

FY 2003 Annual Report of Accomplishments and Results: Oklahoma Cooperative Extension Service

A. Planned Programs

CSREES Goal 1: An agricultural system that is highly competitive in the global economy.

Overview

Oklahoma key program components contributing to this goal included: improving efficiency in livestock production, improving efficiency in crop production, forage production, improving domestic marketing concepts and alternatives, animal health, commercial horticulture and alternative agriculture opportunities, biosecurity, natural resource management, small farm viability, risk management, value-added food and agriculture products, home lawn and gardening, and food safety related to production. This goal constitutes a very significant proportion of the OCES effort. Approximately 4,565 demonstrations, meetings and conferences were conducted during the year. OCES personnel in agriculture-related programs conducted an additional, 25,672 visits and consultations. These activities were attended by 506,669 participants during the year. In addition, 23% of these participants were identified as representing non-white, minority populations as compared to 6.6% of the state's farms operated by individuals representing these populations.

Two separate weed control education and demonstration programs are indicative of the kinds of efforts provided to help producers increase profitability and often reduce potential negative externalities. First is a sandbur control and demonstration program. Presently, 8,000 acres of Oklahoma bermudagrass pastures are infested with sandbur. Sandbur infested hay sells for \$60 per ton less than uninfested bermudagrass hay. Controlling sandbur can thus result in typical improvements in returns of over \$400 per acre per season. Unfortunately, one of the primary control herbicides has recently been removed from the market. Thus, researchers and extension personnel developed numerous demonstrations and research sites to help producers find alternative means to control sandburs in their hay pastures. Producer adoption of new, successful management controls could result in hundreds of thousands of dollars each year returned to farm income for producers in the infested region of the state. Another weed control program designed to improve producer profitability targets Wild Oats in wheat. Wheat remains the number one field crop in Oklahoma. Jackson County is a medium-sized wheat production county in western Oklahoma with 200,000 acres planted to wheat each year. Surveys show that approximately 70% of these acres are infested with Wild Oats. Educational programs have resulted in reduced herbicide costs of \$2.50 to \$11 per acre and a decreased dockage of \$.025 per bushel. This translates into increased net returns for producers in one county of between \$600,000 and \$1.3 million.

Beef cattle production and management continues as one of the most significant major program areas. Cattle production comprises about 44% of the \$3.5 billion in cash receipts earned by Oklahoma producers. These programs included quality marketing, reproduction, cow-calf production, quality practices, marketing tools, beef production during drought, stocker production,

feeding decisions, cattle pricing, nutrition, etc. Several of these programs are highlighted in impact statements in the "themes" section. Highlights include: the Oklahoma Quality Beef Network (OQBN) program designed to take advantage of items learned from the 1995 and 2000 Beef Quality Audits – 17,429 head of cattle from 270 cattle operations were certified in the first three years of the program. Cattle buyers paid an average of \$5.01 more per cwt for certified cattle. The higher price coupled with better gain due to preconditioning resulted in a gross increase in revenue of \$78 per head and a net, after all documented costs, of \$17 per head. Pre OQBN survey indicated that 75% of the participants did not precondition prior to the program. Forage and hay are extremely important to the state. Quality improvement and testing programs assist producers generate high quality, safe and low cost hay. A pre-testing program for toxic nitrate levels in forage helped producers avoid a potential \$8.8 million dollars of loss in one county alone last year. This program is available in most counties with similar results. A new educational program in eastern Oklahoma provides an integrated approach to managing degraded grazing lands. Over 200 producers and others were provided information and management techniques at three educational demonstration field days to help increase net returns per acre of grazingland by \$74 per acre. Producers in the group that attended represented over 25,000 acres.

In other programs, the Oklahoma Food and Agricultural Products Center continues to assist a broad array of food and related products manufacturers in the state. These vary from startup businesses to very large manufacturers. Product design, manufacturing efficiency and food safety are among the primary outreach efforts. Three new major new generation cooperative feasibility studies were supported by the center during the reporting period. Animal health, food safety and biosecurity have continued to grow in programming emphasis. Our Plant Disease and Insect Diagnostic Center continues to provide producers weekly updates on changes in plant disease and insect infestations across the state. This is in addition to diagnostics it performs for producers and extension educators on an on-going basis and its service as part of the national centers for biosecurity. Finally, an extensive small rancher program continued with a high focus program on the Cherokee Prairie of northeastern Oklahoma.

Positive progress was made in all Key Program Components listed under this goal in the Oklahoma Cooperative Extension Service 5-year plan of work. Total expenditures represented by programming and related support for this goal are approximately \$10.1 million with \$1.5 million from Smith Lever funds. About 90 professional and paraprofessional FTEs contributed to the goal last year. Following are some example program impact statements arranged by CSREES Key Theme.

Impact Statement Goal 1

Key Theme: Adding Value to New and Old Agricultural Products

Title: Facility design and layout for food and agricultural product processors

Issue:

New and existing food and agricultural product processors need assistance with the design, layout and expansion of their facilities. By intelligently planning and executing growth, processors can save money and reduce waste. This translates to savings both now and in the future. The

engineering design and planning program follows a model developed by Dr. Tim Bowser, Food Process Engineer, FAPC and Biosystems and Ag Engineering. Planning sessions are followed by the creation of engineering documents such as Process Flow Diagrams (PFDs), General Arrangements (GAs), Piping and Instrumentation Diagrams (P&IDs) and Equipment lists. The challenge is to design and specify a process/facility that has low initial and ongoing capital costs, is simple and safe to operate, and expandable.

What Has Been Done:

In 2003, visits were made with the following businesses to assist them with their plant/process expansion needs. All visits included a team of professionals that could focus on the diverse issues of plant startup and expansion, including business and marketing, regulatory and sanitation issues.

Trading Companies of America, Tulsa

Owner: Mr. Darrel Blackburn

Project: Vanilla bean extraction plant (to be designed in Oklahoma and installed in Mexico)

Ewephoria lamb's milk soap, Comanche

Owner: Lee McGarr

Project: Sheep milk processing facility for soap and other products

Red Corn Native Foods, Pahaska

Owner: Raymond Red Corn

Project: Indian hominy processing facility

Redland Juice Company, Tulsa

Operations Manager: Jim Skaggs

Project: new plant for grape juice processing

Crain Dairy, Helena

Owner: Ron and Barbara Crain

Project: new facility and process for yoghurt cheese

Linda's Kountry Kitchen, Okmulgee

Owner: Linda Goff

Project: new commercial kitchen/bakery for catering and wholesale goods

Granna's Chile, Bessie

Owner: Ferral Miller

Project: new USDA plant for frozen entrée production

Pepper Joe's, Ardmore

Owners: The Blacks

Project: new plant design for hot-packed products

Stratford's Little Jelly Factory

Owners: Amanda and Patrick Savage

Project: new plant design for hot-packed products

Impact:

Of the businesses listed, some carried on with plans for expansion and some decided not to move forward. Of those who decided not to move forward, many reasons were cited, but the most common were timeliness, labor and capital. A decision not to expand is important, since valuable resources were not wasted. Expansions and approximate impacts are listed below:

Plants currently under construction:

Red Corn Native Foods, Pawhuska (five new jobs)
Ewephoria lamb's milk soap, Comanche (two new jobs)
Trading Companies of America, Tulsa (three new jobs)

New plants in operation:

Granna's Chile, Bessie (three new jobs)

Cancelled plans:

Stratford's Little Jelly Factory, Stratford. Cancelled or on indefinite hold due to funding constraints.

Scope of Impact: State specific

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Key Theme – Agricultural Profitability**Title: Oklahoma Quality Beef Network****Issue:**

Cattle sickness costs the industry millions of dollars each year. These losses negatively impact producer profitability and they impact each and every level of the beef production chain. These losses are felt at the producer level through decreased performance, death loss, increased costs associated with treating sick animals, increased labor expenses and additional expenses for equipment, to name a few. These losses many times extend beyond the cow-calf producer to each of the other sectors of the beef economy. Chronically ill cattle place a huge financial burden on the entire industry as the cost of carrying such cattle replicates itself throughout the life of the calf. Unfortunately the cost burdens associated with cattle sickness do not stop once the cattle are harvested. There are a number of well-documented studies including the 1995 and 2000 Beef Quality Audits that clearly illustrate that sickness in cattle, at even an early age, can have dramatic

impacts on carcass quality, tenderness, and in some extreme cases the condemnation of entire carcasses.

What Has Been Done:

The obvious answer to the problem is to manage cattle so they do not get sick to begin with. However, the real question becomes whose job is it, who benefits from it and who is going to pay for it. In order to facilitate the adoption of best management practices that should result in reduced sickness and associated adverse effects, the Oklahoma Quality Beef Network (OQBN) was developed in 2001. The objective is to add value to Oklahoma's calf crop and capture at least part of the added value. During the initial phase of the OQBN, a source and process verification system has been implemented focusing on management practices around the time of weaning. In general, OQBN process verification (or certification) requires producers to wean their calves at the home ranch for a minimum of 45 days and follow specific quality assurance, vaccination and nutritional guidelines.

During the start-up phase, County Educators and Area Livestock Specialists collaborated with the Oklahoma Cattlemen's Association and producers by serving as "OQBN Representatives". In this capacity, Extension personnel provided education to the producers and inspected the cattle prior to marketing to insure that the integrity of the program was upheld. However, as the program evolves, Extension's role is gradually shifting to one of training local cattlemen, veterinarians and other industry leaders to serve as "OQBN Representatives."

Extension personnel have collaborated to collect extensive evaluation data. One evaluation data set now includes just over 30,000 head of OQBN certified and non-certified cattle. These data have been used to determine the financial impact of the program. In addition, participating cattle producers (both sellers and buyers) have received a follow-up survey. This survey provides valuable feedback for the purpose of documenting the programs impact as well as strengths and weaknesses. Seven case studies were conducted to document typical program costs and changes in gross revenue. Finally, an Oklahoma Department of Agriculture grant was secured to begin the development of an information feedback system with the goal of enhancing the networking aspect of the program.

Impact:

Between seven and eight regional OQBN certified calf sales have been scheduled and held each of the past three years. During the first three years of the program, 17,429 head of cattle have been certified, representing approximately 270 cattle operations. On average, cattle buyers were willing to pay \$5.01 more per cwt for groups of OQBN cattle compared to calves that had no documented background or management. During 2002, the average price premium was \$29 per head, while the added value of weight gain during the preconditioning period averaged \$49 per head for a gross increase in revenue of \$78. Documented program costs have averaged \$61, resulting in an average increase in net income of \$17 per head. This increase in net income does not consider the potential improvements in animal performance or carcass quality beyond the initial marketing (cow/calf) phase. According to survey data, 75% of the participating cow/calf producers had not historically preconditioned their calves. Furthermore, over 95% of the participating producers are pleased enough with all aspects of the program that they indicate that they will participate again in the future. Over the past two years, one purebred producer has coordinated delivery of 1,800 of their

bull customer's calves to a central location for completion of OQBN certification process. These calves were then marketed through one of the OQBN certified calf sales. Perhaps the most significant impact the OQBN has had on the beef industry in Oklahoma to date cannot be measured by participation in the OQBN itself. According to Bill Barnhart of OKC West Livestock Market, Inc., and President of the Oklahoma Livestock Marketing Association, "Since producers began to see the success of the OQBN, we have seen a dramatic increase in the number of cow/calf producers weaning and preconditioning their calves before bringing them to the livestock marketing facilities across the state. It is apparent to me that the industry is finally ready to adopt this value added opportunity."

Funding Source(s): State; Smith-Lever; Oklahoma Department of Agriculture

Scope of Impact: State Specific

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Title: Extension Educational Programs for the Oklahoma Pecan Industry

Issue:

The Oklahoma pecan industry has remained a strong, viable entity for the last 10 years and even experienced a resurgence of interest during the last five years. This interest has come from a strong core of pecan growers involved in the Oklahoma Pecan Growers Association (OPGA) and from an equally strong extension/research team that interacts with the industry association very closely. The industry enjoys a great deal of popular support from the general population as many homeowners have pecan trees in their yards and located throughout their personal property. Many of these homeowners, as well as, commercial growers wish to continually gain more knowledge about pecan culture, production practices and pest management.

What Has Been Done:

For the past 8 years the Oklahoma Pecan Research/Extension Team has provided an educational opportunity for the growers of Oklahoma. This core team consisted of specialists from Horticulture, Entomology and Plant Pathology. Key support has also been provided by specialists in soils, irrigation and agriculture economics who have assisted with instruction and contributed to development of educational materials. This course covers integrated pecan management throughout the season and is taught with a combination of classroom discussion, orchard exercises and orchard visits. In 2001, an effort was initiated to expand the audience base participating in the course by constructing a pecan e-learning offering on the Internet. In 2002, OSU entered into contract with Agri-Business Group to create the first pecan e-learning short course. In 2003, this

dream became a reality and testing of the e-learning prototype is currently underway. This innovative Extension offering has allowed for a distance education mechanism that has reduced demands on schedules and travel by instructors. In addition, this new offering represents a multi-level approach to teaching that permits the user to determine their entry level. It is accompanied by a self analysis post-test at the end of each section.

As a result of this team effort the Oklahoma Pecan Management Course has been designed and offered 7 times in the last eight years. The course meets 8-9 times per year for a period of four hours. Even after so many years, this class still pulls in 25-30 growers per year and has witnessed the return of many of our initial students for a refresher lesson. Pecan related articles have been added to ongoing newsletters related to fruit/nut production and the pecan e-learning offering has been made available to anyone with an Internet connection.

Demonstration/research projects have been initiated to secure reliable data on pest management and other practices that can help Oklahoma growers produce a profitable crop. Competitive grant proposals have been successfully submitted to various funding agencies including Integrated Pest Management (Oklahoma mini-grant program) and CSREES Programs to procure funds.

Impact:

In the last three years OK pecan acreage has increased from about 70 to over 84 thousand acres. In addition, Oklahoma currently leads the nation in the development of new cultivar orchards just starting. In its first offering, in 1997 over 60 people including 5 county extension educators took the Oklahoma Pecan Management Course. Nearly 150 people, including 10 county extension educators, took the course the first three years it was offered with over 25 persons currently registered for the 2004 course. The pecan e-learning opportunity has the potential to expand this educational opportunity across the nation.

Scope of Impact: State Specific

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Title: Weather-based Decisions Support for Agricultural and Natural Resource Systems

Issue:

Weather is the driving force in agricultural and natural resource systems. The Oklahoma Mesonet is one of the world's most advanced real-time weather networks. The system collects weather data every 5 minutes from 115 towers spread out across Oklahoma. Weather data is transmitted every

15 minutes and is used to update weather data and decision support products displayed over the Web. In spite of this network collecting data since 1994 and its demonstrated value as an agriculture and natural resource management decision support tool, there has been a lag in utilizing this weather monitoring network by agricultural producers, agricultural professionals, and natural resource managers.

What Has Been Done:

A new website was designed for the agricultural and natural resource communities to increase utilization of Oklahoma Mesonet weather data and Oklahoma State University (OSU) Oklahoma Cooperative Extension Service (OCES) resources. The no-fee access website is Oklahoma AgWeather at <http://agweather.mesonet.org>. This site is organized by agricultural commodities and natural resource areas. It contains real-time weather data, Oklahoma climate information, weather-based agricultural and natural resource decision support products, links to USDA commodity market information, links to Oklahoma agricultural producer associations, links to OSU programs and services, and links to OCES fact sheets.

