in graduate degrees awarded in the last two 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 40 graduate students from research funds in 2011/12 (we had a total enrollment of 48 graduate students). In addition to graduate student

training and degrees awarded, nearly a dozen undergraduate students were supported from research project funds in 2011/12.

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 2011/12 fiscal years. Appendices C and D contain a complete listing of the 2011/12 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 2011 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 2011/12

Year	Source			
	State	Federal	Private	TOTAL*
	----------Dollars----------			
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
1989/90	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	1,869,822
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

*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

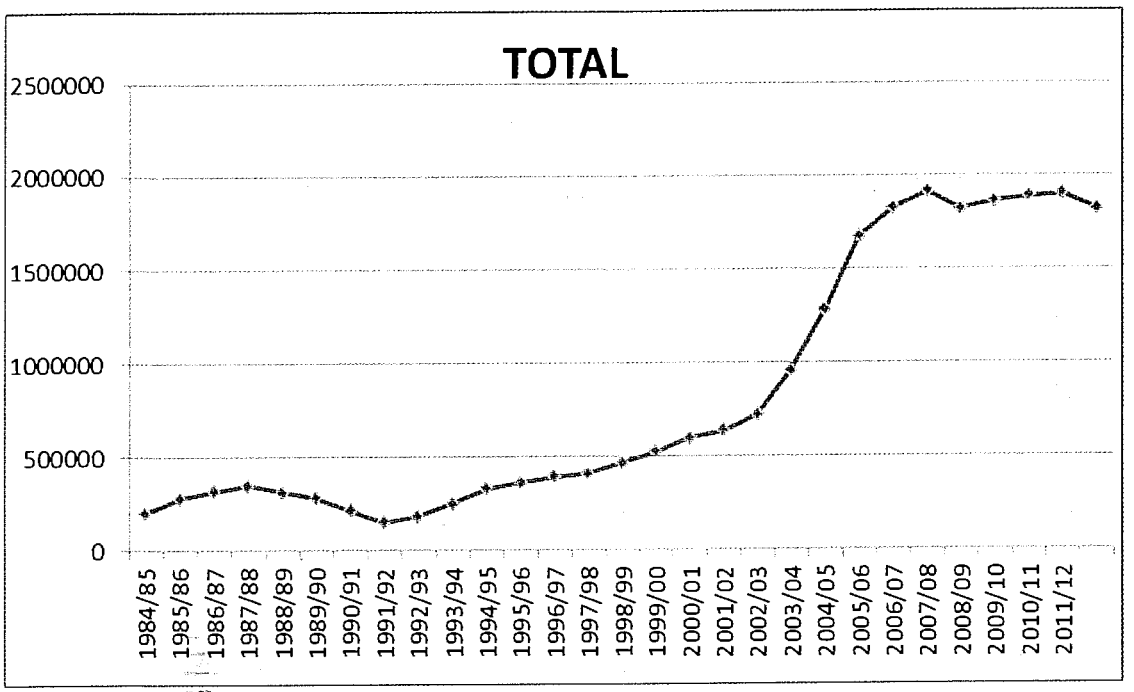

Figure 2. 3 Yr. Moving Average of State and Federal Funding

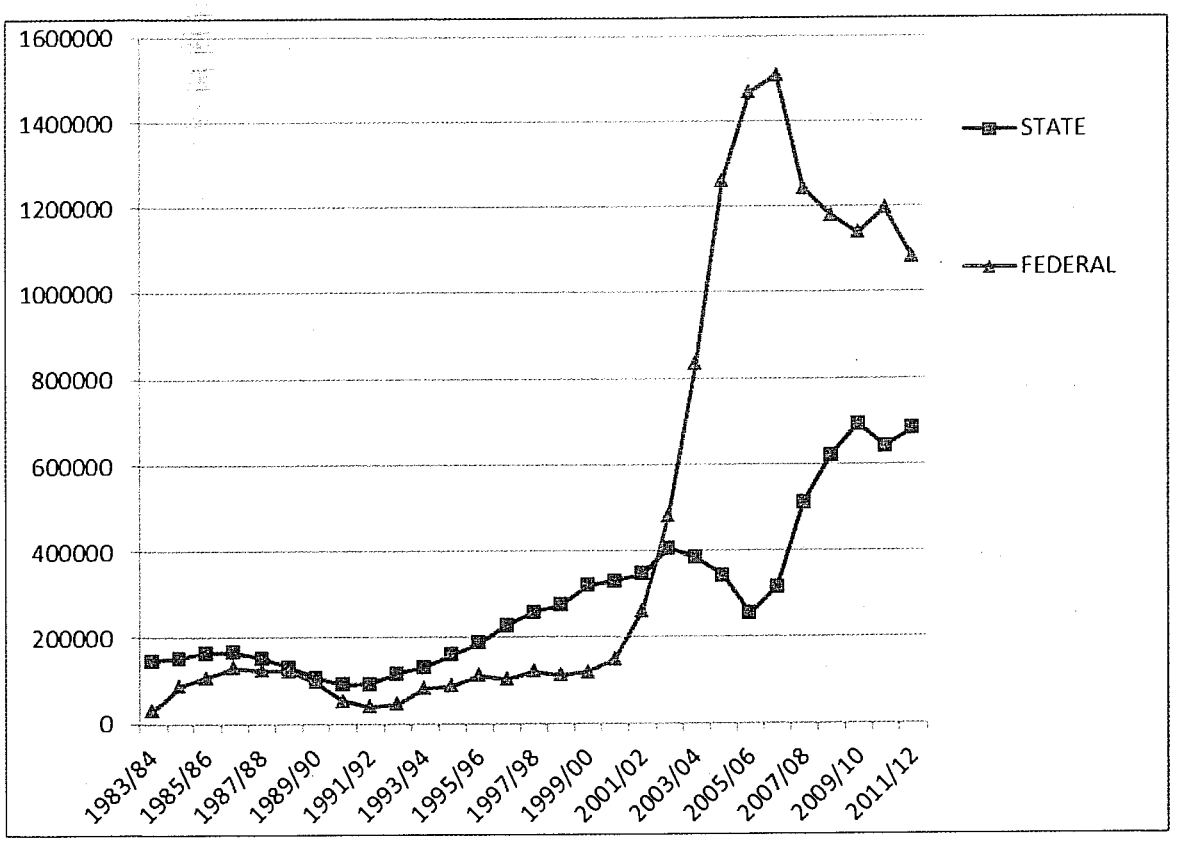

Table 2. Graduate Degrees Awarded, Department of Agricultural and Applied Economics, 1982/83 to 2011/12

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

Table 3. Department of Agricultural and Applied Economics Publications And Presentations, 1979/80 to 2011/12

Year	Journal Articles	Books & Chapters	Technical Reports.	Proceeding Papers	Abstracts	Other Presentations
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	19	2	5	22	24	29

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, 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.

The research program continues to be more nationally and internationally recognized as evidenced by our hosting a Fulbright Scholar from Tajikistan to learn about cotton policy analysis. Faculty members in the department also engaged in a broad range of service activities for industry (domestic and international), government, and professional organizations that are directly related to cotton. Principal investigators also answer many questions and requests for information to the industry and general public on a regular basis, although no formal record for these activities is maintained.

The analytical platform for most of the policy analysis is the "Global Fibers Model," which is an econometric model developed over years and represents the most comprehensive model of global cotton markets, thus providing timely and reliable information on expected impacts of policy alternatives and changing market conditions to policy-making groups—Congress, USDA, and other cotton and textile industry participants. The model also links with the FAPRI consortium models of other agricultural sectors and the AFPC farm-level income projection model.

During the 2011/12 fiscal year, CERI staff produced several important publications on the following issues:

1. The impacts of market structure and subsidies on global prices by China and India
2. Global cotton market baseline
3. The impacts of domestic offsets and cap-and-trade on cotton.

In addition, CERI staff continued a major project in Brazil.

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.

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 impacts of mergers and acquisitions in the agricultural supply chain.

2. The Chair continues to publish a newsletter called *Competing for Profit*.
3. The Chair co-sponsored a research conference with the Economic Research Service and Farm Foundation on the impacts of animal product trade on North American animal agriculture.

Thornton Agricultural Finance Institute

The mission of the Thornton Agricultural Finance Institute is to focus faculty research on important topics in 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.

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.
- Farm and Ranch Succession

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.

In 2011/12 there was one active, funded risk management research project. This project was funded by the Risk Management Agency of the USDA for a 5-year period beginning in 2007 and ending in 2012. The project produced a comprehensive risk analysis tool for use by stocker cattle producers in the Southern Great Plains and in the southeastern United States. This tool was completed in July 2012 and is available on the Agricultural and Applied Economics Department website (see "Stocker Cattle Decision Tool" at http://www.aaec.ttu.edu/).

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 are 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. There was an obvious synergy between CNAS activities and other projects in our department with international dimension, specifically the Great Plains Sorghum Improvement and Utilization Center and the Cotton Economics Research Institute.

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. Two Zamorano students spent the spring 2011 semester at TTU performing research under TTU faculty supervision.

Two studies dealing with disaggregated Mexican meat demand system at table cut level and it implications for trade, were published in 2012. These studies provide in-depth analysis of the Mexican meat market demand while using a theoretically and methodologically sound research approach that updates Mexican meat demand elasticities. A series of studies on US and Mexican agricultural competitiveness trends were undertaken. Results were presented at four international conferences on global agriculture in the U.S., China, Russia, and Mexico.

CASNR Water Center

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.

The CASNR Water Center was well represented at the Universities Council on Water Resources (UCOWR) meetings in July 2012 with 8 presentations. Jeff Johnson, Associate Director of the CASNR Water Center, was on the organizing committee and a presenter at the TTU Water Summit in July 2012. Many other presentations and journal articles were made through disciplinary meetings and journals.

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

- Sustainable grazing of dryland OWB can be done profitably, but ranchers are likely to face roughly 40% chance of negative profits.

- Early snowmelt is not likely to cause a decrease in irrigation water deliveries from reservoirs whose primary purpose is to provide flood protection, except in cases where the quantity of water deliveries is similar to the capacity of the reservoir (i.e. greater than about 50% of reservoir capacity).

- Playa lakes probably do not provide much value to irrigated producers on the Southern High Plains, in terms of aquifer recharge.

- Carbon offset policies (in which producers of energy goods can receive a premium for producing a with a lower carbon output) are unlikely to induce water savings on the Texas High Plains.

- 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%.

- When Public Comment on Water Plans is restricted to predetermined criteria (e.g. 50/50 Rule), not technical stake-holders may not be able to shoe-horn social objectives of their concern into those criteria. Survey de-briefing of stake-holders found public comment failed to address the social outcomes that stake-holders openly consider important. This lends support to Maass (1962) suggestion that Multi-Criteria Analysis in water planning obliges modelers to back up and vet stake-holder objectives, and then create criteria able to model outcomes of their concern.

- A study on outdoor exercise in Lubbock used a standard public health survey to assess the effect of a landscaping pattern to encourage mobility. It seemed to work well in Lubbock. Yet after sorting residents into housing submarkets that overlap in the same neighborhood, the residents engaged in more rigorous outdoor activity as landscape changed were those already exercising. There was no detectible effect on those not exercising. Economic analysis improved a common public health indicator to illustrate that a known 'at risk' community was not served.

- A finite mixture model located two distinct housing submarkets in Lubbock, TX in an area all other criteria we could identify would consider them homogeneous. Willingness to pay for community improvements differed widely, even as these residents often lived in the same neighborhoods. Tiebout sorting by neighborhood fixed effects (one neighborhood, one type) is not statistically efficient.

- An empirical study of two very different cities (Lubbock, TX and Columbus, OH) illustrated that the use of variable measure 'distance to' an amenity (store, school, work) are inconsistent estimators of those effects which cannot be identified. Yet with no distance variable, omitted variable bias biases all other home attributes (Age and Lot size for instance are not identified). A correction to estimate the aggregate effect of location (farm, business, residence) prevents bias in other factors affecting the choice to purchase property, but cannot unpack the value of being close to individual amenities.

- We convinced several researchers to collect data on wildlife and rangeland health in the 2011 drought rather than suspend research. Using maximum likelihood and Bayesian methods, we ranked areas where no shoots or no animals were observed, the vast majority, in terms of predicted recovery. 2012 showed an almost perfect match on prediction of relative recovery to actual recovery. This suggests stress years provide more information about the sources of ecosystem stress with a high degree of reliability, even with extremely sparse data.

- Methods for farm management succession vary among farm family business and the methods used to engage the succeeding generations in management are found to impact the success or failure of the farm succession process.

- Decisions to transfer managerial control of a family farm business to a designated successor and the transfer process are not universally similar and are influenced by operator demographics, business planning practices and value of farm and non-farm assets.

- The expansion of dairies in West Texas may have a noticeable impact on water availability in a local area but minor impact on the region while increasing the economic activity. Direct water use for a 3,000 head dairy is equivalent to the irrigation water used for 100 acres of corn and local crop composition would change approximately 1,800 acres from corn for grain to corn silage which uses less irrigation water than corn for grain.

- Stocker cattle grazing on small grain and cool season annual pastures is a growing agricultural enterprise in the Southern Great Plains and Southeastern United States. The decision-making environment confronted by stocker cattle producers is complex. The Stocker Cattle Analysis Tool, developed by Texas Tech University and Mississippi State University, evaluates four types of decisions: wheat and stocker cattle production, wheat and stocker cattle pricing, farm program participation, and wheat and livestock insurance. The tool, which is available on the Texas Tech University, Department of Agricultural and Applied Economics website, evaluates profitability and risk associated with stocker cattle production in an integrated decision making framework.

- Coffee is undergoing a strong process of market differentiation that may lead to weakening the price discovery role of traditional futures markets.

- Coffee is not behaving as a homogeneous commodity in the US. Accelerated process of differentiation and branding is leading to statistically different demand parameters by region and coffee type.

- There is a 30% chance that the EU, regularly a minor sorghum importer, may irrupt in world market to purchase more that 50% of the sorghum supply distorting prices and consumption.

- Sub-Saharan Africa's potential import market for grain sorghum may reach 2.3 million MT by 2020. That is, almost the size of Mexican current imports of that grain.

- China's import share of top agricultural commodities is expecting to continue growing in the next ten years. By 2020 China may buy 65% of the world soybeans export supply.

- Brazil competitiveness in the world markets of beef, pork, poultry and cotton is expected to continuously increase in the next ten years.

- The current wine market in the Dominican Republic is saturated. Spain and Chile are main competitors of the United States. U.S. wines have increased their presence in the DR due to increased exposure to consumers, changing consumption patterns, and lower transportation costs.

- Almost all available wine in the Dominican Republic is controlled by importers.

- The Unites States high-end wines present the best market potential in the Dominican Republic, and a few importers indicated that they are open to negotiate a new addition of these wines in their upper level segments.

- The best approach to introduce new wines to the Dominican Republic is to work with one of the major importers as they are familiar with the market, common distribution channels, and promotional and marketing activities that increase sales.

- A recent study has shown that the adoption rate of precision farming technology in cotton is lower in Texas than in other southern US states.

- A recent study has shown that farm size, ownership of land, and exposure to extension activities influences the choice of technology used to collect within-field variability data for practicing precision agriculture for cotton in Southern United States.

- A recent study has shown that the cotton producers adopting both soil and plant based technologies to collect within field variability data are more likely to adopt variable rate input application in Southern United States.

- A recent study has shown that Texas cotton producers are less likely to adopt variable rate technology for input application than their counterparts in other Southern US States.

- A recent study has shown that adoption of variable rate input application technology has not led to significant yield increase in Texas cotton.

- A recent study has shown that Texas cotton producers using high efficiency irrigation technology, such as center pivot and sub-surface drip, are more likely to adopt precision agriculture.

- A recent study has shown that commodity prices, fertilizer prices and soil productivity are the most important factors influencing agricultural land use decisions in Illinois.

- A recent study has shown that the practice of concentrating the available irrigation water to a portion of the field and keeping the rest of the field rain-fed can lead to higher yield and profitability for cotton under deficit irrigation scenario in Texas High Plains.

- Greater than 2 trillion gallons of fresh water resources are consumed in the generation of electricity in the United States annually, not counting the water used in the extraction and processing of resources used in the generation of electricity.

- Wind farm development site choice in the Great Plains of the United States has seemingly not incorporated the social costs of such development.

- A recent study has shown that industrial development has contributed to agricultural productivity growth in rural China.

- Preliminary results of the demand estimation performed suggest that variables such as price, calories, and sodium are statistically significant. This concurs with the common belief that higher prices mean less money to spend on other goods thus utility drops as purchase price rises. The same negative sign is exhibited by calories and sodium which supports this research's initial hypothesis that consumers have become more conscious about health and wellness as partly suggested by the snack's nutrition profile.

- The marginal utility from calories increases with income, age, and the number of persons under 18 years old, although these coefficients are not statistically significant. The marginal valuation for sodium decreases with income, under 18 implying that wealthy and teens are more sensitive to saltiness, while it increases with age. Male puts more value to sodium than female counterparts suggesting that adults and male are less sensitive to the saltiness of a snack.

- Firms use price as well as non-price tools, such as advertising and promotions, to compete in the market place.

- The rate of advertising goodwill depreciation is very fast, the marginal return to augmented goodwill, and hence to advertising may be large enough to induce firms to advertise.

- Analyzing the consistency of firm's behavior with static model of firm behavior (assuming Bertrand-Nash pricing games) resulted in negative signs of recovered brand marginal costs. This provides a stronger motivation to explore a dynamic approach to analyzing the strategic interactions between the firms producing the salty snack brands in our sample.

- The elasticities were also estimated for the thirty-four brands in the sample. The own-price elasticities have a range between -1.071 and -.3083 suggesting a relatively elastic demand for these salty snacks. The magnitude were mostly intuitive, for instance, Lay's Classic potato chip is least sensitive to changes in price of Cracker Jack Popcorn, and Snyder's of Hanover Pretzel, while it is more responsive to changes in price changes for Doritos and Fritos.

- As we move far from the frontier, the effect of government payments on TE increases.

- Fish and seafood products are differentiated products

- Product characteristics play an important role in demand for fish and seafood products when treated as differentiated products, fish and seafood have elastic demand

- The packaging size (small, medium, family size), and the types of products (breaded, unbreaded, entrée) are factors that consumers take into account when they buy fish and seafood products.

- Greater penetration of renewable energy into the electric grid, or in other words, the integration of electric grid with renewable sources of energy has led to destabilization of the gird.

- The intermittent nature of wind has put additional pressure on the fossil fuel sources like coal and gas, and has affected their growth and efficiency levels.

- Since 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 the 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 following power deficiency is compensated by the coal and gas fired generators.

- As a result there is a strong degree of correlation that exists between both fossil fuel sources as well as renewable sources of power production.

- The coal and gas sources have got both daily and weekly seasonality which exists on account of different electric demand patterns during the morning, evenings, late night and the weekends.

- There is no significant change in trend for the power produced from coal and gas, but the series is ripe with complex periodic patterns of varying size and proportions. There is some change in slope during the changing seasons and also with the change in the generation fuel mix.

- The changing periodic patterns and some additional recurring patterns are more noticeable for gas and coal. However wind/renewable energy had got a huge amount of unpredictable variation and wide swings in power production pattern.

- For the average consumer, Ready-to-Eat Cereals (RTEC) price and calories provide negative marginal utility, and therefore affect demand negatively.

- Retailer's promotional activities are shown to increase the demand for specific brands of RTECs.

- The own-price elasticity estimates show that consumers are quite sensitive to RTEC prices

- The results indicate that the model where retailer's margins are zero outperforms the other three models and provides the best fit. This result implies that RTEC manufacturers have the pricing decisions and that the retailers do not intervene in setting the retail prices for breakfast cereal brands.

- At the retail level, there is no statistical difference between the price-cost margins realized by manufacturers across different supermarket chains.

- At the manufacturer level, Post and Kellogg brands appropriate the highest price-cost margins. For every dollar consumers spend buying Post and Kellogg's brands, Post and Kellogg appropriates around 31 cents as a margin. This attests to the bargaining power Post and Kellogg brands have in setting the retail prices. In contrast, Ralston extracts only approximately 22 cents on average for every dollar spent by consumers.

Appendix A

PROJECTS

2011/12

Project Title	Development of Winter Safflower as a New Biomass Energy Crop for the Lower Great Plains of North America
Principal Investigators	D.L. Auld, C.L. Trostle, M. A. Foster, S. Angadi, and Aaron Benson
Departmental Involvement	Agricultural and Applied Economics, Plant and Soil Science, Texas Tech University; Texas AgriLife Research, Texas A&M University; Plant and Environmental Science, New Mexico State University.
Funding Amount **Funding Agency**	Project Total: $225,000; AAEC Total: $51,000 ($23,000, $27,000 and $1,000 in the three years, respectively) United States Department of Agriculture Sun Grant
Beginning Date	July 2010
Ending Date	June 2012
Project Objective	Develop new varieties of winter safflower with greater oil content and better suited for biodiesel production, develop cultivation guidelines necessary for successful production of winter safflower and conduct an economic, water use and greenhouse gas lifecycle analysis of safflower production for use in comparison with alternative crops.
Project Summary and Accomplishments	Large-scale cultivation of industrial oilseed crops on the Texas High Plains is likely to positively impact the economic viability of the region, provided that the feedstocks can be produced at a significant input savings (specifically in terms of water) and that the environmental benefits of the feedstocks can be captured by growers. This project focuses on identifying the critical values of feedstock and biofuel price, input cost savings, and captured environmental benefits to improve the economic prospects of farmers in the region. The carbon lifecycle analysis conducted for this project shows that safflower seed oil biodiesel can be produced and used at about a 70% carbon savings over petroleum diesel. The producer decision analysis portion of the project shows that safflower cultivation can be profitable on the high plains with a seed price of about $0.07/lb, and with water application that is 50%-70% less than is required for irrigated cotton. We also show that if the seed producers are given incentives to lower the carbon emissions (i.e. if producers receive a certain dollar amount for every unit of carbon saved), that they would likely readily decrease water and fertilizer application.
Keywords	Safflower cultivation, biodiesel feedstock, life cycle analysis

Project Title	A Bioeconomic Model for Grazing Old-World Bluestem
Principal Investigators	Aaron Benson and Cody Zilverberg
Departmental Involvement	Agricultural and Applied Economics, Plant and Soil Sciences, Texas Tech University; Natural Resource Management, South Dakota State University
Funding Amount	None
Funding Agency	None
Beginning Date	December 2010
Ending Date	
Project Objective	Determine the profit risk of sustainably grazing Old World Bluestem (OWB) grasses given several sources of production uncertainty and complexity
Project Summary and Accomplishments	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. We find that sustainability constraints significantly limit the profit distribution of ranchers who graze dryland OWB. Limited irrigation of OWB might have significant effects on the profit distribution
Keywords	Dryland ranching, profit risk, biological complexity

Project Title	Irrigation Efficiency in an Endogenously Growing Economy
Principal Investigators	Aaron Benson and Ray Huffaker (University of Florida)
Departmental Involvement	Agricultural and Applied Economics, Texas Tech University; Food and Resource Economics, University of Florida
Funding Amount	None
Funding Agency	None
Beginning Date	November 2006
Ending Date	
Project Objective	Identify the effects on economic growth of water conservation policies that increase agricultural irrigation efficiency.
Project Summary and Accomplishments	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 *and* decreasing economic growth. Policies that aim to mitigate negative economic effects of drought by improving irrigation efficiency may actually harm economic growth. 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.
Keywords	Irrigation efficiency, economic growth

Project Title	The Economic Effects of Early Snowmelt Due to Aeolian Dust Deposition
Principal Investigators	Aaron Benson, Ryan Williams and Rahul Kanungoe
Departmental Involvement	Agricultural and Applied Economics, Texas Tech University
Funding Amount	None
Funding Agency	None
Beginning Date	December 2010
Ending Date	
Project Objective	Develop and apply a model to determine the costs of early snowmelt.
Project Summary and Accomplishments	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. 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. 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%).
Keywords	Snowmelt, integrated watershed management

Project Title	Playa Lakes and Ecosystem Services
Principal Investigators	Aaron Benson and Dacheng Bian
Departmental Involvement	Agricultural and Applied Economics, Texas Tech University
Funding Amount	None
Funding Agency	None
Beginning Date	March 2011
Ending Date	
Project Objective	Identify and determine the value of the various ecosystem services provided by the playa lakes of the Southern High Plains
Project Summary and Accomplishments	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. 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 lake surface area on well drawdown. We use a cotton production model to value the decrease in drawdown. We find that additional playa lake surface area has a miniscule value for irrigated cotton producers.
Keywords	Playa lakes, ecosystem services

Project Title	Carbon Policy and Sustainable Agricultural Resource Use
Principal Investigators	Aaron Benson
Departmental Involvement	Agricultural and Applied Economics, Texas Tech University
Funding Amount **Funding Agency**	None None
Beginning Date	October 2011
Ending Date	January 2012
Project Objective	Determine the ability of carbon policies to preserve other natural resources
Project Summary and Accomplishments	Agricultural production in many parts of the world is facing substantial natural resource constraints. In many cases, local and federal policies have been designed to promote sustainability of these resources in order to prolong their productive lives and guarantee economic benefits from farming farther into the future. Occasionally, environmental policies are crafted with the hope of fulfilling more than a single objective. The purpose of this paper is to determine how well current greenhouse gas (GHG) emissions policies can contribute to the goal of prolonging the productive life of the Ogallala Aquifer in Texas, in the United States. We consider decisions made by producers of two different agricultural commodities to determine whether the sale of carbon offsets could induce producers to decrease irrigation. We find that expected carbon prices are not likely to be sufficient to induce a substantial decrease in producer irrigation decisions on the Texas High Plains.
Keywords	Carbon emission policies, agricultural resources

Project Title	Estimating Dynamic Models of Price and Non-Price Competition in a Differentiated Products Oligopoly: The Case of the U.S. Salty Snack Industry
Principal Investigator/s	Margil Funtanilla and Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	None None
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To analyze several aspects of a differentiated products oligopoly, with a focus on the salty snack industry in United States
Project Summary Accomplishments	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.
Keywords	Dynamic oligopoly, differentiated products, discrete choice, salty snack
Publication	Part of this research was presented at the Annual Marketing Science Conference in Boston, Massachusetts, June 7-9, 2012.

Project Title	Time Series Analysis of the Generation Fuel Mix of Electricity Market in ERCOT Region of Texas
Principal Investigator/s	Bhalla Kushal and Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	None None
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To analyze several aspects of a differentiated products oligopoly, with a focus on the salty snack industry in United States
Project Summary Accomplishments	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.
Keywords	Time series, Kalman filter, vector auregressive.
Publication	Work in progress.

Project Title	Substitutions Between Fish and Seafood Products at the U.S. National Retail Level
Principal Investigator/s	Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$20,000 Southern Regional Aquaculture Center
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To estimate the substitution pattern between different fish and shellfish products and assess the impact of promotional activities on sales of fish and shellfish products in the US.
Project Summary Accomplishments	A non-linear AIDS model was used to estimate substitution patterns across of seafood categories at the US retail market. Results indicate that demand for catfish, crawfish, clams, and salmon products is elastic, suggesting that consumers are sensitive to price changes. In contrast, demand for shrimp and tilapia, mostly imported products, is price inelastic. The US consumers would "tolerate" an increase in tilapia price compared to other seafood categories, especially catfish. Tilapia and salmon are found to have the most negative effects on purchases of other seafood products. Catfish is a strong substitute for tilapia; while tilapia was not a strong one for catfish. Promotions play significant roles in seafood purchases, especially among import-dominant products shrimp, tilapia, and salmon. Future research should be at the metropolitan city level that would highlight market specificity implied by consumers' demographics; and secondly, at disaggregated levels for each seafood categories, product forms, and product sizes.
Keywords	Seafood demand, substitution, promotion, U.S. retail level
Publication	Work accepted for publication in Marine Resource Economics (2013).

Project Title	Vertical Relationships in the Ready-to-Eat Breakfast Cereal Industry in Boston
Principal Investigator/s	Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	None None
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To examine the vertical relationship between manufacturers and retailers in the ready-to-eat cereal (RTEC) industry in Boston in order to shed light on the power each agent has to set the price of RTECs in the Boston market.
Project Summary Accomplishments	This study examines the vertical relationship between manufacturers and retailers in the ready-to-eat cereal (RTEC) industry in Boston. More precisely, the questions to be answered are: What kind of vertical relationship exists between the manufacturers and the retailers? Does this relationship support the high price-cost margins in the RTEC industry? The results indicate that the RTEC manufacturers have the pricing decisions and that the retailers do not intervene in setting the retail prices for breakfast cereal brands. This is consistent with the vertical restraints theory that helps the manufacturers eliminate the externality created by the double marginalization scenario and an excessive demand contraction.
Keywords	Vertical relationships, discrete choice, supermarkets, market channel
Publication	Work accepted for publication in Agribusiness: An International Journal (2013).

Project Title	Curb Appeal Impact on the Price of Single-Family Houses
Principal Investigators	Emmett Elam
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	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.
Project Summary and Accomplishments	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%. One article was published in 2009 and one article is accepted for publication.
Keywords	Curb appeal, residential house price, hedonic house price model.

Project Title	Supplemental Biomass for a Multi-Product Biorefinery on the Southern High Plains
Principal Investigators	Michael C. Farmer, Darren Hudson and Aaron Benson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	Cotton, Inc.
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	Biorefinery production of cotton gin waste for electricity has been shown to be profitable (28% IRR) even with recurrent droughts and with no subsidies. During droughts however any biomass that could be added to gin trash has a very high 'shadow price,' or those supplements add considerably to profits overall. Since supplemental feed stocks (typically grasses) are in short supply during droughts, this study examined if the cost of transport plus the economic value of the grass (its expected purchase price in a drought) were still below the shadow value of that biomass in a biorefinery (electricity) plant.
Project Summary and Accomplishments	In the average drought (defined as 75% of average rainfall) biomass can be harvested and transported for $80/ton within 10 miles of those gins large enough to sustain a biorefinery. Biomass grass prices vary from $30/ton to $110/ton; but at $60/ton, grasses can be profitably delivered to an electric power island located at a cotton gin. Since not all droughts are of equal severity, there is a continuous distribution of drought grass prices. The amount of time when break-even prices of supplemental grass is profitable is to be estimated, but it is bounded between 5% to 10% of the time. A first pass imputation, however, suggests supplementation is profitable about once every 14-15 years.
Keywords	Biorefinery, operations research, peaking power electricity.
Important Publications and Presentations	M.S. Thesis. Michael Walker, May 2012. A Programming Approach to the Value of Biomass Supplements to a Biorefinery During Low Precipitation Years.

Project Title	Economic Benefits of Urban Ecology Structure in Lubbock, TX
Principal Investigators	Michael C. Farmer, Mark Wallace, Michael Shiroya
Departmental Involvement	Agricultural and Applied Economics, Natural Resource Management
Funding Amount **Funding Agency**	None None
Beginning Date	January 2012
Ending Date	December 2014
Project Objective	Assess the contribution of ecologically valuable landscapes on single family residential home prices in Lubbock, TX on water use and on physical activity.
Project Summary and Accomplishments	Landscapes that lower water use and support a diverse species habitat were shown to be highly valued for home prices. Parks do little for ecology or for home values; but private landscapes on a block make a street scape that does. This year we divided residents (see Simpler Method to Identify Submarkets) into two submarkets. The value of the same landscape revealed marginal benefits of one group almost three times larger than the other. Similarly increased physical activity occurred in one group and not the other; critically, the 'at risk' group is the one that shows no improvement. In almost every work we can identify, analysts would have aggregated these households into a single homogeneous group.
Keywords	Urban ecology, hedonic price analysis, health promotion
Important Publications and Presentations	"Bird Diversity Indicates Ecological and Economic Value." Farmer, Wallace and Shiroya. *Urban Ecosystems*. October 2011. Featured in at least eight newspapers and conservation magazines since October 2011.

Project Title	Transition to Dryland and Policy Reforms
Principal Investigators	Michael C. Farmer and Aaron Benson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	None None
Beginning Date	January 2009
Ending Date	December 2012, continued from December 2011
Project Objective	Extension centers on perverse effects of irrigation restrictions and the influence of fixing criteria (50/50 rule).
Project Summary and Accomplishments	Analyses show irrigation restrictions motivate producers to quite irrigated agriculture much sooner. Hardest hit are those with the least water but still irrigating. Those with 60' to 75' sat. thickness exit almost immediately and endure very high and disproportionate financial losses. These losses happen quickly enough that if the policy were reversed in a five year review of the state water plan, most of the damage would have occurred. An early survey of producers and rural community leaders finds concerns for the future are: future profitability of production agriculture; concern for small communities, including their water supplies; viability of a dryland agriculture at the time of conversion. They also care about current farmland prices. They expressed difficulty in 'shoehorning' their concerns into a 50/50 policy criteria. We identified indicators or benchmarks to match their stated social objectives to more easily catch unintended consequences, such as moving persons out of irrigated agriculture.
Keywords	Dynamic optimality, hoteling extraction, marginal user cost producer irrigation decisions
Important Publications and Presentations	Ph.D. dissertation, Jonathaniel Principe, May 2012. A Hoteling Formulation for Optimal Transition to Dryland: Case of the Southern High Plains. Presentations: Farmer, Benson and McMahon. "A Case Study in Multi-Objective Water Management." National Water Council. Sun Valley, ID August 2012

Project Title	A Simpler Method to Identify Submarkets Using Direct Household Information
Principal Investigators	Michael C. Farmer and Eric Belasco
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	
Ending Date	
Project Objective	A model of submarket identification in Atlanta, GA found three distinct separable submarkets in a single neighborhood. This project sought a more efficient method (statistically) and a method easier to deploy.
Project Summary and Accomplishments	A finite mixture model using demographic information identified the existence of three types. A hedonic model was used to sort residents into three or less distinct submarkets Regressing house price on characteristics was run simultaneously for three regression models (one for each type), correlation allowed a typology that continuously resorted residents into types. The flexibility of that model was extended this year to several potential problems where heterogeneity can distort an outcome estimate. In housing data, the method was used to identify different location decisions by types, even when they live in the same neighborhood. Also using an EM estimator, we identified methods to extend the result from a small sample. We used the method in the 2011 drought to predict which types of plant and which types of species were likely to recover with rainfall and which would likely not recover of recover more slowly. In all cases, planned field work was to be suspended, but proved valuable to collect if analyzed with more precision.
Keywords	Hedonic price estimation, real estate submarket identification, finite mixture models
Important Publications and Presentations	Using a Finite Mixture Model of Heterogeneous Households to Delineate Housing submarkets. 2011. *Journal of Real Estate Economics*.

Project Title	Managing Invasive Animal Species at the Local Level Using Non-Professional, Local Human Capital
Principal Investigators	Michael C. Farmer and Gad Perry
Departmental Involvement	Agricultural and Applied Economics, Natural Resource Management
Funding Amount	None
Funding Agency	None
Beginning Date	January 2012
Ending Date	open
Project Objective	Methods to reduce biological invasives by economists have centered on imposing Pigovian Taxes (pay for expected damage) or other efficient import restrictions at port of entry; yet none of these methods appears to avert biological invasions. Objective is to design methods that better prevent and respond to animal invasions using a broader set of economic incentives.
Project Summary and Accomplishments	This work uses pet stores and local policing authorities (usually fire departments) to work in concert both to prevent and then respond rapidly to escapes. Standard economic instruments tend to favor the *least* responsible importers by placing a uniform tax to cover average damages. This functions as 'pooled insurance,' with its well-known incentives to increase risky behavior. In prior work we noted the need for pet stores and hobbyists to join local authorities to reduce to create strong incentives for everyone to work together to prevent and to respond to any escapes. Pit tagging, accepting returned animals are part of the activities that can greatly reduce risks. To place structure of that program we have identified two goals: *One* local entity needs to be identified as the responsible agency and, pet stores have to face financial incentives to cooperate. We propose very high deductions in operating licenses to pet stores for very ordinary levels of participation and providing to the local entity 'half' of those savings. Key to the motivation however is to explain the risks of escaped herps in particular, but also exotic fish.
Keywords	Invasive species, economic incentives of local participation, policy implementation
Important Publications and Presentations	Farmer, M.C., G. Perry. 2011. "Reducing the Risk of Invasives in Pet Trade by Policy." North American Herpetology Association. Vancouver, BC. August 2012.

Project Title	Structural Models of the U.S. and World Fiber Markets (Cotton FAPRI)
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To estimate and maintain a structural econometric model of U.S. and global fiber markets to be used in policy and market analysis.
Project Summary and Accomplishments	This project is a continuation of the FAPRI-consortium model that has been a mainstay of cotton policy analysis both nationally and internationally. We continue to update, revise, and refine the model and utilize the model for policy analysis and baseline projections. Results of the baseline and policy analysis have been presented to Congressional staff, USDA researchers, and private industry and has been featured in popular press outlets such as Bloomberg.com, *Southwest Farm Press*, and other regional and local media. Several critical research projects were completed or are underway related to this project: 1. Global baseline projections 2. Impacts of Chinese market power on the effects of U.S. cotton subsidies Chinese textile mill capacity and synthetic fiber markets
Keywords	Cotton, structural models, forecasting, international markets, policy analysis

Project Title	The Impacts of Biofuels on the Infrastructure of the U.S. Cotton Industry
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$8,000 ($8,000 Spent through 8/2012)
Funding Agency	Cotton Inc.
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	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.
Project Summary and Accomplishments	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.
Keywords	Cotton, cotton gins, policy analysis

Project Title	Emerging Cotton Issues in World Policy
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$3,000 ($400 Spent through 8/12)
Funding Agency	Cotton Inc.
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	To examine and document the role of internal subsidization of cotton production in global cotton markets.
Project Summary and Accomplishments	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.
Keywords	Cotton, subsidies, policy analysis

Project Title	A Comparative Analysis of the Economics of Cotton Farming: Subsidies and Production Costs of the World's Leading Producers
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$7,500 ($7,000 Spent through 8/12)
Funding Agency	Cotton Inc.
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	To examine and document differing production costs, subsidies, and market outcomes in the world's leading cotton producing countries.
Project Summary and Accomplishments	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.
Keywords	Subsidies, agriculture, costs of production, marketing systems, policy analysis

Project Title	An Analysis of the Costs of Production and Excess Capacity in China's Manmade Fiber Sector
Principal Investigator	Darren Hudson, Dean Ethridge, Maria Mutuc
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$0 (Supported in part by CERI)
Funding Agency	None
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	To examine subsidies, costs of production, and excess capacity in China's manmade fiber sector.
Project Summary and Accomplishments	This project uses cost data to determine the relationship between inputs and costs of production in polyester production in China. Preliminary results show evidence that China is subsidizing electricity prices because all other inputs are complements to electricity. Thus, by subsidizing the single input, they are subsidizing the entire production process, resulting in mounting excess capacity in China, thereby keeping global prices for the product low.
Keywords	textiles, polyester, cost of production, China

Project Title	Larry Combest Endowed Chair Research
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$74,442
Funding Agency	Endowed Chair
Beginning Date	September 2011
Ending Date	August 2012
Project Objective	To conduct research relevant to the long-term competitiveness of Texas and U.S. agriculture.
Project Summary and Accomplishments	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.
Keywords	Agricultural competitiveness

Project Title	Economic Research, Education, and Outreach in Brazil
Principal Investigator	Darren Hudson, Sukant Misra, A.C. Correa
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$117,013 ($19,000 Spent by 8/12) United States Department of Agriculture
Beginning Date	September 2010
Ending Date	August 2013
Project Objective	To conduct research on Brazilian agriculture and conduct policy education seminars in Brazil.
Project Summary and Accomplishments	We travelled to Brazil in summer 2010 for our initial meetings and conducted research in the Bahia and Northeast regions of Brazil.
Keywords	Cotton, Brazil, infrastructure

Project Title	Farm Forward IMPLAN Analysis of Water Policy
Principal Investigator	Darren Hudson, Rebekkah Dudensing, Steve Amosson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$40,753 ($40,753 Spent by 8/12)
Funding Agency	Texas Corn Growers
Beginning Date	June 2010
Ending Date	April 2012
Project Objective	To estimate the economic impacts of changes in water policy on sectors beyond the farm gate.
Project Summary and Accomplishments	We currently have developed the procedures and are gathering data to complete the analysis
Keywords	Water policy, economic impacts, IMPLAN

Project Title	Creating a Searchable Database of Foreign Subsidies
Principal Investigator	Darren Hudson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$10,000 ($10,000 Spent by 8/12)
Funding Agency	Cotton Inc.
Beginning Date	January 2012
Ending Date	December 2012
Project Objective	To develop a searchable database of foreign agricultural subsidies.
Project Summary and Accomplishments	The database is now online and regular modifications are being made. It is publicly available at the CERI website.
Keywords	Foreign agricultural subsidies, database

Project Title	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY11
Principal Investigators	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
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	Total funding $270,000; TTU portion $67,500 United States Department of Agriculture – Agriculture Research Services
Beginning Date	January 2012
Ending Date	December 2013
Project Objective	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: 1) Evaluate impact of compensated water use restriction on water use and farm level income and determine compensation levels. 2) Evaluate water use and economic impact of the feedgrain industry 3) Evaluate value of water for agricultural and non-agricultural use as well as non-use valuation 4) Conduct comparative economic analysis of adoption of SDI and center pivot irrigation systems for alternative crop mix scenarios
Project Summary and Accomplishments	This is an on-going project. No results are available yet.
Keywords	Water policy, Ogallala Aquifer, regional economics.

Project Title	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY10
Principal Investigators	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
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	Total funding $200,000; TTU portion $50,000 United States Department of Agriculture – Agriculture Research Services
Beginning Date	January 2011
Ending Date	December 2012
Project Objective	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 a. Economic analysis of agriculturally based ET weather networks, b. Growing dryland sorghum in clumps, c. Characteristics of complementary forage systems, d. Economic analysis of sorghum silage potential, e. Understanding climate variability for improving management decisions.
Project Summary and Accomplishments	This is an on-going project. No results are available yet.
Keywords	Water policy, Ogallala Aquifer, regional economics.

Project Title	Economic and Policy Implications of Underground Water Use in the Southern Ogallala Region – FY09
Principal Investigators	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
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	Total funding $150,000; TTU portion $37,500 United States Department of Agriculture – Agriculture Research Services
Beginning Date	January 2010
Ending Date	December 2011
Project Objective	The research objectives for this project are to 1) estimate the cost of implementing policies including: conversion to dryland, water use restriction, and irrigation technology adoption ; and 2) evaluate water use and economic impact of the fed beef and beef processing industry.
Project Summary and Accomplishments	This is an on-going project. No results are available yet.
Keywords	Water policy, Ogallala Aquifer, regional economics.

Project Title	Integrated Production, Harvesting, and Ginning Systems to Enhance Cotton Quality for Global Markets– FY11
Principal Investigators	J.W. Keeling, Co-PIs: J.P. Bordovsky, R.K. Boman, J.D. Wanjura, J.W. Johnson, E.F. Hequet.
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	Total funding $39,600; TTU portion $3,960
Funding Agency	International Cotton Research Center, United States Department of Agriculture
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	To evaluate the effects of cultivar, irrigation and nitrogen levels, and harvesting and ginning methods in sub-surface drip irrigation on cotton lint yield, fiber quality, and profitability.
Project Summary and Accomplishments	Project is on-going. No results are available.
Keywords	Cotton harvest

Project Title	Improving Management Practices for Olive (*Olea europaea* L.) Oil Production in Texas (Fourth Phase)
Principal Investigators	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
Departmental Involvement	Plant and Soil Science, Agricultural and Applied Economics
Funding Amount **Funding Agency**	Total funding $79,994; TTU AAEC portion $4800 Texas Department of Agriculture - Specialty Crop Block Grant
Beginning Date	October 2012
Ending Date	December 2013
Project Objective	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
Project Summary and Accomplishments	This is an on-going project. No results are available yet.
Keywords	Water policy, Ogallala Aquifer, regional economics.

Project Title	Economic Analysis to Optimize Management Decisions for Verticillium Wilt of Cotton
Principal Investigators	Terry Wheeler – Texas AgriLife Research Jeff Johnson – Texas AgriLife Research / TTU AAEC James Bordovsky - Texas AgriLife Research Katheryn Lawrence – Auburn University
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	Total funding $127,240; TTU AAEC portion $40,000 TDA Specialty Crop Block Grant
Beginning Date	September 2012
Ending Date	August 2014
Project Objective	The purpose of this study is to analyze the economic optimal management decisions involved with the management of Verticillium wilt of cotton in West Texas and Alabama.
Project Summary and Accomplishments	This is an on-going project. No results are available yet.
Keywords	Gossypium hirsutum, cropping system, irrigation, Verticillium dahliae

Project Title	Texas High Plains Initiative for Strategic and Innovative Management and Conservation
Principal Investigators	Phillip Johnson, David Doerfert, Steve Maas, and Rick Kellison - TTU Steve Walthour – North Plains Groundwater Conservation District
Departmental Involvement	Agricultural and Applied Economics, Agricultural Education and Communications, Plant and Soil Science
Funding Amount **Funding Agency**	9/11-8/12 $12,128 (total expenditures 9/11-8/14 $12,128) AAEC part 25% - $100,000
Beginning Date	September 2011
Ending Date	October 2014
Project Objective	The ***purpose*** 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 ***primary objective*** is to quantify water savings that can be realized from strategic irrigation management.
Project Summary and Accomplishments	This project is a joint effort with the North Plains Groundwater Conservation District. The 2012 crop year represents the 1st year of the project. Five producers with a total of 610 acres in eight sites (5 pivot and 3 SDI) have been included in the project. Irrigation monitoring equipment from McCrometer® and PivoTrac® has been installed on 7 of the 8 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. Soil moisture probes have been installed by AquaSpy® and John Deere Water®. 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 the two types of probes. Summer Water Management Updates were held at two project sites (Crosby and Lamb Counties) during June 2012. The purpose of the programs was to provide producers with information regarding current crop conditions and irrigation needs.
Keywords	Irrigation, water policy, resource allocation

Project Title	An Integrated Approach to Water Conservation for Agriculture in the Texas Southern High Plains
Principal Investigators	Vivien Allen, David Doerfert, Phillip Johnson, Eduardo Segarra, Rick Kellison, Calvin Trostle, Steven Klose, and Jim Conkwright
Departmental Involvement	Agricultural and Applied Economics, Agricultural Education and Communications, Plant and Soil Science
Funding Amount	$168,584 (9/2011-8/2012 expenditures), $495,771 (9/2004-8/2013 total expenditures)
Funding Agency	Texas Water Development Board - $610,565 (AAEC part of $6.8 million)
Beginning Date	September 2004
Ending Date	August 2013
Project Objective	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. Specific research projects have been identified. These include: (1) the analysis and evaluation of the farm level response and financial impacts of water conservation policies on a representative farm located in Floyd and Hale Counties; (2) the development of a resource based decision tool to assist producers in enterprise selection under specific water allocation and/or resource limitations; and (3) evaluate energy and carbon relationships within commercial agricultural production systems.
Project Summary and Accomplishments	The 2011 crop year represented the 7th 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. These cost and return analyses have aided in the understanding of how irrigation interacts in the profitability of the systems and the management and agronomic options that are available for producers to manage their water resources while producing sustainable profits. In addition to the annual cost and return budgets for each site, several other analyses have been conducted within the Economic Task. These analyses relate to energy and carbon use within each system and the production and financial viability of producers with declining water availability and/or water use restrictions imposed by regional water policies. <u>Farm Level Financial Impacts of Water Policy</u> Water conservation/management policies are being implemented on the

Texas High Plains through the state water planning process. This study evaluated the response of a representative farm located in Floyd County to the implementation of a water policy which restricts the amount of irrigation water availability such that 50% of the current saturated thickness must remain in 50 years, commonly known as the 50/50 water policy. The study used an integrated two step approach of a non-linear dynamic optimization model to determine farm level response decisions and crop selection, and a stochastic financial simulation model to understand the changes in financial variables of the farm resulting from the policy implementation over a ten year time horizon. Primary findings were that LEPA irrigated cotton and dryland sorghum are the optimal crops which maximize net returns per acre; dryland acres increased as a result of the 50/50 implementation; the probability of negative net cash income and ending cash reserves increased for all scenarios under the 50/50 policy; and significant water savings occurred only on moderate to high levels of initial saturated thickness. 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, University Council on Water Resources, and industry forums.

Energy & Carbon Audits

Energy use and carbon emissions have become important issues for agricultural producers. In most commercial agricultural operations, energy consumption per acre can be calculated by utilizing the process method that associates energy or carbon coefficients with each input utilized within a given operation. The process analysis method was chosen to help understand energy and carbon relationships for traditional and integrated farming practices over several crops and/or agronomic systems. Energy and carbon coefficients were established for all production inputs, such as fertilizer, chemicals, and fuel. Energy budgets have been developed such that the amount of energy required by each system and or crop can be compared with profitability, production practice, and cropping system. Energy and carbon audits have been completed for all the sites and fields in the demonstration project for the crop years 2005-2011. The energy and carbon audits represent the direct and indirect energy consumed in the production process and the carbon emitted. In the future we plan on including the carbon sequestered as plant material and soil organic carbon to calculate the net carbon footprint for each crop/system.
Accomplishments include presentations at the Beltwide Cotton Conference, University Council on Water Resources, and other industry forums.

Resource Based Decision Tool

A web based decision tool was 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.

Keywords Irrigation, energy, carbon, water policy, resource allocation

Project Title	Economic Considerations for Sorghum Management in the Southern High Plains
Principal Investigators	Phillip Johnson, Justin Weinheimer and R. Louis Baumhardt
Project Participants	Jeff Johnson and Eduardo Segarra
Departmental Involvement	Agricultural and Applied Economics – Texas Tech University and United States Department of Agriculture – Agriculture Research Services, Bushland, TX
Funding Amount	Expenditures 9/11 – 8/12 -$0; Total Expenditures 9/09 – 8/14 - $7,316
Funding Agency	United States Department of Agriculture – Agriculture Research Services; $15,000
Beginning Date	September 2009
Ending Date	August 2014
Project Objective	The objective of this study is to analyze from an economic perspective various decision factors that could be considered when planting sorghum. These include: 1) planting date, 2) seed selection, 3) row spacing, and 4) irrigation.
Project Summary and Accomplishments	Data 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.
Keywords	Grain sorghum, irrigation, management

Project Title	Economic Viability of Integrated Dryland Cropping Systems
Principal Investigators	Phillip Johnson, Justin Weinheimer and R. Louis Baumhardt
Project Participants	Jeff Johnson and Eduardo Segarra
Departmental Involvement	Agricultural and Applied Economics – Texas Tech University and United States Department of Agriculture – Agriculture Research Services, Bushland, TX
Funding Amount	Expenditures 9/11 – 8/12 - $0, Total Expenditures 9/09 – 8/14 $7,316
Funding Agency	United States Department of Agriculture – Agriculture Research Services; $15,000
Beginning Date	September 2009
Ending Date	August 2014
Project Objective	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.
Project Summary and Accomplishments	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.
Keywords	Grain sorghum, cropping systems

Project Title	A Tool for Making Wheat and Stocker Cattle Production, Insurance, and Price Risk Management Decisions
Principal Investigators	Thomas O. Knight
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$362,057 (9/11-8/12: $72,156)
Funding Agency	United States Department of Agriculture – Risk Management Agency
Beginning Date	October 2007
Ending Date	September 2012
Project Objective	Stocker cattle grazing on small grain and cool season annual pastures is a growing agricultural enterprise in the Southern Great Plains and Southeastern United States. The decision-making environment confronted by stocker cattle producers is quite complex. Three types of decisions—production, cattle pricing, and insurance—must be made in an integrated business management environment. The objective of this project is to develop a decision support system for use by producers in evaluating the expected profitability and risk associated with stocker cattle production utilizing alternative interrelated forage and livestock production systems and considering alternative pricing and insurance strategies. The decision tool will address multiple risks, in that it will integrate decisions relating to forage and livestock management, pricing, and insurance. Supporting educational materials will also be developed.
Project Summary and Accomplishments	This project was completed in July 2012. The product is a Web-based tool "Stocker Cattle Decision Tool" which is available on the TTU, Agricultural and Applied Economics Department Website at http://www.aaec.ttu.edu/. The decision tool was formally reviewed in April 2012 by a panel of academic and livestock industry representatives. The feedback from this independent review panel and from Risk Management Agency personnel was exceptionally favorable
Keywords	Risk management, stocker cattle

Project Title	Making Quality Pay for Irrigated West Texas Cotton
Principal Investigators	Conrad Lyford, Eric Hequet, Jeff Johnson
Departmental Involvement	Agricultural and Applied Economics Plant and Soil Sciences
Funding Amount **Funding Agency**	$80,188 (9/11 - 8/12 $0) International Cotton Research Center – United State Department of Agriculture
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	This project proposes to use data produced by the project cooperators as well as data in the public domain to design and evaluate a system aimed at achieving higher-value quality by: (a) Evaluating the impact of harvesting methods on returns; (b) Determining the needed ginning requirements for high-value market segments; (c) Evaluating the demand levels and trends in the selected market segments; (d) Estimating the potential increases in revenues and costs to the Texas cotton production and marketing sectors that would result from reaching higher-value market segments. There is currently ongoing interest within the industry in achieving these outcomes. Success in achieving these objectives would inform producers' judgment and help the cotton industry respond to the felt need to achieve improved pricing for superior West Texas cotton.
Project Summary and Accomplishments	The focus of the research in this fiscal year is to develop an economic analysis of the choices and value potential from improving the marketing and production of high value cotton production. Given the lack of funding for the ICRC, the research on this project was curtailed, but an analysis and associated Beltwide presentation was completed. It is expected that a peer-reviewed journal submission will be completed by the end of 2012.
Keywords	Cotton, pricing, harvest method, value

Project Title	Expanding U.S. Sorghum Exports to Sub-Saharan Africa: A Key Fast Growing Market
Principal Investigators	Conrad Lyford, Jaime Malaga, Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$144,851 (9/11 - 8/12 $36,213)
Funding Agency	International Cotton Research Center – United States Department of Agriculture
Beginning Date	January 2011
Ending Date	January 2012
Project Objective	Sub-Saharan Africa (SSA) is poised to become a key importer of sorghum as incomes and population increase within these countries. Currently, there is considerable demand and consumer acceptance for sorghum. Within these countries, Ethiopia, Nigeria and South Africa have been selected for a particular focus because they represent the countries within the region with the highest potential consumption or import growth. It would be hoped that success in marketing to these countries would prove to be a stepping stone to success in expanding sorghum exports to the entire region. The overall goal of this project is to develop a comprehensive assessment of SSA sorghum markets for expanding US sorghum exports. Several key outcomes from achieving this objective are: (a) An assessment of SSA sorghum import demand to meet both human and feed needs. The results of this assessment will be disseminated for free to the public; (b) An evaluation of the competitive situation for US sorghum in SSA relative to other sources; (c) Provide a comprehensive set of recommendations for US sorghum marketers to more effectively expand into SSA markets.
Project Summary and Accomplishments	At this point, the final report for the project has been completed and provided to cooperating agencies.
Keywords	Sorghum, Sub-Sahara Africa, export expansion

Project Title	A Public-Private Partnership for Cancer Prevention in Rural Communities
Principal Investigators	Conrad Lyford, Barry McCool, Eric Belasco
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$292,339 (9/11 - 8/12 $146,170)
Funding Agency	Cancer Prevention Research Institute of Texas
Beginning Date	March 2011
Ending Date	February 2013
Project Objective	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.
Project Summary and Accomplishments	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.). As statistical analysis is completed in the fall, several publications are planned.
Keywords	Prevention, cancer, rural health

Project Title	Center for North American Studies (CNAS)
Principal Investigator	Jaime E. Malaga
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$ 117,331 United States Department of Agriculture – Cooperative State Research, Education and Extension Service
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	Promote stronger agricultural trade relationships among North American partners (USA, Mexico, and Canada). Analyze the impacts of the growing integration of US and Mexican agricultural industries on the regional economy with emphasis in the cotton-textile, feed grain, and livestock sectors.
Project Summary and Accomplishments	Two studies dealing with disaggregated Mexican meat demand system at table cut level and it implications for trade, were published. These studies provide in-depth analysis of the Mexican meat market demand while using a theoretically and methodologically sound research approach that updates Mexican meat demand elasticities. A series of studies on US and Mexican agricultural competitiveness trends were undertaken. Results were presented at four international conferences on global agriculture in China, Russia, and Mexico. The paper presented in Mexico was invited as a principal paper at the Annual Meetings of the Mexican Agribusiness Association. The effects of the sudden EU sorghum demand on Mexico were studied and recommendations were share with the US sorghum exporters. US.-Central America- Caribbean: Two students of the Pan American Zamorano school in Honduras were invited to spend a semester to explore potential research issues involving the US and Central America. Additionally, a key note presentation was prepared for an invitation of the Caribbean Food Crop Society annual meetings in May.
Keywords	NAFTA, Mexico, international trade, demand analysis

Project Title	Great Plains Sorghum Improvement and Utilization Center – Economic Analysis
Principal Investigator	Jaime E. Malaga
Departmental Involvement	Agricultural and Applied Economics, Plant and Soil Sciences, Agricultural Education and Communications
Funding Amount **Funding Agency**	AAEC: $ 75,000 United States Department of Agriculture – Cooperative State Research, Education and Extension Service , Kansas State University
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	To develop 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.
Project Summary and Accomplishments	The Texas Tech's partial equilibrium international trade model for grain sorghum (GS) had been updated, maintained, and expanded. In recent past, the US has been Mexico's only supplier and Mexico has been the main market for US GS, importing about 60% of the amount available for international trade. However, in recent years the US share of the world sorghum market has been declining and new exporters like Argentina and Australia are expanding their shares. In the demand side, new importers are slowly growing, among them the European Union, Africa, other Latin American countries. 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.. Two research papers were prepared simulating the impacts on the sorghum system of a) a future increase in the sorghum derived demand from expansion of Sub Saharan Africa import demand, and b) the impacts on sorghum price and exports of a recent expansion of the European Union demand. Results were presented at professional meetings and to sorghum producer groups. A MS thesis was finalized on the second topic.
Keywords	Grain Sorghum, international trade, trade forecasting models

Project Title	Analysis of Specialty Coffee Differentiation in the U.S. Retail Market
Principal Investigator	Jaime E. Malaga, Benaissa Chidmi
Departmental Involvement	Agricultural and Applied Economics
Funding Amount Cooperating Agency	Universidad de Puerto Rico
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	To estimate the demand parameters at retail level of regular and differentiated coffees in the US market, particularly in the cities of Chicago, Houston, Los Angeles, New York, and Seattle.
Project Summary and Accomplishments	When a commodity is transformed into a differentiated product it offers unique, heterogeneous products to consumers. The differentiated goods are best described as close but imperfect substitutes. They perform the same basic functions but have differences in quality attributes such as origin, style, flavor, reputation, appearance, and location that tend to distinguish them from each other. In the coffee case the major differentiation process has been related to type, flavor, reputation, and denomination of origin. The demand parameters for regular and differentiated coffee are being estimated using retail scanner data. Price and expenditure elasticities were estimated for major differentiated lines. Results suggest that coffee, like some other commodities, is undergoing a process differentiation that separates it from conventional commodity behavior. The research will have implications related to methodologies of forecasting coffee demands, as well to innovative production, and marketing strategies for both regular and differentiated products.
Keywords	Agribusiness, marketing, demand analysis, coffee, product differentiation

Project Title	Market Assessment and Opportunity Identification for Export of U.S. Wine to the Dominican Republic
Principal Investigator	Olga Murova, Natalie Kolyesnikova and Tim Dodd
Departmental Involvement	Agricultural and Applied Economics Department and Texas Wine Marketing Research Institute of the Nutrition, Hospitality and Retailing Department, Texas Tech University
Funding Amount **Funding Agency**	$50,000 total ($30,000 for the period 09/01/11-06/01/12) Foreign Agricultural Service of United States Department of Agriculture, Emerging Markets Program
Beginning Date	February 2011
Ending Date	June 2012
Project Objective	The objective of this project is to evaluate demand and consumers' behavior and preferences in the emerging wine market of the Dominican Republic with the goal to identify opportunities for export of U.S. wine to the Dominican Republic.
Project Summary and Accomplishments	This project investigates the opportunities of exporting U.S. wine to the Dominican Republic. Qualitative and quantitative data were collected through interview of agents within this industry. Market analysis was done to assess if there is a niche for exporting U.S. wine to the DR. Two trips to the DR were made to meet with FAS of U.S.D.A. in Santo Domingo and to discuss the current situation of the wine market in DR by conducting interview with wine importers, distributors, hotel and supermarket managers, and managers of all-inclusive hotels. Consumer data was collected and analyzed. The collected data set may be used in education and professional research and may help in future studies on the DR wine market. The final report is submitted to FAS of U.S.D.A.
Keywords	U.S. wine export market, market analysis, Dominican Republic

Project Title	An Assessment of the Impact of Extreme Weather Events on Beef Cattle Production Systems and Management Practices
Principal Investigators	Shaikh M Rahman
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	January 2011
Ending Date	August 2013
Project Objective	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.
Project Summary and Accomplishments	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? 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 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 Extreme, Weather, Impact, Beef, Cattle, Production, Management.

Project Title	The Clean Development Mechanism: Mitigation, Diffusion, and Adoption
Principal Investigator	Shaikh M Rahman, Ariel Dinar, and Don Larson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	January 2009
Ending Date	December 2012
Project Objective	The overall objective of this project has been to examine the incidence, extent, and scope of the Clean Development Mechanism (CDM) in mitigating Kyoto obligation of the industrialized countries and sustainable development of the developing countries. Specific objectives of the project include: 1) examine the global diffusion pattern of the CDM and provide forecast of future growth; 2) examine the factors affecting CDM adoption by developing and developed countries; 3) estimate the cost structure of the CDM and design policies to align incentives of the industrialized and developing countries to attain the objective of the mechanism as outlined by the Kyoto Protocol; and 4) examine bi- and multi-lateral cooperation between developing and developed countries, and how such cooperation contribute to cleaner environment and sustainable development.
Project Summary and Accomplishments	The CDM is a market-based provision that allows industrialized countries to contribute to compliance with part of their quantified emission limitation and reduction commitment by investing in GHG abatement projects in developing or transitional economies, allowing for reduction in global emissions at a lower cost. Another stated objective of the CDM is to assist the host countries in achieving sustainable development through the mobilization of direct private foreign investment and technology transfer. This research project first examines the current trajectory of potential mitigation entering the CDM pipeline and projects it forward under the assumption that the diffusion of the CDM will follow a path similar to other kinds of innovations. Second, this project examines the determinants (including time and country-specific attributes) that explain differences in the probability and level of CDM adoption over time and across countries, with distinction between developing (host) and developed (investor) countries. Third, this project examines the cost structure of emissions abatement through various types of CDM projects located in different developing countries. Finally, this research examines the CDM market as a cooperative involvement between developing (host) and developed

(investor) countries. The main findings of the project are that 1) the mechanism is on track to reduce 700 million tCO2e emissions per year by 2012 and nearly 1,100 million tCO2e by 2020, 2) CDM projects are characterized with economies of scale but diseconomies of time, 3) simplifying the CDM project regulation/clearance cycle is an essential policy option for further growth of CDM activities, and 4) the skewed sector composition of CDM projects indicates that the CDM alone may not be up to the task of fully exploiting known and economically viable sources of mitigation, suggesting a great scope for finding additional ways of investing in the mitigation potential of developing countries.

Keywords Kyoto, CDM, mitigation, diffusion, adoption, cooperation.

Project Title	Contracting for Cattle Feeding: Assessment of Climatic Conditions and Value Based Pricing of Fed Cattle
Principal Investigators	Shaikh M Rahman and Richard E. Just
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	September 2009
Ending Date	August 2013
Project Objective	The general objective of this project is to examine the optimal behavior of cattle owners and feeders under various climatic conditions. The specific objective of this research is to examine the cattle feeders' optimal choice from alternative contract forms and cow-calf producers' optimal choices of contract parameters and fed cattle pricing system under alternative weather conditions.
Project Summary and Accomplishments	While cattle feeders' choice of feed and health management practices alter average daily gain, feed efficiency, and beef yield and quality, feedlot performance of cattle also depends crucially on environmental attributes, especially temperature, humidity, sunshine, wind speed, precipitation, and mud depth. The feeders' actions are not observable or verifiable, and the feeders' contribution to cattle's feedlot and carcass performance cannot be distinguished from weather impacts. The only practically measurable and verifiable attributes of finished cattle are feed cost, live weight gain by each animal, and the length of time the animal stays in the feedlot. These are the enforceable variables included in cattle feeding contracts in current use. However, this gives rise to a potential moral hazard problem, especially when fed cattle are priced based on actual yield and carcass characteristics. A multitask principal-agent model is developed to analyze optimal cattle feeding contracts under alternative fed cattle pricing methods and risk-preferences of the contracting parties. In order to evaluate the theoretical predictions, a biophysical model for beef cattle growth simulation is adopted from the animal science literature and employed to simulate feedlot and carcass performance outcomes of a large set of feeder steers under several beef production technology. The main findings of this research are as follows. First, a low-powered incentive contract such as the yardage-feed contract is optimal under the value-based grid pricing, while a relatively high-powered incentive contract such as the cost-of-gain contract is optimal under the traditional live- and

dressed-weight pricing. Second, overall beef quality improves with the adoption of grid pricing. Third, the cattle feeders' optimal choice of feeding strategy and contract forms significantly vary across different locations with varied weather attributes. Based on this research, two preliminary manuscripts are prepared to submit in peer reviewed academic journal.

Keywords Contracting, beef yield, beef quality, value-based pricing, climatic condition, multitask principal-agent model, biophysical growth model.

Project Title	Precision Agriculture in the Texas High Plains
Principal Investigators	Chenggang Wang
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$14,900 ($3,500 from September 2011 to August 2012) Texas A&M University/Texas AgriLife Research – Lubbock
Beginning Date	June 2007
Ending Date	June 2012
Project Objective	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.
Project Summary and Accomplishments	In the 2011-2012 project year we developed a model to determine the optimal extensity and intensity of irrigation on a farm facing limited water supply. We applied the model to a representative cotton farm in Hale county, Texas to evaluate the outcomes of government-sponsored cost-sharing programs aimed at improving irrigation efficiency.
Keywords	Precision farming, deficit irrigation.

Project Title	Determine the Status of Precision Farming Technology Adoption by Cotton Farmers in the 2007-2008 Crop Season in 12 States – Texas
Principal Investigators	Chenggang Wang, Eduardo Segarra, and Jeff Johnson
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$27,000 ($8,000 from September 2011 – August 2012) Cotton Incorporated
Beginning Date	January 2009
Ending Date	December 2012
Project Objective	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).
Project Summary and Accomplishments	This study uses the 2009 Cotton Inc. Southern Precision Farming Survey to examine the contribution of precision farming practices to cotton yield improvement in Texas. We find that the adoption of PA in cotton can result in 23.81 lbs. /acre yield increase in irrigated cotton and 10.59 lbs. / acre yield decrease in dryland cotton. However both these estimates were not statistically significant even at 10% alpha level.
Keywords	Precision farming, technology adoption.