Impact:

The Oklahoma AgWeather website went online in January 2003. Since that time this website has provided information to 45,413 unique visitors, who made 106,023 site visits. Users accessed 1,497,332 pages by making 4,258,378 hits on the site. Feedback from individuals in Oklahoma, Texas, and Kansas has shown that the weather information and decision support they receive has increased crop quality, reduced pesticide use, and allowed them to reduce production risk. In one situation a pecan producer was able to reduce his fungicide applications from two to one for the growing season and maintain the same level of disease control. This one application saved him approximately \$4,500. Another pecan producer was able to turn an unprofitable orchard devastated by pecan scab into a profitable enterprise by doubling the yield and improving nut quality. An Oklahoma cattle producer uses the Oklahoma Mesonet rainfall and radar products to determine when to move cattle from high flood risk pastures to low flood risk locations.

Funding Source(s): Oklahoma state appropriations

Scope of Impact: State specific, Multi-state (Oklahoma, Texas and Kansas)

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Title: Wild Oat Control in Winter Wheat

Issue:

Wild Oats (*Avena fatua*) present a significant weed pressure in wheat fields in Jackson County in Southwest Oklahoma. The competition for moisture and nutrients in an area with limited rainfall becomes critical. Suppression and/or potential control of this weed species is possible with the use of herbicides or through the use of crop rotations. The primary crop management strategy for the majority of wheat producers in Jackson County is to grow a crop for both forage and grain production. Therefore identifying herbicides that will function in this management strategy is of prime importance to producers.

What Has Been Done:

As a result of identifying this grassy weed as a priority issue within Jackson County a county-wide wheat field survey was under-taken in spring 2001 to identify the number of wheat fields infested with the weed species. The survey entailed a total of 218 fields with 107 of those fields being production wheat fields. Replicated plots have also been put out in the county since the fall of 2000 on local producer wheat fields that were infested with wild oats to generate both applicable local data and utilize as extension demonstration field trails an educational sites. Commercially available herbicides and new potential herbicides were identified and utilized in the study.

Impact:

Jackson County's wheat acres comprise the largest acreage crop in the county with approximately 200,000 acres. Of the 200,000 acres, approximately 150,000 acres are harvested annually with an average production of 29.5 bushels per acre. In terms of the survey, the total fields surveyed indicated that 48% were infested with wild oats. Of the 107 production wheat fields that were surveyed 70% were infested with wild oats. This data verified that wild oats were indeed a significant problem for Jackson County wheat producers. Since the beginning of this extension field project 5 field tours, 6 crop production meetings, over 200 county producers attending these meetings, 1 survey, 3 county publications, numerous press releases (newspaper has an ~ 5800 subscribers and the radio has a listening audience of ~ 45,000), identification of an economical and successful chemical product, and a steady increase in producer contacts have been accomplished. An annual sponsored spring pre-harvest wheat tour is also held in conjunction with these wheat plots. Verbal testimonials of success with the implemented herbicide strategies have been shared, again with office recognition as a source of information and expertise. The chemical identified is anywhere from \$2.50 up to \$11 per acre cheaper than other commercially available herbicides. This alone represents significant per acre savings. However, considering the average annual county yield and an assumed average \$.025 per bushel dockage charge an additional savings of \$0.74 per acre can also be saved.

Funding Sources: County, State, Smith-Lever, Grant, Oklahoma Wheat Growers Assn.

Scope of Impact: County and Area

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Title: Sandbur Control and Demonstration Plots in Bermudagrass Pastures

Issue:

Sandbur (*Cenchrus* spp.) infestations costs bermudagrass producers and the beef cattle industry millions of dollars each year. Among the losses incurred by the producer include reduced hay yield from weed interference with the bermudagrass crop, the cost of chemical control when herbicide options are available, and reduced hay quality due poor consumption by beef cattle since the sandbur seed heads are harvested and baled with the marketed hay. The buyers of the hay must contend with the later loss and pass the financial burden eventually to the consumer. A successful sandbur control herbicide (i.e. Plateau herbicide sold by BASF corporation) was developed and sold from ~ 2000 to 2003 to help producers combat this tough weed. However, the removal of Plateau herbicide from the market has left a huge void for summer annual grass control in bermudagrass pastures.

What Has Been Done:

Sandbur weed control trials were established in the summers of 2002 and 2003 to evaluate other potential control options and to develop BMPs for minimizing negative impacts of herbicides on bermudagrass yield. Upon initiation of this research, interested representatives of several other chemical companies requested testing of various graminicides, several of which proved beneficial for sandbur control in bermudagrass pastures. In January of 2004 BASF announced its plans to withdraw Plateau from the Southern Great Plains common bermudagrass market. This event makes the on going research of various experimental herbicides extremely valuable in terms of quickening the pace of getting a replacement sandbur herbicide labeled and to the bermudagrass market. To illustrate the potential benefits of these alternative sandbur herbicide to Oklahoma producers, weed control demonstration plots (6 locations) and field days (4 field days) were held in conjunction with county and area extension personnel across Oklahoma during 2002 and 2003. Over 125 Oklahoma wheat producers or associated wheat industry personnel were contacted. Extension activities were supported by BASF, DuPont Agricultural Products, and Oklahoma State University Cooperative Extension.

Impact:

An estimated 8,000 acres of Oklahoma bermudagrass pastures are currently infested with sandbur. The bulk of this acreage is located in central, eastern, and southern Oklahoma on fields with sandy soils that are equipped with irrigation or receive enough summer rainfall to produce exceptional bermudagrass yields. Also, when dealing with sandbur infestations in bermudagrass hay, impacting the quality of the harvested hay (i.e. whether or not the marketed hay is infested with sandbur) can translate into selling the hay for at least \$85 per ton (when the hay is free of sandbur) to as little as \$25 per ton (when the hay is infested with sandbur). Considering that bermudagrass yields in many of the problem areas average 7 tons per acre, the benefit of controlling sandbur in these pastures can increase the value of the crop by \$420 per acre for the season. This could easily translate into over \$2 million dollars of increased sales to bermudagrass producers in the state. So by initiating our sandbur control studies in the summer of 2002, we hope to have reduced the amount of time our Oklahoma bermudagrass growers will spend without a herbicide option, thus enabling them to continue the production of highly quality bermudagrass.

Funding Source(s): State; Smith-Lever; Other

Scope of Impact: State Specific

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Key Theme – Animal Health

Title: Pre-Testing of Forage Sorghum Using Sulfuric Acid and .5% Diphenylamine to Determine Potential Toxicity to Cattle.

Issue:

There are over 800 cattlemen and women in Caddo County who raise approximately 150,000 head of cattle valued at 60 million dollars. Due to the high percentage of crop production and the short-term availability of land for grass production, forage sorghums are a primary hay source for the county. Approximately 25,000 to 35,000 acres of forage sorghum is produced in Caddo County at 2 round bales per acre this results in over 50,000 round bales of forage sorghum or 45,000 tons of feed for livestock. Any type of over-fertilization with Nitrogen or any type of stress to the forage sorghum crop prior to harvest will result in nitrate toxicity and possibly death-loss or late-term abortions in pregnant cows.

What Has Been Done:

The Caddo County OSU Extension Office offers a free preliminary test for forage sorghum producers. While conducting the nitrate toxicity test, take advantage of the opportunity to educate cattlemen and women on nitrate toxicity. Such as how nitrate toxicity occurs, how can it be avoided, and what to do with toxic hay. A presentation on 'Nitrate Toxicity in Forage Sorghum' was also presented to the Oklahoma Cattlemen's Association's Annual Meeting in 2002 and to two Caddo county Marketing/Risk Management Groups in March of 2003.

2003: During the month of August 2002 during drought conditions 20 livestock producers brought in 38 hay samples to be tested. These producers represented approximately 2,000 acres of forage sorghum, or 4,000 round bales of hay. Twenty livestock producers received information on how nitrate toxicity occurs, how can it be avoided, and what to do with toxic hay. Of the 38 samples tested 18 samples (47%) tested positive for nitrate toxicity. These samples were then sent to the OSU Soil, Water, and Forage Analytical Laboratory for testing.

2003: During the month of August 2003 during drought conditions 24 livestock producers brought in 40 hay samples to be tested. These producers represented approximately 2,400 acres of forage sorghum, or 4,800 round bales of hay. 24 Livestock producers received information on how nitrate toxicity occurs, how can it be avoided, and what to do with toxic hay. Of the 40 samples tested 22 samples (55%) tested positive for nitrate toxicity. These samples were then sent to the OSU Soil, Water, and Forage Analytical Laboratory for testing.

Impact:

Testing the hay resulted in identifying 1800 toxic round bales of forage sorghum in 2002 and 2640 toxic bales in 2003. Approximately 9000 cattle avoided death or late term abortions by not feeding the toxic hay in 2002 and approximately 13,000 in 2003. The value to these cattle in Caddo County is approximately 8.8 million dollars of avoided agriculture economic loss that does not include the calves they produced.

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Key Theme – Animal Production Efficiency

Title: Livestock Nutrition

Issue:

The Garvin County Cattle Directors feel like many of the problems cattle producers in our area face are much of the new information being provided to people on cattle nutrition. It is the feeling of directors that at many times producers are not aware of the nutritional value of the forages they are currently using. It is also the opinion of directors that cattle producers are spending too much on mineral programs. Directors also feel cattle producers are not aware of proper management on wheat pasture and do not realize how much they can extend use through proper rotational grazing programs.

What Has Been Done:

After discussing this issue we set up the Garvin County Fall Cattle Conference to address these concerns. We had a day-long conference which covered hay testing, mineral supplement programs, winter nutrition, management of the cow herd on wheat pasture, stocker management on wheat pasture and rotational grazing.

Impact:

We had 70 producers at the conference and producers responding to the surveys indicated the information would make or save them \$10 to \$20 per head and the group managed 10,000 cows

and 30,000 stockers. After the program the speakers sent me follow-up news articles covering their subjects. These were utilized in mass media for the next six weeks and were presented to 72,600 more people.

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Title: Oklahoma Performance Bull Test

Issue:

In the beef industry, cattle producers are demanding documented information of cattle performance to make important genetic selection decisions in their herds. Beef cattle producers use different sources of information and selection tools to identify genetically superior breeding animals in the cattle population. Producers require the best and highest accuracy information to manage risk in their selection programs.

What Has Been Done:

The central bull test program is a valuable resource of information on growth performance. For the past 31 years, cattle producers have used the facility to evaluate postweaning growth. Cattle originate from Oklahoma and surrounding states. Data are collected at 56, 84, and 112 days, and reports are distributed to interested groups. The reports include information on growth performance, pedigrees, breed association genetic predictions, and live animal ultrasound. In addition, a webpage provides cattle producers with the latest reports and current information on performance testing. The bull test station coordinates a fall and spring sale to assist with marketing the cattle. In July local cooperative extension staff (state and county) and bull test station staff coordinated an educational field day to address timely topics related to bull health, country of origin labeling, cattle nutrition, and the Oklahoma Quality Beef Network. During the year, the Extension Beef Cattle Breeding Specialist presented several educational programs to cattle producers about the benefits of performance information and using the information as a tool in their breeding programs.

Impact:

In 2003, 84 breed specific reports were mailed to individuals representing cattle producers in the program, commercial cattle producers interested in purchasing cattle, and other parties interested in the program. There were 627 bulls (13 Breeds) representing multiple consignors. The results of the survey showed an average producer has tested cattle for 8 years and over 75% of producers considered the information valuable to the genetic improvement of their cattle. For the fall and spring sales, the program assisted producers in marketing 228 bulls to both commercial and purebred cattle producers in the Oklahoma region and surrounding states. For both sales, the

average price was \$1,990 and the gross revenue was \$454,000. For the years 1973 to 2003, more than 19,000 bulls have been tested through the program.

Scope of Impact: Oklahoma

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Key Theme: Bioterrorism

Title: Crop Biosecurity

Issue:

Protecting our nation's crops against bio-terrorism has become an important aspect of homeland security. The Plant Disease & Insect Lab (PDIDL) of the Department of Entomology & Plant Pathology at Oklahoma State University has been providing expert identification and diagnosis of crop pests to growers for many years. However, if a new pest of an important crop were introduced to Oklahoma either by an act of bio-terrorism or by accident, new technology, equipment and skills would be needed to handle this pest. Response time would be critical, so the infrastructure for relaying information and verifying identifications would need to be set up for such an emergency.

What Has Been Done:

In 2002 the PDIDL became part of the Great Plains Diagnostic Network (GPDN), which includes nine states in the Great Plains region. The GPDN is one of five regions of the National Plant Diagnostic Network. During 2003 the primary emphasis was on upgrading the equipment of all nine member diagnostic labs and purchasing video conferencing equipment so that diagnosticians could collaborate by video over the internet on sample diagnosis and on pathogen identification. During 2004 the focus will be on upgrading the insect side of the system and on training growers and their advisors to recognize the major pest threats to crop security.

Impact:

The PDIDL now has the ability to identify pathogens rapidly using new molecular technologies and to network with other labs in this region and throughout the USA. Microscope images can be transmitted directly to other labs for collaboration over this system. The new upgrades not only provide additional security against an act of bio-terrorism, but also permit more effective surveys for destructive new pathogens now occurring in other parts of the USA that may find their way here. Protocols have already been developed and tested for several pathogens not occurring in Oklahoma using extracted DNA from such pathogens. Additional protocols are currently being

developed for other pathogens on the Homeland Security List of Plant Pathogens. In 2003 two new protocols were used to survey for pathogens of national importance that pose a threat for Oklahoma. These were *Xylella fastidiosa*, the cause of Pierce's Disease of grapevines in other grape producing states including Texas and Arkansas, and *Phytophthora ramorum*, the cause of the Sudden Oak Death epidemic in California. Oklahoma was shown to be free of these in surveyed vineyards and nurseries, respectively. During 2004 the insect diagnostic portion of the PDIDL will have its identification and networking capabilities upgraded. Extension programs to train growers and those who advise them, or First Detectors, to recognize and report unusual pest problems on major crops will begin during 2004 and early 2005.

Scope of Impact: Multi-state national, with funding from USDA-CREES, USDA-APHIS-PPQ

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Key Theme – Diversified Alternative Agriculture

Title: Extension Educational Programs for the Oklahoma Wine Grape Industry

Issue:

The Oklahoma grape industry has experienced a resurgence of interest and enthusiasm during the last four years. Interest has come from wineries, grape growers, and others, e.g. chambers of commerce, interested in economic development. Much of the total economic development potential comes from tourism and spin off sales associated with the wineries which tend to be located in smaller communities. Total wine sales in OK are near 2 million gallons per year. Potential exists for Oklahoma vineyards and wineries to increase market share by producing grapes, making and selling wines locally. The industry enjoys popular support from the legislature and the general population as an initiative in 2000 which revised state laws to put OK wineries in a better competitive position received over 70% approval from the people.