Project Title	Optimal Spatial and Temporal Allocation of Irrigation Water
Principal Investigators	Chenggang Wang, Eduardo Segarra, and Stephen Maas (Co-worker: Shyam Nair)
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$40,604 ($11,568 from September 2011 to August 2012) United States Department of Agriculture – Cooperative State Research, Education and Extension Service through TTU/CASNR/International Cotton Research Center
Beginning Date	September 2010
Ending Date	August 2012
Project Objective	To develop the economically optimal strategy for field partitioning and irrigation scheduling under limited water availability in center-pivot-irrigated cotton production.
Project Summary and Accomplishments	We have conducted two separate studies to explore the best way of utilizing a limited amount of irrigation water in cotton production. One attempts to determine the optimum fraction of a center pivot irrigated cotton field to be irrigated, and the other explores the best way to allocate the given amount of water over three growth stages of cotton. Both studies employed an optimization model in which the water-yield response function was generated from a plant growth simulation model, cotton2k. Both studies confirmed that, when water supply is low, it is profitable to concentrate the water in portion of the field or in a certain period of the growth season.
Keywords	Irrigation management, water economics, cotton.

Project Title	A Hydro-Econometric Analysis of Producer Water Use and Aquifer Hydrology in the Texas High Plain
Principal Investigators	Chenggang Wang, Jim Bordovsky, Jeff Johnson, Eduardo Segarra, and Zhuping Sheng
Departmental Involvement	Agricultural and Applied Economics, Texas Tech University and Texas AgriLife Research and Extension, Texas A&M University
Funding Amount	Total amount: $261,662; TTU portion: $160,087 ($20,086 spent from September 2011 to August 2012)
Funding Agency	United States Department of Agriculture – National Institute of Food and Agriculture, Agriculture and Food Research Initiative
Beginning Date	September 2009
Ending Date	August 2013
Project Objective	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.
Project Summary and Accomplishments	In the 2011-2012 project year, our effort has been focused on developing and estimating an econometric model to predict county-level acreage shares of crop-irrigation technologies in the Southern High Plains of Texas. The econometric model now is ready to be integrated with the hydrological model developed by collaborators at Texas A&M university. A doctoral student has successfully defended his dissertation based on the findings in this project.
Keywords	Groundwater, Texas High Plans, technology adoption, crop choice, land use.

Project Title	Agricultural Land Use and Development of Energy Crops in Illinois
Principal Investigators	Chenggang Wang
Departmental Involvement	Agricultural and Applied Economics
Funding Amount **Funding Agency**	$26,595 Illinois Department of Commerce and Economic Opportunity
Beginning Date	June 2011
Ending Date	December 2011
Project Objective	The purpose of this project is to develop an econometric model of rural land use for the state of Illinois, in order to determine key factors affecting agricultural land use patterns and evaluate regional impacts of bioenergy policies.
Project Summary and Accomplishments	The analysis shows that soil productivity is one of the most important factors influencing acreage shares of corn and soybean among Illinois Counties. In particular, the land with higher productivity index is more likely to be planted with corn or soybean. This suggests that when the retired CRP land with a higher productivity index is more likely to be planted to corn or soybean whereas that with a lower productivity index may be used to produce biomass bioenergy crops.
Keywords	Bioenergy crop, rural land use management.

Project Title	Use of Alternative Water Sources for Bioenergy Crops
Principal Investigators	Chenggang Wang
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	$10,000
Funding Agency	Sun Grant through Texas A&M AgriLife Research
Beginning Date	August 2011
Ending Date	September 2013
Project Objective	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.
Project Summary and Accomplishments	In the 2011 project year, we have 1. Developed a template of farm enterprise budget with which collaborators can gather data needed for economic analysis. 2. Developed a document outlining data needs for economic feasibility analysis.
Keywords	Bioenergy crop, rural land use management.

Project Title	The Energy-Water Nexus: Evaluating the Interstate Trade of Water Resources through Electricity
Principal Investigators	Ryan Williams, Aaron Benson
Departmental Involvement	Agricultural and Applied Economics; Economics
Funding Amount	None
Funding Agency	None
Beginning Date	January 2012
Ending Date	ongoing
Project Objective	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.
Project Summary and Accomplishments	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.
Keywords	Energy-water nexus, virtual water, water footprint

Project Title	An Economic and Climatic Analysis on the Future of Isolated Desert Wildlife Waters
Principal Investigators	Ryan Williams, Kerry Griffis-Kyle, Jeffery Kovatch (Marshall University)
Departmental Involvement	Agricultural and Applied Economics; Natural Resources Management
Funding Amount **Funding Agency**	None None
Beginning Date	May 2012
Ending Date	ongoing
Project Objective	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.
Project Summary and Accomplishments	A proposal has been submitted to the Bureau of Reclamation Desert LCC. A contingent valuation survey has been developed and is being reviewed by those actively managing the isolated desert waters.
Keywords	Isolated desert waters, contingent valuation, ecological services

Project Title	The External Costs of Wind Farm Development on the Great Plains: Are developers Making an Effort to Minimize These Costs?
Principal Investigators	Ryan Williams
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	September 2011
Ending Date	ongoing
Project Objective	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
Project Summary and Accomplishments	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.
Keywords	Wind energy, externalities, land use, avian habitats

Project Title	Evaluating the Factors Influencing Wind Energy Development
Principal Investigators	Ryan B. Williams, Eric J. Belasco (Montana State University), and H. Allen Klaiber (Ohio State University)
Departmental Involvement	Agricultural and Applied Economics
Funding Amount	None
Funding Agency	None
Beginning Date	October 2009
Ending Date	ongoing
Project Objective	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.
Project Summary and Accomplishments	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.
Keywords	Wind energy, land use, renewable portfolio standard

Project Title	Virtual Water and Limitedly Renewable Water Resources
Principal Investigators	Ryan Williams, Rashid Al-Hmoud
Departmental Involvement	Agricultural and Applied Economics; Economics
Funding Amount	None
Funding Agency	None
Beginning Date	September 2008
Ending Date	ongoing
Project Objective	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.
Project Summary and Accomplishments	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.
Keywords	Virtual water, Ogallala Aquifer, water footprint

Research Funding ($), Department of Agricultural and Applied Economics, Texas Tech University

September 1, 2011 through August 31, 2012

	Internal				External									
					State				Federal			Private		
	Applied Economics	Endowments	Other	TOTAL INTERNAL	Outside TTU	CASNR	Other	TOTAL STATE	USDA	Other	TOTAL FEDERAL	PRIVATE	TOTAL PRIVATE	GRAND TOTAL
Benson	10,200		18,668	28,868					30,162		30,162			59,030
Chidmi	6,000		22,391	28,391					3,516		3,516			31,907
Elam														0
Farmer	16,325		13,699	30,024								21,924	21,924	51,948
Hudson	7,200	82,250	3,241	92,691					271,785		271,785	62,948	62,948	427,424
Johnson, P		70,711		70,711	156,709			156,709	119,816		119,816			347,236
Johnson, J			1,226	1,226		1,550		1,550	77,750		77,750			80,526
Knight		3,858		3,858					72,678		72,678			76,536
Lyford			3,436	3,436	158,947			158,947	53,921		53,921			216,304
Malaga			7,500	7,500					81,061		81,061			88,561
Middleton	4,600		2,538	7,138		6,365		6,365						13,503
Murova	11,100		6,000	17,100					32,503		32,503			49,603
Rahman	16,000		7,500	23,500		2,001		2,001						25,501
Segarra			2,000	2,000										2,000
Wang									124,455		124,455	6,923	6,923	131,378
Williams	2,100		1,827	3,927										3,927
General Operating	44,358		40,282	84,640										84,640
TOTAL	117,883	156,819	130,308	**405,010**	315,656	9,916		**325,572**	**867,647**		867,647	91,795	**91,795**	**1,690,024**

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

Appendix C
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2011/12

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Knight, T.O., K.H. Coble, B.K. Goodwin, M.F. Miller, and R.M. Rejesus. "An Overview of RMA Ratemaking Procedures for APH-Based Insurance Products." Agricultural Risk Analysis Track Section Paper presented at the annual meeting of the Agricultural and Applied Economics Association, Seattle, Washington. August, 2012.

Lange, K., J. Johnson, P. Johnson, D. Hudson, C. Wang, and B. Gustafson. "A Qualitative Investigation of Farm Succession in Texas." Presented at the Western Agricultural Economics Association Meetings, June 22, 2012. Park City, Utah.

Lange, K., J. Johnson, P. Johnson, D. Hudson, C. Wang, and B. Gustafson. 2012. A Qualitative Investigation of Farm Succession in Texas. Presented at the Western Agricultural Economics Association meetings, June 22, 2012. Park City, Utah.
Kebede, M. and D. Hudson. "Demand for Apparel Products Among Chinese Consumers Using a Semi-Parametric Two Stage Procedure." Paper Presented to the 2012 Southern Agricultural Economics Association Annual Meeting, February 2012, Birmingham, AL.

Lyford, C., E. Belasco, B. McCool, A. McCool, T. Carter and B. Pence. "Health Attitudes, Knowledge and Behavior in Rural Communities," Track paper, 2012 American Agricultural Economics Association meeting, August 12-14, 2012, Seattle, Washington

Rahman, S. M., D. F. Larson, and A. Dinar. "The Cost of Mitigation under the Clean Development Mechanism: An Implicit Cost Function Evaluation." http://www.webmeets.com/AERE/2012/prog/viewpaper.asp?pid=254

Rahman, S. M., A. Dinar, and D. F. Larson. "Cross-Country Adoption of the Clean Development Mechanism." http://www.webmeets.com/EAERE/2012/prog/print_day.asp?day=2

Subedi, D. and O. Murova. "Developing predictive model for estimation of impacts of rural festivals," Selected paper at the SAEA annual meeting in Birmingham, Alabama, February 4-7, 2012.

Tewari, R., J. Johnson, S. Amosson, B. Golden, L.Almas, and B. Guerrero. 2012. Evaluating Implementation costs of selected water conservation policies in the Southern Ogallala Region. Poster presentation at the Southern Agricultural Economics Association meetings, February 7, 2012, Birmingham, Alabama.

Williams, R. "The external costs of wind farm development on the Great Plains: Are developers making an effort to minimize these costs?" Southern Agricultural Economics Association Annual Meeting, Birmingham, AL, February 2012.

THESES AND DISSERTATIONS

Earlam, Matthew F. "The Relevance of the Current ICE Cotton No. 2 Futures Contract Delivery Specificaitons." MS Thesis, December 2011.

Zhao, Shiliang. "A Random-Coefficients Discrete-Choice Model of Crop Choice and Irrigation Technology Adoption in the Texas High Plains." PhD Dissertation, December 2011.

Principe, Jonathaniel. "Optimal Groundwater Use and Dryland Adoption Utilizing the Hotelling Framework in the Southern High Plains." PhD Dissertation, May 2012.

Walker, Michael W. "Solving for the Optimal Capacity and Profit Maximization for a Biomass Refinery Given Supplemental Sources of Fuel." MS Thesis, May 2012.

Babanazarov, Bahtiyar. "The Effects of Mergers and Acquisitions (M&A) and Joint Ventures on the Firms Performance and Idiosyncratic Risk." PhD Dissertation, August 2012.
Kebede, Mouze M. "Three Essays on Estimation of Chinese Textile Demand System and their Implications on World Cotton Market." PhD Dissertation, August 2012.

Kustudija, Milos. "Analysis of the European Union's Grain Sorghum Import Demand and its Impact on the World's Grain Sorghum Trade." MS Thesis, August 2012.

Lange, Kelly. "Succession in Multi-generational Family Farm Businesses." PhD Dissertation, August 2012.

Luitel, Kishor. "Economic Potential for Cotton Utilization in Alternative Nonwoven Textile." MS Thesis, August 2012.

Zivkovic, Sanja. "Carbon Sequestration and Carbon Management Policy Effects on Production Agriculture in the Texas High Plains." MS Thesis, August 2012.

Appendix D

PRESENTATIONS THAT WERE NOT
PUBLISHED IN ANY OUTLET

2011/2012

Chidmi, B., T. Hanson, and G. Nguyen. Effect of Promotional Activities on Substitution Pattern and Market Share for Aquaculture Products. Annual Conference of the Food Distribution Research Society, Portland, Oregon October 15-19, 2011.

Farmer, M. Public Consortium; Lubbock, TX. "Lubbock Urban Systems: Linking Water, Natural Resources, Real Estate and Public health." September 19, 2011 International Cultural Center. 6:30-8PM

Farmer, M.C., A. Benson, G. McMahon. 2012. "A Case Study in Multi-Objective Water Management." National Water Resource Association. Western Water Seminar. Sun Valley, ID. August 2, 2012.

Funtanilla, M. and B. Chidmi. A Bayesian Approach to Estimating Demand for Product Characteristics: An Application to Coffee Purchase in Boston. Selected for presentation at the INFORMS Marketing Science Conference, June 9-11, 2011, Houston, Texas.

Gong, G., K. Hargrave, E. Belasco and C. Lyford, B. Philips. "Identification of Hot Spots of Delayed Cancer Diagnosis by Wellbeing Index in Texas." Poster presented at the 2011 Innovations in Cancer Prevention and Research Conference, Austin, TX, November 14-18, 2011.

Hanson, T., B. Chidmi and G. Nguyen. Substitutions between US and Imported Aquaculture Products: A Store-Level Analysis. Selected for presentation at the sixth forum of the North American Association of Fisheries Economists, May 11-13, 2011, Manoa, Hawaii.

Hudson, D. "Agriculture Outlook for Cotton." Presentation to the 2011 Bankers Agricultural Credit Conference, November 2011, Lubbock, TX.

Hudson, D. "Biofuels and Carbon Management in Cotton." Research Presentation to the 2011 Texas State Support Committee Meeting, December 2011, Lubbock, TX

Hudson, D. "The Macroeconomy and Agriculture." Presentation to the Lubbock Economics Club, February 2012, Lubbock, TX

Hudson, D. "The Importance of Agriculture to the Lubbock Economy." Lubbock Chamber of Commerce Agriculture Committee Meeting, March 2012, Lubbock, TX

Hudson, D. "Abnormal Returns and Idiosyncratic Risk in Agricultural Mergers and Acquisitions." Presentation the Department of Agricultural Economics Seminar Series, Oklahoma State University, March 2012, Stillwater, OK.

Hudson, D. "Cotton Economics Research." Presentation to Senator John Cornyn, April 2012, Lubbock, TX.

Hudson, D. "The Outlook for Cotton and Cotton Policy." Cotton Warehousers Association Annual Meeting, June 2012, Vail, CO.

Hudson, D. "The Outlook for Cotton and Cotton Policy." Texas Cotton Ginners Association Annual Meeting, June 2012, San Antonio, TX.Hudson, D. "The Outlook for Cotton and Cotton Policy." Plains Cotton Ginners Association Annual Meeting, August 2012, Lubbock, TX.

Hudson, D. "Farm-Forward Analysis of Water Restrictions." Texas Grain Sorghum Producers Association Board Meeting, August 2012, Austin, TX.

Johnson, J.W. 2012. Agriculture & Water: The challenges of supply, demand, efficiency & production. Presented to the 2012 TTU Water Summit in Lubbock, Texas, July 11, 2012.

Lipscomb, A., M.C. Farmer, J.A. Kilpatrick. 2012. Willingness to Pay Convergence Between Contingent Valuation and Hedonic Methods. American Real Estate Society, St. Pete Beach, FL. April 30, 2012.

Lyford, C., B. McCool, A. McCool, E. Belasco, B. Pence and T. Carter. "Working with the Local Supermarket to Bring Cancer Prevention Information and Encouragement to Local Communities." Poster presented at the 2011 Innovations in Cancer Prevention and Research Conference, Austin, TX, November 14-18, 2011

Lyford, C. "Using a Living Marketing Problem to Teach Marketing Research Methods", 2012 WERA-72 Western Education\Extension and Research Activities Committee on Agribusiness Annual Meeting, June 24-26, 2012, Lafayette, Indiana.

Lyford, C., J. Malaga and B. Chidmi. "Evaluating the Sub-Saharan Sorghum Market for US Exports", 2012 WERA-72 Western Education\Extension and Research Activities Committee on Agribusiness Annual Meeting, June 24-26, 2012, Lafayette, Indiana.

Malaga, J. "Recent Trends in Global Markets Related to Relevant Regional Exports and Future Expectations." Invited Presentation at the Joint Annual Meeting of the Mexican Agribusiness Association and the Caribbean Food Crop Society. Quintana Roo, Mexico, May 2012.

McCool, B., A. McCool, N. Hensarling, C. Lyford, B. Pence, E. Belasco, & T. Carter. Interventions to Reduce Cancer Risk in Rural West Texas Communities. Poster presentation. Texas Dietetic Association Food & Nutrition Conference & Exhibition, San Antonio, TX April 12 - 14, 2012.

McCool, B., B. Pence, C. Lyford, N. Hensarling, A. McCool, T. Carter. Working with the local supermarket to bring cancer prevention information and encouragement to rural communities. Texas Public Health Association annual conference, Arlington TX, March 21-23, 2012.

Murova, O., N. Kolyesnikova, and T.Dodd. Wine and Grape Symposium, Sacramento, California, January 24-26, 2012.

Murova, O., N. Kolyesnikova, and T. Dodd. The 6th Annual Conference of American Association of Wine Economists, "Market assessment and opportunity identification for export of U.S. wines to the Dominican Republic," American Association of Wine Economists, Princeton, NJ, June 2012.

Murova, O. Land Use in Transition: Potentials and Solutions between Abandonment and Land Grabbing, "Regional Effect of Form of Ownership on the Efficiency of Production in Ukraine," Leibniz Institute of Agricultural Development, Halle, Germany, June 20, 2012.

Murova, O., N. Kolyesnikova, and T. Dodd. The 48th Annual Meeting of the Caribbean Food Crop Society and the 25th Meeting of the Mexican Agribusiness Society (joint meeting), "Investigating the opportunities for exporting U.S. wine to the Dominican Republic.," Cancun, Mexico, May 2012.

Rahman, S. M., D. F. Larson, and Ariel Dinar. "The Cost of Mitigation under the Clean Development Mechanism: An Implicit Cost Function Evaluation." Contributed paper presented at the 2012 conference of American Environmental and Resource Economics Association (AERE), Asheville, June 2-5, 2012.

Rahman, S. M., A. Dinar, and D. F. Larson. "Cross-Country Adoption of the Clean Development Mechanism." Contributed paper presented at the 2012 conference of European Association of Environmental and Resource Economics (EAERE), Prague, June 26-30, 2012.

Appendix E

NOTES ON DEPARTMENT RESEARCH
ADVISORY COMMITTEE MEETING

2011/12

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.

Appendix F

ADVISORY COMMITTEE MEMBERS

2011/12

Research Advisory Committee
2011 - 2012
Addresses and Phone Numbers

Mr. Tommy Engleke
Texas Agricultural Cooperative Council
1210 San Antonio, Suite 101
Austin, TX 78701-1834
(512) 450-0555
tommy@texas.coop
(Term expires 2012/13)

Mr. Tim Lust, CEO
National Sorghum Producers Asso.
4201 N. Interstate 27
Lubbock, TX 79403-7507
tim@sorghumgrowers.com
(Term expires 2012/13)

Dr. Jaroy Moore
Rt. 3, Box 219
Lubbock, TX 79403
(806) 746-6101
j-moore@tamu.edu
(Term expires 2011/12)

Dr. John R. C. Robinson
Dept. of Agricultural Economics
2124 TAMU
College Station, TX 77843-2124
(979) 845-2116
jrcr@tamu.edu
(Term expires 2013/14)

Mr. Steve Walthour
General Manager
North Plains Water Conservation District
P.O. Box 795
Dumas, TX 79029
(806) 935-6401
swaltour@npwd.org
(Term expires 2013/14)

Mr. Sam Hill
PCCA
3301 E. 50th St.
Lubbock, TX 79404
(806) 763-8011
valerie.hearon@pcca.com (secretary)
(Term expires 2012/13)

Mr. Mike Mauldin
First Financial Bank
P.O. Box 272
Hereford, TX 79045
(806) 364-3456
mmauldin@ffin.com
(Term expires 2012/13)

Mr. Clint Robinson
Capital Farm Credit
P.O. Box 6520
Lubbock, TX 79493
(806) 745-3277
clinton.robinson@capitalfarmcredit.com
(Term expires 2012/13)

Mr. Bart Roye
BETA Ag
E. Hwy. 82
P.O. Box 1187
Ralls, TX 79357
(806) 253-2514
(Term expires 2011/12)

Mr. Todd Straley
United Cotton Growers Co-op #1
P.O. Box 1329
Levelland, TX
todd.straley@ucg.coop
(Term expires 2013/14)

Research Advisory Committee
2012 - 2013
Addresses and Phone Numbers

Mr. Tommy Engleke
Texas Agricultural Cooperative Council
1210 San Antonio, Suite 101
Austin, TX 78701-1834
(512) 450-0555
tommy@texas.coop
(Term expires 2012/13)

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4201 N. Interstate 27
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Dr. Jaroy Moore
Rt. 3, Box 219
Lubbock, TX 79403
(806) 746-6101
j-moore@tamu.edu
(Term expires 2012/15)

Dr. John R. C. Robinson
Dept. of Agricultural Economics
2124 TAMU
College Station, TX 77843-2124
(979) 845-2116
jrcr@tamu.edu
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Capital Farm Credit
P.O. Box 6520
Lubbock, TX 79493
(806) 745-3277
clinton.robinson@capitalfarmcredit.com
(Term expires 2012/13)

Mr. Bart Roye
BETA Ag
E. Hwy. 82
P.O. Box 1187
Ralls, TX 79357
(806) 253-2514
(Term expires 2012/15)

Mr. Todd Straley
General Manager
Hart Producers Coop Gin
P.O. Box 347
Hart, TX 79403
(806) 938-2189
todd.straley@pcca.com
(Term expires 2013/14)

Mr. Charley Triplett
PCCA
3301 E. 50th St.
Lubbock, TX 79404
(806) 763-8011
charley.triplett@pcca.com
(Term expires 2012/15)

Appendix G

Cotton Economics Research Updates

2011/12

Coordinating economic research activities on all aspects of cotton research within Texas Tech University and other research units throughout the United States and other countries.

Vol. 14 No. 2

CERI

Cotton Economics Research Institute

Presentations

'The Predicament' : Macroeconomic Outlook

Agriculture Outlook for Cotton 2012

Some Ideas on Future Economic Directions

A "Big Picture" Look: The Economy of Agriculture

Cotton Market Outlook

Chinese Domestic Textile Demand

Bloomberg Radio Interview featuring Dr. Hudson

A Multinomial Logit Analysis of the Adoption of Cotton Precision Farming Technologies

Optimal Spatial and Temporal Allocation of Irrigation Water for Cotton in Texas High Plains

These and additional presentations can be found on our website: www.ceri.ttu.edu

Letter from the Director:

We begin another year that will hopefully have more rainfall than the last! A number of changes have occurred at the Institute this year. Dr. Suwen Pan, CERI veteran for 9 years, departed for a consulting firm. Dr. Pan was primarily responsible for maintaining the World Fibers Model and producing the global cotton baseline projections each year. Dr. Maria Mutuc has taken on those responsibilities, at least for the short-run.

As many know, we have experienced funding challenges this year as well. The International Cotton Research Center (ICRC) at Texas Tech did not receive funding this year as part of the overall deficit-reduction efforts at the federal level. That cut left CERI without funding as well. However, the recent agriculture appropriations bill included money for "policy centers" including the University of Missouri, Texas A&M, and CERI. We are awaiting final rulemaking on that funding before we can compete for those funds.

Dr. Darren Hudson, CERI Director

We have had a successful year in spite of the challenges. Our research has had a broad impact this year through outlets such as Bloomberg News, CBS News, The New York Times, and other state, regional, and international outlets. We continue to work on a project in Brazil and had a very productive trip this past year gathering a lot of data on logistics, transportation, and production costs. We will be working with a group at Texas A&M this year to incorporate some modeling efforts into our World Fibers Model to better refine our estimates of what is happening in that important cotton producing country.

As you can tell from the enclosed, we continue to have a diverse set of research projects and outputs, and we hope to expand that in a number of key directions this year. As always, we welcome your ideas, comments, and concerns. Please contact me if any should arise through the year. Happy New Year!!

Cotton Economics Research Institute Unveils Online Database

Texas Tech's Cotton Economics Research Institute (CERI) has created an online database that compiles, organizes and presents data on domestic subsidies and trade restrictions on key agricultural product-producing countries around the world.

The online database, partially funded by the U.S. Department of Agriculture and Cotton Inc., is an updated version of CERI-SR07-01, CERI's report on international crop policies conducted in February of 2007.

"We have published a printed version of our foreign subsidies report for several years now," said Darren Hudson, director of the CERI. "That was very helpful in getting complete information out. But, the online version will provide information to a broader audience about the extent and use of subsidies globally, not just the U.S."

The online database allows users to search objective information compiled from published, government documentation concerning seven commodities found in 21 countries in an easily navigable structure.

Detailed information about subsidies and trade policies used in each country for each commodity can be found in graph, text and table format. Unlike other sources of subsidy data, CERI's database also presents information on input subsidies that are normally omitted, but very relevant to the subsidy debate. These summaries are as accurate as possible at publication and updated every two years, with the current version being accurate as of 2009.

from Texas Tech Today
Read full story at http://today.ttu.edu/2011/11/cotton-economics-research-institute-unveils-online-database/

Recent Research

FOREIGN SUBSIDIES DATABASE

Darren Hudson, Siwen Pan, Maria Mutuc, Samantha Borgstedt, Don Ethridge and Travis Jorge

The purpose of this online database is to compile, organize, and present information and data on domestic subsidies and trade restrictions on key agricultural product producing countries around the world. These data are based on publicly available information.

The online database, partially funded by the U.S. Department of Agriculture and Cotton Inc., is an updated version of CERI-SR07-01, CERI's report on international crop policies conducted in February of 2007.

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View the Foreign Subsidies Database at: http://www.depts.ttu.edu/ceri/index.aspx.

IMPENDING APPRECIATION OF THE BRAZILIAN REAL TO THE U.S. DOLLAR: EFFECTS ON INTERNATIONAL COTTON MARKETS AND TRADE

Maria Mutuc and Darren Hudson

A 10% appreciation of the BLR/U.S.$ exchange rate in the next 5 years proves beneficial to U.S. cotton exporters. U.S. net exporters are projected to increase by 0.01% (additional 2,380 bales) from baseline projections over the period 2011 to 2015. The simulation also suggests that Brazil's top export competitors in terms of price in the global cotton market are Australia, India, Uzbekistan, U.S. and Other Africa. The effects are generally of small order owing to offsetting measures in the past by the government that have worked their way through the export sector as well as recent measures anticipated to further support the export sector in the medium-run.

Recent Activities

2011 COTTON WAREHOUSE ASSOCIATION OF AMERICA ANNUAL CONVENTION

June 22-25, 2011 *Miami, Florida*

Dr. Darren Hudson presented at the 74th CWAA Annual Convention. This convention focuses on bringing the latest information on key challenges and opportunities facing agriculture and the cotton industry, as well as the latest update on activities and issues directly impacting the warehouse industry.

WESTERN AGRICULTURAL ECONOMIC ASSOCIATION (WAEA) 2011 CONFERENCE

June 29 - July 1, 2011 *Banff, Alberta, Canada*

Texas Tech's Department of Agricultural and Applied Economics was well represented by a number of faculty, staff and students who attended and presented research at the joint Canadian Agricultural Economics Society and WAEA Meeting in Banff, Alberta, Canada.

TEXAS AGRICULTURAL COOPERATIVE COUNCIL'S COOPERATIVE MANAGER'S CONFERENCE

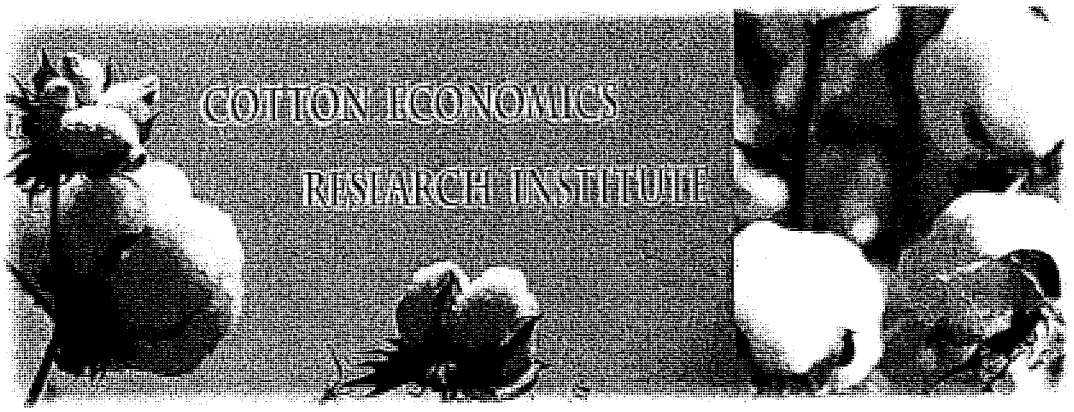
July 6-8, 2011 *Ruidoso, New Mexico*

Dr. Darren Hudson presented "World Events and Their Impact on Trade Policy and Economic Projections" at the TACC Manager's Conference. This conference annually attracts 65-70 co-op managers and consists of nationally recognized speakers who present throughout the three, half-day sessions.

AGRICULTURAL & APPLIED ECONOMICS ASSOCIATION AND NORTHEASTERN AGRICULTURAL AND RESOURCE ECONOMICS ASSOCIATION MEETING

July 24-26, 2011 *Pittsbugh, Pennsylvania*

Texas Tech's Department of Agricultural and Applied Economics was represented by several faculty, staff and students at the 2011



AAEA & NAREA Joint Meeting. Some presentaions made at this meeting and produced by CERI staff include: Food Calorie Intake and Food Security under Grain Price Inflation: Evidence from Malawi; Sino-U.S. Price Transmission in Agricultural Commodities: How Important are Exchange Rate Movements?; The Impact of Nonfarm Activities on Agricultural Productivity in Rural China; Toward a Consumer Economy in China: Implications of Changing Wage Policies for U.S. Cotton Exports.

VISIT TO BRAZIL

August 2011 *Brazil*

Drs. Darren Hudson and Sukant Misra, along with graduate student Andrew Wright, attended a cotton conference in Goiana, Brazil. Hudson presented the global baseline projections for cotton, but the majority of the trip was spent in meetings with logistics and infrastructure experts to gather information on infrastructure development in Brazil. Also attending was Dr. Parr Rosson from Texas A&M University.

BELTWIDE COTT ON CONFERENCE

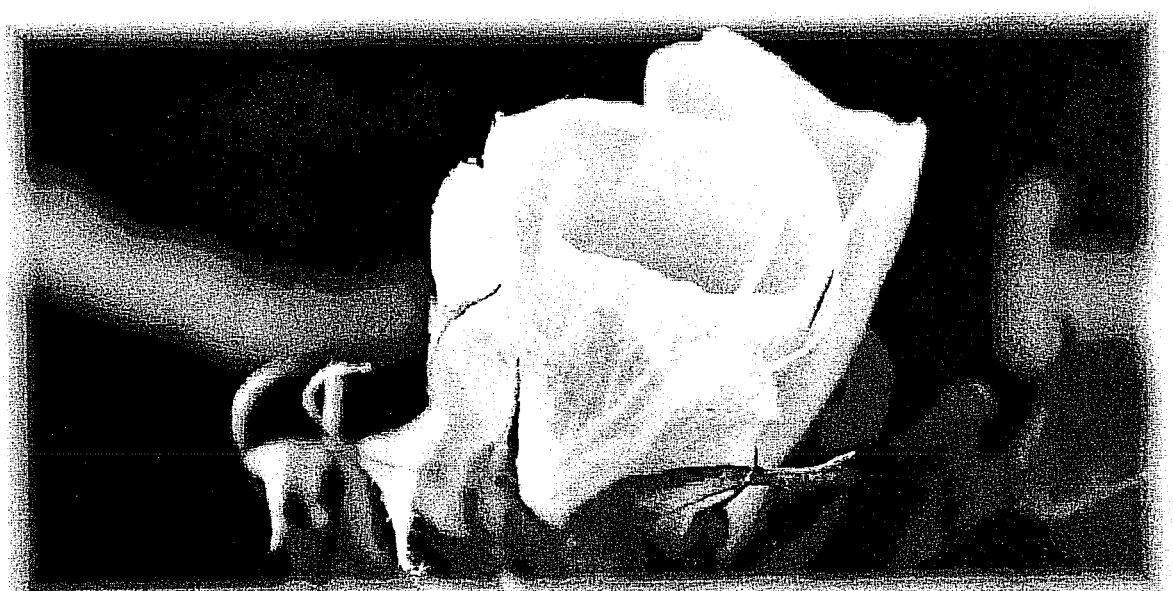
January 3-6, 2012 *Orlando, Florida*

Texas Tech's Department of Agricultural and Applied Economics will be represented by a number of faculty, staff and students who will be attending and presenting their research at the 2012 NCC Beltwide Cotton Conference. The conference will feature four days of individual reports, panel discussions, hands on workshops and seminars designed to provide attendees with valuable cotton information.

12TH ANNUAL CERI RESEARCH SYMPOSIUM

March 27, 2012 *Lubbock, Texas*

This year's CERI Research Symposium will be held at the Texas Tech Club located on the west side of Jones AT&T Stadium in Lubbock, Texas. The program will include an informative line-up of speakers and presentations, as well as breakfast and lunch. Be checking your email for more information as plans are finalized and the symposium nears, but for now, mark you calendars and plan to join us Tuesday, March 27th.



Drought is Changing Face of Texas Agricuture

Texas' vast stretches of rangeland are what has kept the cattle industry alive, even through nearly a decade of drought. Ranchers are getting through recurring dry periods in part by converting or leasing their land to recreational hunters.

In 1997, no land in Travis County was designated for recreational hunting; by 2007, more than 16,000 acres was. Far more than that was converted from ranchland to housing or other development.

Urbanization will continue to change what is grown and produced in Texas, said Darren Hudson, director of the Cotton Economics Research Center at Texas Tech.

"It may shift some of the products that we used to produce, like rice. Rice went away," Hudson told KUT News. "It's still here; we still grow rice in Texas. We're just not the big, huge rice producer that we used to be, because that land that was suitable for that has gone away."

The ongoing drought has made it harder to justify dedicating huge amounts of irrigated water for such crops.

On the other hand, Hudson says, the lack of water also drives improvements. Scientists are researching ways to genetically alter crops like corn to be more drought-tolerant. Technology will develop tools to cut back on wasteful watering.

Hudson adds that one day the Texas population might grow so large that demand for food makes agriculture the leading economic driver.

from KUT Experience Austin. Read full story at http://kut.org/2011/09/drought-is-changing-face-of-texas-agriculture/

Recent Publications/ Presentations

OUTLOOK REPORTS

"Global Cotton Baseline 2010/11 - 2020/21"
CERI-OR11-01
Darren Hudson, Suwen Pan, Maria Mutuc, and Samantha Borgstedt

BRIEFING PAPER

"Effects of an Increase in Chinese Government Purchasing Price on World Cotton Market"
CERI-BP-11-01
Suwen Pan, Darren Hudson and Maria Mutuc

JOURNAL ARTICLES

"Impact Assessment of Bt Corn in the Philippines"
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"Sending Vietnamese Farmers Back to School: Further Evidence on the Impacts of Farmer Field Schools"
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``Lessons Learned from the Phase-out of the MFAs: Moving from Managed Distortion to Managed Distortion."
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2012 BELTWIDE COTTON CONFERENCE PRESENTATIONS, ORLANDO, FL

"Impending Appreciation of the Brazilian Real to the U.S. Dollar: Effects on International Cotton Markets and Trade"
Maria Mutuc and Darren Hudson

"The Impact of Adoption of Precession Farming Technologies on Cotton Yield in Texas"
Shair Nair, Chenggang Wang, Eduardo Segarra, Jeff Johnson, Roderick M. Rejesus, and Mechele C. Marra.

"Adoption of Information Technologies in Cotton Production"
Nathaneal Thompson, James A. Larson, Burton C. English, Dayton M. Lambert, Roland K. Roberts, Margarita Velandia and

"Comparison of Carbon Emission Assesment Using Extension Budgeted and Locally Obtained Producer Data"
Sanja Zivokovic and Darren Hudson

"Comparing the Economics of Stripper and Picker Harvesting in West Texas"
Janani Thapa, Eric Hequet and Jeff Johnson

"Cotton Profitability as Influenced by Rotation, Cultivar and Irrigation Leve"
Jeff Johnson, James P. Bordovsky, and J.W. Keeling

CERI/ICRC SYMPOSIUM PRESENTATIONS

Bringing a Portion of Texas Plains Cotton into Premium Yarn Markets - presented by Dr. Eric Hequet

Synergistic/Antagonistic Effects of Glyphosate and Glufosinate in Tank Mixture in GlyTol plus LibertyLink Cotton - presented by Dr. Peter Dotray

Cotton Production Systems in a Changing High Plains Environment - presented by Dr. James Bordovsky

Integrating Multiple Tactics to Manage Verticillium Wilt of Cotton - presented by Dr. Terry Wheeler

Cotton Market Outlook - presented by Dr. John Robinson

Long-Term Cotton Outlook - presented by Dr. Darren Hudson

U.S. Agricultural Outlook - presented by Dr. Darren Hudson

Texas High Plains Lygus Bugs: Investigation of Predisposition Factors Causing Outbreaks in Order to Strengthen Cotton Pest Management Strategies - presented by Dr. Megha Parajulee

Development of Cotton2K Model Parameters for Cotton Varieties Currently Grown in the Texas High Plains - presented by Dr. Stephan Maas

The Effect of Carbon Reducing Policies on Production on the Texas High Plains - presented by Andrew Wright

PRESENTATIONS MADE BY CERI

"Some Ideas on Future Economic Directions"
Plains Cotton Ginners Meeting
August 23, 2011

"A 'Big Picture' Look: The Economy of Agriculture"
Texas Agricultural Cooperative Council Meeting
July 6-8 2011

"Cotton Market Outlook"
New Mexico Cotton Ginners Association Meeting
July 8 2011

Texas Tech University
College of Agricultural Sciences & Natural Resources
Department of Agricultural & Applied Economics
Box 42132
Lubbock, Texas 79409-2132
0140-44-5745 (11B003-B51002-200)

JANUARY 2012

Cotton Economics Research Institute

Upcoming CERI Events

Beltwide Cotton Conference
January 3-6, 2012
Orlando, Florida

Southwest Farm & Ranch Classic
February 7-9, 2012
Lubbock Civic Center - Lubbock, Texas

CERI Research Symposium
March 27, 2012
Texas Tech Club - Jones AT&T Stadium - Lubbock, Texas

Texas Cotton Ginners Association Trade Show
March 29-30, 2012
Lubbock Civic Center - Lubbock, Texas

CERI FACULTY & STAFF

Eric Belasco
742-1921 ext. 245
eric.belasco@ttu.edu
Aaron Benson
742-1921 ext. 253
aaron.benson@ttu.edu
Benaissa Chidmi
742-1921 ext. 250
benaissa.chidmi@ttu.edu
Emmett Elam
742-0277 ext. 243
emmett.elam@ttu.edu
Don Ethridge
742-2897 ext. 225
don.ethridge@ttu.edu
Michael Farmer
742-1921
michael.farmer@ttu.edu
Darren Hudson
806-742-1921 ext. 272
darren.hudson@ttu.edu
Jeff Johnson
742-2852
jeff.johnson@ttu.edu
Phillip Johnson
742-0277 ext. 237
phil.johnson@ttu.edu
Tom Knight
742-0277 ext. 255
tom.knight@ttu.edu
Conrad Lyford
742-1921 ext. 236
conrad.lyford@ttu.edu
Jaime Malaga
742-0261 ext. 241
jaime.malaga@ttu.edu
Sukant Misra
742-2808
sukant.misra@ttu.edu
Olga Murova
742-2024 ext. 252
olga.murova@ttu.edu
Maria Mutuc
742-2821 ext. 240
maria.mutuc@ttu.edu
Shaikh Rahman
742-1921 ext. 240
shaikh.rahman@ttu.edu
Eduardo Segarra
742-0277 ext. 242
eduardo.segarra@ttu.edu
Chenggang Wang
742-0261 ext. 238
chenggang.wang@ttu.edu
Samantha Borgstedt
742-1921 ext. 269
samantha.borgstedt@ttu.edu
Ryan Williams
742-1921 ext. 245
ryan.b.williams@ttu.edu

Appendix H

Competing for Profit

2011/12

COMPETING *for* PROFIT

Issue XXX : August 2011 Texas Tech University

Bernie Thiel - Sunburst Farms

Story, Photos & Design By: Samantha Yates Borgstedt

There's just something about fresh vegetables, straight off the farm, that tastes better to the body and soul. I never have been able to understand when people talk about kids not liking vegetables. Maybe it was because all the veggies we ate were freshly picked from my mother's garden, but growing up squash, zucchini, and cream peas never lasted long on my sister's nor my plate, and still don't to this day.

That is why I love summer time. Tomatoes are ripe and red, squash is bright and yellow and our plates become colorful and delicious. Bernie Thiel, owner and manager of Sunburst Farms and Market in Lubbock, Texas, is to thank for many of the vegetables we eat and enjoy. This marks the 40th year Sunburst Farms has supplied the public with fresh vegetables, and they are busier than ever.

"This time of year we work pretty much twenty-four, seven around here," Thiel said. "We have a lot of people working and helping us, and everyone does everything. One minute you may be loading a truck, the next you may be hoeing weeds in the field, the next you may be on the phone with a distributor. There's always something that needs doing."

Sunburst Farms grows about 350 acres of vegetable crops in the Lubbock area, as well as Carrizo Springs. They use drip irrigation, pivots, LEPA (low energy precise application) and row water to irrigate. Their

SUNBURST FARMS

main crops are yellow squash and zucchini, of which they farm around 120 acres that produce in the summer. About that same amount of acreage is grown in turnips on the farm in Carrizo Springs during the Lubbock farm's off season.

Sunburst sells their main lines of produce to buyers such as United, HEB, Ben E. Keith, Affiliated Foods, Watson Sysco, and others.

Besides their main vegetable crops, Sunburst also produces several hundred acres of cotton and wheat for rotation purposes. Tomatoes, eggplant, okra, melons, black-eyed peas and other veggies are also grown in the farm's garden. These vegetables can be purchased at Sunburst Market located on 88th Street and Martin Luther King Boulevard in Lubbock. It is open Tuesday to Saturday from June 15 through October.

"Our market is in its 11th year," Thiel said. "My wife and daughter started it, and we sell to people from all over. While many of them are from the Lubbock area, we have customers from New Mexico, Dallas, Midland, South Texas, just everywhere."

Cynthia, Thiel's wife, continues to work at the market along with other family members. She said she enjoys working with her family and meeting all the people that come in to purchase their products.

"It's so great to visit with the customers that come see us," Cynthia said. "We always stay busy, but Saturdays are our busiest days. People enjoy coming in on their day off to buy their produce, and we enjoy seeing them come in."

Produce in the market not grown directly on Sunburst Farms, such as the potatoes they had from Muleshoe when I visited, is purchased from local farmers. They also sell local honey

and eggs, as well as salsa, pickles, and breads made from their own vegetables.

"We are vertically integrated," Thiel said. "We put the seed in the ground. We pick it. We have the coolers to store it, trucks to ship it, and do all the marketing ourselves."

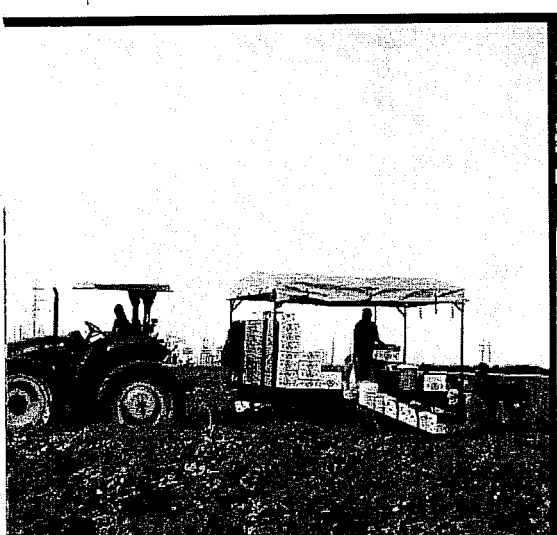
Each year the farm employs about 50 workers. Their jobs vary, but a great deal of their time is spent picking produce. They field pack everything to avoid double handling and then place the boxes in the cooler. Thiel said some of his employees have worked with him over 30 years, and many of them have been with him for 15 to 20 years. He said the key to keeping good help is to show up every day and work hard right along beside them.

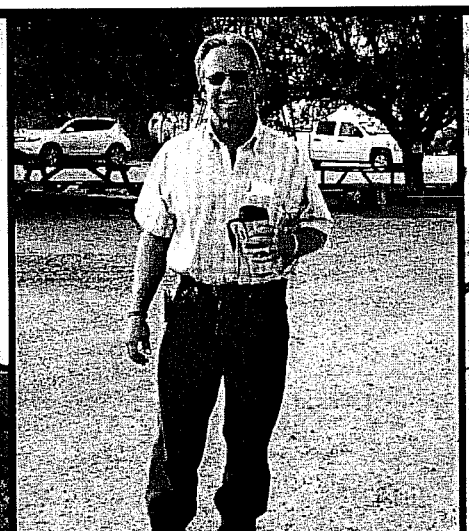
Thiel said some of the employees work for Sunburst Farms in the Lubbock area during the summer and fall and then move to Carrizo Springs to work on the farm there during the winter and spring. Others find winter jobs around Lubbock and then come back to the farm and work for Sunburst during the summer.

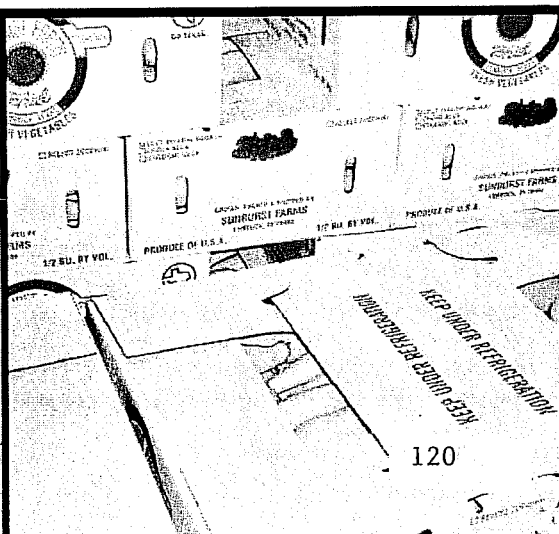
"The people working on this farm are the salt of the earth," Thiel said. "They make it possible for us to stay competitive and successful, and this is a very competitive and risk taking business."

Thiel emphasized the importance communication and education is to his business, and he strives to keep current on technology and legislative issues. Thiel is an active member of Farm Bureau, serving as past president of Lubbock County, horticulture chairman, and national labor chairman. He also visits Washington D.C. and Austin regarding policy matters affecting his business.

A current issue he feels will have a large influence on the agriculture industry is the Food Safety Modernization Act that was signed into law by President Obama on January 4, 2011. According to the FDA website, this act enables FDA to better protect public health by strengthening the food safety system by focusing more on prevent-







ing food safety problems rather than relying primarily on reacting to problems after they occur. The law also provides FDA with new enforcement authorities designed to achieve higher rates of compliance with prevention- and risk-based food safety standards and to better respond to and contain problems when they do occur.

Thiel said while he believes safety and avoiding contamination is very important and first priority, he fears that over-regulation will cause many farmers to reduce in size or go out of business altogether, causing a reduction in food supply and higher prices at the grocery store. This year alone, Thiel has spent $30 thousand in order for his farm to be in compliance and meet all FDA standards.

"I know that guidelines and regulations need to be in place," Thiel said. "After all, if a contaminated squash is found anywhere in the nation, it will affect my business. All farmers know that, and all farmers are careful to make sure the produce they grow is safe to eat. However over-regulation is going to cost many farmers out of business, and when that happens, the public will be forced to pay high prices for their produce."

Sunburst Farms recently passed all FDA's regulations once again, and they continue to be innovative in all areas of their business in an ongoing effort to remain competitive.

"We must always be forward thinking and learning," Thiel said. "There's always new products, policy, advertising, fertilizers, wholesalers and so much more that we must keep current on. Communication is a key factor in this business, and we have to communicate on all these issues affecting our business."

Thiel said it is important for the agriculture industry to stay vibrant and for the American public to realize the importance agriculture plays in each and every one of their lives.

"People have become disconnected from their food supply and have lost the understanding of just how important this industry is to our nation," Thiel said. "That understanding is what our country was built on and what will continue to keep it strong as long as our agriculture industry remains strong. It is important for the American public to realize what happens in agriculture impacts their lives, no matter how far from the farm they live."

COMPETING for PROFIT

Issue XXXI : September 2011 Texas Tech University

The Competitiveness of Brazilian Cotton

Dr. Darren Hudson

I recently had the opportunity to travel to Brazil again. This is the second year of a four-year project to learn more about the Brazilian agricultural and logistics situation. Our involvement revolves around the need to produce better forecasts of Brazilian production, consumption, and trade in conjunction with our broader efforts to model global cotton production. During our work, we have picked up information that may be of interest here to better aid the U.S. industry in maintaining competitiveness.

COTTON PRODUCTION

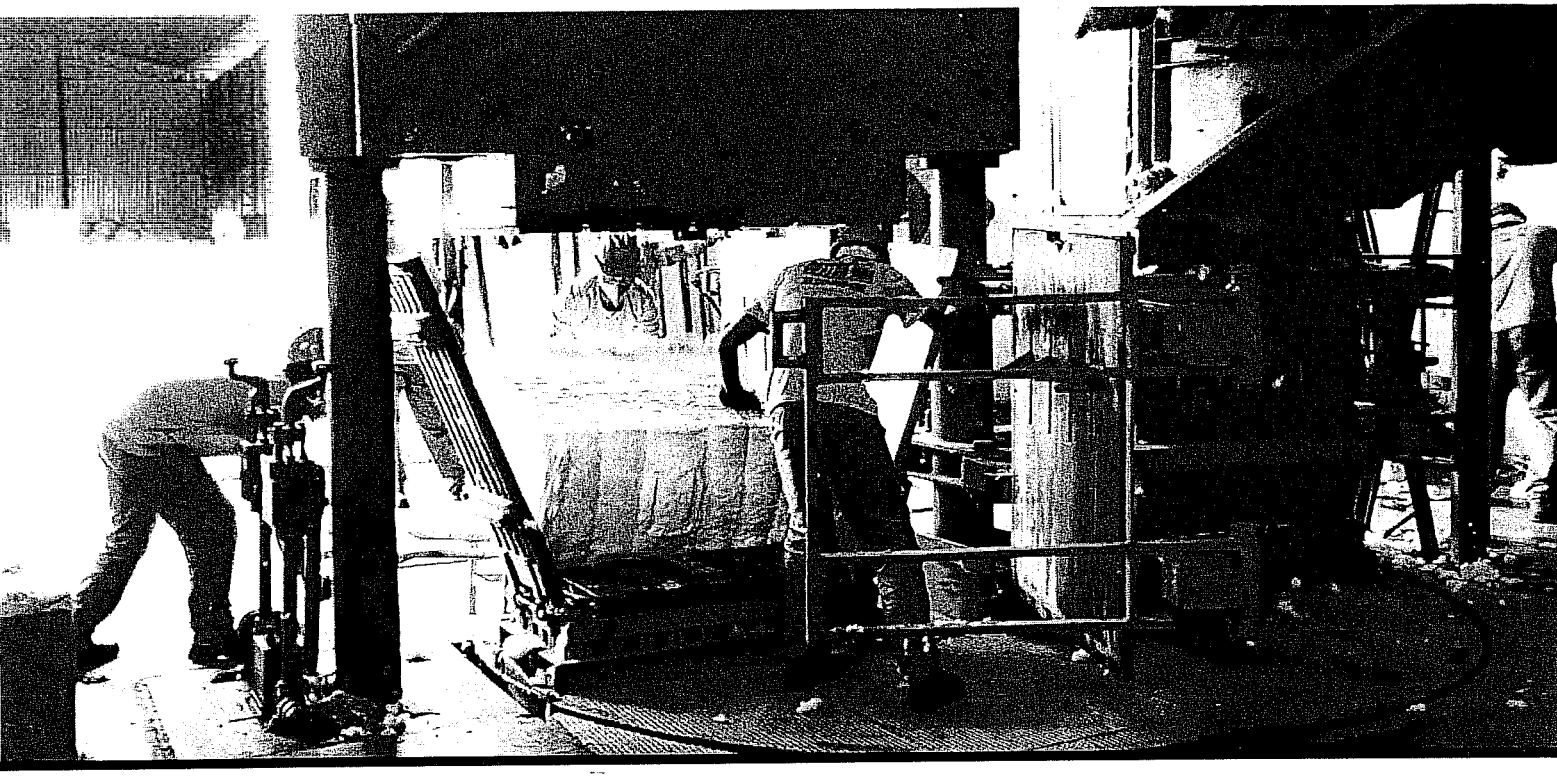
The USDA has published, on a number of occasions, cost of production differentials between the U.S. and Brazil. Generally, cash cost of production per pound of cotton is a little higher in Brazil, depending on the region, but yield is generally higher as well. In the Cerrado (savannah) region (shown in the figure below), chemical use intensity is very high. This region is characterized by very acidic soils with low nutrient value, so chemical fertilization is very intense (you do not hear that in the OxFam or Greenpeace brochures). Consequently, yields are high, but costs are high too, meaning that actual costs per pound are higher than they are in the U.S.

Ten Cerrado States and Port Locations

Here, I wanted to focus on a few things that get less attention in the popular literature. Brazil has been experimenting with ultra-narrow row cotton production, primarily in hopes of increasing yields and decreasing herbicide use. Pest pressure is still a problem. Data from EMBRAPA (their version of USDA) on several tests for quality characteristics are shown below:

Ultra-Narrow Row Test Results

Sample	Length (in.)	Strength	Micronaire	Leaf Grade
1	1.14	28.75	3.30	4
2	1.13	30.78	3.99	1
3	1.14	30.29	3.57	5
4	1.20	31.52	3.44	3
5	1.19	32.26	3.39	4
6	1.18	31.29	3.44	4
7	1.20	30.76	4.00	4



As you might expect, and consistent with work by Eric Hequet at the Fiber and Biopolymer Research Center and Randy Bowman, formerly of Texas AgriLife, length and strength are consistent with U.S growths, leaf is high, and micronaire is generally low. Of course, as Dr. Hequet has documented, the UNR cotton generally performs poorly for higher quality products, and may ultimately lead to larger discounts for this type of cotton.

These researchers reported an average yield of 4.2 bales per acre (remember they get around 65-70 in. of rainfall per year). The UNR exhibited a 32% lower chemical cost than conventional cotton, on average, but seed costs were higher. Overall, UNR did show lower overall costs of roughly $0.69/lb produced versus a regional average of $0.82/lb for conventional cotton.

GINNING COSTS

The structure of the ginning industry is quite varied, with many gins in the 14 bale per hour range all the way up to large scale gins in the 100 bale per hour range. Costs, of course vary by size with most of the gins we have visited ranged from $42-$55/bale. In some cases, smaller gins are handling their own cotton and then contract gin for others for as little as the seed (although at recent values, that could be a lucrative deal).

So, ginning costs appear at least comparable to U.S. ginning costs. There are a couple of critical differences, however. First, there is no organized grading within the system. There are privately operated HVI laboratories and proactive ginners will sample and send off for grading. But, there is not systematic version of the U.S. cotton classification system. Second, there is very little inland storage for cotton. This limits options for marketing of cotton, and potentially adds to the transport costs as discussed later.

TRANSPORTATION

The core of the project in Brazil focuses on understanding transportation. There are a couple of items to consider here. First, around 70% of the cotton produced moves through one port, Santos (see the previous figure) while the preponderance of production is in Goias, Mato Grosso, and western Bahia. So, cotton must be moved a considerable distance.

Unlike the United States that has a rather diversified transportation matrix of road, rail, and water, Brazil is almost completely dependent on roads. Over 60% of cargo moves across road (compared to 32% in the U.S.), much of which is of poor quality. For example, according to their Ministry of Transportation, only 22.5% of their roads are

paved, and many of those are very small (think a farm-to-market road in Texas). Also, for comparison, Brazil only has 28,000 km of rail compared with the U.S. at 275,000 km.

The result of this dependence on roads is severe congestion. One picture here shows soybean trucks awaiting entry along a major highway into a port city. Trucks may wait a week or more to offload their cargo before returning with backhaul. This congestion, of course, increases overall costs. For example, the transport costs from Goias to Santos is around $0.08/lb for cotton. Transportation from Lubbock, TX to the port of Los Angeles is in the neighborhood of $0.05/lb, and that is with the inefficiency of having to first truck to Dallas to load on a train.

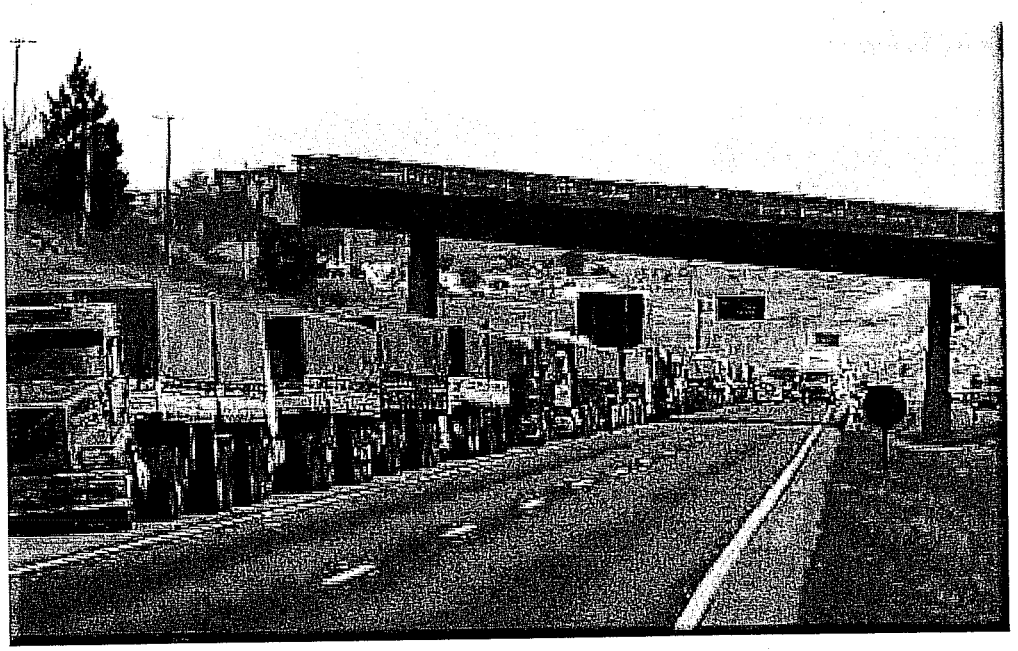
Brazil is attempting to remedy their transportation deficiencies. They have an ambitious plan of expanding both water and rail transportation. Some small projects are underway, but lack of cash is hampering growth in their network. Some private investment is stepping in to move projects along, but even that is limited as well. Like the United States, they have laws requiring environmental impact assessments before projects can begin. For water projects, they lack the procedures to execute those assessments, so projects are being held up because they cannot complete their own paperwork...sounds strangely familiar...

CONCLUSIONS

Brazilian cotton is competitive with the United States. Right now, the U.S. maintains perhaps a small total (including transport) cost advantage. But, Brazil has experienced rapidly rising yields and has not, as of yet, had (legal) access to many of the stacked gene transgenic varieties. So, per pound costs of production may still have room to decline.

Unlike the U.S., however, Brazil has a growing textile sector. They consume roughly 60% of their domestic production, and that share has grown over time. Good land is becoming harder to come by, so land prices are increasing and there is beginning to be real competition between crops for land area. These data suggest that Brazil is beginning to mature as an agricultural producer.

While many factors can and will affect the competitive position of the U.S. with respect to Brazil. If their textile sector continues to grow, Brazil may be less of a foreign competitor in export markets, but their costs will still influence world prices. My trips, so far, have confirmed one of my recommendations for the United States, though...reinvestment in transportation infrastructure (rails, locks and dams on rivers, and highway quality) will be a key to the continued competitiveness of U.S. agriculture.



COMPETING *for* PROFIT

Issue XXXII : October 2011 Texas Tech University

David Ford - Dumas, TX

Story, Photos and Design By: Samantha Borgstedt

When it comes to farming, coffee shop talk is often one of the best sources of information, and this year, the one phrase you will most likely hear in any small town coffee shop on any given day is, "I've never seen a year like this one."

That same phrase is what David Ford, who farms near Dumas, Texas, told me as we drove around his corn fields varying in size and maturity. Ford said if he would have known this past spring the severe heat and wind his crops would endure through the summer months, he would have planted a thinner population and backed up his planting date.

"This year we have dealt with a lot we have never dealt with before in agriculture," Ford said. "No rain, horrible heat and wind, and it just never seemed to let up. We will learn from this year, though, and come out of it smarter than before. We will have to."

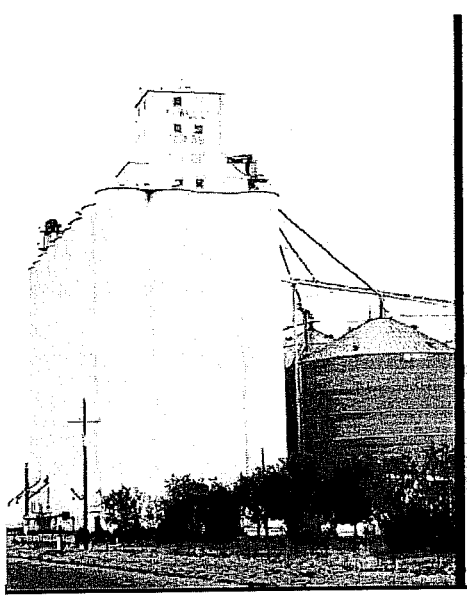
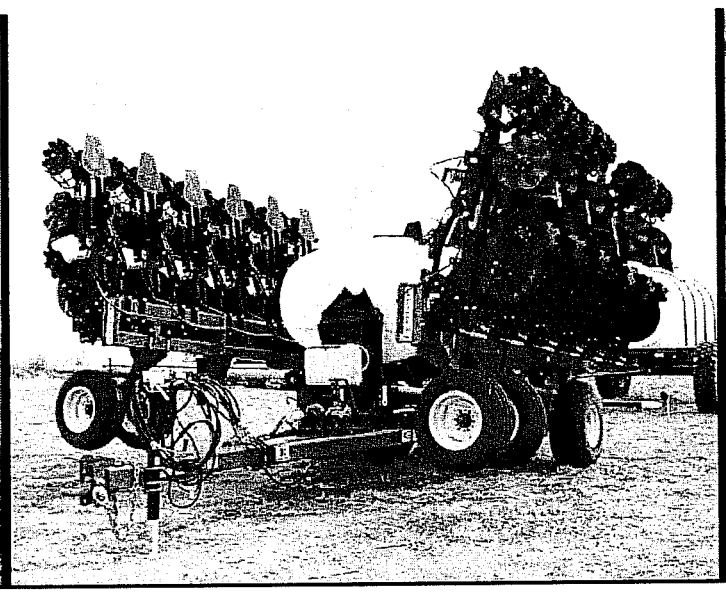
Ford, who serves on the Texas Corn Producer Board of Directors, farms with his brother, Donald, and two sons, Jeff and Kevin. The family manages 5,000 acres which they own or lease, as well as custom farm 5,000 additional acres. Of their own 5,000 acres, the Ford family produces about 70 percent corn, 20 percent cotton, and 10 percent wheat. However, Ford said if this severe drought continues, they will be looking into producing less corn and more cotton, wheat, and triticale.

Although Ford's farms have received only one and a half inches of rain from September 2010 to September 2011, he is expecting to harvest 180-200 bushel an acre corn and 1 ½ - 2 bale an acre cotton. Ford had to chop 240 acres, about 10 percent, of his corn crop due to heat, wind and drought. He said while he hated to abandon those acres, it allowed the remaining corn to receive the irrigation it needed to survive. He was able to sell his chopped corn to local dairies.

Ford said if the drought continues, several adjustments will be made throughout his farm to better ensure a successful crop. One of those changes will possibly be planting shorter season varieties of corn in order to back up his planting date. He said the 115 day hybrid planted this past June 1 did not have to deal with the April and May winds, and was at an early enough age when the heat and winds hit mid-June to avoid the stress his older plants endured. That later planting corn now stands 12 plus feet tall with little variability, making it Ford's best looking crop.

Ford said he will also change the nozzle types and possibly the spacing on his center pivots. He renozzled several pivots this past summer to reduce evaporation and water output in hopes of stretching his water supply. If a lack of rain continues, Ford said he will switch from spray to bubble and wobbler nozzles, and possibly go from 60 inch spacing to 30 inch spacing between nozzles.

"Hopefully by this coming February we will have an idea of what we need to do next year and can make needed adjustments," Ford said. "In this country it seems extreme follows extreme. We had an extremely cold winter and extremely hot summer. Hopefully we will have an extremely dry


won't, but we have to plan and be ready for whatever comes our way."

Ford purchased adequate insurance in preparation for this year's crop. In order to better protect his revenue, he said he will likely up his coverage next year to 70 or 75 percent from the 65 percent level he purchased this year. He emphasized the importance of protecting farm revenue.

"Any insurance policy that comes along that can better protect revenue, people need to look into," Ford said. "Yield is only part of the package. Yes, it helps to have good yields, but revenue is what you have to protect."

In order to protect his water supply, Ford has installed water meters on all his wells to monitor water output. He said the meters allow him to know exactly how much water he is pumping and help determine what varieties of seed to plant under specific pivots.

Ford contributes a great deal of his water and soil management to strip-tillage, a soil conservation method used to improve soil conditions, reduce fertilizer needs, and increase moisture retention. This is Ford's eighth year to use the practice, and it has proved to be advantageous both in his fields and to his pocketbook.

Ford said when he used conventional tillage he was pumping 24 to 25 inches of water on his corn, costing him about $123 per acre. Since using stip-tillage, the organic matter remaining in the field retains water, reducing Ford's water output and lowering irrigation costs to $92 an acre.

Stip-tillage also decreased the amount of trips Ford must pass over his fields with a tractor, reducing labor, fuel costs and soil erosion. Ford considers the combine, when harvesting the prior year's crop, to be his first trip across the field in preparation for the next year's crop. He cuts the stalks low so they can remain in the field to preserve soil and water throughout the following crop year. He then strip-tills the land, and follows that up with planting. Other than applying herbicide with a spray-rig, Ford is able to tend his land in three trips.

"When using conventional tillage, I might make up to seven trips across my fields," Ford said. "That took a lot of labor and fuel. Now I only make three trips and can drive down my turn-rows and not see water running out (of the field) like I did when using conventional tillage. The strip-tilled fields' organic matter holds the moisture long enough to allow it to soak into the ground. Making every inch I put down count."

Ford said although his water supply has not decreased drastically, it has indeed decreased over his years of farming, causing him to be more aware of and careful with his output. He is hoping first and foremost for a good rain and a continuation of moisture throughout the next crop year. But knowing drought years like this will come along in his farming future, he is also hoping advanced varieties of seed, irrigation methods and strip-tillage will allow him to continue conserving water while harvesting successful yields.