What Has Been Done:

In 2000 a team of Extension specialists was assembled to develop an educational program for Oklahoma grape producers. The core team consisted of specialists from Horticulture, Entomology and Plant Pathology. Key support has also been provided by specialists in soils, irrigation and agriculture economics who have assisted with instruction and contributed to development of educational materials.

As a result of this team effort the Oklahoma Grape Management Course has been designed and offered four times. The course meets seven times per year for a period of four hours. Area meetings for grape growers and county educators were held in southwest and northwest

Oklahoma. Grape related articles have been added to ongoing newsletters related to fruit production, an Oklahoma Vineyard Management Guide has been drafted and budgets have been prepared to assist potential grape growers with decision making.

Demonstration/research projects have been initiated to secure reliable data on grape variety adaptability and pest management requirements in the various regions of Oklahoma. Competitive grant proposals have been successfully submitted to various funding agencies including Integrated Pest Management (Oklahoma minigrant program) and private foundations (Kerr Center for Sustainable Agriculture) to procure funds

Impact:

In the last four years OK grape acreage has increased from about 50 to over 300 and the number of licensed wineries has increased from about 4 to 17. Nearly 250 people, including 13 county extension educators, have taken the Oklahoma Grape Management Course its first four years. Over 70 persons are currently registered for the 2004 course. As a result of this educational program potential grape growers from 50 counties have learned about the economic potential of wine grapes, how to reduce environmental risk through proper variety selection, how to accurately scout for insects and diseases and how to install and manage a vineyard. Initial data have been collected from demonstration plantings on grape variety adaptability as well as insect and disease incidence at four locations in OK and results disseminated to growers.

Scope of Impact: State Specific; Integrated Research and Extension

Funding Sources: State; NGO; Smith-Lever

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Key Theme – Home Lawn and Gardening

Title: The Oklahoma Master Gardener Volunteer Program

Issue:

Rapid urban growth in many areas of the United States coupled with increased interest in the environment and home gardening have prompted an ever-increasing number of garden and landscape inquiries. Along with this interest, comes a multitude of gardening questions needing individual explanation and too few Extension staff members to answer each question. Many of these questions are seasonal in nature and are relatively easy to answer assuming that one has horticulture training.

What Has Been Done:

Oklahoma Master Gardeners are trained, supervised and recruited to: 1) improve overall efficiency in providing one-on-one service to the non-commercial horticulture clientele in the county, 2) provide group learning and teaching activities for non-commercial clientele, 3) allow agents to develop proactive Extension programs, and 4) form a group of Extension volunteers to support additional consumer horticulture efforts.

Trainees participate in a 10 - 13 week course receiving between 40 - 56 hours of course work on subjects including: basic plant science, vegetables, fruits, nuts, ornamentals, lawns, diagnosing pest problems, soils, and other related topics. Upon completion of the training period, satisfactorily passing an exam on materials and topics covered, and donating between 40 - 56 hours of volunteer time to the Horticulture program, the trainees are certified and awarded the title of Oklahoma Master Gardener.

Examples of Master Gardener Volunteer activities include: staffing plant clinics to answer phone and walk-in questions, manning educational exhibits, maintaining demonstration gardens, community beautification projects, serving as 4-H hort leaders and judges, speaking at club/civic meetings, teaching horticulture activities at nursing homes, etc., assisting in horticulture mailings, newsletters, etc., and appearing on TV and radio.

Impact:

The service from the Master Gardener volunteer program has proven to be a highly popular means of extending the knowledge of the Oklahoma State University Cooperative Extension Service to the residents of Oklahoma. The Oklahoma Master Gardener Program now has 33 counties participating in the program as of 2003. Approximately 323 new Master Gardeners were trained during the 2002 training season. Close to 1,000 active Master Gardeners volunteered their time, contributing approximately 21,891 hours of volunteer service and reaching over 112,900 Oklahomans with as many as 600+ educational and community programs and activities being conducted in their communities in 2002. This translates to over \$363,000 in service that was donated by volunteers (wage rate of \$16.54/hour was used, which includes a 12% estimate of fringe benefits. This hourly rate is the assigned wage for nonagricultural workers in 2002 as published in the *Economic Report of the President* (2002 edition). The Independent Sector, an organization that “serves as a national forum to encourage giving, volunteering and not-for-profit initiative,” supplied this information).

Funding Source(s): State; Smith-Lever

Scope of Impact:

The Oklahoma Master Gardener volunteer program is “state specific;” however, continued training opportunities may be multi-state, regional or national.

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Key Theme: Plant Production Efficiency

Title: Nitrogen Use Efficiency for Wheat

Issue:

The largest purchased input for wheat producers in Oklahoma is usually nitrogen fertilizer. Costs vary, but are about \$20 per acre. Nitrogen use efficiency of wheat is approximately 33%. The unaccounted 67% loss results from gaseous plant emission, soil denitrification, surface runoff, volatilization, and leaching. In Oklahoma, for every \$20 dollars spent on fertilizer nitrogen, we lose \$13 of that fertilizer input. This trend is likely to continue unless there is a change in nitrogen use efficiency.

What Has Been Done:

Wheat Producers have established N-Rich Strips to help improve fertilizer efficiency in their wheat fields. OCES County Extension Educators and OCES Area Agronomist are utilizing the Hand Held Greenseeker Optical Sensor to assist producers with fertilizer strategies. While condition of the crop could be read y several methods, (height, color, tillers, etc.) the sensor allows us to calculate indexes from reflected red and infrared light. We can compare the indexes from the N-Rich Strips the producers have established with the remainder of the fields. From these comparisons, we can determine a topdress fertilizer statay.

Impact:

In Canadian County, our producer needed 42 pounds of actual nitrogen. His usual practice would have been to apply 50 pounds of nitrogen. We saved this producer 8 pounds per acre or about \$2 dollars per acre.

In Woods County, our producer normally applies 60 pounds per acre actual nitrogen. This year he needs 20 pounds per acre. That would be a \$11.20 per acre savings.

In Garfield County, our producer usually applies 80 pounds per acre actual nitrogen. This year he will be applying 42 pounds per acre. That is a savings of 38 pounds per acre. This producer has a savings of \$10.64 per acre.

When wheat producers place their seed in the ground, they don't know the potential yield for the field at planting. They don't know how much non-fertilizer nitrogen will be available for potential yield. Our strategy for wheat production currently is to apply most if not all our fertilizer for wheat production prior to putting the seed into the soil. Producers don't use different fertilizer rates for areas of the field that have different yield potential. For wheat producers using N-Rich Strips, we can save them from \$2.00 to \$11.20 per acre.

Scope: State

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Key Theme: Rangeland/Pasture Management**Title: Integrated Management of Degraded Grazinglands****Issue:**

Bermudagrass is an introduced, warm-season forage that comprises a large portion of the grazinglands in eastern Oklahoma. When properly managed, it is capable of producing large yields with adequate nutrition for grazing beef animals. Stocking rates for well-managed bermudagrass with modest nitrogen rates can support 1 animal unit on 3 acres. Unfortunately, poor fertility and grazing management has resulted in many of these pastures having weak stands that include other invasive, less desirable forage species. Due to the low production potential of these pastures, stocking rates can be as low as 1 animal unit per 10 acres. In addition to low stocking rates, these weaker grass stands force producers to purchase hay and additional supplementation to keep livestock in a healthy and productive condition.

What Has Been Done:

Forage producers may not be aware of the methods of rehabilitation necessary to return grass pastures to optimal condition or are afraid of the costs involved with fertilizing and controlling undesirable species. In 2002, six research and demonstration sites were established in eastern Oklahoma with two primary objectives. The first objective was to determine the best management practices for restoring degraded bermudagrass pastures to peak production. The second objective was to provide producers with a demonstration site where they could observe the results of herbicide and fertilizer applications and combinations of these two common management practices on degraded bermudagrass pastures. Forage growth at all of the sites responded favorably to fertilizer application. Bermudagrass growth at the sites severely infested with undesirable forbs responded best to the combination of both fertilizer and herbicide application. On the sites with weak grass stands, it required two years before the treatments increased bermudagrass forage production. By the end of the second year, sites where undesirable forage production had been controlled in combination with increased fertility, the bermudagrass had recovered into healthy and productive stands.

Impact:

Ten tours of the demonstration plots were conducted over the past two years. This resulted in educating over 100 forage and livestock producers in efficient and cost effective methods for restoring degraded bermudagrass pastures. Data from these studies were also presented at 3 educational meetings and were attended by more than 200 agricultural professionals and livestock/forage producers. By implementing these management practices, it is possible to

increase stocking rate and simultaneously reduce the input costs associated with purchasing hay and supplemental feeding. The information indicated that for a yearly cost of \$26 per acre, the combination of fertilization and herbicide application was returning \$74 dollars worth of forage above the cost of treatment. Based on a modest forage cost of \$50 per ton cost and a yield increase of 2 tons per acre, a producer with 100 acres could grow additional forage worth \$7,400 above the cost of the additional management practices.

Funding Source(s): State, Grant

Scope of Impact: Regional

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Key Theme: Risk Management

Title: Risk Management Education for Oklahoma Horticultural Producers

Issue:

Pecans, watermelon, and peaches are significant horticultural crops in Oklahoma with other commodities (e.g., wine grapes) being considered in hopes of increasing farm profit. Producers need assistance in realistically evaluating financial prospects of alternative enterprises and in identifying cost effective ways of producing specialty crops. Enterprise budgets offer valuable decision support in analyzing profit potential while documenting resources, cultural practices, and technology used in the production activity. Knowledge of budgets and the ability to use them will assist horticultural producers with farm and financial planning.

What Has Been Done:

In October 2003, Oklahoma State University (OSU) began a one-year partnership agreement with the USDA - Risk Management Agency to develop and deliver software tools designed to help Oklahoma producers assess financial risks associated with specialty crop production. Specialty crop enterprise budget templates were assembled based on OSU's past work for traditional crops. Input has been solicited from various agricultural science specialists and commodity groups through individual consultation. Product field-testing has been conducted prior to a planning spring 2004 public release.

Impact:

A series of "hands-on" computer workshops and seminars will be conducted with the expected outcome of improved profitability through improved farm and financial skills. Software promotional efforts will be targeted to commodity group membership around the state. Evaluation will consist of attendance and information requests plus pre-and post surveys to measure

knowledge skills or behavior before and after participation/purchase. An estimated 450 specialty crop producers are expected to be contacted directly through commodity group meetings.

Horticultural crops are management and capital intensive with annual expenses over \$1000 per acre commonly reported. Multiyear crops (e.g., wine grapes) require sufficient venture capital and time for several years before any return is expected. Through better financial management and production performance, average improvement in annual net farm income of at least \$50-100 per producer (\$22,500-\$45,000 total) is expected.

Funding: State—One-year partnership agreement with USDA – Risk Management Agency.

Scope of Impact: State Specific

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CSREES Goal 2: A safe and secure food and fiber system.

Overview

Oklahoma key program components contributing to this goal include: food safety, food preparations, food preservation, HACCP Training, and microbiological testing. During the year, 193 demonstrations, meetings and conferences were conducted under this goal. Over 4,514 participants attended these activities during the year. OCES personnel conducted an additional, 934 visits and consultations with these audiences.

Educational and service programming under this goal really fall into commercial categories and home/general public categories. Educational programs with commercial food processing, preparation, and retail sales make up much of our effort. The Oklahoma Food and Agricultural Product Center is a completely state-funded entity that is wholly integrated into the OCES mission in Oklahoma. The Center has conducted numerous HACCP training sessions for food processors in the state. This has resulted in many of these processors ability to develop and maintain acceptable HACCP plans to help them stay in business. The center is working closely with state and federal authorities working on microorganism food security problems. The Center also conducts training sessions for food related entrepreneurs trying to get into business or expand their businesses. Food safety laws and regulations are an important part of this training. The Center also provides educational programs such as the "Master Cannery Workshop". This program provides basic training in producing acidified and acid canned foods. Several of those attending

these workshops have returned to the Center for additional business and processing assistance. Food service industry personnel in Tulsa have available to them a 12-hour food handlers' course. Local food codes require taking such a course and passing of a test. The OCES course is the only one with materials, classes, and testing also available in Spanish. We have extended the initial work with extension educators training on biotechnology and bio-terrorism in relation to food safety. Food handling in the home is also an important part of the FoodSafe program and numerous nutrition-based cooking schools. The OCES conducts numerous nutritional programs. Most of these programs include food safety in selection and preparation of foods in the home. These nutrition programs are reported under CSREES goal 3. The OCES provides much training in the use and proper application of pesticides in food production. Again, most of these efforts are reported under CSREES goal 4. Finally, HACCP and livestock meat quality programs often get reported under CSREES goal 1.

Positive progress was made in all Key Program Components listed under this goal in the Oklahoma Cooperative Extension Service 5-year plan of work. Total expenditures represented by programming and related support for this goal are approximately \$600 thousand with \$75 thousand from Smith Lever funds. About 7 professional and paraprofessional FTEs contributed to the goal last year. As noted above, due to the categorization of Key Themes by CSREES, closely related efforts in food safety also show up under goals 1, 3, and 4. Following are some example program impact statements arranged by CSREES Key Theme.

Impact Statements Goal 2

Key Theme: Food Safety

Title: Oklahoma FoodSafe Program

Issue:

The Centers for Disease Control estimates 76 million Americans get sick, 300,000 are hospitalized and 5,000 die each year from foodborne illness. Two to three percent of cases lead to secondary long-term illnesses such as reactive arthritis, kidney failure, or meningitis. Costs for lost productivity and health care are estimated at up to \$9.4 billion annually. Keeping food safe from farm to table requires a continuous chain of responsibility for the safety of the food. If that chain is broken at any point, foodborne illness can result. Today because of lack of knowledge and/or failure to practice safe handling procedures or to make safe food choices and decisions, the weak link in the chain is often the consumer.

What Has Been Done:

The Oklahoma FoodSafe Program works primarily with consumers to increase the safety of the food supply. By increasing their awareness and knowledge of safe food behavior and choices and by teaching them to take responsibility for the safety of their food they can reduce their risk of foodborne illness. The program has offered food safety education in a variety of projects including the Oklahoma Healthy Living A-Z Programs for adults and children, leader training for Family and Community Educators, a food safety campaign for the elderly called "Food Safety for Seniors," and the Oklahoma Gardening public television program.

Impact:

Statistically significant improvements in safe food handling practices observed among the 610 youth and 1,061 adult Oklahomans who participated in the "Healthy Living A-Z" Impact Program included:

- 34% Increase in hand washing
- 17% Increase in washing fresh fruits and vegetables
- 21% Increase in using a separate cutting board for fruits and vegetables to avoid cross contamination

Youth that participated in the "Healthy Living Program" were exposed to the primary food safety message that encouraged children to always check for a brown color throughout their hamburgers before taking a bite. Of the 63 children who completed the program forty-three percent increased their score when asked if they checked to see if their hamburger was brown all the way through before eating.