David Ford is passionate about his crops, land and water, and he will be the first to tell you it takes grit to farm in his area. This year is as good example of that as any. But if there is one thing I have learned about agricultural people throughout the High Plains of Texas, it is that they have grit, and David Ford is as good example of that as any.

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COMPETING *for* PROFIT

Issue XXXIII : November 2011 Texas Tech University

Punkin Center Gin - Lamesa, TX

Story, Photos, & Design By: Samantha Yates Borgstedt

Like so many aspects of agriculture, this year's ginning season is going to be a tough one. Many gins are opening their doors knowing their finances will take a loss, yet knowing their customers will have some, maybe not much, but some, cotton to be ginned.

Al Crisp, owner and manager of Punkin Center Gin, is one of the many ginners in this situation.

"We ginned 38,000 bales last year," Crisp said. "This year, I'm hoping we gin 8,000."

Crisp said he went into this ginning season expecting to lose $200 thousand. Hopefully he will not have to take that drastic of a financial hit and maybe even break even, but he said it is always better to plan ahead and plan for the worst. Crisp went on to say gins must plan ahead, know their costs, and keep a good savings account. He went on to say on good crop years, he must bank up and prepare for years like this, when he knows he will need to rely on his savings.

"It would have been easy to sit here and do nothing knowing I'd come out $200 thousand ahead," Crisp said. "But my responsibility is to my customers. They need somewhere to take the cotton they have this year, and if I'm not open they will go somewhere else and I may lose their business forever. Our farmers who come to us are like family, and we want to treat them right and be reliable."

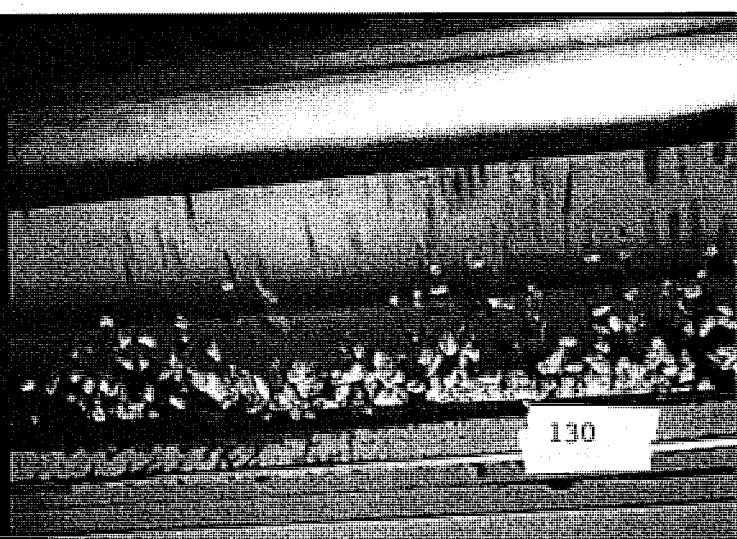
Crisp grew up in South Texas spending his summers working for a cotton gin. From the age of

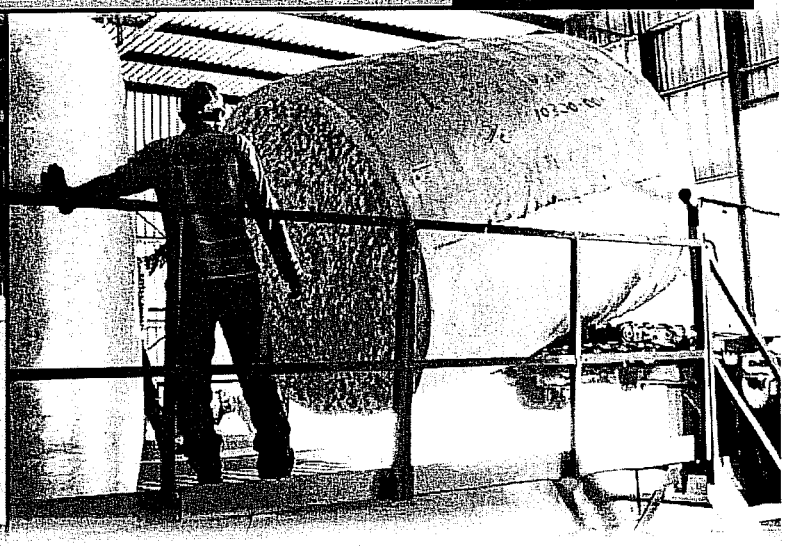
fourteen, Crisp has performed every job there is at a gin. Tarping modules, driving a forklift, working the press, you name it, he's done it. This marks his 24th ginning season, and 11th year of owning Punkin Center Gin.

Crisp said when he originally bought the gin it was operating at a rate of ten bales per hour. Since then, he has made advancements so the gin can now operate at about 40 bales per hour, greatly increasing efficiency. Cameras have been installed throughout the gin to monitor progress and aid in preventing mechanical problems. Computer software has also been installed so that each bale is marked with a barcode that is scanned, sending all information pertaining to that bale directly to the gin's office computer.

Ginning, also like many aspects of agriculture, sees advancements in technology with every crop season. Crisp said he must keep moving forward and making technological advancements so his gin can stay competitive. Crisp's original plan was to make a few advancements to the gin every year as finances allowed, but due to a damaging fire in November 2005, his plan got changed. Crisp said the fire was started by a motor exploding and catching lint and oil on fire and causing drastic damage to the gin. If that wasn't bad enough, just a few weeks later a second fire occurred caused by a weak electrical line resulting from the first fire. While the fires were damaging and costly, Crisp said looking back, many good things have resulted from them.

"I would have never gone out and completely redone the gin like I did after the fires," Crisp said. "I was put in a position where I had to replace the equipment. I went ahead and





installed the most modern and efficient I could afford, and as a result our gin is better."

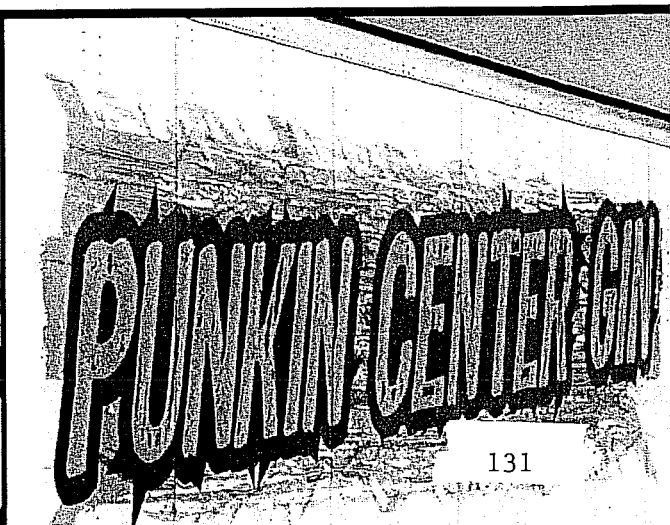
Some of the more recent advancements Crisp has made to his gin have been done in order to more efficiently gin the new John Deere round bales of cotton. Four round-bales can be hauled by one module truck to the gin where they are unloaded and have their plastic wrapping removed. As soon as the plastic is cut, the cotton begins to rapidly expand, causing much of it to fall off the conveyor belt before entering the gin. In order to prevent this from happening, sheet metal was welded to the sides of the Punkin Center Gin's feeder and another man has been added to help unload, cut the wrapping off and feed in these round bales of cotton.

For about four years now, Crisp has employed the same crew for his gin. He said over the years, he has worked hard to develop a trust and respect with his workers. He speaks fluent Spanish, which enables him to clearly communicate with each employee. Crisp realizes he is fortunate to rely on his crew's good help from year to year, and he tries his best to keep them wanting to come back and work in his gin.

Crisp's wife, Kasha, helps him manage the gin and keeps the office running smoothly. Last year, when they experienced a high volume of cotton, Punkin Center Gin was never behind more than ten days. They take pride on being recognized for their integrity and reliability.

Punkin Center Gin knows the importance of being recognized. With many gins closing each year, Crisp wants to make sure producers are aware his gin is still open for business. The words Punkin Center Gin, along with all its contact information, can be seen driving down the highway as the black pick-up truck boasting the gin's name in bright pink letters, delivers module tarps and runs other errands. The truck trailers hauling the cotton bales to the warehouses also display the same pink letters, spelling out Punkin Center Gin.

"A few years back, I had a couple guys say to me, 'You bought that gin? I didn't even know



it was still open. That gave me the idea for the truck and trailers. This way people can see we are still up and running. And it's hard to miss that pick-up, with that pink on black. You know that'll get noticed."

Punkin Center Gin has also created a website so their producers can find them from anywhere.

"Our farmers can get on the site from their home computers or smart phones and see their turnouts and grades from any remote location," Kasha said.

Crisp said while their gin may be small, they have tried to keep it as technologically advanced as possible, making it a great place for farmers to take their cotton.

"We don't want to be somewhere guys have to take their cotton," Crisp said. "We want to be somewhere farmers want to take their cotton."

Crisp and his wife said they consider those that gin with them as family, and they have received the same treatment in return. During the fires in 2005, neighbors, strangers, competing gins, all came to the aid of Punkin Center Gin to help any way they could.

"We received help, letter, calls, cards, everything you can imagine from people after the fire," Kasha said. "The people in West Texas are so caring."

Crisp originally came to West Texas when working for Texas Cotton Ginners Association. He went on to work as the gin superintendent at O'Donnell Co-op Gin when the opportunity to purchase Punkin Center Gin came along.

"The good Lord has a funny way of making things work out," Crisp said. "I came here for a job and it turned out to be the best place for me to make a home and raise our family. I love the people and lifestyle here. It's just the right place for me, even on the bad years."

COMPETING *for* PROFIT

Issue XXXIV : December 2011 Texas Tech University

Miller Pecan Farm - Brownfield, TX

Story, Photos, & Design By: Samantha Yates Borgstedt

With the holidays upon us, it is unavoidable to find yourself surrounded by an abundance of good food. With so many families and friends sitting down to their turkeys, hams, roasts, breads, green beans, pumpkin and pecan pies, and so many other tasty dishes, I hope they do not forget that without our farmers and ranchers, none of these foods could be enjoyed.

Dustin and Jessica Miller are two young farmers helping to keep good, safe food on our table. The couple purchased their pecan orchard in 2003, shortly after graduating from Texas Tech University. The trees, many of which were originally planted in 1956, had a history of pretty good production that the Millers believed could be improved upon through several management techniques.

The Miller's orchard, which totals 185 acres consisting mostly of Western Schley variety, was originally watered using hand-moved irrigation pipe, which the couple said they had to use again this year to get up their floor coverage wheat.

"For about three or four years we moved pipe every day to water the trees," Jessica said. "It took all day and was never-ending, but it sure kept us in good shape."

In an effort to be more efficient, the Millers applied and were granted money through the Equip program to install drip irrigation. The orchard is now entirely watered through drip. Dustin said on an average year they put down 30 inches of water on their trees.

"We water from April through October," Dustin said. "This year, due to the severe drought, we had to put down more water than ever, about 48 inches. We had six tenths of rain the other day, and that was the most we have gotten at one time in over a year. It is hard to keep your trees alive and make a crop with that amount of rainfall."

Dustin and Jessica Miller

In addition to water, the Millers supplement their trees with compost, foliage spray and some commercial fertilizers. Dustin said the foliage spraying is one of their greatest expenses, but also one of the most important necessities to production. He said foliage spray is usually applied to the trees seven times throughout the spring to deliver micro-nutrients which they do not absorb through the orchards alkaline soil. The humidity must be right for the spraying, which the couple said was tricky this past spring due to the severe dryness their area experienced.

The Millers also hedge their trees three out of four years in order to allow more sunlight to filter in. Dustin said hedging reduces disease pressure and crop load, which is important in order to make a good crop of pecans every year.

However, making a good crop is often at the mercy of Mother Nature. In 2007 and 2009 the Miller's orchard experienced late freezes which prevented them from making a crop.

"Those two years it froze hard enough to smoke our trees," Dustin said. "Some 33 degree mornings can be overcome, but when you get a late freeze lasting a couple hours around 20 degrees, you can't turn that."

The Millers annually purchase federal crop insurance to protect from circumstances such as these.

Due to the freezes, the Millers have been able to make around 3,000 pound per acre crops on the years the trees did produce; however, Dustin said they would prefer to make a 2,000 pound per acre crop every year.

Most of the Miller's pecans are sold to Durham-Ellis Pecans in Comanche, Texas. Due to the drought and increased demand from Chinese consumers, pecan prices have greatly increased this year.

"This is the shortest crop Texas has seen," Dustin said. "I've heard several growers say they believe the cold winter we experienced in 2011 killed fruit in the wood. I don't know if that is true or not, but topped with the drought, many growers were not able to make a crop this year."

Of course, when the supply is low and demand remains high, the result is a jump in prices. Retail pecan prices are expected to be around $2 a pound higher this year from 2010. Although shoppers may grumble at the higher prices when buying pecans for their holiday pies and treats, they can be assured that the quality of nuts they are buying remains high.

"Although quantity is better in some parts of our orchard than others," Jessica said, "the quality is very good throughout."

The Millers are not sure what sort of

crop they will make this year. Dustin's father and brother also have orchards, bringing the family total to 450 acres, and together they average over a million to a million and a half pounds of quality pecans. Dustin said having this quantity becomes advantageous when selling, as many buyers would prefer to buy a large bulk amount. The Millers are hoping they will at least meet their average this year, but only time will tell.

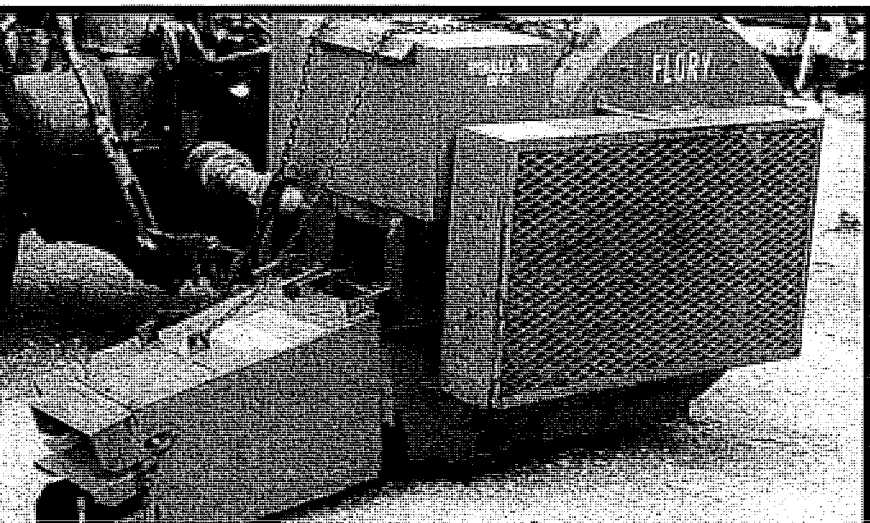
Jessica said it usually takes the family 2 to 3 months to harvest and clean everyone's crop. Moisture during harvest can slow them down, however the couple said they have not experienced that since 2004. The Millers have invested in cleaning equipment which will sort their pecans by quality, as well as remove any rocks, cracked or black pecans. The machine will operate at 10,000 pounds per hour.

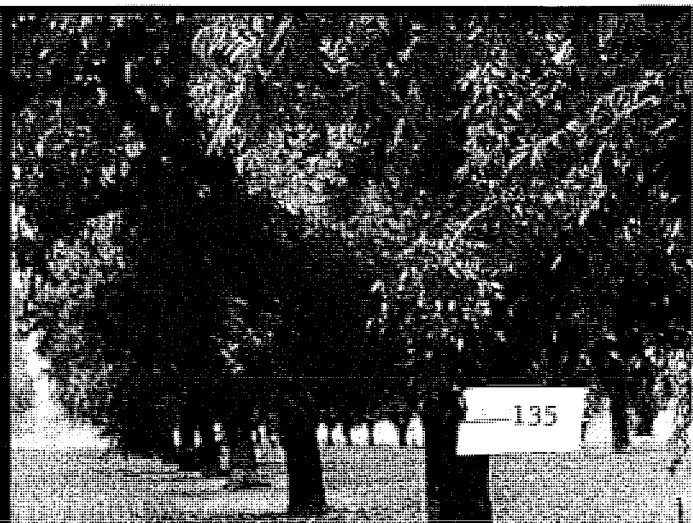
"It is really hard for us to find good labor," Dustin said. "The cleaning plant has helped us eliminate a lot of labor as well as human error."

Dustin said it is important to get rid of as many bad pecans as possible in order to avoid getting docked by the buyer. He said due to lack of regulations, it is important to sell pecans to a buyer you can trust, and equally important for the buyer to buy from a grower they can trust.

The Millers have also invested in several pieces of harvest equipment. The entire family helps in the harvesting process allowing them to not rely on any hired help. From the tree shakers, sweepers, harvesters, and transport truck, you can find every member of the Miller family hard at work.

Jessica and Dustin said they have purchased the acreage to the north of their pecan orchard, and while they would like to plant more trees, they will have to wait and see if their water capacity can handle the expansion. The couple also mentioned possibly opening a retail store





where they would sell their pecans and food items made from their pecans.

"We are still thinking about it," Dustin said, "but we are thinking more seriously about it now than ever. It would allow us to cut out a lot of the middle man and vertically integrate in a profitable way."

Dustin said he read in a local newspaper that 10,000 cars travel daily down U.S. 385 which runs directly to the east of the Miller's orchard. He said if just a slight percentage those travelers stopped at their retail store to make a purchase, he thinks a profit could be made.

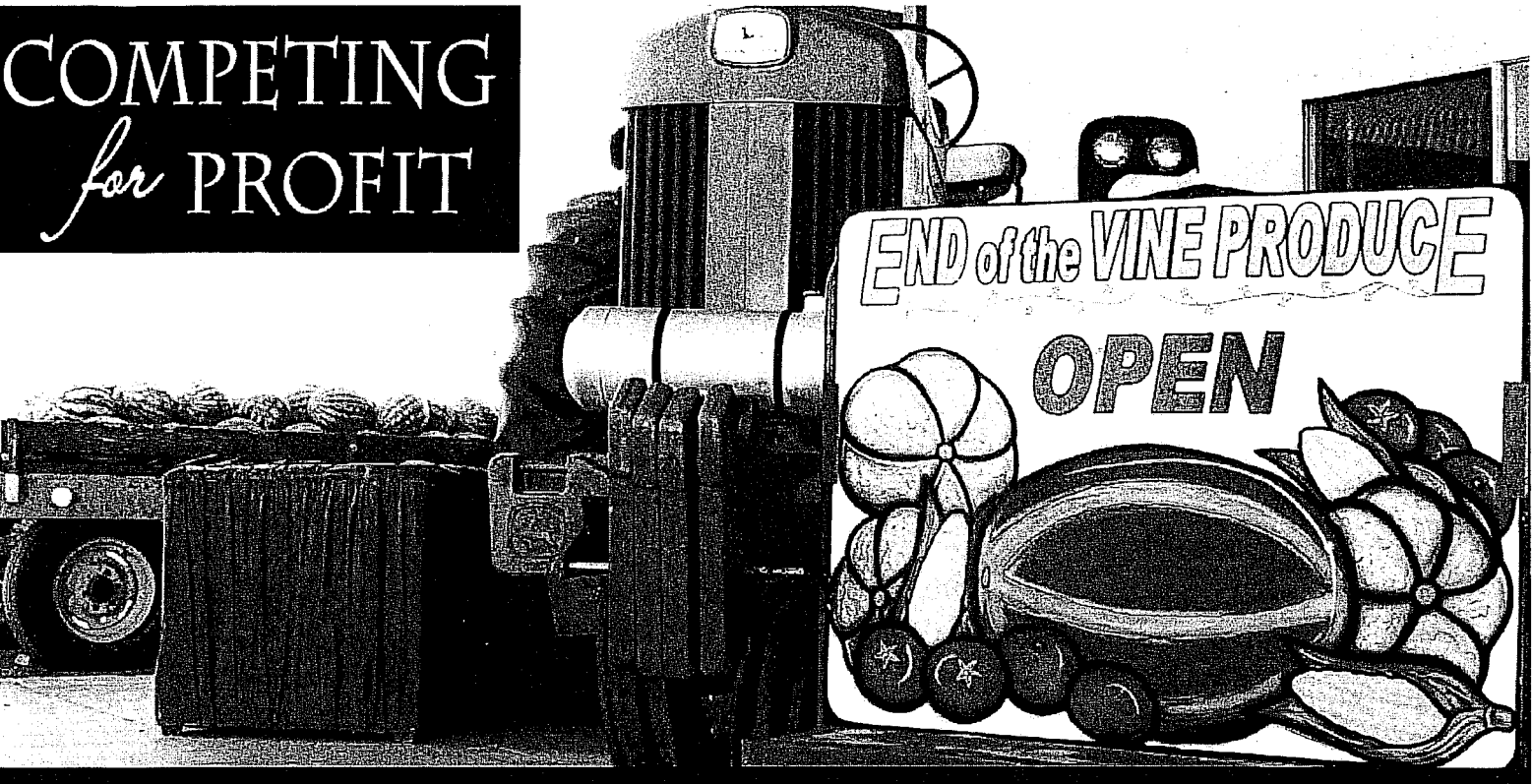
Of course a retail store will require a great deal of additional help and more than likely the Miller's would need to hire employees to work at it.

"Right now we stay so busy, it is hard to think of opening a store," Jessica said, "but it is something we are certainly open to doing."

In addition to the orchards, the Miller family farms cotton and wheat and raises sheep. Their operation stays busy year-round with harvest, lambing, selling their lambs, spraying their trees, planting cotton, and irrigating.

The Millers said while it is busy and hectic, they enjoy it, and nothing ever really seems like 'work' as long as you enjoy it.

COMPETING *for* PROFIT



Issue XXXV : January 2012 Texas Tech University

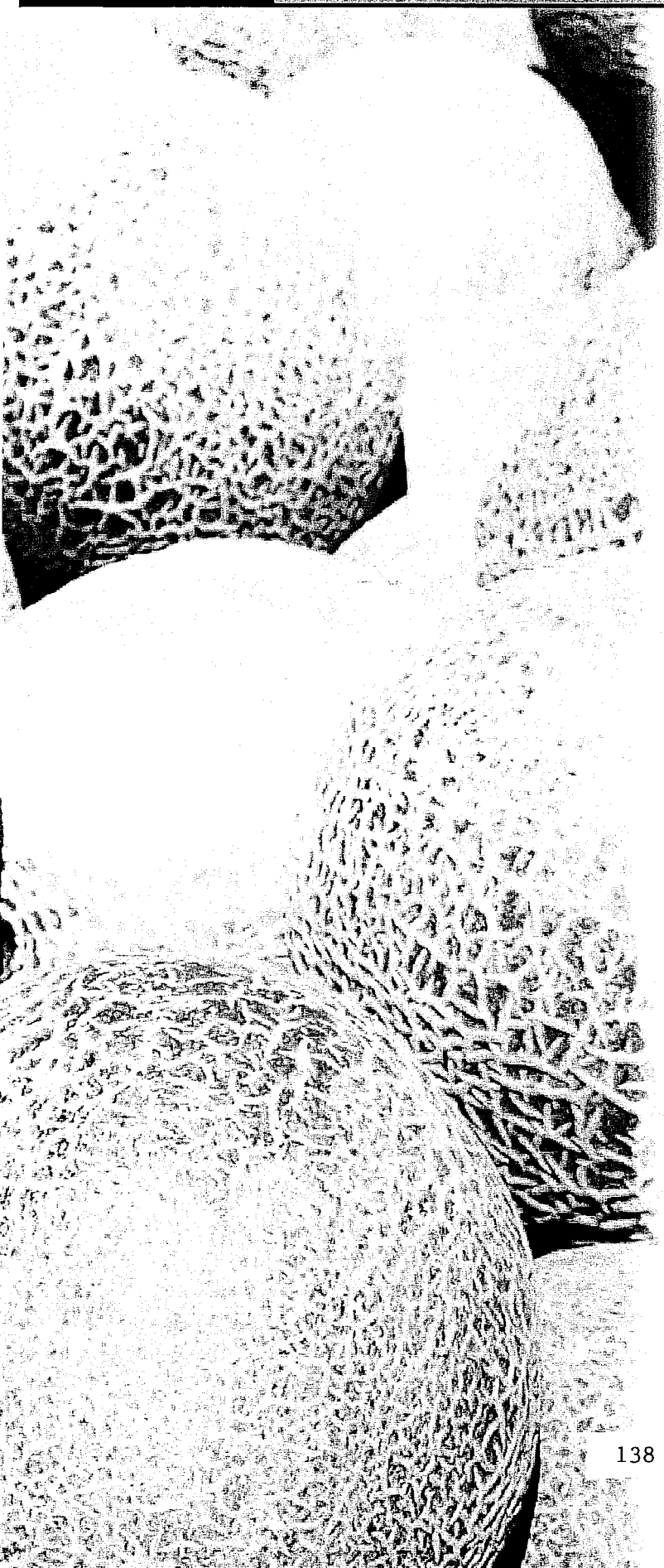
Note From The Chair

Dr. Darren Hudson

Another year is upon us...and I hope everyone has a prosperous, Happy New Year. This story is one that I think we should all take to heart this year as we examine where we are, where we want to be, and how we are going to get there. The Holubec story is one where having an idea, expecting nothing, and working hard have proven to be a recipe for success. We are facing challenging political and economic times, and moving forward and out of this morass will require different thinking than what has placed us in this predicament. I encourage all of you to consider the following as you think about your businesses and lives this year.

1. Dare to have an idea. Look at your current position with a critical eye. Why are you where you are? How did you get there? Are there things that you would like to have/do/accomplish that you do not already have? Is there a different way of doing things that help you achieve those goals? We all get comfortable in running our lives in a certain way, and change is always intimidating and unsettling. But sometimes, a change of direction is actually what is needed to shake everyone out of their ruts and move forward.
2. Expect nothing. We have all forgot that no one owes us anything. My experience tells me that if you engage in relationships with a desire to serve rather than an expectation of return, you are most often surprised by the outcome. More importantly, though, if we plan our lives and businesses with no expectation that we are owed anything, we will be more conservative and not become overextended based on the expected performance (or handouts) of others.
3. Work hard. Hard work is nothing new to those reading this, but it is worth a friendly reminder. Along with the above, hard work leads to self-reliance, and self-reliance leads to personal responsibility. These are all characteristics that are in short supply today.

We have a chance to be shining examples of the founding principles of our country. And, in the course of living those principles, return ourselves to a competitive, profitable, prosperous path.



HOLUBEC FARMS : MIDKIFF, TEXAS

STORY, PHOTOS & DESIGN BY: SAMANTHA BORGSTEDT

Some things start small and simple, and before you know it, a demand is created. That small little business begins to grow and grow until you look back and say, "Remember when?"

That is exactly the type of scenario End of the Vine Produce experienced. The Holubec family started with a handmade sign on their mailbox pointing to a big mulberry tree with a trailer of watermelons and cantaloupes parked under it. An old ice cream bucket was set out for passers-by to drop in a few bucks in exchange for a melon or two as they made their way up Texas Highway 349.

Today, vendors from Austin, Dallas, Amarillo, New Mexico, Colorado, and other various areas travel to the Holubec's farm near Midkiff, Texas, to fulfill their watermelon and cantaloupe needs. The vendors no longer drop their money in an ice-cream bucket, but instead pull up to a nice, large barn providing shade to trailers loaded with melons and supplied with a refrigerated cooler.

"We did not expect it to get this big," Sherry Holubec said. "It just got busier and busier under the tree and we decided to build a bigger stand. In about 2006 we built the barn, and we have a steady flow of vendors coming to load their pick-ups, trailers, semi-trucks, whatever they have that they can load up with melons."

Holubec said word of mouth is what has brought customers to her family's produce farm. They have never advertised, other than that hand-made sign, yet their customer base keeps growing year after year. The watermelons and cantaloupes they sell can be found at roadside stands and produce markets nationwide.

While the Holubec family did not focus their efforts on advertising, they have put every drop of it in physical hard work. Their growth and success is thanks to many hours of pure manual labor in the heat of summer days. Beginning the end of June, pickers work 12 hours a day hauling watermelons from the ground to the trailer. The farm is in constant motion for two months as melons are picked, hauled to shaded barns and loaded out to customers.

"July and August are crazy around here," Holubec said. "We go, go, go, and never seem to get caught up. The guys will come in from the field and say 'Where are all the melons we picked today?', and I just shrug my shoulders and say, 'they are already sold and gone.'"

The Holubec's farm about 250 acres of melons. Three of their fields are strictly commercial watermelons, which are round, red and seedless. Holubec said com-

mercial vendors provide their own pickers and trucks and have their own contracts to end sellers. Her family is responsible for the planting and growing of the crop. They order their seed from South Texas then send it on to Bonnies' Plant Farm where it is grown in a hot house until the plants are about four inches tall. They are then planted the first of April, with hopes of avoiding a late frost.

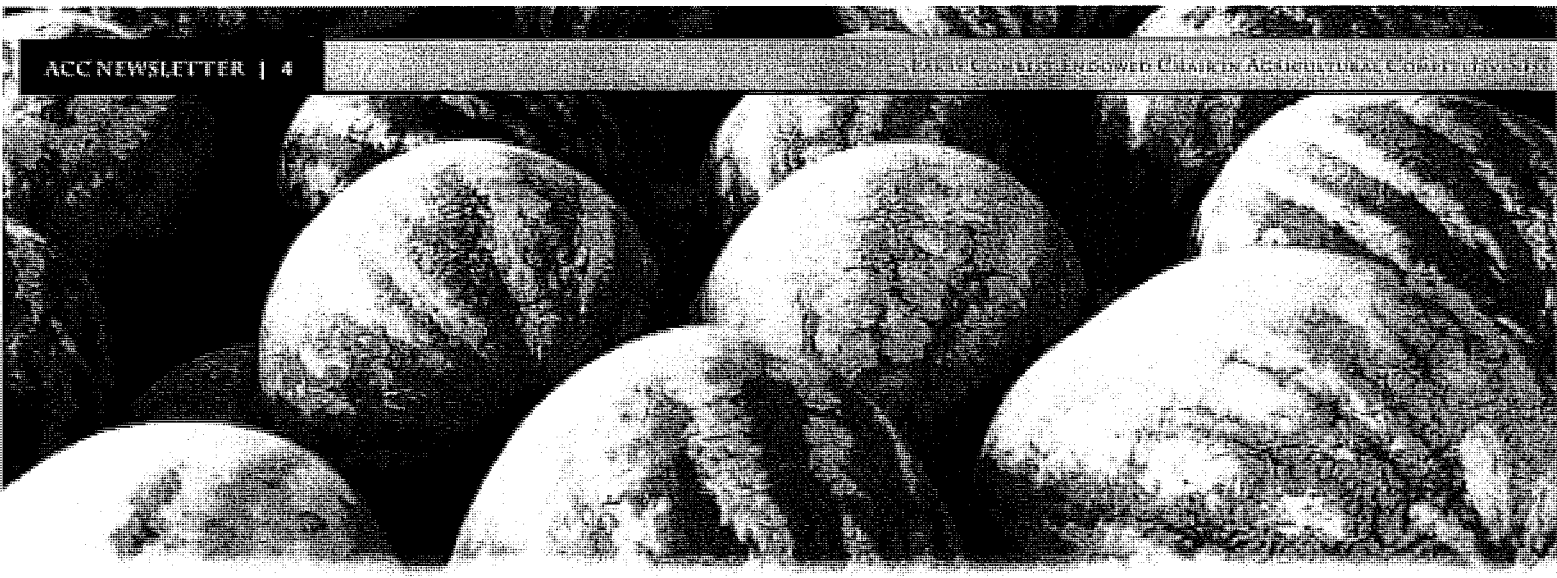
Drip irrigation laid 16 inches deep and 120 inches wide is used to water the melons. Black plastic is laid on the ground to keep it warm, prevent weed growth, and avoid having the melons lay on wet ground. A piece of equipment is used to drive down the rows making a slit in the black plastic. This equipment allows two people to ride behind it sitting low to the ground. They are able to carry several trays of the small watermelon plants on a platform beside them and place them one-by-one in the fertilizer filled holes made in the black plastic.

Seedless watermelon must be planted with a pollinator, seeded watermelon, in order to make fruit. For this reason, the Holubec's plant four seedless plants and one seeded, and continue that rotation down the rows. In addition to the commercial red, seedless watermelons, they also plant varieties such as black diamond, dessert king, sugar babies, orange seedless, and more. Holubec said the varieties she plants are heavily influenced on customers' requests.

In addition to melons, the Holubec's grow cotton and wheat. They also have a large garden where okra, squash, tomatoes, jalapenos, onions, zucchini, cucumbers, and more vegetables are produced. They sell this produce in their facility located on the farm, which sits off highway 349 about 20 miles south of Midland, Texas.

Holubec said customers come to their market from all over; however, highway 349 is heavily traveled by oilfield workers who have become some of her most frequent customers. She said she will have pick-ups full of customers waiting for her in the mornings to buy watermelons and vegetables on their way to work. Crew bosses also stop by to purchase several watermelons to take their workers out on location.

And while there are plenty of people working in the oilfield, there are few willing to work the long, hot hours required on the farm. Holubec said they ran an advertisement seeking employees in four states, which resulted in one inexperienced response. In order to fulfill their labor needs, the Holubec's use the H-2A program.



"It is our only alternative," Holubec said. "It is a terribly complicated program that needs to be totally revamped, to be made more user friendly so that more food is available to supply the world's ever increasing population."

According to the U.S. Department of Labor, the H-2A temporary agricultural program establishes a means for agricultural employers who anticipate a shortage of domestic workers to bring nonimmigrant foreign workers to the U.S. to perform agricultural labor or services of a temporary or seasonal nature. This employment, except in extraordinary circumstances, lasts no longer than ten months.