Twenty-two county educators were trained on the "Food Safety for Seniors" curriculum. A summary of results of the 258 evaluations returned by seniors that attended lessons showed:

- Most participants (55.2% of 58) of "Thawing Meat Safely" believed they thawed meat safely prior to the lesson. Of those that did not (44.8%), 42.3% indicated they definitely planned to change and 38.5% probably would to a safer method of thawing.
- Most participants (72.2% of 126) of "Storing Leftovers" believed they handled leftovers safely prior to the lesson. Of those that did not, 54.3% definitely planned to change the way they handled leftovers to reduce their risk of foodborne illness; 28.6% probably would change; 14.3% would think about changing their handling of leftovers; and 2.9% planned no changes.
- More than half (60.0% of 74) of participants of "Cooling Hot Foods" found the need to change the way they cool food to reduce the risk of foodborne illness. Of those, 61.4% definitely planned to change the way they cool food after attending the lesson; 29.5% indicated they probably would change; and 9.0% would think about making a change.

Other educational projects have targeted raising awareness of food safety and increasing a sense of personal responsibility for the safety of food selected and eaten. Substantial numbers of Oklahomans have been reached through such projects as:

- In-service training and teaching materials provided to county educators in 2003 on basic food safety issues and practices, food safety issues associated with herbs, food preparation and home food preservation.
- The "Oklahoma Gardening" public television kitchen segments on safe food preservation and preparation reach 220,000-250,000 viewers per weekend for each of its 20 to 30 annual segments.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific

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Key Theme – Food Safety

Title: Detection, Characterization, and Inhibition of Foodborne Pathogenic and Spoilage Microorganisms

Issue:

Food safety has been a major concern for various sensitive commodities, especially the meat and poultry industry. Potential contamination of ready-to-eat (RTE) meats with foodborne pathogens from the processing environment is a concern to both consumers and processors because such products are consumed with no further cooking. It would be beneficial to both processors of RTE meats and the consuming public if processes could be implemented that would render such products free of contamination.

What's Been Done:

Unitherm Foodsystems Inc (Bristow, OK) is a manufacturer of food processing equipment to the food industry, primarily further processed meats. They are a small company compared to their large competitor. However, they have targeted surface pasteurization of ready-to-eat meats with the development of pre- and post-package pasteurization equipment. My laboratory has helped to validate the effectiveness of their process both at OSU and at their own manufacturing facility while simultaneously developing an area of research focusing on these types of microbial interventions and providing seminars and presentations as part of our outreach to disseminate information regarding these important commercial processes that have been developed in the state of Oklahoma. We have made valuable presentations to the further processed meat industry at various meetings (AMI Worldwide Food Expo Oct.29-Nov.1, 2003, Chicago, IL) and trade shows (International Poultry Expo, Jan. 26-28, 2004, Atlanta, GA) that has resulted in greater visibility for Unitherm and provided microbiological expertise in discussions with their potential clients. I have also addressed the USDA-FSIS technical center (Omaha, NE, Feb. 4, 2004) regarding the effectiveness of the pre- and postpackage pasteurization processes against *Listeria monocytogenes* on ready-to-eat meats (the USDA-FSIS 'tech center' is the main resource for issues pertaining to HACCP regulations).

Impact:

This effort has resulted in several million dollars of increased sales for Unitherm Foodsystems Inc., allowing them to be more 'creative' in the development of other new products and resulting in the hiring of a dozen more employees. Our data has been so helpful in demonstrating the efficacy of these surface pasteurization processes, that many processors in the RTE meat and poultry industry have now implemented either submersed water pasteurization, radiant heat prepackage pasteurization, or combinations of the two, in order to make safer RTE meat products. Meat processors involved in 3 of the last 5 largest recalls of RTE meat and poultry products in history have recovered from USDA-FSIS production shutdown by implementing these processes that were acceptable to the regulatory agency. Besides industry, USDA-FSIS has acknowledged

our research and these processes in their ‘guidance documents for industry’ as examples of processes that can accommodate their recent directives and final rule regarding control of *Listeria monocytogenes* in RTE meat and poultry products.

Funding Source: State

Scope of Impact: State

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CSREES Goal 3: A healthy, well-nourished population

Overview

Oklahoma key program components contributing to this goal include: nutrition, health and wellness, and community nutrition education programs. The OCES 5-year plan of work includes key program components under other goals (particularly goal 5) that CSREES chose to include as themes under this goal (goal 3), such as, health care-community health care. Thus some reporting discontinuities may exist between what is reported in the overview and under key themes. During the year, 1,998 demonstrations, meetings and conferences were conducted under this goal. OCES personnel conducted an additional, 6,446 visits and consultations. All these activities resulted in reaching more than 64,451 participants during the year. Approximately 31.4% of the participants were non-white audiences compared to 25.2% in the general population of Oklahoma. The primary non-white audiences were female/Native American and female/Black – constituting approximately 10.1% and 7.7% respectively of those reached.

Healthy living programs continue as a major focus of extension education in Oklahoma. These programs target dietary and health practices designed to reduce diet related conditions such as: heart disease, stroke, diabetes, and others. These programs touch a wide variety of clientele. Surveys have shown significant improvement in intake of fruits and vegetables, as well as improved safe handling of foods. The OCES community nutrition education programs (CNEP) reach a large and diverse audience across the state. These programs include: EFNEP Families/Nutrition Education, EFNEP 4-H Youth/Nutrition Education, EFNEP Interagency Cooperation, and the ONE Program. For example, in addition to a large number of group educational meetings, professional and paraprofessionals conducted over 3,300 visits and consultations with clients concerning nutrition. These programs address the full spectrum of

nutrition education and information, including: food choices, selection, preparation, healthy diets, prenatal, child and adult nutrition, nutrition related illnesses, food safety, food costs, community gleaning, community nutrition, etc. A research study conducted during 2000 found that Oklahoma realizes a 36% gain on their investment in CNEP. The gains primarily come from decreases in nutrition-related illnesses resulting in lower medical costs and an increase in worker productivity (fewer sick days). Family Consumer Scientists also have program targeting other groups like the Medicare Touch and Dining with Diabetes programs designed to assist particular high-risk groups with issues. A program area of rapidly growing emphasis for OCES has been rural health care. Medical facilities and services are vital to the quality of life of rural residents and the survivability of rural communities. Two studies have been conducted looking at the economics of establishing community health centers. In addition, a new strategic planning program has been developed using a framework from Harvard University entitled the “Balanced Scorecard”. This year, two new Oklahoma communities, Porter and Norman, have begun the process of establishing a community health center with the assistance of OCES. These programs are closely related to the community health services and infrastructure programs discussed under goal 5. Together they are helping many rural hospitals find a means to remain open and to contribute to the health and economy of these communities.

Positive progress was made in all Key Program Components listed under this goal in the Oklahoma Cooperative Extension Service 5-year plan of work. Several of these programs (particularly those mentioned above) have grown over the past few years. Total expenditures represented by programming and related support for this goal are approximately \$4.6 million with \$1.4 million from Smith Lever and other federal funds. About 51 professional and paraprofessional FTEs contributed to the goal last year. Following are some example program impact statements arranged by CSREES Key Theme.

Impact Statements Goal 3

Goal 3 – Key Themes

Key Theme – Human Health

Title: The Economics and Management of Rural Health Infrastructure

Issue:

More than 600,000 residents in Oklahoma are uninsured. As a result, these residents have limited access to health care services, especially those located in rural areas. Unfortunately, Oklahoma trails the U.S. in the number of health care organizations that primarily serve the uninsured; namely, community health centers, or CHCs. CHCs are community organized and managed health care providers. CHCs provide primary, dental, and mental health care services to residents irrespective of their ability to pay. But, existing research and extension programs have not focused on enhancing the rural health infrastructure in Oklahoma with technical assistance for establishing these health organizations. As a result, access to health services in rural areas of Oklahoma has remained limited. For this reason, extension-research activities were organized to provide technical assistance for community leaders in Oklahoma. Technical assistance has been made available through (a) development of business models for establishing a community health

center (economics) and (b) development of a strategic planning (management) extension program aimed at assisting the boards of CHCs in Oklahoma. These technical assistance tools have also been used to assist potential CHC boards as they prepare to establish a CHC.

What Has Been Done:

Two studies have been conducted that examine the economics of establishing a CHC. These studies are: 1) a business model for establishing primary care services and 2) a business model for expanding dental care services in a CHC. In addition, an OSU fact sheet was written which provides the necessary information for Oklahoma community leaders to assess if a CHC is appropriate for their communities. More practically, two Oklahoma communities (Porter and Norman, OK) have now begun the process of establishing a CHC using these technical assistance tools.

In addition, a new strategic planning extension program has been developed using a framework from Harvard University entitled the “Balanced Scorecard”. The scorecard is a strategic planning framework that CHCs (and other health providers) can use to improve quality of care to patients. Finally, new network partnerships have been established to promote the establishment of CHCs in Oklahoma. In particular, the Oklahoma Primary Care Association (OPCA) has participated in the development of the OSU fact sheet. Also, the National Association of Community Health Centers (NACHC) has also pledged its support of the OSU studies and extension programs.

Impact:

Specific technical assistance on the economics and management of CHCs during the evaluation period include:

- Provided all 77 counties with the OSU fact sheet explaining what a CHC is and its associated economic benefits for communities. The fact sheet will also be distributed through the NACHC network reaching more than 20,000 communities across the U.S.
- Developed a business model for establishing primary care services in a CHC for all 77 counties in Oklahoma. The business model is available to other communities in the U.S. as well.
- Developed a business model for expanding dental services in a CHC for all 77 counties in Oklahoma. The business model is available to other communities in the U.S. as well.
- Provided a health care needs analysis for Wagoner County to determine the feasibility of establishing a CHC
- Provided strategic planning and technical assistance with grant writing to establish a CHC to residents of Porter, Chandler, and Norman, OK.
- NACHC, OPCA, and OSU have formed a research network. The network has applied for almost \$130,000 dollars in grants to examine how business performances of CHCs (and therefore access to health services in Oklahoma) vary given changes in (a) demographics; (b) reimbursement rates for Medicare and Medicaid; and (c) tort liability. The research project will develop a dynamic business model for operating a CHC using systems dynamics modeling techniques. The project will provide resources for graduate students in the Department of Agricultural Economics.

“We feel that this research will benefit the medically underserved communities not only in Oklahoma but in other states as well. NACHC eagerly supports your proposal and believes it is a very timely and important topic for community health centers and the patients they serve. Your study to develop an integrated and adaptable business model for

operating a health center will notably add to the research on access to care for the underserved as well as research on community benefits,” Dan Hawkins, Vice President for Federal, State, and Public Affairs, NACHC.

OPCA

“OPCA will work with you in the development of CHAMP by assisting with data collection from Oklahoma health centers as well as sharing health policy communications. A tool like CHAMP would be very helpful as OPCA conducts CHC development for communities wishing to pursue 330 health center funding. We have enjoyed working with you on other projects, such as the Porter community coalition, and look forward to a continued fruitful partnership. We wish you success in pursuit of the Oklahoma Center for the Advancement of Science and Technology (OCAST) funding,” Judy Grant, Director of Community Development, OPCA, Oklahoma City, OK.

Scope of Impact: State Specific and U.S.

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Key Theme – Human Nutrition

Title: Healthy Living A-Z

Issue:

To Increase fruit and vegetable intake and improve safe fruit and vegetable food handling practices to lower disease risk.

Diet related health conditions cost society an estimated \$400 billion annually. This includes health expenditures and lost productivity resulting from illness and death. It is estimated that improved dietary behaviors might prevent at least 20% of the annual deaths from diet related health conditions. Encouraging increased fruit and vegetable consumption is a cost-effective approach to lowering disease risk and reducing health care costs. Eating plenty of fruits and vegetables can help reduce the risk of developing many diet related health conditions including heart disease, stroke, type 2 diabetes, and some types of cancer. However, according to the Centers for Disease Control 80% of Oklahomans eat fewer than 5 fruit and vegetable servings per day. Added to the problem that Oklahomans are not eating enough fruits and vegetables are reports of occasional outbreaks of foodborne disease associated with fruits and vegetables. These reports threaten to overshadow the important dietary and medical role that fruits and vegetables play in ensuring good health. According to the Centers for Disease Control 20% of all traceable foodborne disease outbreaks result from improper handling in the home including poor sanitation, improper hygiene and cross contamination.

What Has Been Done:

Oklahoma Cooperative Extension Service is conducting a four-year Impact Program entitled "Healthy Living A-Z". The "Healthy Living A-Z" Impact Program educates Oklahoman youth and adults on the 5-A-Day message (fruit and vegetable intake) and safe food handling techniques. The goal of the "Healthy Living A-Z" Impact Program is to encourage more Oklahomans, both youth and adults, to increase fruit and vegetable intake and practice safe fruit and vegetable food handling techniques thereby reducing the risk of diet related diseases.

Impact:

The "Healthy Living A-Z" Impact Program has reached 1,671 Oklahomans, 610 youth and 1,061 adults. Important dietary improvements have been observed among Oklahomans, both youth and adults, who participated in the "Healthy Living A-Z" Impact Program including a statistically significant:

- Increase in fruit intake
28% increase in consuming the recommended 2 fruit servings per day
Average number of fruit servings increased from 1.4 to 2.2 servings per day
- Increase in vegetable intake
20% increase in consuming the recommended 3 vegetable servings per day
Average number of vegetable servings increased from 1.8 to 2.5 servings per day

In addition, statistically significant improvements in safe food handling practices were observed among Oklahomans, both youth and adults, who participated in the "Healthy Living A-Z" Impact Program including:

- 34% Increase in hand washing
- 17% Increase in washing fresh fruits and vegetables
- 21% Increase in using a separate cutting board for fruits and vegetables to avoid cross contamination

These outcomes represent improvements in health status and decreased risk for heart disease, stroke, diabetes, and certain types of cancer.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific

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Title: Community Nutrition Education Programs (CNEP)

Issue:

The one risk that potentially has the greatest impact on health is an individual’s economic status, namely poverty. The links between income and poor health include poor nutritional status, lower levels of educational attainment, and reduced access to and utilization of health care services. Oklahoma has a higher proportion of citizens in poverty than the nation; in particular, those under age 18 (26.5%). The percentage of Oklahoma adults and youth who are overweight or obese has climbed steadily. Obesity contributes significantly to heart disease, stroke, diabetes, arthritis, certain cancers, and other chronic diseases and conditions. The heart disease, stroke, and COPD death rates for Oklahoma are higher than the national average. Furthermore, Oklahoma has been consistently above the national average for persons reporting they have no health insurance, 17.5% and 12.5% respectively.

What Has Been Done:

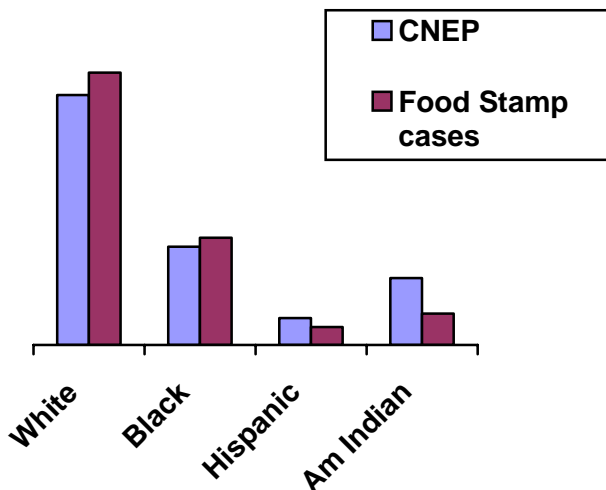
Through the CNEP program, OCES has leveraged state funds to bring over \$3.4 million in federal nutrition education program funds in the Federal FY 2003. This funding supported 105 jobs in 39 Oklahoma counties. CNEP is a voluntary program for participants of federal food assistance programs. In addition, healthy eating habits and food safety skills are taught to primary school students in participating counties where 50% or more of the school population receive free or reduced meals.

Program participants learn how to feed their families in order to promote good health and how to plan and budget their food dollars so their family won’t go hungry at the end of the month.

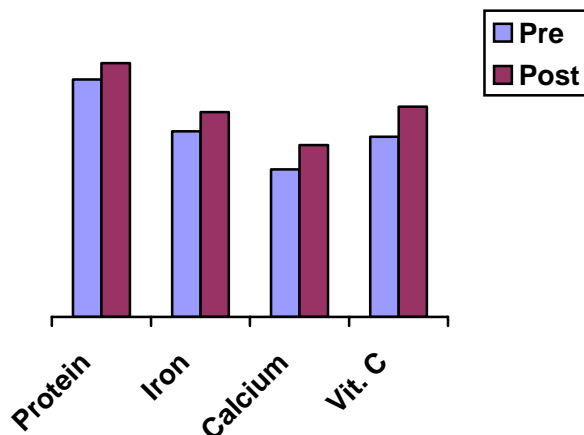
Impact:

CNEP has had a positive impact on the health and wellness of 5,089 low-income Oklahoma families during FY03. Over 91% of graduates demonstrate a positive change towards a healthy diet. Increases occurred in the consumption of fruits, vegetables, and the calcium/dairy foods. In addition, 40% of graduates less often ran out of food by the end of the month and 33% reported that their children ate breakfast more often.

5,089 Families Participated



91% of Graduates Showed Improvement



Through CNEP's youth component 12,403 children have learned and practiced skills in selecting low-cost healthy foods and safe habits for handling foods. Approximately 52% of participating youth were minorities. The children participated in a total of 2,424 hours of hands-on learning and activities. As a result, 18% of evaluated youth increased their ability to select nutritious foods and 12% improved their practices of handling foods safely to prevent food borne illness.

Research in Oklahoma determined that the state saves \$1.36 in future health care cost for every \$1.00 spent on this program. The gain comes from the decrease in nutrition related illnesses, thereby reducing medical costs and an increase in worker productivity (less time away from work due to illness).

Scope of Impact: State Specific

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Title: Childhood Nutrition through Century 21 Programming

Issue:

Training high school students to teach nutrition to 1st-3rd graders provides a platform geared to help students learn about food preparation, make positive food choices, and identify healthy snacks.

What Has Been Done:

A base program issue of the Pittsburg County Family & Consumer Science is to address the growing health risk of Pittsburg County elementary students who are at risk for overweight/obesity. Twenty-five percent of these school age children have been identified according to Janice Hermann, OSU state specialist. This has doubled in the past decade. Our partnership with McAlester Public Schools through the Century 21 grant program entitled "Beyond the Bell" has enabled FCS to present weekly curriculum to 90 students in 1st-3rd grades with a total of 6 presentations in 3 elementary schools. This curriculum is taught in train-the-trainer format. The trainers are two high school Family and Consumer Science students enrolled in Child Development and are members of the Family, Career, and Community Leaders of America (FCCLA). These students receive weekly nutrition curriculum from the FCS Educator. They present this curriculum weekly for the 2003-2004 school year.

Subject matter includes: Food Safety (Fight BAC), fruit and vegetable identification, food guide pyramid, promoting breakfast, smart snacking, physical health, dental prevention, ethnic foods,

and table manners. Curriculum includes resources such as puppetry, children's books, role playing, workbook activities, videos and audio tapes, demonstrations, and hands-on experiments.

Impact:

In May 2004 the 90 participants will have received 16 hours of nutrition education. They will receive a certificate of completion to be awarded at their school assembly. These same students were pre-tested in September using the SNAP (Student Nutrition Activity Program) evaluation. They will be post-tested before graduation.

The 2002-2003 evaluations of 90 students reflected a measured increase as recorded by the OSU Healthy Living Impact Program. There was a 17.8% increase in fruit and vegetable consumption (4th-6th grades) and a 24.1% increase in hand-washing (1st-3rd grades).

Funding Sources: Century 21 grant

Scope of Impact: Grades 1-3

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CSREES Goal 4: Greater harmony between agriculture and the environment

Overview

Oklahoma key program components contributing to this goal include: Integrated Pest Management (IPM), water quality, animal waste management, pesticide applicator training, pesticide impact assessment, natural resource stewardship, and sustainable agriculture. This goal contains many programs that are highly integrated with programs included in other goals, particularly goals 1 and 2. In the Oklahoma 5-year plan of work, IPM programs, for example, were included in goal 1, yet most are here-in reported under this goal because of the theme designations established by CSREES. During the year, 495 demonstrations, meetings, and conferences were conducted under this goal. These activities were attended by 19,239 participants during the year. OCES personnel conducted 817 visits and consultations related to this goal.

Integrated pest management and related pest management teams exist for wheat, alfalfa, soybeans and peanuts, greenhouse and horticulture products, pecans, cotton, grapes, and vegetables. These teams are very active and many of their programs are truly integrated between production and pest management practices. A related emphasis area is in pest applicator education and training. These areas work together on many programs. Another highlight set of key programs under this

goal are those programs in natural resource stewardship. Natural resource management programs are also reported under this goal.

As mentioned, IPM programs comprise a significant role in education and information provided each year. This year a new IPM program related to Greenbugs in Wheat was begun. An initial survey was completed to get a baseline to evaluate the impact of the "Glance N' Go" program and related Greenbug Decision Support Expert System. Preliminary evaluation indicate that "Glance N' Go" can reduce sampling time in wheat by 30% over current methods and still provide accurate estimates of aphid density. Initial; training and program efforts have dramatically raised levels of scouting in fields. We expect more impact data as this educational program matures. For each of the past five years, another IPM program, Statewide Alfalfa Email Advisory, has helped to reduce the number of insecticide applications for weevils and aphids on alfalfa from 2.0 to less than 1.2 annually. This results in a \$3.8 million cost saving to farmers and a 40% reduction in pesticide applied. The IPM musk thistle control program continued the highly successful campaign to use biological control agents in controlling this invasive, noxious weed. A website is now available at <http://ipm.okstate.edu/ipm/weeds/muskthistle.html>; this site contains much information for extension educators and landowners. Landowners have reported between an 80% to 95% decrease in number of musk thistle plants in areas where they used the integrated approach. The use of the biological control agents will likely result in a 60% decrease in herbicide use in state mandated control and about a \$3,400 cost savings per producer over a ten-year period. This program was extended into north central Oklahoma during 2002-3. In Grant County, for example, 4,000 additional acres of thistle infected land received weevils. Surveys indicated that this saved Grant County producers a minimum of \$60,000 last year in chemical applications in addition to improving forage production.

Ecosystem restoration of native prairies, shrublands and forests was begun 15 years ago. Through education and demonstration on application of prescribe fire, Extension has increased the number of acres burned (prescribed) to approximately 950,000 acres. In the last five years, eight prescribed burn associations made up of ranchers have formed to facilitate restoration. This has resulted in improved habitat for two endangered species and several economically important species. The program has had a similar impact on prairie and shrubland with over 1.5 million acres presently prescribed burned improving water quality, habitat for several declining species and economically important species and beef cattle. Non burning techniques to reduce eastern red cedar infestations have been developed and demonstrated reducing cost of clearing from an average of \$80 per acre to \$11 per acre. Municipal governments have begun to endorse this program and have begun to implement the "Firewise Program" to reduce wildland fuel as they try to prevent loss of life and property from wildfires in the wildland-urban interface.

Pesticide Applicator Education efforts resulted in over 2,500 applicators taught proper pesticide delivery methods. Education also helped reduce the amount of phosphide fumigants used while improving the safety of their use. Education for Oklahoma Department of Transportation Pesticide Applicators resulted in a 67% reduction in the use of atrazine in six years as well as a cost saving for state and local governments. Acres treated by any pesticide have been reduced by 11%. Poultry Waste Management Education provided over 88 hours of education resulting in over 1,460 poultry producers and waste handlers receiving at least three hours of continuing education to maintain certification in waste management in 2003 (in addition to the 55 plus

applicators and new growers that received the nine-hour initial training). This certification is mandatory for producers to continue in business. One result of the education is that soil nutrient testing and litter nutrient testing has increased 77%. The number of poultry producers keeping litter application records has increased from 34% in 1997 to over 90% and those using litter storage facilities tripled since the education programs began four years ago. Examples of a broad water quality education and pesticide education programs reaching underserved audiences, suburban and urban audiences are also reported in this goal in the statements to follow.

Positive progress was made in all Key Program Components listed under this goal in the Oklahoma Cooperative Extension Service 5-year plan of work. Total expenditures represented by programming and related support for this goal are approximately \$2.3 million with \$0.6 million from Smith Lever funds. About 22 professional and paraprofessional FTEs contributed to the goal last year. Following are some example program impact statements arranged by CSREES Key Theme.

Impact Statements Goal 4

Key Theme – Biological Control

Title: Musk Thistle Head and Rosette Weevils to Control Musk Thistle a Noxious Weed

Issue:

Prior to the passage of the Oklahoma Noxious Weed Law musk thistle was becoming a problem in many areas in Grant County. They first began to show up in the right-of-way adjoining highways. Slowly the infestation continued to spread to areas that seemed to go unnoticed either because of the location or ease of access. Neglect to control by landowners, many who are absentee, and tenants allowed for the spread of thousands of wind blown seeds to adjacent fields and roadways. Some landowners and tenants did try to control thistles on their lands but without the cooperation of others in the area their efforts seemed a waste of time as they continued to observe an increase in plant population.

The Oklahoma Noxious Weed Law states “It shall be the duty of every landowner in each county to treat, control, or eradicate all Canada, musk, or Scotch thistles growing on the landowner’s land every year as shall be sufficient to prevent these thistles from going to seed. Failure of the landowner to treat, eradicate or control musk, Canada, or Scotch thistle may result in a fine not to exceed one thousand dollars for each violation per day.” Complaints have been submitted to the Oklahoma Department of Agriculture of Grant County landowners who have uncontrolled musk thistle on their property. No fines have been assessed up to this time.

What Has Been Done:

Musk thistle weevils have been brought into Grant County and released at the request of landowners to assist with control. The first release was in May of 1999. The weevils were harvested in Osage County just across the Arkansas River at Ponca City. They were released in the Nash area in the far southwest corner of Grant County. Additional releases of weevils were

made in 2000, 2001 and 2002. These weevils, requested by landowners, were released on infested areas across Grant County by landowner.

In May of 2002, I participated in a musk thistle rosette weevil roundup in Rogers County near Claremore. Fifteen containers of rosette weevils were brought back to Grant County and released. Rosette weevils lay more eggs than the head weevils and therefore increase in numbers faster. The rosette weevils also attack the thistle plant earlier in the life cycle before a viable seed is developed.

In addition to the weevils that have been brought into the county, a weevil roundup was conducted on May 10, 2002 in Grant County on the sire the first weevils were release in 1999. Twenty Grant County landowners attended the roundup. Enough weevils were collected that all participants were able to receive 3 containers of weevils to release on their thistle infested acres. There was no cost for the producers to receive containers of weevils. A couple hours of their time is all that is required to harvest and release the weevils.

Impact:

Year	Number of containers
1999-01	23
2002	39
2003	<u>60</u>
Total	122

One container of weevils (500 weevils) is considered a release and requires an area the size of 1 acre. Most areas where the weevils are releases have an average of 40 acres infested with thistles. Since there were 122 releases of weevils in Grant County to control 40 acres of infestation, that is controlling 4,880 acres of musk thistle. An average cost to spray an acre for chemical and application is \$15 per acre for a cost savings to landowners of \$73,200.

These figures would be conservative since the weevils are a winged insect and have the ability move from the locations where they were released to areas where there are thistles and we can not document a release.

Often times the weevils grow in areas that are not reachable with ground operated spray equipment. This may be on rough surface areas where gullies up to canyons are present or in watershed areas of ponds or streams where trees eliminate both ground and aerial equipment to reach the area of infestation from obstruction or canopy cover. Weevil release is a good fit for these areas.

Weevil roundups and education on IPM control will continue in Grant County as long as there is a need to control musk thistle and there is interest on behalf of the landowners and tenants.

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Key Theme – Integrated Pest Management

Title: Integrated Pest Management of Greenbugs In Wheat

Issue:

Oklahoma farmers grow more than 6 million acres of winter wheat each year, making Oklahoma the fourth largest wheat producer in the United States. Cereal aphids such as greenbug and bird cherry-oat aphid are major, but sporadic pests of wheat that can cause significant reductions in yield through direct feeding and by transmission of the virus that causes Barley Yellow Dwarf disease. In 2001-02, more than 700,000 acres of wheat were treated for greenbug infestations, costing producers an estimated \$5.6 million. Because of narrow profit margins, producers must make informed decisions on the necessity of controlling aphid populations. Correct decisions, using accurate tools for aphid population assessment, can prevent costly yield losses from occurring due to damaging greenbug infestations and increase profitability of wheat production. Eliminating unnecessary insecticide applications can preserve profitability while also enhancing environmental quality.

What Has Been Done:

A sampling tool, called “*Glance N’ Go*”, based upon research conducted in over 100 wheat fields, was developed in 2001 to provide wheat producers/crop consultants with an accurate, easy-to-use, sampling program for greenbugs. The *Greenbug Decision Support Expert System*, a computer-based expert system was developed in 2002 and placed on the Department of Entomology and Plant Pathology’s web site at <http://www.pswcrl.ars.usda.gov/gbweb/index.htm> This expert system contains several modules that can assist producers and crop consultants with making decisions on managing cereal aphids in winter wheat including one that calculates economic thresholds for greenbugs based upon the value of the crop and the price of control. Once the greenbug treatment threshold has been calculated, the expert system provides the user with the appropriate set of “Glance ‘N Go” sampling forms for immediate use.

Impact:

Preliminary evaluations of “Glance ‘N Go” suggest that it can reduce sampling time in wheat by 30% over currently recommended methods while providing accurate estimates of aphid density. Over the past year, 16 county extension agents received an in-depth training on the use of “Glance ‘N Go” sampling. This past growing season, eight county extension educators volunteered to participate in a field testing of the utility of Glance ‘N Go sampling. Current results suggest that it a sampler will spend an average of 9.8 minutes in a field to make a decision. A decision to treat or not treat required the inspection of an average of 30 stems per field.