Holubec said her family provides wages and housing for the workers, and although this program is time consuming and requires an abundance of paper work, it allows them to have the help required to plant, harvest, and clean their fields. Many of the H-2A employees have worked on the Holubec's farm for several consecutive years now and are experienced and knowledgeable of their operation. She stressed the importance of having employees who know what a good, ripe melon looks like in order to ensure her customers are buying the good tasting product they expect.

While these employees work in the field, Holubec, along with help from her family, works at the barn managing the market and loading out of vendors. The market is open from 7:30am to 7:30pm from June through Labor Day.

"All three of my girls spent their summers working and selling our produce," Holubec said. "It paid for their college educations."

Holubec is proud of all three of her daughters, two of which graduated from Texas Tech University and one from Texas A&M University.

The Holubec family's produce farm has come a long way since that old trailer and ice-cream bucket. You can now find their melons being sold as near as the local street corner to as far as Canada. End of the Vine Produce is a great example of how hard work and effort can create a competitive farm from the simplest of beginnings.

COMPETING *for* PROFIT

Issue XXXVI : February 2012 Texas Tech University

Barry Evans - Kress, TX

Story & Design By: Samantha Borgstedt

2011 wasn't the best year to be a farmer. With the worst sand storms and drought conditions many have ever seen, it made us all realize how valuable rain and water truly are.

To farmers, however, the value of water is never taken for granted. They have forever known how precious it is and the importance of conserving it. Barry Evans has been using conservation methods on his farm in Kress, Texas, for about two decades. He has changed crop rotation patterns, irrigation techniques, and adopted no-till farming to better conserve his water.

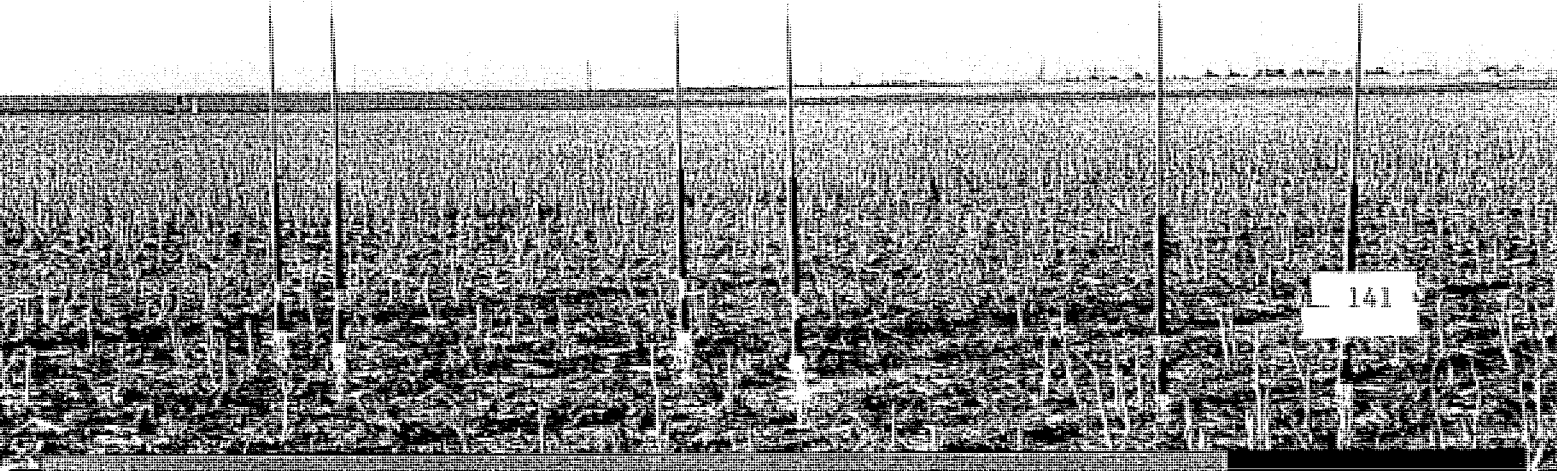
"I have metered my (irrigation) wells since 1992," Evans said, "and I've seen a decline of about ten percent a year since then."

One of the first conservative changes Evans made was switching to a bubbler LEPA system from spray nozzles. His corners that were once row-watered are now dry land.

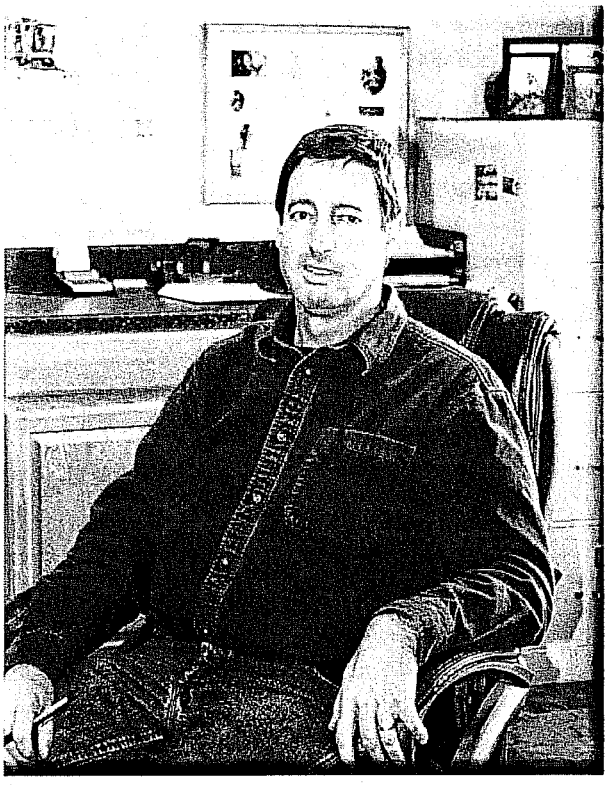
"If it is not an efficient use of water, I don't use it," Evans said.

In 1995, Evans began practicing no-till, without much success, he added. Evans said weeds were a major problem. He tried spraying herbicide, which only turned the cotton red, just like his dad told him it would.

"I got lucky that year and had a hail storm knock out that field," Evans said.



The release of Roundup Ready varieties made the concept of no-till farming take off in a positive direction. Evans now uses no-till to capture every drop of moisture he possibly can, without having to worry too much about weeds. He said there is a direct correlation between his moisture and yield, making him careful to keep that moisture in his field.



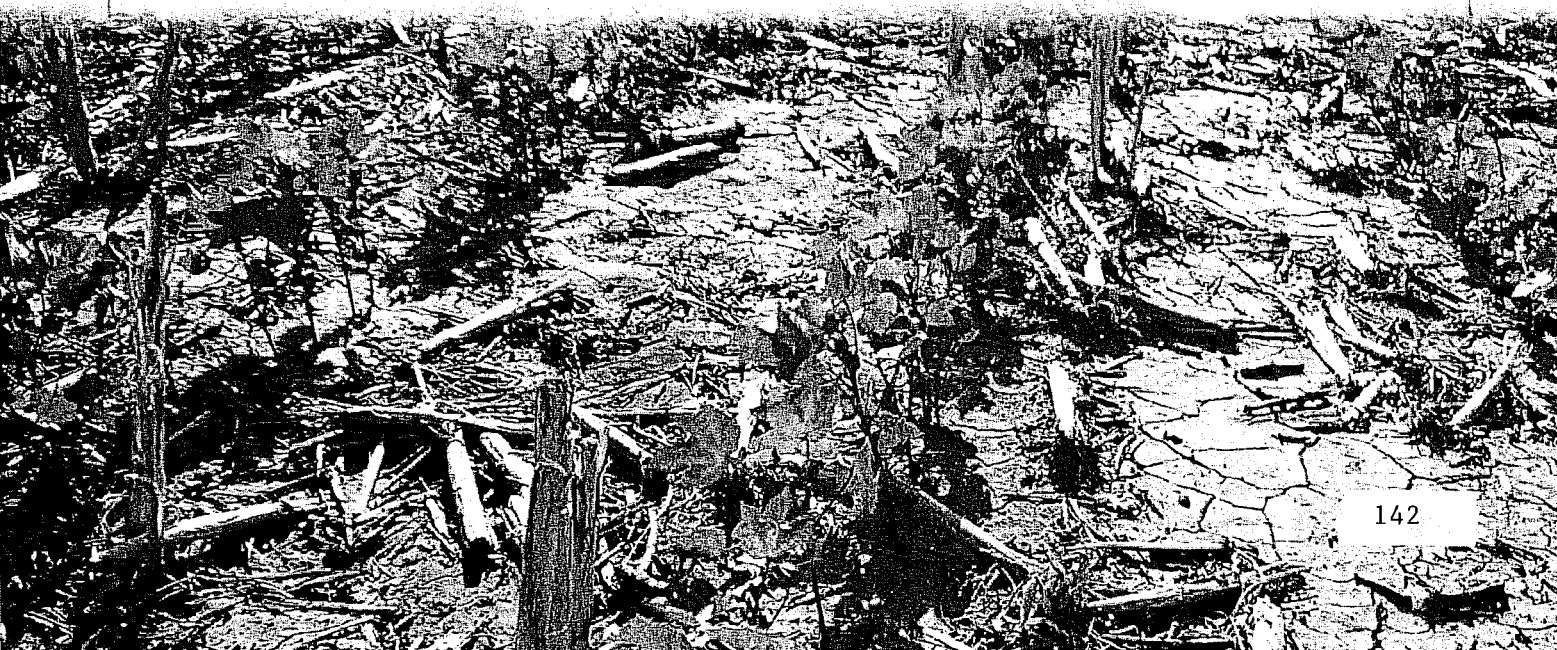
Evans said no-till farming is a long term commitment. It is not something you get going and figured out that first year. In order to see the benefits from it, one must build up the soil's organic matter, something he said is not easily done in an arid climate such as that in Kress.

Evans plants his irrigated circles using a cotton, wheat, fallow rotation. He said he will plant grain sorghum in place of his wheat depending on the year, however this past year he recognized how much blank ground he would have and the favorable crop insurance price for wheat and made the choice of planting wheat seed in his ground.

Evans said his farms are well suited for cotton and that it will return the most profit on his land per acre inch, however due to his lack of water, he is not able to plant as much of it as he'd like. Sixty percent of his cotton acres are now dry land, and Evans said that number is increasing as his water declines.

Evans talked of how important it is to have valuable information available for producers to utilize to become better educated on their irrigation options. He mentioned the Texas Alliance for Water Conservation (TAWC) and how he uses their data and information on his own farm.

"The TAWC has done a great job of putting usable data and resources together and in the hands of producers," Evans said. "The project is going to become more and more valuable and needed in the future."

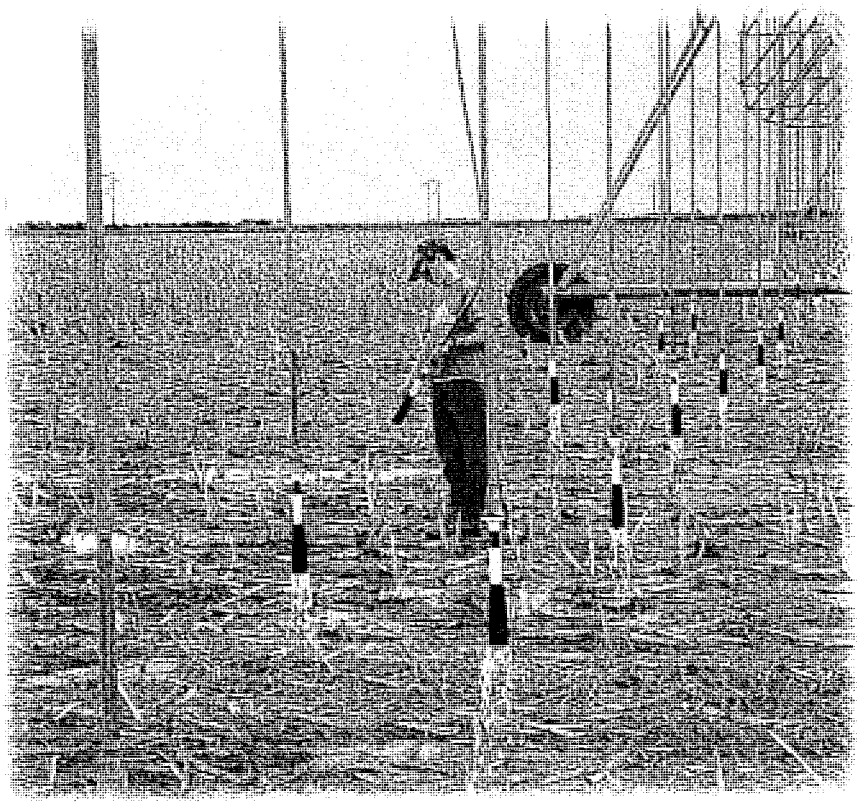


Evans said the most basic yet important economic concept farmers must keep in mind is marginal revenue must be greater than marginal expense, and this must also be the case with water.

"Water return cost is a huge factor in farming," Evans said. "We must be intelligent in the ways we use the water we have. It isn't like fertilizer. We can't go buy more once we run out."

Evans hopes forward thinking farming practices he applies today will create a favorable farming environment for future producers, like his son Eric. While for now he is earning his agronomy degree at Texas A&M, Eric has always longed to be a farmer.

"Eric has always loved the farm," Evans said. "He wants to come back to farm, and I want to make sure he has some good land and water to come back to."



Eric helping on the farm when he was younger.

Evans and his wife, Lindy, have two daughters, Emily (16) and Haley (11), in addition to their son Eric (19).

Evans himself did not plan on returning to farm in Kress. He graduated from West Texas A&M with a degree in agricultural business and economics and worked as a commodities broker in Amarillo for eight years. However, Evans found his heart was still with the farm, and when some land and house came up for sale in the area near his hometown, Evans took advantage of the opportunity and became a producer.

"It hasn't always been easy," Evans said, "but it has been great for my family and I enjoy it. That's what really matters."

As for those 'not so easy' times, Evans talked of the Boll Weevil and its destruction in 2000.

"We lost almost every acre we had to boll weevils that year," Evans said. "We found out fast that we could not grow cotton and fight the boll weevil."

Evans serves as chair of his local boll weevil advisory committee. He has been an advocate of the program since its beginning, and is proud and thankful for its success.

"After three years into the eradication program we saw major progress," Evans said. "We were able to pay our debt off in 7 years, and we had an original 14 year payout. We set a goal, stayed on track, and have been successful in achieving our goal."

Evans spoke of the importance grower input played in the boll weevil eradication program and compliments much of its success to that producer involvement.

"It is important for programs that are for producers to listen to producers' input and act upon their suggestions," Evans said. "It worked for the boll weevil eradication program, and I think it will become more and more important with our water issues."

Note From The Chair

Dr. Darren Hudson

Barry's story is one that is unfolding in the High Plains, and in large part, nationwide. On the one hand, he is facing resource constraints through declining water. On the other hand, new technology has opened new doors for profitable production. The key difference between success and failure in these conditions (along with some measure of good luck) is being willing to be flexible, change your business model, and adapt to the changing economic environment. Clearly, things like weather are involved (hence the luck), but understanding the trends is key to good management decisions. And, understanding requires information. As Barry states, he has meters on his wells. That has provided him with the data he needs to understand the trends in water availability, water use, and costs of production. Armed with that information, he has changed his crop mix, technology, and management strategies over the years to match the changing resource and economic conditions. Things do not always work out the way we hope, but flexible management gives us the best opportunity at long-term success.

Dr. Darren Hudson, Chair

COMPETING for PROFIT

Issue XXXVII : March 2012 Texas Tech University

Apple Country Hi Plains Orchards - Idalou, TX

Story, Photos & Design By: Samantha Borgstedt

When driving down the highways of the South Plains, it is common to see cotton fields surrounding you. What one might not expect, however, is to see 6,000 apple trees nestled right amongst them.

Apple Country Hi Plains Orchards has been adding a little red and green to the snow white cotton fields along highway 82 for 31 years. Located four miles east of Idalou, Texas, the orchard creates a getaway for customers to find healthy, locally grown food. Owned by past Texas Tech Agricultural and Applied Economics visiting professor, Cal Brints and his wife Susan, the orchard was originally planted as a hobby, yet turned into a prosperous business.

"We originally planted the orchard for our dads," Brints said. "They were both retired and we thought it would give them something to do and enjoy, and I really think it added ten years to their lives."

Brints said they purchased the land, planted the trees, and got to work. His father had always took care of around 75 fruit trees, and Susan's father had been a horticulture professor at Texas Tech, so the two knew their stuff when it came to taking care of the apple trees.

The Brints visited several orchards around the nation to study others' selling methods, and they best liked pick-your-own orchards. So from the beginning that is how they designed their business. The Brints chose apples because they knew people would travel from out of town to pick the fruit. And they were right.

Apple Country Hi Plains Orchards grows 48 varieties of apples. 20 of those are of main varieties such as Fuji and Golden Delicious, and 28 are on a testing block. Since the environment of the Brints' orchard differs from fellow apple growers, and they do not have any university or government sponsored research to follow, they must do their own testing of varieties. If the variety does well, it may be expanded in the orchard.

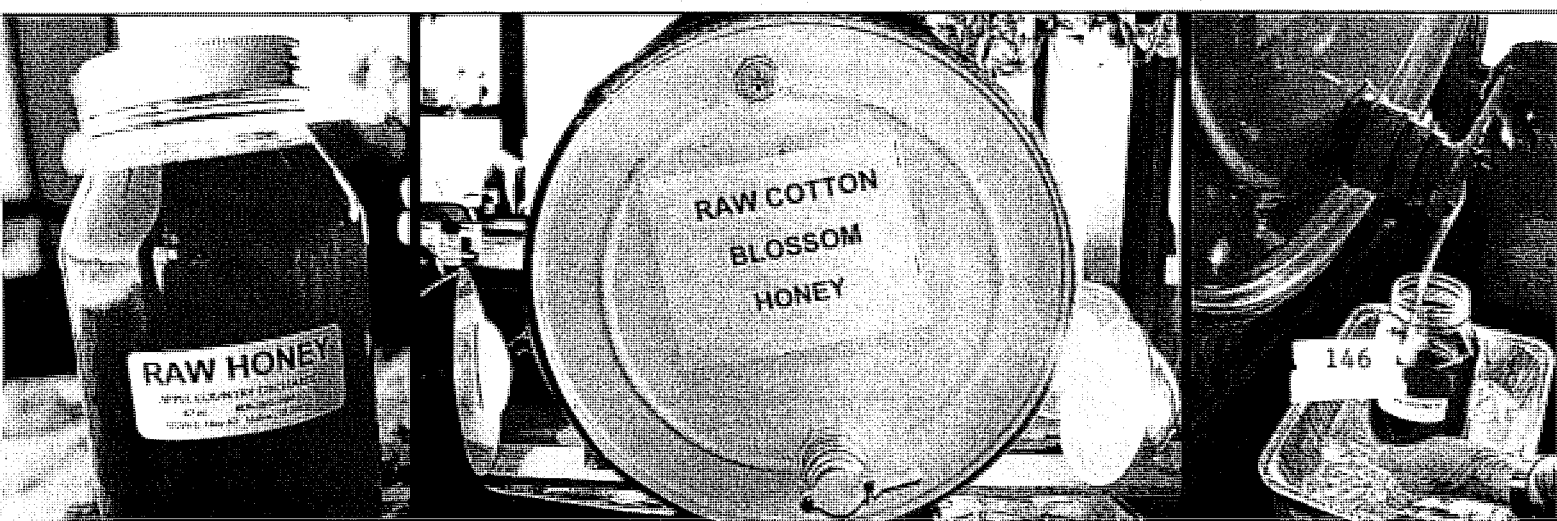
Each row in the orchard consists of one variety, making picking convenient. 85 percent of Apple Country's market comes from those who visit to pick their apples, while the other 15 percent is spread throughout the orchard's other endeavors including items sold in their store, farmers markets, restaurant, school programs and more.

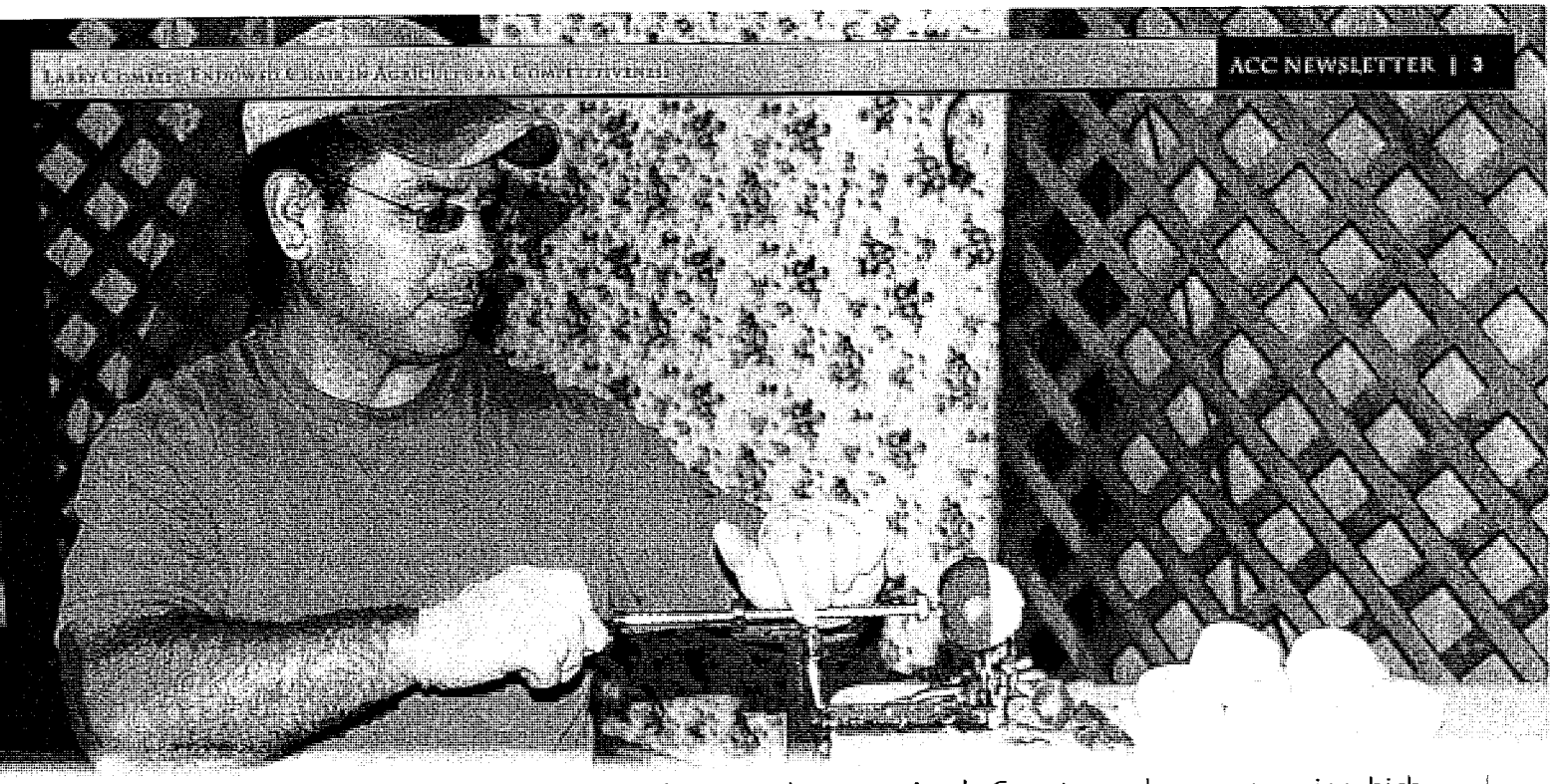
Brints said from their first harvest in 1984, pickers have had positive suggestions for their business.

"We never planned to have the store and restaurant," Brints said. "We just had pickers who said if we had apple pies they would buy them, and then if we had a place for them to eat lunch they would stay for a bite, and so on."

Today, you can buy a number of goods made from the orchard's own apples in the Apple Country store. From apple pie, jelly, turnovers, cake, and dried apples, the Brints are sure to have something to entice you. Their famous German Apple Cake is an authentic German recipe passed down to Susan while in graduate school from a German office mate, and is a favorite among Apple Country guests. The store also carries other fruit and vegetable goods, as well as raw cotton honey made on the turnrows of South Plains' cotton fields.

The Country Café offers something different every day. Seven days a week, from





11:30 am to 2:00 pm, guests can enjoy family recipes including chicken n' dumplings, country stew, enchiladas and more.

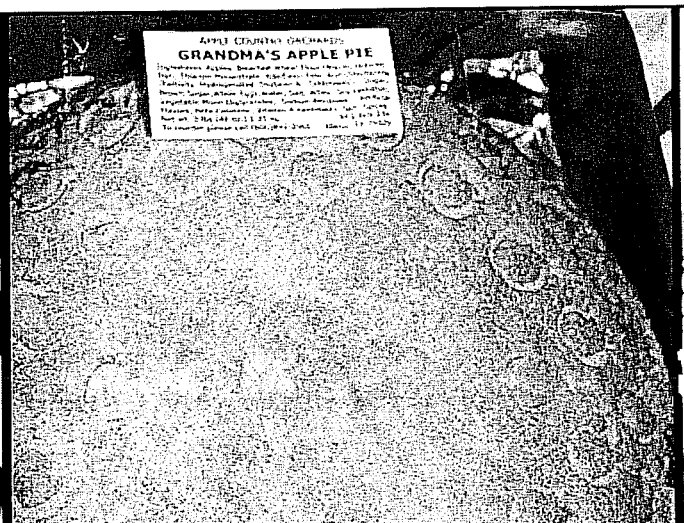
This consumer driven expansion has led to other activities such as school field trips, which the Brints host around 75 annually, as well as farmers markets located in Lubbock. Both Cal and Susan are on the Texas Farmers Market board, representing 109 farmers markets in Texas.

Apple Country grows a variety of other nutritious foods including: broccoli, black eyed peas, yellow squash, herbs and more. While some of these are sold at chain super markets, such as United, they all can be purchased during their season at the farmers market, on the farm, and through a special program called Community Supported Agriculture (CSA).

The CSA program is a special partnership between Apple Country and consumers, in which membership includes receiving a share of the weekly harvest, as well as coming to know and understand the life of the farm and supporting its efforts to grow healthy food.

Participants can be as involved with the farm as they want depending on the experience they desire. Members can help harvest and package their weekly shares, learn to thin branches, weed, and look for pests in the garden.

Shares are purchased in the spring and can be purchased as a full or half share. A full share costs $500 and entitles consumers to approximately 20 pounds of fresh fruits and vegetables a week. A half share costs $300 and entitles consumers to approximately 10 pounds of fresh fruits and vegetables a week. Shares can also be bought for honey and bakery items.



A seasonal chart is provided for members to select the produce they wish to be included in their basket. They are able to pick their items up once a week at the orchard, farmers market, or members can pick their own at the farm. The CSA season lasts from June through September.

The Brints are dedicated to providing healthy and nutritious food to their customers, and feel the CSA program is a great outlet for this. In order to keep their apples and vegetables safe and healthy, the Brints practice sustainable farming methods. They do not use commercial fertilizer, but rather recycle all organic matter back into the soil, including apple cores, peeling, leaves, and culls. They use drip irrigation to water their trees, and rely on experienced pruners to help prune trees during pruning season.

"Pruning is very important," Brints said. "It is important to have help that is experienced and selective when pruning. Since we are the only apple orchard in the area, that help can be hard to find. Luckily, we have great people who have worked for us a number of years."

Mary, who makes the wonderful food you will find in the restaurant and store, has been with the Brints for 18 years. "Our employees are all like family and help keep the orchard running smoothly", and the Brints are thankful for them all.

Two bee keepers are in charge of the bees that make Apple Country's cotton honey. Brints said due to last year's drought, the honey was about six percent lower in moisture than normal, making it thicker. Brints heats the honey in a large storage barrel in order to pour it in jars, which you can see in the orchard's restaurant.

"Our raw honey is popular, and widely used by people not wanting to take drugs for their allergies," Brints said. "We used to be careful to sift our honey and remove all the bees that might end up in the jars, but we learned that some customers actually preferred the jars of honey that contained a bee, so we have started marking those jars with a 'B' and selling them as well."

While bees are welcomed in the orchard, the codling moth is not. Brints said this insect can cause major destruction to the fruit and must be controlled. In order to do this, a pheromone mating ring is placed on a branch of each tree in the orchard. This ring gives off the scent of the female codling moth, disrupting their mating pattern and controlling egg production. Brints said this technique does not completely eradicate breeding, but is extremely helpful. Before using pheromone mating rings, the Brints would spray their orchard 10 or 12 times a year to control breeding. Now they do not spray at all.

Apple Country Hi Plains Orchards works hard to provide safe, healthy food to its customers. From the apples in the trees, to the pies in the store, the Brints and those that work for them take pride in each item they produce. They enjoy their customers and hold festivals, pruning workshops, and even a location for weddings and events to best serve them. So next time you are driving down highway 82 east of Idalou, pull over and visit the Brints' orchard. I promise you'll be glad you did.

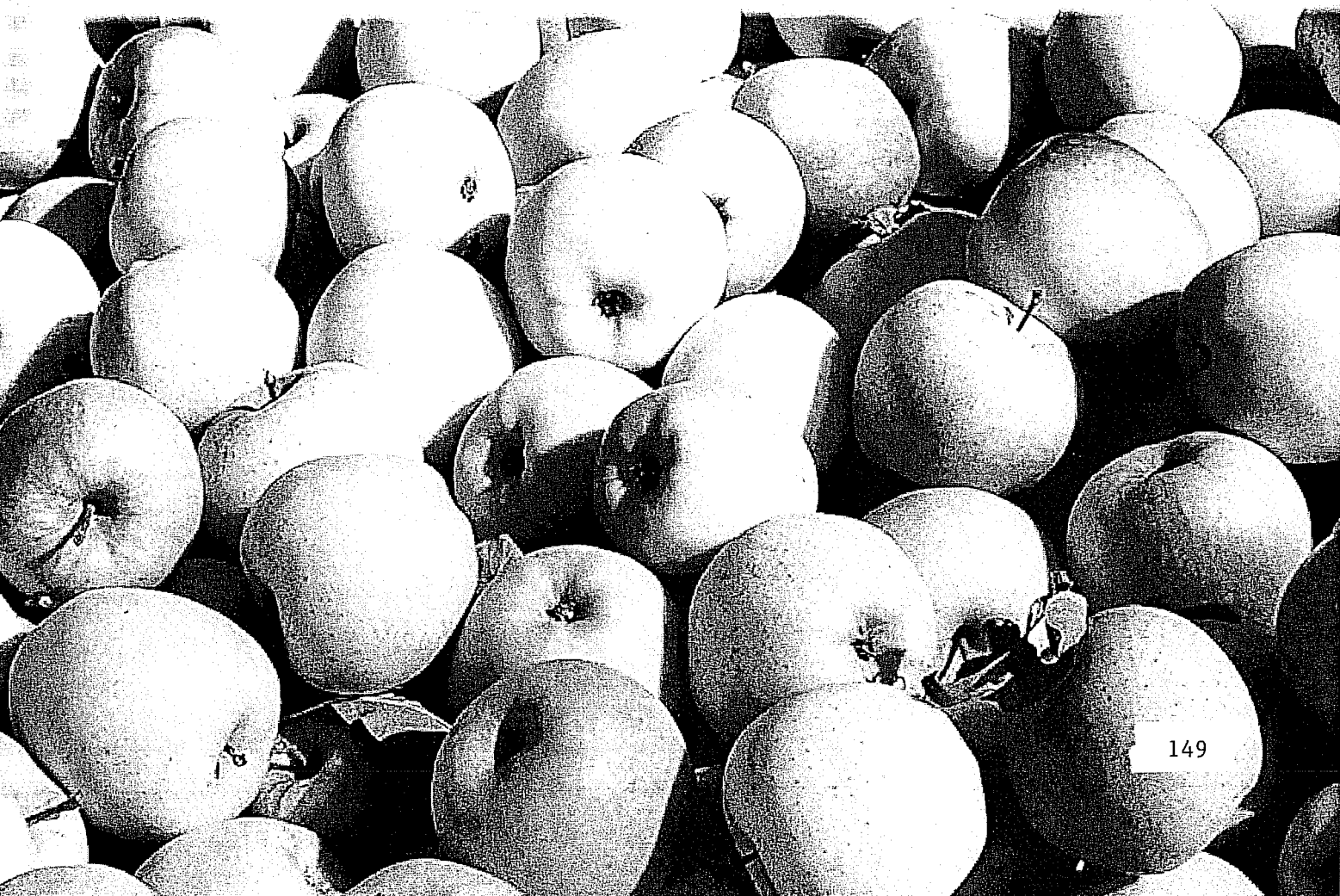
For more information on Apple Country Hi Plains Orchards and their CSA Program visit: www.applecountryorchards.com

NOTE FROM THE CHAIR

DR. DARREN HUDSON

The Brints' story is an interesting one for our region. When one thinks of pick-your-own apple orchards, West Texas is not the first place that comes to mind. But like many activities, the orchard was not started because the family set out to grow apples and make money, but because of the love of the activity. Eventually, what started as a hobby eventually worked its way into a full-grown, successful business. The key element in this story is evolution. As the Brints' responded to consumer requests and their own interests, the business evolved from a simple apple orchard with a few varieties, to a popular pick-your-own establishment with many varieties, honey, other products, and even a restaurant. At the same time, the business has expanded into food cooperatives, which is a means for many people to share in locally grown food, food production, and education without the cost and hassle of their own gardens. This innovative approach is certainly not for everyone, but represents yet another example of how diverse agriculture is on the Texas High Plains. And, did I mention Cal is an agricultural economist!

Dr. Darren Hudson, Chair



COMPETING *for* PROFIT

Issue XXXVIII : April 2012

Texas Tech University

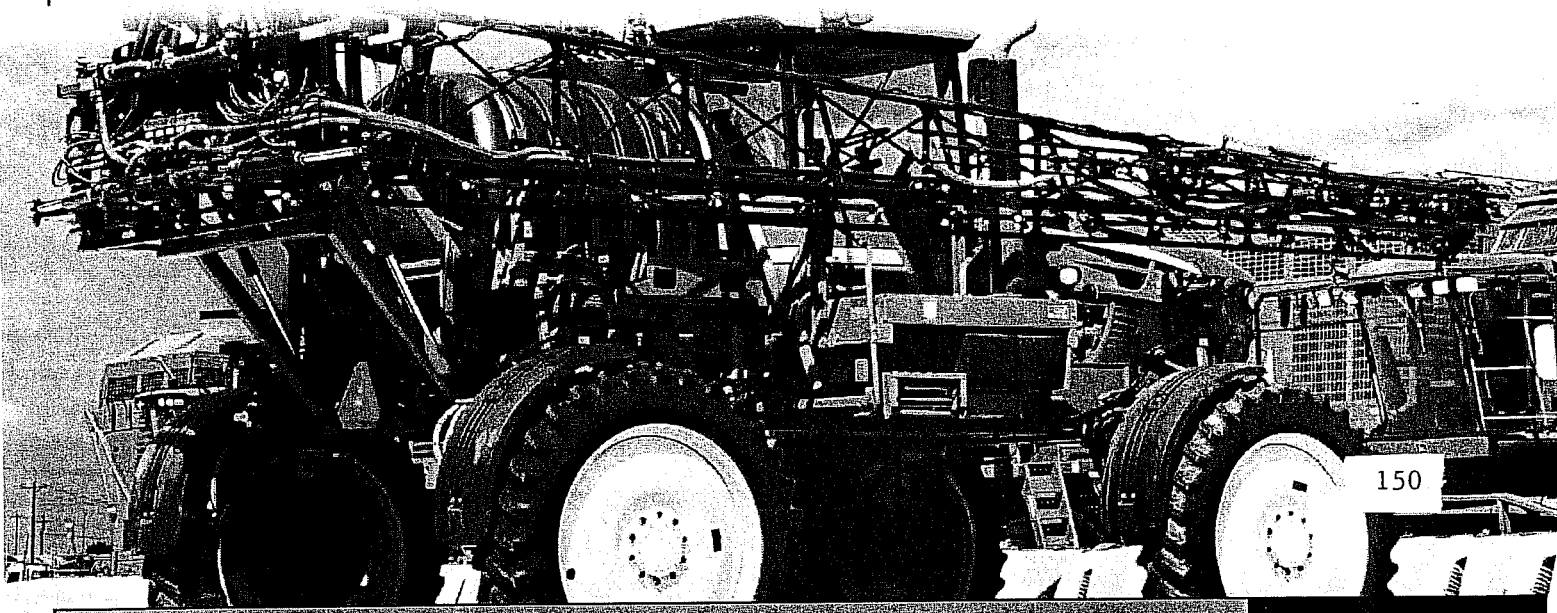
Hurst Farm Supply - Lorenzo, TX

Story, Photos & Design By: Samantha Borgstedt

Times are changing in the farming industry. The seed producers plant, chemicals they spray, and equipment they use have all advanced at a rapid pace due to technology. And there seems to be no slowing down.

Since 1955, Hurst Farm Supply, headquartered in Lorenzo, Texas, has stayed in-step with the ever-changing technological advancements of the farming industry, all the while putting their customers first. As their mission statement reads, Hurst Farm Supply strives to be a company with high touch in an age of high technology.

"Moving from iron to technology has been a big change for us," Joe Hurst, general manager, said. "In the past, John Deere just came out with newer, larger and better equipment. Now it seems they are constantly releasing new technology. We believe this is the direction farming is going, and dealers must embrace the change or get left behind. We will embrace it and go all the way."



Hurst said in all their years in business, the movement from iron to technology is the most drastic change his company has seen. He said his customers are implementing the new technology John Deere is putting out, and he sees the demand doing nothing but increasing with both large and small operators in the future.

In order to educate their customers on John Deere's new developments, Hurst Farm Supply hosts customer clinics and are constantly sending product information to the 14 thousand on their mailing list.

This mailing list has grown as Hurst Farm Supply expanded. Beginning with the Lorenzo location, the company later opened a service center in Crosbyton in 1973. They then bought locations in Lubbock and Slaton in 1991, then Abernathy in 2004, and recently Snyder and Colorado City in 2011. The company sells products all over Texas and the United States, as well as exports to Australia, Greece, Israel, and Mexico.

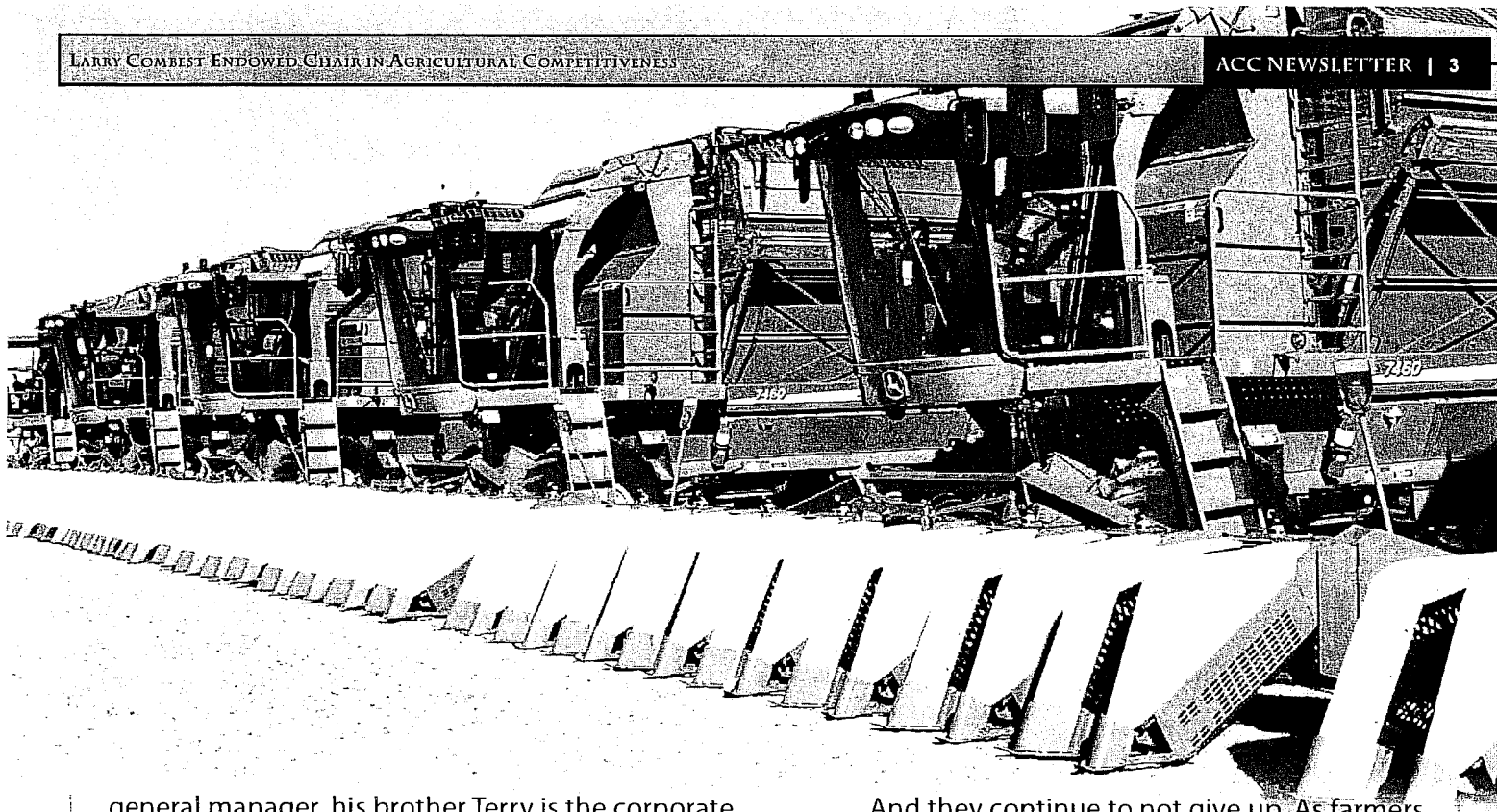
Joe Hurst, General Manager of Hurst Farm Supply

Hurst said he can view what is happening at each dealership live from his office computer housed at the Lorenzo location. Jerred Hurst, the company's IT specialist, has written an inventory program that immediately updates the company database when a sale is made. Each location can constantly see what equipment has been sold and what is in stock. This also allows the customers to have an accurate view of available equipment on the Hurst Farm Supply website.

While Hurst tries to visit each location once a month, he relies on the managers to lead their employees and develop strong relations with their customers.

"We have great employees within our company," Hurst said. "We have been able to train in-house, allowing us to carry on our same business structure as we have expanded to new locations. We have not taken on a corporate structure, but instead try to keep a family atmosphere the best we can on a larger scale."

Several members of the Hurst family work within the company. While Hurst serves as



general manager, his brother Terry is the corporate service manager. The family, along with the other employees, operates their business from a Christian point of view.

"We feel we have been blessed because of our obedience and trust in Him," Hurst said. "We have accomplished a lot, and we know we did not do it on our own."

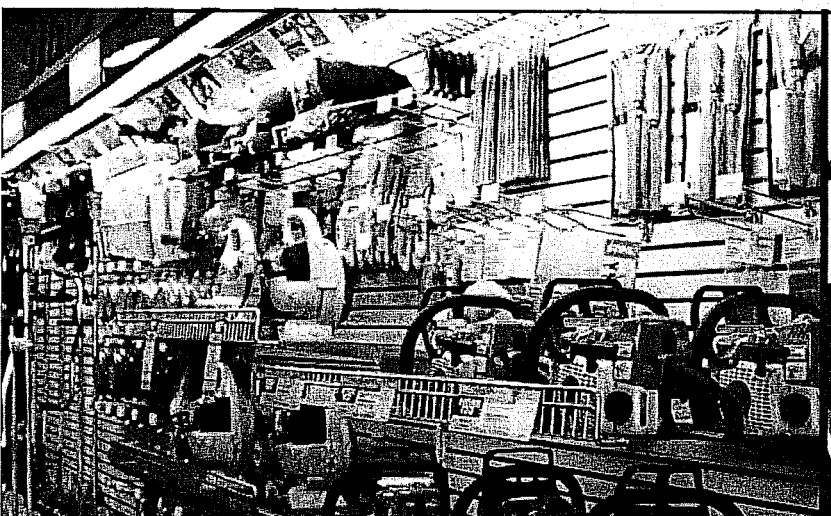
Hurst said their trust in the Lord, coupled with having fantastic farmers as customers, has led to their company's success.

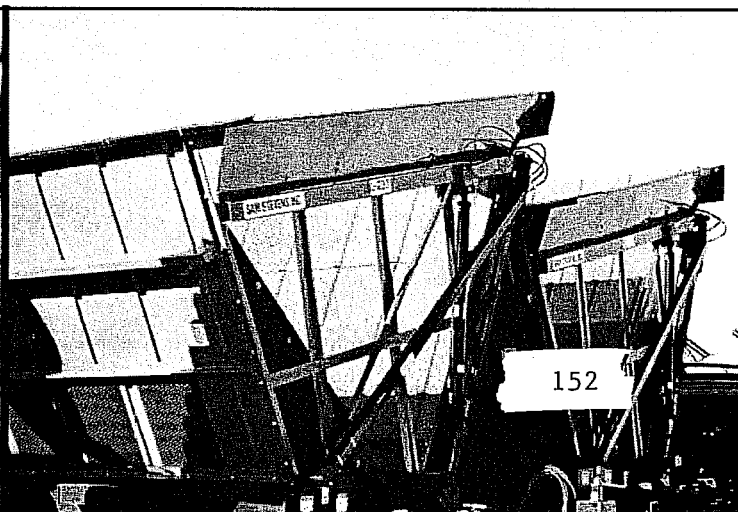
"Farmers in our area are dedicated to the land," Hurst said. "Last year our irrigated farmers were great proof of this. Although they had no help from rain and it was not in their best financial interest to keep trying with their crops, they did not give up."

And they continue to not give up. As farmers in the area prepare to plant their next crop, they are doing so with hopes to have more cotton to harvest this coming fall. Hurst said he has already sold 57 new and close to 100 used strippers, not bad coming off of a horrible drought year.

While Hurst sells new equipment, such as these strippers, the company also moves a lot of used equipment, allowing their customers to have an option that may better fit within their budget. Hurst sells between 300 to 350 used tractors annually. The company also has an aggressive leasing mentality and will rent or lease almost any piece of equipment they have.

Hurst Farm Supply has also developed a RTK Network Infrastructure covering roughly 6.3 million acres. This network is made up of dealer and cus-





tomer owned towers. GPS coverage managed by Hurst Farm Supply both inside and outside this network coverage area makes up about 7.7 million acres.

Hurst said GPS navigation has led to JDLink, a machine monitoring system allowing producers and service centers to know exactly what is going on with a tractor in the field. This system delivers machine hours, location, dashboard alerts, diagnostic trouble codes, maintenance tracking, and more. A text is sent to the farmer as well as their service center alerting them to shut down the machine when a problem occurs and lets them know exactly what is wrong and what parts are needed to fix the problem.

Hurst Farm Supply also offers smaller scale equipment such as compact tractors, lawn mowers, and weed eaters. The dealerships offer Stihl and Honda products, in addition to John Deere. Hurst said this area of their business has greatly increased in the past three years, especially at their Lubbock location.

To say the least, the farming industry has changed, and Hurst Farm Supply has kept up with the advancements without changing their way of doing business. Putting their faith, family and customers before all else, the company has been able to grow and be successful, all the while giving back to their community by supporting the American Museum of Agriculture, Texas Boys Ranch, and youth livestock shows.

"Entering this new era and moving from iron to technology was something I was nervous about at first and knew would be a challenge for our business," Hurst said, "but now I am excited about the change and integrated solutions we can offer our customers. We now are able to sell iron and couple it with beneficial technology. Being able to do that will move both us and our customers forward."

For more information on Hurst Farm Supply, visit: www.hurstfs.com

COMPETING *for* PROFIT

Issue XXXIX : May 2012

Texas Tech University

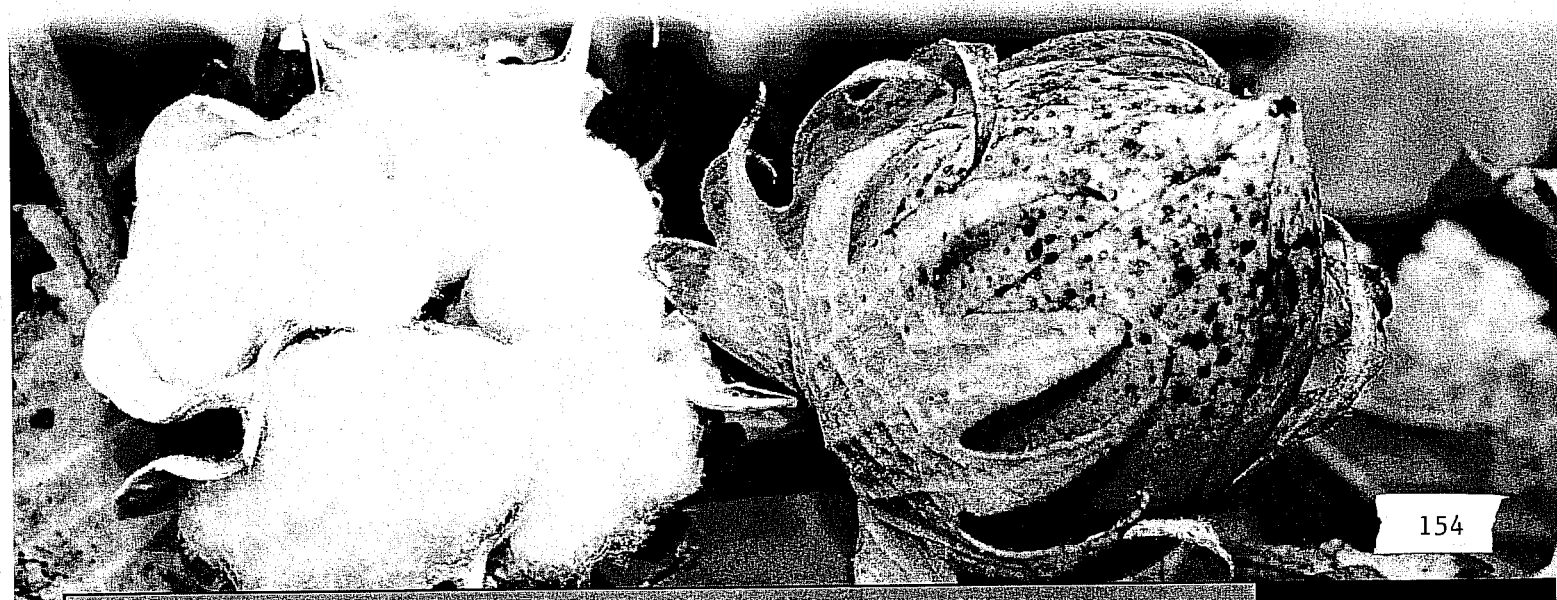
United Cotton Growers Co-op - Levelland, TX

Story, Photos & Design By: Samantha Borgstedt

Abandoned cotton gins have become a common sight as you drive through communities of the South Plains. Mergers, buyouts and consolidations driven by economics have taken place throughout the years causing several gins to shut their doors and others to become larger. Over a period of almost 30 years, eight communities within Hockley County have come together to form the United Cotton Growers Cooperative (UCG).

The board of UCG takes pride in having a gin that is efficient and successful on a number of levels. One step taken in order to improve efficiency was combining all of its plants and offices into one up-to-date location.

"In 2002, we sold the Whitharral plant and moved all our cotton ginning here," Larry Wade, UCG board member recalls. "At one time, we also had four offices. We now have everyone housed here in one office location."



UCG services a large area covering 125 thousand acres within several counties including, Hockley, Terry, Lamb, Cochran and others in the area. Of these acres, approximately 60 percent are irrigated and 25 thousand are in sub-surface drip. The gin has seen changes through its years, including advancements in irrigation, seed varieties, and other inputs.

"In 2002 and 2003 we saw several changes in the farming industry," Paul Wilson, UCG general manager said. "Several of our growers began using picker varieties and more drip irrigation was installed."

Wilson said UCG has adapted to the improvements its producers have made in their farming techniques by making its own improvements to the co-op. Better seed varieties and irrigation techniques have resulted in increased yields and in turn, increased volume for UCG. Wilson said in 2003 the gin's eight year average sat at around 60 thousand bales. Today, it is more in the 150 thousand bale range.

UCG has handled the increase of cotton by better automating its facility, something they continue to work on as budget allows. The board has been careful in their decision making of gin improvements. They want the gin to be fully utilized and efficient, but are cautious not to make unnecessary expansions that would not create return on their investment.

Wilson said UCG can efficiently process 130 to 140 thousand bales a ginning season. If its producers harvest beyond their capacity, UCG contracts the cotton out to other area gins.

"Contracting out the ginning costs us money," Wilson said, "but it does not cost as much as building an additional plant."

Of course 2011 was not a year UCG had to worry about sending cotton out, and the board said if their fields do not get a rain soon, 2012 isn't looking much better. The board is very supportive of the management team reducing UCG's expenses as much as possible to maintain a strong financial position in case the drought continues. Their wise decision making, balancing debt and equity, in years past has allowed UCG to make it through 2011 financially sound.

"The drought has put a hold on both our diversification and growth," Wilson said. "Fortunately, our board has done a good job making wise business decisions so we can financially stand it."

UCG has worked hard to provide a diverse set of marketing options for its growers to choose from. They have hired a financial manager, Tim Bynum, dedicated to educating growers on what marketing options they have and aiding them in deciding what best fits their needs. Whether producers opt to participate in a pool, contract their acreage, or sell directly to merchants, UCG can help make it happen. The board agreed that this diversification has made a positive difference equaling several cents-per-pound on their selling price.

Wilson said this diversity in marketing allows UCG to meet each producer's risk tolerance. He said some grower's prefer more safety while others like to take a more aggressive approach, and Bynum can facilitate whichever route they prefer.

While a large portion of the gin's cotton seed goes to PYCO, it also markets a percentage of the seed as well as its burrs and motes.

UCG has also diversified by providing crop insurance to its members. The board hired

an agent conveniently housed at its co-op's office building.

"Our board is progressive in its thinking," Wilson said. "Risk management and diversification have moved us forward."

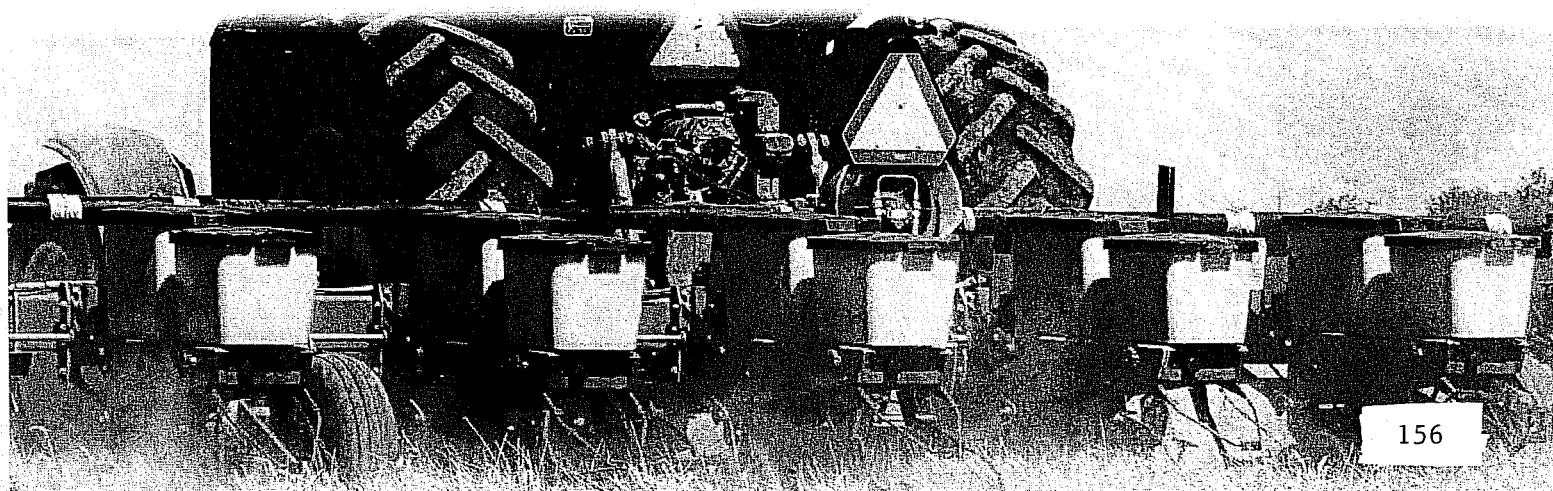
Wilson said the board keeps UCG's debt as low as possible and in balance with equity. The co-op rotates its stock every three to five years, being careful to stay financially strong and keep its stock paid up.

"It is all about the grower/owner," Wilson said. "Whatever is the best for them is best for us."

The average grower/owner of UCG was reported to be around 55 years of age as of the co-op's last survey, and while the board has seen a slight increase of young, new farmers the past three years, they remain concerned that the number of producer's in their area is declining while the number of acres to be farmed remains the same. This is causing producers to be responsible for covering more acreage, resulting in more input costs.

"I never dreamed I would be farming as many acres as I am now," John David Dukatnik, UCG board member said. "Most of our farmers are older in age and will be retiring soon, while there are not many young ones coming back to farm. Those that do return will be taking on a large amount of acres and will need large loans."

Several of the board member's own sons, including Dukatnik's, have or will be returning to their family's farm to become producers, making ensuring the future success of UCG even more important to the board. They are well aware that every aspect of the co-op must be well managed to thrive in the good years and survive those without rain. Through wise decision making they have been able to do this in the past, and by being progressive and diversified, there is no doubt they will continue to be successful.



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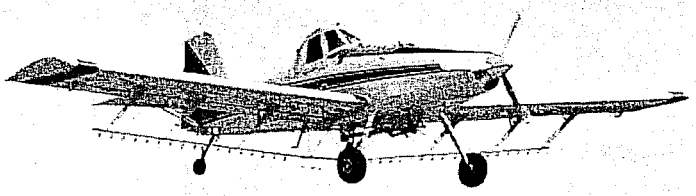
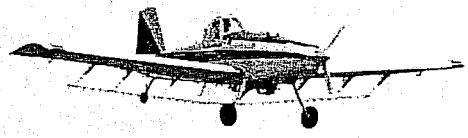




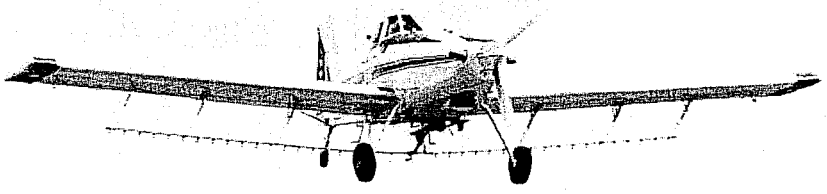
ISSUE XL - JUNE 2012 TEXAS TECH UNIVERSITY

PLAINS AERIAL - LANCE OLLINGER

WRITTEN & DESIGNED BY: SAMANTHA BORGSTEDT

Since the 1920's, crop dusters have been aiding farmers in their fight against insects and weeds. There have been a many highline wires, radio towers and wind turbines erected since those first flying days, making the flight a little more difficult, but all in all, the job remains the same for crop dusters, to help producers care for their crops and land.

Plains Aerial is in business for that very reason. Lance Ollinger, general manager of Plains Aerial, is a farmer himself, and knows the importance of timely and accurate application. Ollinger, who farms in Olton and Groom, Texas, began his custom spraying business with a ground rig. The application business was successful for him, yet knew there was room for expansion in the form of planes. In 2005, the opportunity came about to purchase two airplanes and two hangers, one located in Olton and the other in Cotton Center. Mike Friemal, agreed to be Ollinger's business partner in the purchase, and Plains Aerial was formed.



In 2010, another location became available and the company acquired both a plane and pilot in Slaton. Plains Aerial also bought out Don Chiles in 2010 and Glenn Hogg's flying service in 2011, both of these locations are in Lamesa. Plains Aerial also has a plane, pilot and hanger in Tahoka and an additional hanger in Groom, as well as an office at the Colorado City airport.

"With the rising cost of equipment we must grow our territory in order to make our planes efficient," Ollinger said. "We maintain a low overhead in order to pass the savings along to the grower."

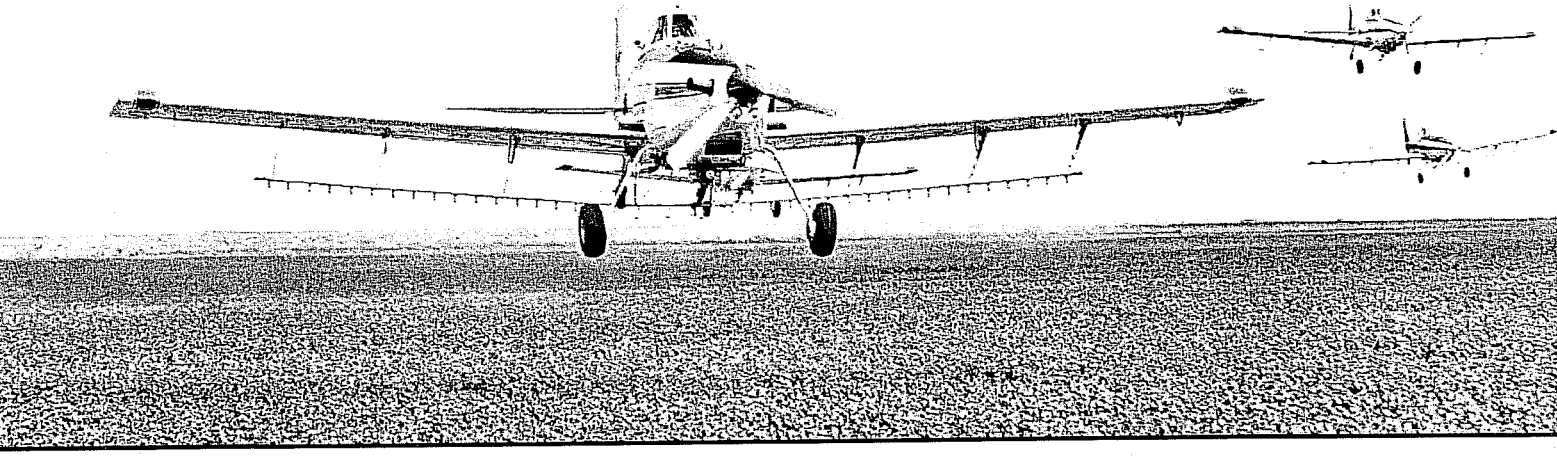
All in all, the company has six planes which they like to stay in the air as much as possible.

"The more our planes are in the air spraying, the better business is," Brandon Cottingham, pilot at the Lamesa location, said. Although the increase in producer-owned ground spray-rigs and development of BT cotton has had an impact on business, Plains Aerial continues to stay busy and be needed throughout the South Plains and West Texas.

"There will always be a need for airplanes, even as growers get their own rigs," Ollinger said. "Using our computer programs, our pilots are directed straight to the field and are assured to be in the right place putting out the right chemical."

The company stays busy when fields are wet and farmers cannot get in them on the ground, as well as when harvest is going on and producers must be on a stripper while other fields need defoliating. Unfortunately there were not many wet fields or cotton to be harvested in 2011, and like so many others in the agriculture industry, Plains Aerial struggled through the drought. With very few crops growing and producers trying to cut corners financially, the company had to improvise in order to stay in business.

Three of the planes were sent up north to spray fields in Illinois and Iowa, while the other three stayed to cover the usual local area. In addition to that trip, three planes were also sent to Oklahoma to spray fungicide on wheat crops. Thanks to several contacts the company has made in its years of



business, Plains Aerial was able to keep all of its planes busy during the dry year and stay financially stable.

Hopefully 2012 will be more prosperous than the previous year, and so far it seems to be hopeful. Plains Aerial is already off to a busy start. Timely rains have producers encouraged to make a crop, creating a demand for the flying service. The majority of the company's business comes from irrigated acres; however, if rains continue the dry-land acres will be producing a good enough crop to generate business, as they did in 2010, keeping the planes and pilots busy.

Since Plains Aerial's coverage area is so broad and spraying relies heavily on weather conditions, planes are moved from location to location in order to get the job done no matter when or where it is needed.

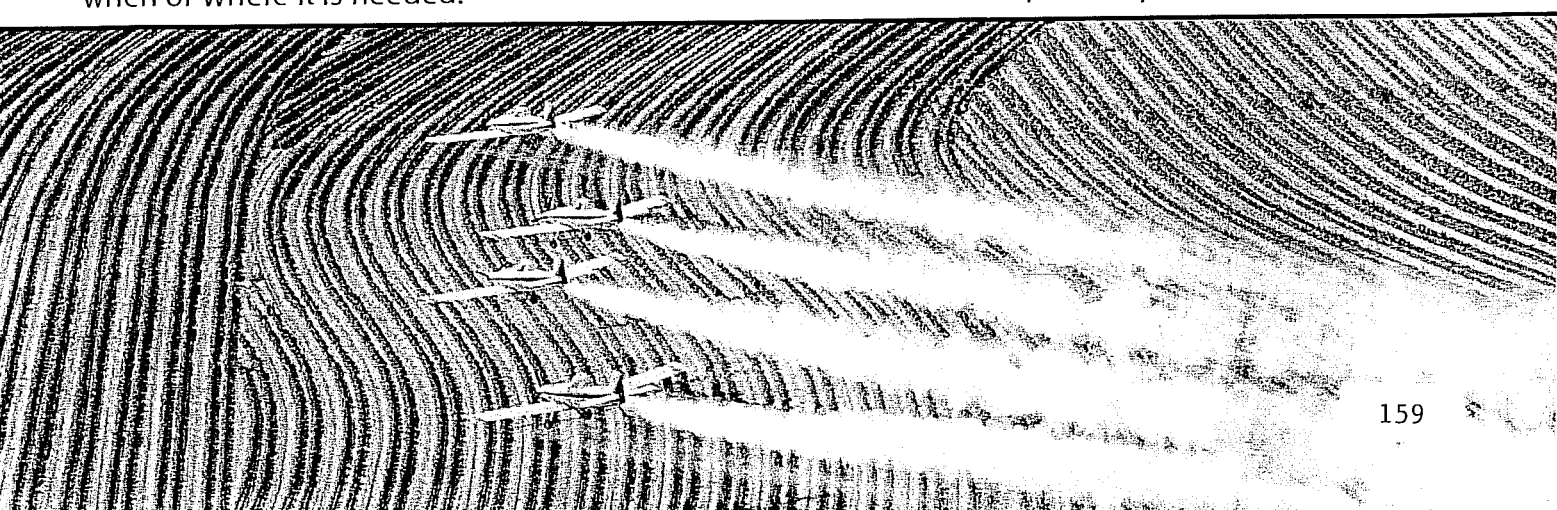
"Our territories overlap each other which help us run out of the closest airport," Ollinger said, "which in return makes the application less expensive to the grower."

On a good year, the company keeps all of its planes busy from May to November. The down months are spent tearing the planes apart, making necessary replacements and adjustments, and reassembling. Since replacement parts can be costly, regular maintenance is extremely important to Plains Aerial.