An assessment of wheat growers is being conducted that is designed to measure diffusion and adoption of this plan over the next 5 years. An initial survey of producers, conducted in the Fall of 2002 established that less than 1% of respondents had ever heard of Glance 'N Go. In the Fall of 2003, fifty six producers/agricultural professionals that represent over 550,000 acres of winter wheat production were trained on the use of Glance 'N Go sampling. Each participant was asked to fill out a questionnaire before, and after the training. Results showed that 87% inspected their wheat fields at least once for insects. Seventy percent (70%) of participants made their decision to treat a field for greenbugs based on direct inspection of the field. Twenty seven percent (27%) of participants knew what an Economic Injury Level was. Fourteen percent (14%) had heard of "Glance 'N Go" sampling, but only 1% had actually heard of or used the Greenbug Expert System.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific; Integrated Research and Extension

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Title: Providing Vital Entomological and Production Updates to Enhance Cotton Insect Control Decisions in Oklahoma

Issue:

A statewide network highlighting Extension Entomology activities has evolved to provide timely information to the cotton industry. Keeping agri-business, consultants, and cotton producers informed of insect pest trends (surveillance), control strategies, applied entomological research results (local and regional), and growing degree accumulations (collected by Mesonet, Oklahoma's statewide, automated weather system) throughout the growing season helps fine-tune management strategies unique to each production region of the State – Southwest, West Central, and Northern. Adjusting control strategies to individual production schemes reduces environmental concerns while increasing profitability through efficient insect control.

What Has Been Done:

The challenge is to keep pace with the expanding cotton acreage across the state. To help meet this need the Cotton Sentry (a weekly insect newsletter) is available in two formats – electronic and mail. It is delivered to interested persons throughout Oklahoma, Kansas and Texas. Current entomological information and past Cotton Sentry issues are available at www.osu.altus.ok.us. Annually a Southwest Oklahoma Entomology Report is published highlighting entomological activities. Key field surveys are also conducted to determine population trends and pest status across the state. Bollgard™ technology (transgenic cotton) has been the focus of the applied

research conducted. Regional turn-row tour and scouting workshops are held at key points throughout the growing season for hands-on training of scouting procedures and plant mapping techniques.

Impact:

This educational network continues to provide key entomological information strengthening the foundation for cotton IPM across the state. Cotton Sentry subscription list has steadily increased since its conception in 1990. In 2003, 88% of the subscribers (189) received the Cotton Sentry electronically compared to 13% of the subscribers (42) preferring the mail edition. Reducing insecticide usage is extremely difficult with an active boll weevil eradication program underway. However, with the introduction Bollgard™ technology in 1996 insecticide applications have dropped accordingly. Conventional cotton managed the same as Bollgard™ cotton received 3.7 more insecticide applications per season (1996 – 1999). Field research indicates the value of investing in Bollgard™ technology in 2003 was worth \$190.82 per acre. Since its introduction in 1996 investing in Bollgard™ is worth \$48.38 per acre (weighted average) or \$19,313,876 (Bollgard™ acreage = 399,212 acres for 8 years).

Funding: State, Smith-Lever

Scope of Impact: State

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Title: OSU Statewide Alfalfa Email Advisory

Issue:

Alfalfa production occurs throughout Oklahoma and in some years may represent in excess of \$70 million to the state's economy. Alfalfa growers, consultants and county educators often try to anticipate arrival of significant pests each year, but because early season growing conditions are often unpredictable, it is difficult to accurately predict the impact of the pest that has the greatest effect, the alfalfa weevil. With this need in mind, an advisory system was established in 1996 that utilized FAX and email capabilities to inform growers across the state about early season alfalfa weevil egg populations in January and February. Initially, this system sent nearly 50 FAX transmissions and only a few emails. In 2003, we grew to service every county educator, nearly 75 consultants and over 160 growers, applicators, chemical representatives and others concerned with alfalfa in Oklahoma. In addition, the advisory operates now as an email system and on our departmental newsletter "The disease and insect advisory." The challenge is to provide the clientele with a means of anticipating the arrival of damaging alfalfa weevil populations and

increase timely management of this pest. This system helps growers reduce insecticide inputs and costs of management by creating an atmosphere where commonly one, well-timed application of insecticide can suffice in controlling pest problems.

What Has Been Done:

Data for this advisory are gathered once in January and again in February or early March. Alfalfa weevil egg populations are monitored from the major alfalfa growing regions across the state. Typically, 10-14 sites are chosen and 2-3 days are spent in sampling fields. In less than one week, alfalfa weevil egg populations are counted, means calculated and information dispersed. An email list has been compiled over the last 4 years and continues to grow at every meeting conducted. The email news release is sent out 1-7 days after data is gathered and every participant gets the timely information directly from the Land-grant University (OSU). Simultaneously, the information is sent to County educators via email and through our departmental newsletter to eliminate concerns over protocol. The news release contains pertinent information about alfalfa weevil egg populations, degree days and egg viability in all locations sampled. In addition, any recommendations are included that might provide participants some idea about the impact of insects in the upcoming season.

Impact:

This program has resulted in reduced applications of insecticides over the past five years. In 1989, the average number of insecticide applications made to alfalfa for weevils and aphids was nearly two. Since this time the number of applications is now much closer to one (1.2 average statewide). Based on average cost of an insecticide application (about \$12.00/A) and assuming a reduction of 0.8 applications per acre per year this represents about \$3.8 million in savings to growers. In addition, the positive effect on the environment and the many applicators involved in these treatments. The multiplication of information concerning this data has taken the form of County based and IPM news releases through additional newsletters.

Scope of Impact: Statewide.

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Title: Oklahoma Pest Management Network

Issue:

Providing pest management information for Oklahoma to USDA and EPA for pesticide registrations, and other pest issues. Also the Oklahoma Pest Management Network provides a way for Oklahoma growers to provide input USDA and EPA on pesticide issues.

What Has Been Done:

Oklahoma Pest Management Network is part of the Southern Region Integrated Pest Management Center. OPMN works with grower and applicator groups, state associations, university research and extension personnel to identify major pesticide use and pest problems in the state. OPMN also keeps these groups and others informed of regulatory and label restrictions that occur with pesticides of concern in the state. These groups include agricultural, pest control and other pesticide user groups including homeowners. OPMN attends Southern Region IPM Center meetings to provide Oklahoma information and stay in touch with pest issues that might affect Oklahoma growers. OPMN meets with many different stakeholder groups to determine their needs and help convey those needs to USDA and EPA. A web site has been put up to provide growers and university personal with information on EPA regulatory issues such as pesticide registrations. Also OPMN provides the Southern Region IPM Centers with crop profiles and pest management strategic plans which are used by USDA and EPA for pesticide registrations concerning issues in Oklahoma. Crop profiles for alfalfa, greenhouse crops, and watermelons have been completed and sent to the Southern Region IPM Center.

Impact:

An updated watermelon crop profile, Pasture and Range crop profile were completed for Oklahoma. Oklahoma has recently completed a Strategic Pest Management Plan for stored wheat. This has received compliments from USDA and the Southern Region IPM Center. A wheat and cotton crop profile should be completed this year. A web site for growers and University personal to keep track of regulatory issues affecting pest management has been developed and can be found at <http://pested.okstate.edu>.

Funding Source(s): USDA-CSREES, State

Scope of Impact: multi-state southern region (Oklahoma, Texas, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Florida, Kentucky, and Virginia.)

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Title: IPM Helps Oklahoma Landowners Fight Invasive Thistles

Issue:

Musk thistle (*Carduus nutans* L) was introduced into the eastern seaboard area of the US sometime around 1853. Since its introduction, it has become a weed of considerable economic importance, especially in pasturelands. It reduces forage yields and forage quality by competing with the desirable forage plants for water, soil nutrients, and light. Musk thistle was first

identified in Oklahoma in 1944, and by the end of 2001, 62 counties in Oklahoma reported musk thistle infestations. Infestations of musk thistle in improved pastures cause significant economic losses in Oklahoma. In 1998, Oklahoma legislators passed a law designating musk thistle, along with scotch and Canada thistles, as noxious weeds in all counties of the state. Based on a 1995 pasture survey, average acreage of improved pasture for each producer in Oklahoma ranged from 40 to 160, depending on location in the state. The average cost of controlling musk thistles for 10 years using herbicides would be \$5,200 per producer. There are about 7.1 million acres of improved pastures in Oklahoma. Thus, the statewide cost of controlling musk thistle with herbicides for 10 years, if all improved pastures were infested, would be \$461,500,000.

What Has Been Done:

An Oklahoma IPM musk thistle control program was developed in the early 1990s and has been implemented statewide through cooperative efforts of researchers, Extension personnel, and landowners. This integrated program focuses on increasing public awareness of the problem, development of educational information, demonstrating various control options, and introducing new biological control agents. Numerous demonstration and educational meetings were conducted in 2003 to landowners and NRCS employees. Extension educators and landowners collected approximately 85,980 musk thistle head weevils in four north central/north eastern counties in the Spring of 2003; these were released into 28 counties, primarily in the western portion of the state. In addition, 3,160 rosette weevils were also collected and released. Because of repeated annual releases in the north central portion of the state, we were able to sponsor weevil collections at these new sites this year, decreasing travel time for western landowners. To date, this program released 583,500 musk thistle head weevils across the state. Detailed establishment and impact of the thistle head weevil and rosette weevil in Oklahoma were documented in a Masters thesis published in 2001, and one paper has been published in the scientific journal *American Entomologist*. A Web site was developed and maintained for OCES use, at <http://ipm.okstate.edu/ipm/weeds/muskthistle.html>; this site contains downloadable versions of current fact sheets and reports, PowerPoint presentations, and current information on thistle round-up activities (such as maps, directions, what to bring, etc.). PowerPoint presentations (as slide sets) on integrated management of thistle are available in each District office, to assist county and area Extension educators to conduct local programming on thistle management. A fact sheet on the management of invasive thistles (F-7318), including musk thistle, was extensively revised and made available to both OCES and landowners. A poster on invasive weed identification and management was developed and used at several Extension workshops. The following publications were distributed in 2003: a set of instructions (with color pictures) to accompany weevil release cups, a brochure on thistle management throughout the year, the newly revised fact sheet, and "weevil cards," constructed of actual rosette and head weevils. IPM, Water Quality, NRCS, and the state Dept. of Agriculture continued to distribute the durable metal signs to designate where weevils were released, which was produced last year. As in 2002, one sign was given to participating landowners free of charge, with additional signs available for purchase.

Impact:

Landowners in NE Oklahoma have noted from 80% to 95 % decrease in number of musk thistle plants in areas where they are using an integrated approach that includes use of the musk thistle weevils. Head weevils were found on over 80% of the musk thistles checked in northeastern Oklahoma. Many landowners became concerned about controlling musk thistle after the 1998

“Thistle Law.” Significant cost saving is possible when musk thistle weevils are integrated into musk thistle management systems. Spraying of pastures could be phased out after a couple of years and no annual border spraying would be required. Cost associated with an integrated approach using weevils would be \$1,600 for spraying and \$200 associated with trips to collect 500 weevils (though Extension educators have collected weevils and provided them at no cost to many producers). This represents an average savings of at least \$3,400 per producer over the first 10 years while at the same time significantly reducing the amount of herbicides broadcast on the land. By making landowners aware of damaging effects of musk thistle, it is expected that they will become more involved in control and preventing spread of all invasive weeds.

Funding: Smith Lever; State

Scope of Impact: State Specific

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Key Theme – Natural Resources Management

Title: Ecosystem Restoration of Native Prairies, Shrublands, and Forests

Issue:

Oklahoma land managers need prescribed fire, prescribed grazing, and invasive species information to restore their land to a productive and biologically diverse state. Municipal governments need information on reducing wildland fuels in the wildland-urban interface.

What Has Been Done:

Eleven demonstration and research sites are located in 9 counties representing the major native plant communities in Oklahoma. Three of the sites have been producing research data and providing sites for field days for over 15 years. Five sites are located in oak-pine, oak-hickory, or post-oak/blackjack oak forests. Four sites are located in shrubland (sand shinnery oak and sand sagebrush) sites. Three sites are located in tallgrass and midgrass prairie. This restoration program is based on using an ecosystem approach of prescribed fire and herbivory patterns based on historical landscape models producing heterogeneity. This includes restoration of habitats for both common and endangered wildlife species and domestic grazing animals (e.g. beef cattle). In the past five years, more than 260 field days and oral presentations have been presented to more than 12,500 participants. In addition, 8 prescribed burn associations made up of ranchers have formed to facilitate the restoration process on private land. We have also developed a new technology that significantly reduces the cost of clearing large eastern redcedar. This technology

uses a ball and chain pulled by bulldozers and reduces the cost of clearing from \$60-\$100 per acre to \$11 per acre.

Impact:

During this time, the number of acres burned in Oklahoma's forested habitat has increased by more than 100 percent to approximately 950,000 acres. This increase has resulted in improvement of habitat for two endangered species, red-cockaded woodpecker and black-capped vireo, and economically important wildlife such as the wild turkey and white-tailed deer. These restored forests have provided over 500,000 acres of valuable grazing resources to Oklahoma ranchers that were previously unusable. Over 1.5 million acres of prairie and shrubland have been burned resulting in the reduction of invasive plants such as eastern redcedar and improving habitat for lesser prairie chicken (a declining species), mule deer, white-tailed deer, bobwhite quail, and beef cattle. Prescribed fire increases stocker cattle production by 10-15% and body condition score by one on beef cows. The restoration program has improved water quality and water yield. In addition to these activities on private lands, three National Wildlife Refuges and six Oklahoma Department of Wildlife Conservation management areas have implemented prescriptions as a result of this program. We have also worked with municipal governments to manage wildland fuels by using prescribed fire and mechanical techniques. The goal is to reduce the potential for catastrophic wildfire and associated loss of life and property. In conjunction with the Oklahoma Department of Agriculture, Food and Forestry, Forestry Services we are working with the cities of Edmond, Stillwater, Oklahoma City, Norman, and Tulsa to implement the Firewise Program for wildland fuel reduction.

Funding Sources: Smith-Lever; State; Numerous Research Grants; Renewable Resources Extension Act (RREA), USDA Forest Service, USDA Natural Resources Conservation Service, Environmental Quality Incentives Education Program (EQIP), US Fish and Wildlife Service Partners Program, Kerr Center for Sustainable Agriculture, and National Interagency Fire Center.

This program has received over 1 million dollars in funding for 2003-05.

Scope of Impact: State Specific

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Key Theme – Pesticide Application

Title: Continuing Education Helps the Oklahoma Department of Transportation Manage Roadside Cost Effectively

Issue:

Oklahoma Department of Transportation (ODOT) employees are responsible for vegetation management on over 230,000 acres of interstate and state highway rights-of-way in Oklahoma. A portion of this acreage is part of the I-35 International Trade Corridor. Proper vegetation management results in vegetation that is attractive as well as functional in that it stabilizes the road surface against soil erosion and provides maximum visibility for the millions of motorists using the highway system. The natural process of ecological succession results in the colonization of the roadside by some undesirable plants (weeds) that do not offer adequate soil stabilization or maximum visibility for the motorist. Unmanaged weedy roadsides can also serve as a refuge for reinfestation into adjacent lands. Some of these weeds can be state Noxious Weeds or Federally listed Invasive Species. ODOT employees require continuing education as well as consulting expertise regarding the most cost effective vegetation management and weed control strategies. ODOT vegetation managers must not only maintain Oklahoma Pesticide Applicator Certification (PAC) status but also Equipment Competency Certification (ECC) status within ODOT.

What Has Been Done:

ODOT roadside vegetation managers have been trained to successfully complete PAC exams and have been provided continuing training to maintain PAC and ECC status. Additionally, they have been training and counseled on weed identification, spray equipment selection, equipment troubleshooting/calibration, herbicide selection and use, as well as identification of environmentally sensitive areas. ODOT herbicide bid specifications have been reviewed for proper technical content by OSU employees. Vegetation establishment and vegetation management reference manuals were developed and distributed to ODOT field staff and are updated yearly with the most current weed control suggestions. Roadside equipment inventory status and herbicide use surveys have been conducted yearly to track trends.

Impact:

Fifty-two people received pesticide applicator certification training in 2003 with 515 pesticide applicators receiving continuing education in 14 workshops in 8 locations across Oklahoma in 2003. Roadside acreage in Oklahoma treated with atrazine, a Restricted Use pesticide, has been reduced from 35,936 acres in 1997 to 11,857 acres in 2003 (67% reduction). Total roadside acreage treated with herbicides has declined from 100,817 acres in 1999 to 89,729 acres in 2003 (11% reduction). Training directly resulted in ODOT atrazine use being gradually replaced with a General Use classified glyphosate + 2,4-D tank mix. This treatment poses less environmental risk. Improved weed control also resulted, and in some instances an additional mowing was eliminated that would have cost approximately \$14.00 per acre. During the bid process, we provided industry sales representatives and ODOT buyers with cost-benefit analysis information regarding generic herbicide products. This resulted in an additional bid-price reduction for herbicides that saved ODOT an estimated \$50,000 over 2001 figures. ODOT purchased 3 precision-agriculture sprayers (PAS) since 2000 as a direct result of an "on-loan" PAS demo conducted by OSU roadside program personnel. These PAS allow for less herbicide use in vegetation encroachment control on asphalt shoulders. We developed "no spray zones" on maps for ODOT where pesticide applicators no longer treat so as to protect surface water resources. Clear zones on the roadsides contain equally healthy turf as before, which provides better pavement and shoulder stability. With fewer tall weeds comes improved visibility and thus safety for the motorist. The PAC and ECC training

programs result in better performing ODOT employees and a measurable performance parameter that allows ODOT field workers opportunities for salary improvements due to increased knowledge and skills gained.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific; Integrated Research and Extension

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Title: Ecology, Biology, and Pest Management of Wood-Destroying Subterranean Termites

Issue:

Subterranean termites destroy wooden structures and wooden products throughout Oklahoma, the United States, and the World. United States building owners spend \$1.5 billion or more a year for termite control treatments and damage repair. Increased knowledge of termite biology and life habits is needed to effectively manage termites and employ and evaluate new innovative termite control technologies. Oklahoma extension agents, Pest Management Professionals (PMPs), and all owners of wooden structures have a need for information on existing and new technologies that protect wooden structures from subterranean termites. Additionally, the Formosan termite, an extremely destructive exotic pest, is moving north through Texas toward Oklahoma. Early detection of this pest is essential to implement control programs and eliminate new infestations, and to stop the spread of this termite in Oklahoma.

What Has Been Done:

Field studies have been initiated to elucidate subterranean termite foraging territories, feeding behavior, taxonomy, distribution, and life habits. These studies are concentrated in Oklahoma, but national and international cooperative research is also underway. Oklahoma field studies include environmentally safe termite baits, new technology non-repellent termiticides, evaluation of the long-term fate and degradation of termiticides in soil, and physical exclusion barriers. Training for pest management professionals continued at the Pinkston Education Facility for Structural Urban Pest Control, providing certification training for 98 pesticide applicators. More than 1,800 pest control industry professionals and certified pesticide applicators, master gardeners, and private citizens have received training at 13 conferences and workshops. Additionally, 12 Oklahoma "Experimental Use Permit" homes are in an experimental program to evaluate new termite control methodologies. This is a USEPA and State (ODAFF) approved program that is run by Kard (OSU) to evaluate new methods in protecting wooden structures from termites.

Impact:

Field studies have led to increased knowledge of termite social behavior and population densities, aiding in the proper emplacement and use of emerging technologies that can be used in termite control. A scientific paper has been published that elucidate termite speciation and distribution across Oklahoma. This study has provided pest control professionals and homeowners knowledge of the termite species prominent in their locales, improving control measures. Conferences and workshops have led to business owners expanding their workforce to accommodate the increased use of baits in lieu of termiticides applied to soils. The integrated pest management training and teaching approach in these meetings has led to increased understanding of sanitation practices around structures, building construction practices, and improved monitoring and inspection of wooden buildings to reduce or eliminate conditions that are conducive to termite infestation. This training has led to reduced costs to building owners relative to termite control. A study using a new above-ground bait is in place that may lead to control or elimination of above-ground termite infestations. EUP house studies in Oklahoma could lead to reduced use of pesticides in Oklahoma and across the USA.

Training provided at the Pinkston Education Facility is a required part of the certification requirements in Oklahoma. Certified applicators then train their subordinates, increasing the number of trained pest management professionals trained in Oklahoma, expanding the impact of the training received at OSU.

Scope of Impact:

Multi-state (Arkansas, Missouri, Nebraska, Texas, Oklahoma attendees at OSU Pinkston Education Facility training, and OSU presentations at workshops and conferences); National (all states including Hawaii, except Alaska), and International (international meetings and publications)

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CSREES Goal 5: Enhanced economic opportunity and quality of life for Americans.**Overview**

Oklahoma key program components contributing to this goal include: community economic, small business and tourism development; community infrastructure, service and facilities; local government education; applications engineers; family economic well-being; family resiliency; parenting; leadership development (youth and adult); life skill development; and club organizational development. The theme categories in this goal represent several programs that

should have been included in CSREES goal 1, such as, "Agricultural Financial Management". Thus some reporting discontinuities may exist between what is reported in the overview and under key themes. During the year, 15,217 demonstrations, meetings and conferences (including 6,102 for 4-H and youth programs) were conducted under this goal. OCES personnel conducted an additional, 69,291 visits and consultations. These activities were attended by 1,095,456 participants during the year (including 742,231 participants attending youth activities). Approximately 34% of the attendees of programs under this goal represented non-white audiences. These figures might be compared to 25.2% in the general population of Oklahoma. Several programs contributing to this goal train and use large contingents of volunteers. Volunteers contributed over 21,073 days during the year to support and help deliver programs under this goal. Programs in this goal also have a very large number of person-contacts through mass media, such as television, radio and newspapers. Over 40 million person-contacts occurred through mass media educational programming under this goal in 2003.

Educational and service programming under this goal really fall into four major areas. The first is the area related to community development, local leadership development, infrastructure, government and economic development. These all represent rapidly growing areas of OCES requests and effort. Particularly high demand has been experienced in rural medical service, economic development, and through the applications engineers program. The latter is a joint program with the College of Engineering. It places masters-level engineers strategically around the state through Cooperative Extension offices. These applications engineers work with small to mid-sized manufacturing companies in rural communities to solve production, expansion and efficiency questions. This program and the rural community health services programs have been significant shifts in emphasis over the last five years. And these programs continue to grow. The other three major program areas under this goal are very high contact programs. Particularly high contacts are the consumer horticulture, home gardening efforts and the youth leadership and life skills programs. These programs result in a huge number of direct contacts every year - both in urban and non-urban communities. In order to better meet demand, OCES conducts a large Master Gardener program as well as a weekly "Oklahoma Gardening" television show. Also, the youth life skill development and leadership programs and Master Gardener program develop most of the large volunteer effort mentioned above.

During the year, OCES conducted a significant new program effort entitled the Initiative for the Future of Rural Oklahoma (IFRO). This program included 13 well-funded pilot projects in 17 counties. This program was largely an outgrowth of the Oklahoma Community Listening Sessions conducted by OCES in every county in 2002. Ten of the projects resulted in new rural community leadership programs in 14 counties. In addition, three three-year projects are still in process in 4 counties. To date these three projects have resulted significant county economic development strategic planning, leadership classes, new county taskforces, a tourism videotape, several training programs including Oklahoma Pride, an USDA grant on value-added project planning and development, two websites developed, etc. The Applications Engineers program to served more than 100, mostly rural, manufacturers that employ more than 5,000 citizens. The engineering assistance in the client projects resulted in over \$41 million of increased sales for these firms and another \$35.9 million of which would have been lost to the local economy due to relocation. In addition, the applications engineering program documented 436 new jobs created from assistance and 177 jobs retained. This program showed a total net impact to the state

economy in excess of \$140 million in 2003. Programs related to agricultural business management remained strong. The Federal and State Taxation Education program provided sixteen hours of continuing professional education for 2,400 CPAs, attorneys, and tax professionals. These individuals prepare between 90% and 95% of the farm tax returns filed by Oklahomans.

Two relatively new programs continued to grow. Oklahoma AgrAbility Project began by making a media and trade show blitz and has already provided a variety of resources to assist over 300 individuals to make their daily farm tasks easier and safer. The Citizens Engagement through Public Deliberation program in its second full year trained and assisted over 200 citizens convene and conduct over 175 deliberative public forums. A study done in June of 2003 shows that following the public forums, 79% indicated they used the deliberative approach in work settings, 65% organized a local forum, 37% organized a community taskforce or study group, and 64% contacted office holders from their community.

Family resiliency programs continued strong efforts in character education and life skills development for youth and young adults. In the Character Critters program, 80% of the parents of the 5,014 (2003) participating young children indicated an improvement in their child's behavior and 95% of the teachers surveyed saw an improvement in behavior. During the period over 800 adults were enrolled in OCES money management classes. Class participants reduced their debt by \$1.8 million, 48% started budgeting, and 73% began saving for long-term goals.

The 4-H Youth programs continue to serve and educate an enormous number of youth contacts. Over one hundred different club and after-school programs are available across the state. Listed below under the Key Theme Youth Development/4-H are just a few examples including: natural resources education, service learning, forestry and wildlife, literacy, youth entrepreneurship, and integrated pest management.

Positive progress was made in all Key Program Components listed under this goal in the Oklahoma Cooperative Extension Service 5-year plan of work. Total expenditures represented by programming and related support for this goal are approximately \$18.2 million with \$2.7 million from Smith Lever funds. About 190 professional and paraprofessional FTEs contributed to the goal last year. Following are some example program impact statements arranged by CSREES Key Theme.

Key Theme – Agricultural Financial Management

Title: Oklahoma Cooperative Extension's IFMAPS Program Gives Farmers and Ranchers Management/Planning Support

Issue:

Making good financial management decisions is a constant challenge for Oklahoma farmers and ranchers. Financial pressures can make farmers and ranchers feel at times as if they have no place to turn. But in Oklahoma, there is help through the Intensive Financial Management and Planning Support (IFMAPS) program, sponsored by the Oklahoma Cooperative Extension Service. When

producers are ready to study their personal situation critically, they can get individual and confidential help.

What Has Been Done:

The IFMAPS program was designed to provide producers with comprehensive materials and assistance plus help them prepare financial statements, farm budgets, and marketing plans. Procedures used by IFMAPS include one-on-one assistance, workshops, cooperative efforts with non-extension agencies and groups, financial management training, resource materials, computer software, and referrals.

Area Extension Agricultural Economic Specialists plus part-time IFMAPS specialists provide one-on-one assistance in financial management and planning throughout the state. Producers call the local extension office, the IFMAPS toll-free number (1-800-522-3755), Area Specialists or IFMAPS specialists to request assistance. Agricultural lenders, attorneys, clergy, and Extension staff make referrals.

IFMAPS staff assist farm families in developing and analyzing alternative farm financial plans. Alternatives may include asset restructuring, new or different farm enterprises, adding to or reducing the size of existing enterprises, improving resource use, increasing income from off-farm work, developing more efficient management techniques, debt restructuring, liquidating the farm partially or completely.

Impact:

In fiscal year 2003, 65 farm families received individual financial analysis assistance; from FY 96-03, more than 1,665 farm families received the service.

Farm families that receive individual assistance are better able to organize their financial information, evaluate this information, and make informed decisions about their operations. These skills benefit farmers and ranchers in two ways: 1) they improve management skills, which lead to improved business operations; 2) they encourage the operators to continue learning more about farm financial management.

IFMAPS staff also help families identify other resources available to help solve production and marketing problems and answer legal and tax questions. IFMAPS personnel help farm families prepare farm plans to apply for Farm Service Agency guaranteed loans or to prepare for restructuring loans. IFMAPS helps inform young and beginning farmers about Oklahoma and FSA beginning farmer loan programs through publications, meetings and individual contacts. IFMAPS staff also assist with Quicken[®] workshops which show farmers and ranchers how to use this software to keep more accurate farm financial records. IFMAPS staff help producers develop the plans needed to qualify for the Oklahoma Agricultural Linked Deposit Program (OALDP). However, during fiscal year 2003 the program was suspended due to low interest rates.

Funding: State--Appropriations through the Oklahoma Department of Agriculture.

Scope of Impact: State Specific

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Title: Oklahoma Farm and Business Tax Institutes**Issue:**

Frequent changes in Federal and Oklahoma State Tax Laws creates a need to keep tax preparers informed of the impact of the changes and how to best help their clients utilize the tax planning opportunities available. These educational programs are designed to update tax preparers about new laws and regulations covering farm, non-farm business and individual taxpayer issues.

What Has Been Done:

This program has been conducted for the past 42 years. It has grown from a one-day seminar to its present form of two days per location and consists of sixteen hours of education. Topics covered range from presentation of new tax laws and their implications, agricultural issues, business issues, tax planning opportunities, professional ethics, retirement, and social security to name a few. Twelve sessions are conducted each year with two of these in the summer and ten in the fall. Average annual attendance for this program is approximately 2,400 tax preparers. These tax preparers file 90 to 95 percent of the farm returns for taxpayers in the state of Oklahoma.

Impact:

High quality, professional instruction is provided to make continuing education credit available for Certified Public Accountants, Enrolled Agents, and Tax Attorneys. Many of those attending have stated that they have been coming to these programs since they began 42 years ago. Participants file more than 26,330 Federal farm tax returns and 159,255 Federal non-farm tax returns as reported by the participants in the most recent program evaluations. Most of the tax preparers are from Oklahoma however there have been preparers from Kansas, Texas, New Mexico, Arkansas, Florida, and California attending the program in order to maintain their Oklahoma accreditation.

Scope of Impact: State Specific

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Key Theme – Character/Ethics Education**Title: Character Education (Exercising Character)****Issue:**

The commitment of adults to be models of good character and spend time with young people can make a difference and can improve the morally deadening paranoia fostered by our current culture. Young people yearn for consistent adult involvement, and when they get it, according to surveys and plain common sense, they are less inclined to sexual activity, drug and alcohol use, suicide attempts, vandalism, violence and other problems [Michigan State University poll of 13,000 adolescents in early 1995]. Adults, in turn, need support from society's institutions.

What Has Been Done:

Exercising Character is a program adopted by the Oklahoma Cooperative Extension Service as the primary character education curriculum for children ages 6 through teens. The curriculum from CHARACTER COUNTS!™, focuses on six pillar words: *trustworthiness, respect, responsibility, fairness, caring, and citizenship*. Exercising Character helps children, their teachers and families introduce these traits through teacher or peer led activities and lessons. In 2003, the county Educators expanded the character education offerings for this age group by introducing a livestock ethics program called, SHOWING CHARACTER.