"A plane can last forever if you take care of it," Cottingham said. "It is all about maintenance."

Other factors that become costly to the company are fuel and insurance. The cost of insurance per plane runs about $30,000 per year. This covers drift, plane, and addition damage.

As for fuel, the six planes use 22,500



gallons per week during a busy year. The locations all have large fuel tanks holding around 8,000 to 10,000 gallons that are kept as full as possible so they are ready when needed.

Of course how much of that fuel is used relies on Mother Nature. If timely rain falls and crops are good, the planes will be in the air more, if not, then they will be in their hangers more. Just like any other agricultural business, Plains Aerial hopes for a wet year. However, besides rain, the pilots must also watch for wind, humidity and temperature. All these factors regulate if and when chemicals can be sprayed.

As always, the pilots must watch for wind so not to drift on other crops, but with oil rigs popping up in more and more fields, the pilots must be careful to avoid drifting on those workers and fly around the drilling rigs. They must also watch for all the wind turbines that heavily populate fields in locations such as Roscoe. Weaving in and out of the towers and spinning propellers is no walk in the park, but must be done to sufficiently cover the crops below.

Thanks to good pilots and planes, Plains Aerial is able to cover most any location, despite its obstacles. And thanks to good management, it also overcomes obstacles such as the drought of 2011, thanks to innovative thinking and improvisation.

"The aerial application industry is aging," Ollinger said, "and we are proud to be the youngest and one that is growing. We plan on being here a long time and riding the ups and downs that the agriculture industry has in store for us over the next many years."

*Thanks to Plains Aerial for photo

COMPETING for PROFIT

Issue XLI : July 2012 Texas Tech University

Seminole Produce and Barrett Potato Farm - Seminole, TX

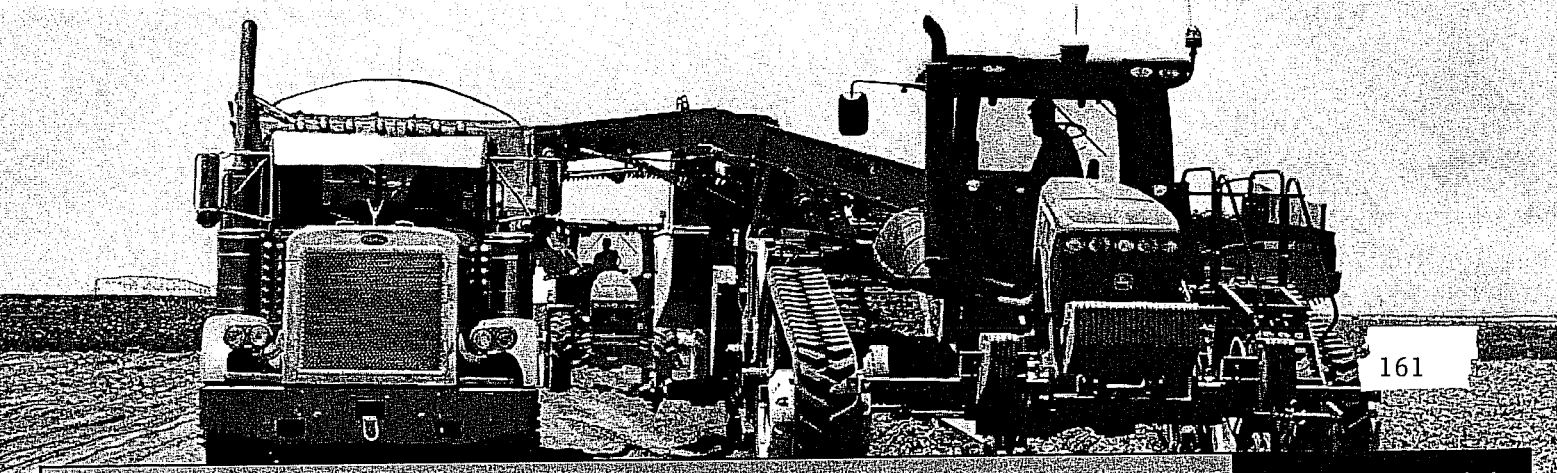
Story, Photos, & Design By: Samantha Borgstedt

For over one hundred years, the Barrett family has been growing potatoes. It was in 1939 that Fred Barrett met a farmer and real estate developer from Texas, and the two got him interested in growing potatoes in their home state. Fred had been producing potatoes in Idaho since 1910, however after visiting the Texas Panhandle, he decided the elevation, climate, water and soil were all well suited for growing fresh summer potatoes. He packed up his wife and eight children, and away to Texas they went.

Today, the Barrett family continues to produce the delicious product Fred began. Farming five hundred acres of both red and russets, while also having facilities to sort, clean, bag or box, sell and ship. It is certainly a family effort that began and remains a family dream.

"We love to farm potatoes," Lance Barrett, Fred's great-grandson and current floor operations manager of Seminole Produce, said. "It is something we are good at and enjoy, and that just makes it fun."

The Barrett's begin planting their potatoes in February and finish up in April, spreading it out in order to have mature potatoes throughout the summer to supply the fresh market. The red variety only takes thirty days to mature, making them the first to be harvested. The family begins harvest in June and runs through August.



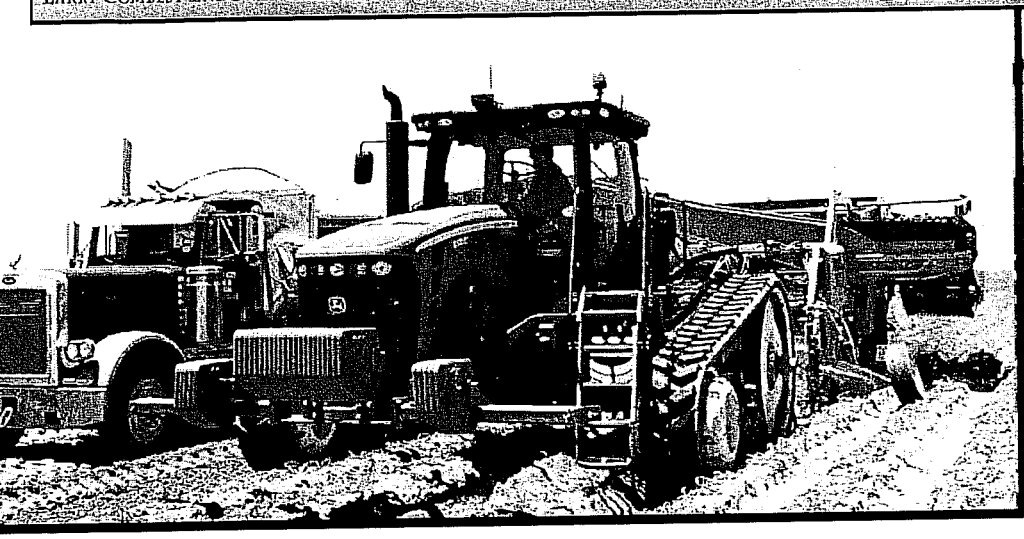
The sandy soil around Seminole makes for a favorable planting bed for potatoes. The crop must be watered from planting to harvest requiring a lot of water, somewhere around thirty inches, and although the Barrett's have seen a drop in their available irrigation, they currently have enough to make a crop.

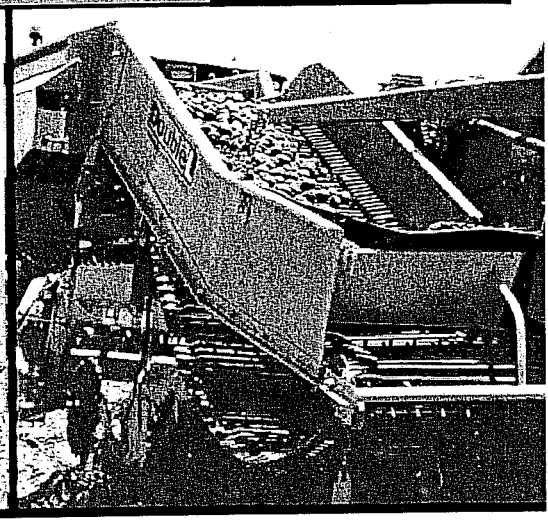
Lance said due to last year's weather conditions and decrease in supply, the potato market was high. And while that is great for sellers, it also causes input costs for the following year to increase. He said that while they are used to paying around five hundred dollars an acre for seed, this year they had to pay 11 hundred dollars. A great deal of money must also go toward fertilizer and irrigation. With all their input costs combined, Lance estimated their expenses to be around five thousand dollars per acre of potatoes.

To be profitable, the Barrett's hope to produce around 25 thousand pounds per acre of reds and 30 to 40 thousand pounds per acre of russets each year. Unfortunately, about 220 acres of their crop got a bad hailed on this year, causing its yield to drop, but the remainder of the Barrett's fields were left in good shape and they are hopeful those will produce well for them.

"I have high hopes for this field," Lace said as he dug up a plant of russets, "These are good sized potatoes, and I'm hoping the rest of the field has the same underneath it."

Lance's brother, Nathan, handles most of the farming on the Barrett's farm. The potatoes must be killed before he digs them and the soil must be moist so they can be easily pulled from the ground. From the field, the potatoes are hauled by field trucks to the family's facility, Seminole Produce, where they are washed, sorted, and packed. Having the ability to do all this themselves cuts out the middle man, allowing the family to be more profitable. Seminole Produce hires about thirty workers to perform the required tasks and have purchased up-to-





the-date technology to reduce labor.

"I love being able to provide jobs to people that need them," Lance said. "We could not do all this without them, so I feel like they are helping us and we are helping them."

While the need for workers will always exist, Lance said some of their most modern technology has reduced labor needs and increased efficiency. Their latest purchase, an optical grading machine, sizes and sorts the red potatoes. Additional quality control is provided by employees who continue to sort the reds as they come down a conveyor belt from the grading machine. The potatoes with minor visual defects are sorted as number two's and sold for products such as French fries. Those that are top quality are graded as number one's and bagged or boxed according to size.

Each day's inventory is sent to the Barrett's sister company in Muleshoe, also owned by Barrett family members. The Muleshoe location serves as the trucking broker for Seminole Produce and keeps their products moving fast. The company ships about 12 to 13 semi-trucks worth of potatoes a day.

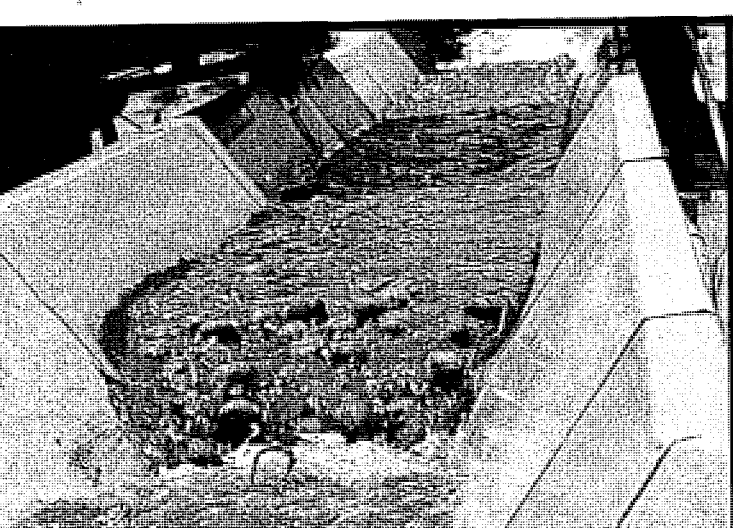
"Transportation is tough with potatoes," Lance said. "They are dense and heavy, and we need them shipped out as quickly as possible so they are fresh for the customer."

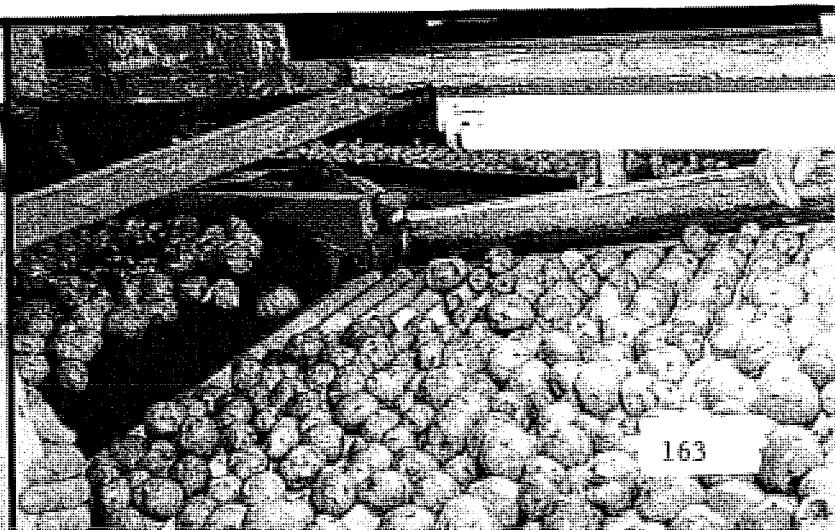
The Barrett's do have a large cooler able to store around 15 semi-truck loads in an environment of about 50 degrees Fahrenheit. This allows the potatoes to escape the West Texas heat and remain fresh.

Seminole produce ships all over the United States, as well as Mexico and Canada. They have contracts with Wal-Mart, United, H-E-B, Cysco Foods, and others. They also sell to produce stands and local customers who wish to buy directly from their facility.

While the market price of potatoes is not as high this year as last, it is still favorable.

"The market is based on supply and demand," Lance said. "Last year's market was real





high, causing a lot of guys to plant more potatoes and increasing this year's supply, dropping the price."

Lance said the potato business is complicated and competitive. The plants are susceptible to insects that can threaten the crop, and farming in the weather conditions of West Texas takes tenacity and dedication.

"There are advantages to farming in our area," Lance said. "We have a freight and fresh market advantage, but places like Idaho can store better than we can and harvest when it is cool, unlike us who are harvesting today in 105 degree heat."

The fresh market advantage Lance speaks of is a two week window at the beginning of their harvest in which they are the only producers in the nation able to supply red potatoes to the summer fresh market. The Barrett's try to take full advantage of this small amount of time to make it a profitable as possible.

"Whatever we have in the field is what we are able to sell," Lance said, "but we try to have good, quality potatoes available early and throughout the fresh market season."

Right now the Barrett's are in full swing. They are finishing up harvesting their reds and beginning their russets. The entire family is busy in the field, shed, and office to keep things rolling smoothly. It makes for a busy summer, but they seem to be enjoying every minute of it.

"It has worked out well for us so far," Lance said, "and as long as we can stay competitive and keep farming, I'll be happy. I just want to keep on farming."

For more information visit:
http://www.barrettpotatofarms.com/seminole-produce

COMPETING *for* PROFIT

Issue XLII : August 2012 Texas Tech University

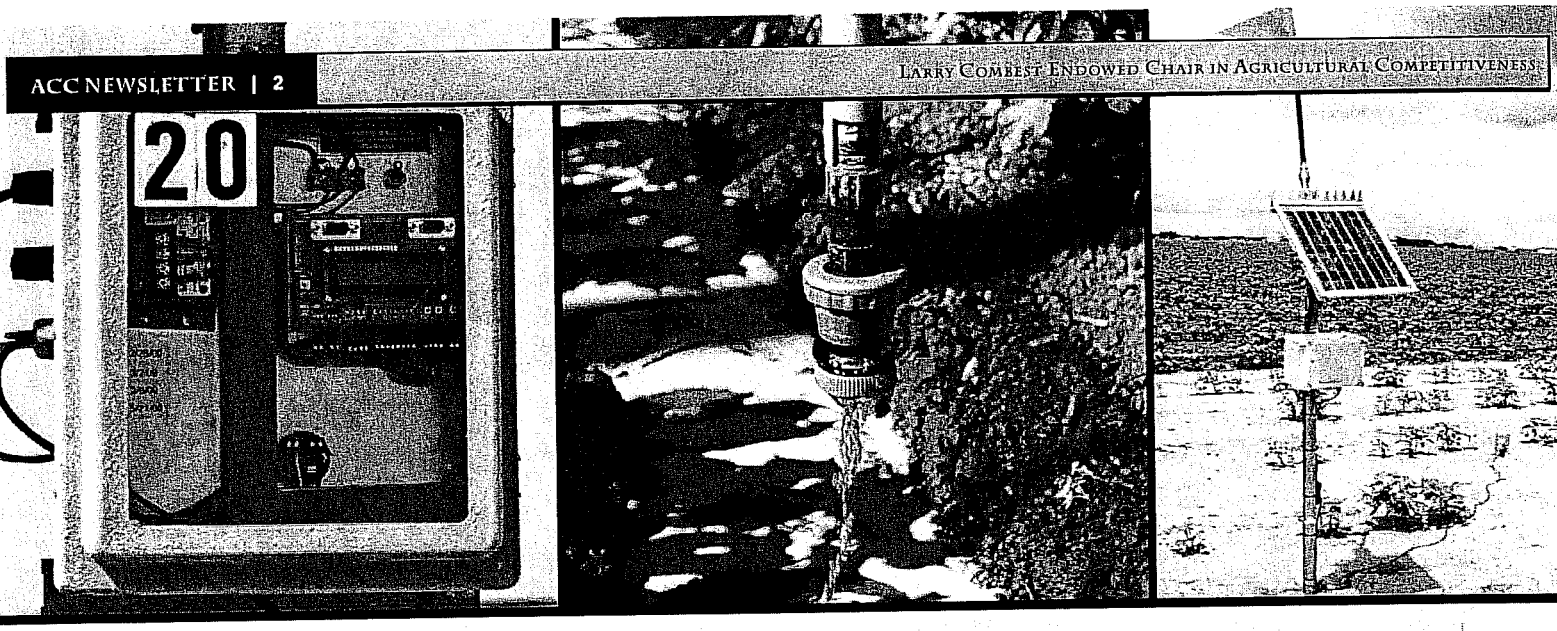
Texas Alliance For Water Conservation

Story & Design By: Samantha Borgstedt

In the past, we have featured producers that are part of the Texas Alliance for Water Conservation (TAWC). These producers are forward thinking individuals who recognize that their irrigation water supply is depleting and want to take action in doing something about it. As part of the TAWC, these area producers partner with researchers, data collection technologies, and collaborating partners that include industries, universities, and government agencies in an effort to determine the best practices for managing their water.

The project, which was made possible by a grant from the Texas Water Development Board and is funded from 2005 to 2014, uses on-farm demonstrations of cropping and livestock systems to compare the production practices, technologies, and systems that can maintain individual farm profitability while improving water use efficiency with a goal of extending the life of the Ogallala Aquifer while maintaining the viability of local farms and communities.

All production-related decisions are made by the more than 20 producers involved in the project. Approximately 30 farms encompassing 4,500 acres demonstrate key comparisons of many production



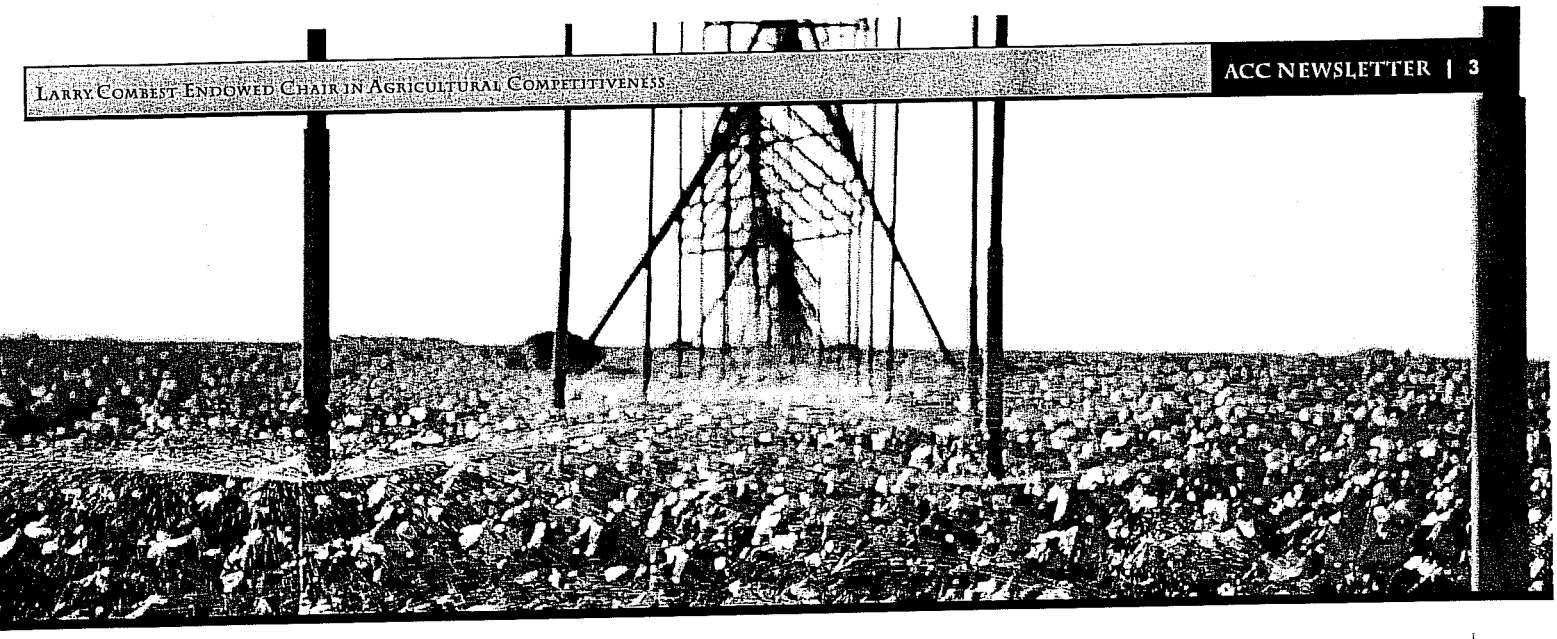
systems currently found in the Texas High Plains. These include monoculture cropping systems, crop rotations, no-till and conventional tillage practices, land application of dairy manure, and fully integrated crop and livestock systems.

"Water management is very important in our area now and in the future," Glenn Shur, a producer in the TAWC project said. "The more valuable our crops become the more important and valuable the water under our land is. Water is vitally important and it makes good sense to conserve it for the future of the area and generations to come."

Crops including cotton, corn, sorghum, wheat and several specialty crops are all grown and have been evaluated within the project. TAWC sites are being intensely monitored for water use, soil moisture depletion, crop productivity, and economic return. Each site is equipped with instruments to determine total water applied from the aquifer, solar radiation, temperature, rainfall, timing, amount of irrigation events, and soil moisture. Integrated central processing controller equipment is being utilized to record, store, and transmits these data to a single database accessible to project participants.

The roles of the collaborating partners include installing and monitoring the data collection technologies, documenting the production-related activities used, developing economic models that evaluate the various systems, and conducting educational and communication projects designed to share the activities and outcomes of the project with others.

These outreach activities include an annual summer field day with speakers and field tours, as well as a winter meeting also including

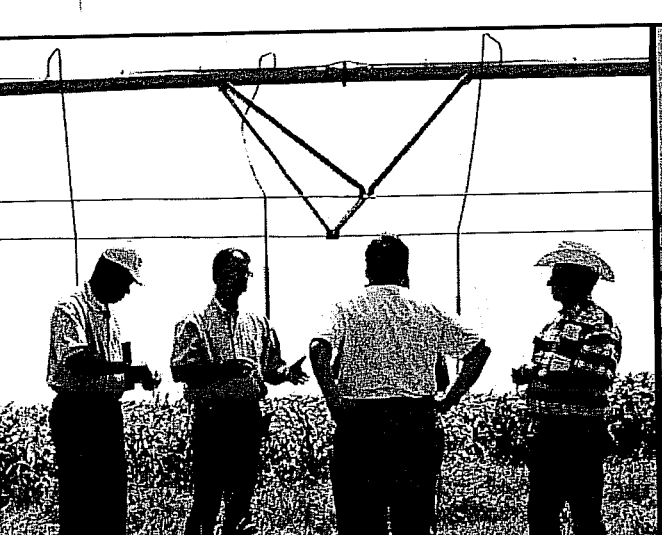


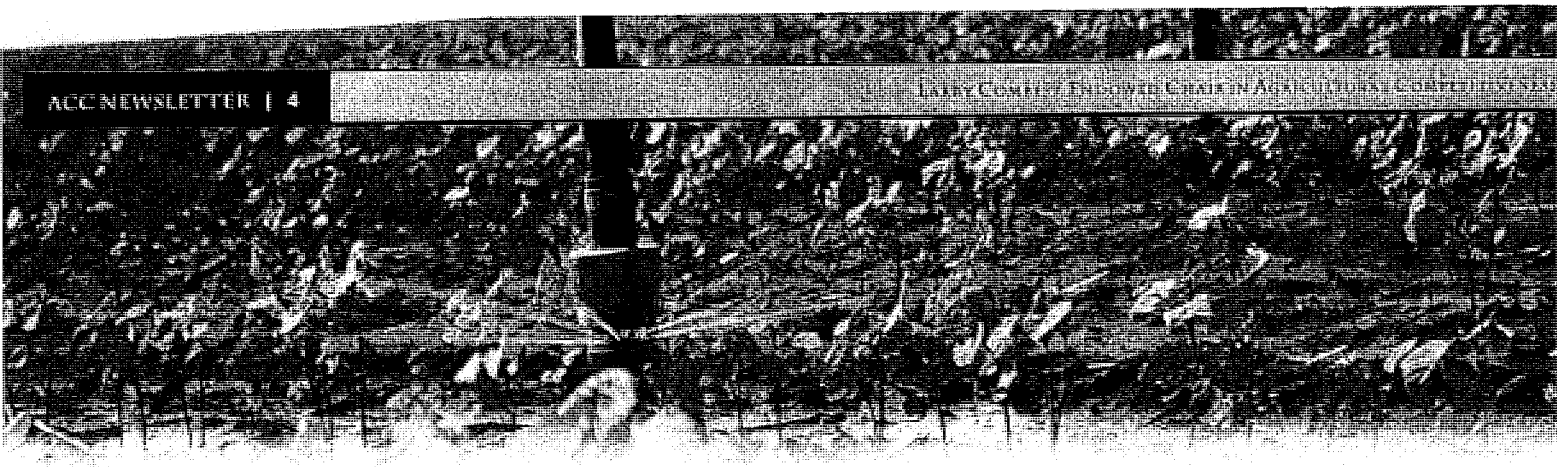
expert speakers and demonstrations. The next upcoming TAWC Summer Field Day will be held Thursday, August 9, 2012, at the Ollie Liner Center in Plainview, Texas. The project also uses social media sites, specifically Facebook and Twitter, and has developed a website where information on the project and upcoming events can be found.

Those involved with the project have also developed online tools that can be used free of charge by all producers. The Resource Allocation Analyzer is a web-based economic decision aid designed to provide the agronomic planning options to maintain profitability and sustainability in irrigated row crop agriculture. The Irrigation Scheduling Tool is designed to help producers make the most out of an irrigation regime while remaining conscious of water resources. These tools can be found at www.tawcsolutions.com.

"The TAWC project has helped me look at the new type technologies available for water management." Shur said. "I am more aware of the crop requirements for water at various growth stages. I have also learned to match water needs of a crop and the amount of crops I can irrigate effectively, which after the drought of 2011 it has been very important to use the water the most effectively as possible."

Since 2005, data has been gathered, fields have been observed and research summaries have been formed by the TAWC to aid producers and commodity groups in their efforts to manage water. For example, from 2005 through 2011 there were 38 corn field observations, 14 grain sorghum field observations, and 116 cotton field observations in the TAWC project. Sorghum for grain yielded the highest profit per inch of irrigation water at $31.4 per inch of supplemental irrigation. Corn yielded 214 bushels per acre that netted the highest profit per acre of $479 per acre. However, this was done by applying an average of 17.4 inches of irrigation water. Sorghum applied





the least amount of irrigation water on average at 7.9 inches per acre while cotton applied an average of 12.8 acre inches of irrigation water generating 1,275 lbs of lint on average per acre.

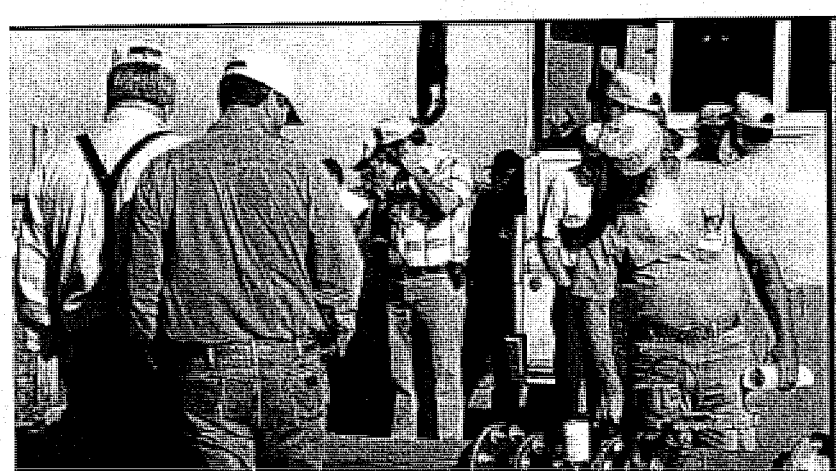
Other TAWC research summaries include 'Knowing How Much Water You Have Could Mean Higher Profits.' This demonstrates how using a water meter can be an economic benefit for an irrigated agricultural producer. Granted that producers will see differing benefits depending on a number of factors, the conclusion of the summary states that even on a single farm, a water meter could be a wise investment with the potential to increase net returns over several years. This and other research summaries can be found on the TAWC website.

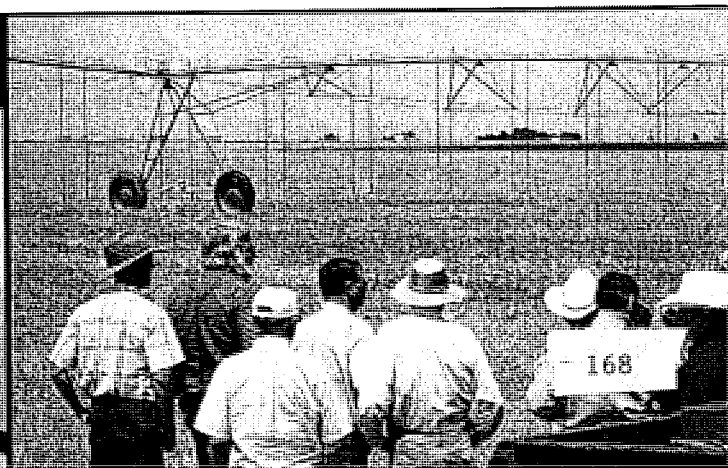
With the ability to evaluate different management strategies within delivery systems and tillage types found in the region, the TAWC has been able to evaluate the regional economic impacts, total irrigation water use and water use efficiency, crop and livestock productivity and profitability, total input requirements, and impact on natural resources including soil quality and erosion potential and wildlife habitat.

The project has been a huge stepping stone for area producers on their quest to better manage their water. With expansion of the project to include more field sites throughout the South Plains of Texas and additional monitoring equipment, there is no doubt the TAWC will continue to play a role in the future research and conservation of the Ogallala Aquifer as well as productivity and profitability of our area producers.

"I believe the TAWC has been one of the best projects to be put together in many years," Shur said. "The data that has resulted has been all real time and actual production numbers from producers. I would like to see the TAWC project continued. We are just now starting to show trends of water use, effects of drought, changes in cropping patterns not only from a market price function, but from water use and efficiency. Continuation of the program would save research dollars since so many things are already in place and would benefit us all."

For more information on the TAWC visit: www.depts.ttu.edu/tawc/





Appendix I

Thornton Institute Activities

2011/12

THIRTY– NINTH ANNUAL
BANKERS AGRICULTURAL CREDIT CONFERENCE
INTERNATIONAL CULTURAL CENTER
TEXAS TECH UNIVERSITY
LUBBOCK, TEXAS

NOVEMBER 18, 2011

7:30 - 8:30 a.m. **Registration**

8:00 - 8:05 **General Session**
Presiding: Mr. Doug Hale
President
Bankers Agricultural Credit Conference

8:05 - 9:05 **Legal and Regulatory Update**
Ms. Karen Neeley
General Counsel
Texas Independent Bankers Association
Austin

9:05 - 9:35 **Agricultural Outlook for Cattle 2012**
Mr. Ross Wilson
President and CEO
Texas Cattle Feeders Association
Amarillo

9:35 - 10:00 **Break**

10:00 - 10:30 **Agricultural Outlook for Cotton 2012**
Dr. Darren Hudson
Combest Chair of Agricultural Competiveness
Director of the Cotton Economics Research Institute
Department of Agricultural and Applied Economics
Texas Tech University
Lubbock

10:30 - 11:30 **How much safety will be in the producer safety net in the 2012 farm bill?**
Dr. Joe Outlaw
Professor and Extension Economist
Co-Director of the Agricultural and Food Policy Center
Department of Agricultural Economics
Texas A&M University
College Station

11:30	**Lunch** Hall of Nations
	Presentation of the 2011 Distinguished Banking Service Award
1:00 - 2:00	**Economic Outlook** Dr. Darren Hudson Combest Chair of Agricultural Competiveness Director of the Cotton Economics Research Institute Department of Agricultural and Applied Economics Texas Tech University Lubbock
2:00 - 2:30	**Agricultural Outlook for Grains 2012** Dr. Mark Welch Assistant Professor and Extension Economist Texas AgriLife Extension College Station
2:30 – 3:30	**TAWC Solutions: Tools for Water Management** Dr. Justin Weinheimer Research Associate Department of Agricultural and Applied Economics Texas Tech University Lubbock Mr. Rick Kellison Project Director Texas Alliance for Water Conservation Lockney
3:30	**Adjourn**