Impact:

Previous efforts had focused on younger children involved in a program called Character Critters. Extension Educators had an option of expanding their programming to include school-aged children in the 2002 program year and to continue that programming during the 2003-04 program years. Based upon evaluation reports of teachers who have used the program, sixty percent saw “improved behaviors” regarding such areas as: Following the rules, Helping each other, Showing respect for adults, Telling the truth, Showing kindness, Sharing, and Being helpful to others. While lower than the seventy-five percent change reported the previous year, the over perception of the teachers was an improved behaviors in their students.

Seventy-one percent of the teachers in 45 schools where data was collected along with 58% of 205 students, reported that on average, that their own behaviors had improved moderately or greater as a result of participating in the program. Furthermore, forty-one percent of the students indicated that they had talked about the activities with their parents.

Thirty-one of the teachers indicated that there was no other formal character education program in place in their schools. Of the four that did report other programs, "Great Expectations" was most commonly reported (2 times). Twenty-seven of the teachers reported that their perception of the Cooperative Extension Service had improved as a result of program. Additionally, nine teachers indicated their perception was not changed but that their original perception was already very positive. Most indicated a lack of other community groups including churches that were willing to deal with this issue and saw 4-H as be proactive in addressing a significant community need.

Scope: State

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Title: Character Critters

Issue:

The need for character education can be attributed to the erosion of family support systems caused by economic, mobility, isolation, television replacing family time, addiction, children guided by peers, discipline for control rather than self-discipline. Since 1950, a 14-year-old's vocabulary has declined from 23,000 to 10,000 words. School counselors find children do not understand words like respect and responsibility.

What Has Been Done:

Character Critters was implemented in FY 2001 and is based on six pillars (Josephson Institute of Ethics): trustworthiness, respect, responsibility, fairness, caring, and citizenship. Lessons help preschool and early school-age children, their parents, teachers and families introduce these words through animal stories, learning experiences in classroom interest centers, parent events, and take home activities. In FY 2003, with 20 counties reporting, the program involved 5,014 children and 379 teachers. The program was presented in classrooms in public elementary schools, Head Start, and child care programs.

Impact:

In FY 2003, well over half of the participating teachers noticed an improvement in the children's behavior in the areas related to the program content and 47% reported that the children were using the common language of the six pillar words. Importantly, 46% of the teachers said they changed their own behavior as a result of teaching the program. Parent involvement included the use of the take home activities and newsletters. The teachers surveyed appreciated the educators' time talent and effort and found their teaching styles enjoyable and effective.

Evaluations in previous years indicated that 80% of the parents reported positive changes in their child's behavior with the greatest gains in caring. Very close to 100% of the parents felt their children gained understanding of the 6 pillar words of character. Eighty percent of teachers saw moderate or much use of the pillar words by the children, 95% saw positive changes in the children's behavior, and 50% noted a decrease in hitting. Most of the teachers reported a change in their own behavior.

Scope of Impact: State Specific

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Key Theme – Children, Youth and Families

Title: Family Resiliency, Strengthening Life Skills

Issue:

Every three hours in Oklahoma a child gives birth to a child. Tillman County ranked number one in the state of Oklahoma in teen pregnancy six years ago. The child carrying the child is less likely to get prenatal care and is more likely to have a baby with developmental or health difficulties. A teen mother is less likely to finish her education. Employment prospects diminish. More than half of child abuse and neglect confirmed in Oklahoma occurs to children whose mothers gave birth to a child before age 20. Oklahoma information shows that two-thirds of teen pregnancies are not a decision at all, they were unintended.

What Has Been Done:

Tillman County Extension has joined forces with other community citizens and organizations to form a community partnership that works on youth issues and especially teen pregnancy. All schools in the county have been involved in activities for targeted students. Pre-school and kindergarten children in two schools have learned about the six pillars of character through a story, puppet, and take home activities. Sixth grade students in two schools have had a five day program about life education (physical and mental changes in their bodies). All seventh grade classes have had the program Postponing Sexual Involvement (PSI) which uses trained high school students to present five programs about teen relationships. All eighth grade students attend a one day event that includes discussion about sexually transmitted diseases, self-esteem, careers, relationships, bullying, and drug abuse to name of few of the topics. The partnership also works with each

school to provide a “favor” for the prom, the candy has a message attached that encourages positive and responsible actions on prom night.

Impact:

Tillman County has dropped to sixth in Oklahoma in teen pregnancy. Tillman County is still above the state average in teen births, but still has dropped from one to sixth in approximately six years. In 2003 Tillman County had eleven births to girls ages 15 to 17, in a rural county of 9,500 people, that is a large number. The community partnership has worked to progressively add programs to positively influence youth, starting with pre-school, going to middle school and then high school. The majority of programming is spent with middle school youth, since that is when relationships with the opposite sex begin to be more serious. Evaluation of the PSI program and the Eighth Grade Health Fair show positive remarks from the student, 85% said they would be more responsible for their actions and 35% responded with a remark that they would wait to have sex until they were older, or married, and they wanted to stay in school and go on to a higher form of education. 95% of the youth and 100% of the teachers involved feel that these programs have positive impact on the youth and all want the programs to continue.

Scope of Impact: State specific

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Key Theme – Community Development

Title: Beaver County Community Health Engagement Process

Issue:

The delivery of health services in rural counties is changing rapidly, thus, having the potential to greatly impact the availability of health care services in the future. The huge changes occurring in the health care sector are having a substantial impact on rural communities. Many rural people find it more difficult to get health care coverage, insurance premiums are higher, and rural health care providers are reimbursed less than their urban counterparts for doing the same work. At the same time, changes in urban health systems also impact rural health care delivery, with the result that some rural communities are no longer in a position to make decisions about their local health care. In rural areas there are proportionately more elderly, more children living in poverty, and lower incomes. Rural people report poorer health and more have chronic health conditions. They are more likely to be uninsured and have fewer health services in their local town. Health care facilities such as hospitals and nursing homes not only have a tremendous medical impact on a community but they also have a tremendous economic impact. These facilities employ a large

number of employees, have large payrolls and they also draw into the community a large number of people from the surrounding rural areas that need medical services. Rural communities need to learn and understand their local health care needs and evaluate their local health care system with regards to the changes taking place and design a strategy to address the future of their local health care services.

What Has Been Done:

OCES along with the Office of Rural Health worked together as a resource team to assist Beaver and Beaver County in a Community Health Engagement Process. We met with community leaders and health care providers over approximately 8 months to lead them through a strategic planning process. We had about 8 meetings with an average attendance of 25-30. We provided four major products during the process. The reports are as follows: “The Economic Impact of the Health Sector on the Economy of the Beaver County Memorial Hospital Medical Service Area”, “Beaver County Memorial Hospital Medical Service Area Phone Survey and Results”, “Beaver County Health Services Directory”, and “Beaver County Data and Information”.

Impact:

Through the process the attendees analyzed the data and information that was presented and agreed that some action needed to take place to improve the health care services in Beaver and Beaver County. The first thing that they did was to form an organization called B-HAP, “**Beaver Healthcare Awareness Partnership**”. This group meets on a regular monthly basis to work towards some goals that were agreed upon.

The following are some of the activities they are pursuing:

A subcommittee is pursuing the cost a feasibility of acquiring a CAT SCAN machine for the local hospital.

They are working to develop a wellness center in the community.

They are evaluating the feasibility to recruit a full time Physical Therapist.

They are developing a comprehensive marketing plan for the hospital and other medical services in the county to inform local citizens of the health care services within the county to keep them from going outside the community for health care services that are available locally.

They are also looking at the demand for additional doctors in the county and we provided them with a study, “Demand for Primary Care Physicians in Beaver County, Oklahoma”.

They have also recently updated and distributed a survey throughout the county about the utilization and satisfaction of the health care services in Beaver County. This survey was printed in both English and Spanish to make sure that they get the input from the growing Hispanic population.

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Title: Oklahoma Rural Health Works Program – Access to Rural Health Care

Issue:

The disparities between rural and urban health care provision are many. Research has documented for some time and continues to show that rural communities struggle with many challenges including the need for health care services, availability of health care resources, and barriers to health care services. Rural communities typically have fewer physicians per capita and residents are more likely to be without insurance or have a greater dependence on individual private insurance coverage which often limits protection due to higher deductibles and co-payments. Current research on rural aging and long-term care suggests that despite a greater need, rural elders are less likely to have their health and long-term care needs met. Persons living in rural areas often have longer distances to travel to their providers than their urban counterparts. Although the situation is improving, rural poverty still exceeded urban rates by two percent in 1998 and data showed that rural residents worked less and relied more on income assistance. Increased health risk associated with adverse health behaviors and risk factors has also been documented to be more prevalent in rural counties. Finally, many of the people living in rural areas are employed in agricultural jobs. With more than 700 farm fatalities each year and tens of thousands more injuries, agriculture is one of the nation's most hazardous occupations.

What does all this mean? These disparities between rural and urban are not necessarily unmanageable challenges, but rather, identified areas that need to be addressed and illustrate different approaches must sometimes be implemented to insure prosperity. Aside from medical reasons, health care services are an important component of a rural economy and are critical for economic development. The number of jobs created by the health sector in rural areas is tremendous and often overlooked by economic development planners. Studies have found that access to quality, affordable health care is playing a dramatic role in business and industry location decisions. A strong and convenient health care system is important to retirees, a special group of residents whose spending and purchasing can be a significant source of income for the local economy.

In conclusion, health care services are crucial to rural communities, not only for the health of their residents, but also for the health of their local economy. Health care should be an integral part of an economic plan for a rural community.

What Has Been Done:

Rural Development, Community Services (OCES), partners with the Oklahoma Office of Rural Health to provide a community health engagement process to rural hospitals that are eligible for the Critical Access Hospital designation. The process consists of a series of 5-7 meetings over a

4-7 month period in the community, meeting with a broad-based community group, to plan for health care needs in the hospital medical services area.

The results of four designated task forces are reviewed by the entire steering committee and then prioritized by the group to determine the top 3-5 issues within the community. From these top issues, the group develops an action plan to deal with an issue or with several issues. The steering committee then shares their proposed action plan with the community at large for their review and input.

The community resource team, consisting of representatives from the Oklahoma Cooperative Extension Service and the Oklahoma Office of Rural Health, provides facilitation of these 5-7 meetings and provide staff to the process. The community health engagement process assists with the development of the action plan and continues to help the community in the implementation of the plan. The resource team is continuously available for updating products and for providing follow-up services that might include a variety of budget studies. Budget studies available include emergency medical services, adult day services, assisted living facilities, and primary care physician.

Impact:

The community health engagement process is provided to approximately 20 hospital medical services areas (communities) each year and is in the fifth year of the program. The community members involved averages approximately 20 per community.

Evaluation statistics indicate the participants in the community health engagement process are much more aware of the need for health care in their communities, are much more supportive of the health care needs, and tend to utilize the local health care services to a greater extent. The realization of the economic impact of health care raises the level of awareness to the community members. The number of community members involved is 400 or more.

The networking with the hospital administrators is a key impact of the program. Communications assist Extension and the Office of Rural Health with to develop a better understanding of rural health issues and to continue to develop and provide additional tools to assist in maintaining and enhancing rural health services. The program is being provided to other interested states. Approximately 34 states utilize the economic impact of the health sector in their state programs. Another 15 states are utilizing the community health engagement process and the budget studies to determine the feasibility of expansion or development of health services.

Scope of Impact: State; National; OK provides training on economic impact, community health engagement process, and budget studies to other states through a federal grant and provides technical assistance through phone, email, and website (www.ruralhealthworks.org).

Funding Sources: Community; State; National

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Title: Economic Development Options and Opportunities

Issue:

The Oklahoma Cooperative Extension Service sponsored listening sessions in all 77 counties of the state during the fall of 2002. At each of these sessions the community/citizen participants were asked the following question: "Considering the next 3 to 5 years, what are the critical issues in your community and in Oklahoma that need to be addressed to realize a positive future for you, your family, and your community?" When the responses were tabulated, one category of issues rose to the top: Community and Economic Development. This issue was mentioned in 75 of the 77 counties. Basically, only Tulsa and Oklahoma Counties failed to identify this issue as a major concern. Community leaders need sound information and technical assistance if they are to identify and pursue viable options for local economic development.

What Has Been Done:

Economic development assistance and strategic planning has been provided to communities through several methods including training, technical assistance, and collaboration/cooperation with other agencies and groups. The training involves distinct modules or topics such as tourism, retail trade, or strategic planning. A great deal of support material has been developed to aid in the training efforts.

Much of the support material involves data reporting and analysis, computer model applications (impact analysis and retail trade studies), and use of other research based tools. This information includes three community specific reports: (1) economic and social data, including trends analysis, (2) a retail trade study, and (3) an impact analysis for the local economy. About 83 studies of these types have been prepared over the time period June 2002 to May 2003. The community specific information makes each workshop or technical report unique. The resulting strategy produced by the workshop reflects particular strengths and limitations of the community. Follow-up activities also vary, depending upon the needs of the community.

Impact:

Specific economic development efforts during the past evaluation period include:

- Provided economic base studies for 25 communities or counties or regions. These studies represent 24 counties with a combined population of 435,400.
- Provided 38 studies analyzing retail trade trends and sales gap analysis. These studies represented 27 counties and 84 communities with a combined population of 357,500 and total taxable sales of \$3.65 billion.

- Provided 20 studies analyzing topics such as mainstreet development, agribusiness, housing, impacts of manufacturing plants, and community surveys.
- Published four issues of Blueprints for Economic Development, newsletter with mailing list over 1,000. Topics included internet use in rural Oklahoma, census data, and solid waste management.
- Participated in approximately 12 Sun-up television stories focusing on various rural economic development topics.
- Provided the PRIDE customer service training program to five community groups (Antlers, Atoka, Greer County, Johnston County, Payne County).

Deidre Ebrey, Director of Economic Development for the City of Moore, comments on services provided by the Oklahoma Cooperative Extension Service including a community survey and a retail sales gap analysis:

“The manner in which all of these projects were conducted was first-rate. The staff’s ability to customize, be flexible and deliver a pertinent product has been tremendous.”

Tommy Kramer, Director-Durant Economic Development, also shares thoughts on the value of the programs provided by the Oklahoma Cooperative Extension Service:

“The City of Durant and the Durant Industrial Authority have been able to create over 5,000 new jobs, attract 40 new national retail businesses and three of the largest industrial investments in the history of Durant and Bryan County. We continue to seek Economic Development tools to support the future growth of Oklahoma and our community. OSU Cooperative Extension Service has provided us with three outstanding support programs in our continued recruiting efforts of new business, supporting existing business and to train our retail workforce for future growth.

Since we have received the reports, our office has mailed and handed out over 200 copies of both the 2003 Retail Gap Analysis for Durant and the Summary of “Celebrate Life in Durant” Survey Results. The Retail Gap Analysis has been an especially effective tool in the recruitment of new retail businesses to Durant. The data included in these documents provides proof of why locating a business in Durant is a sound investment.”

Funding: State, Smith-Lever, Fees

Scope of Impact: State Specific

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Title: IFRO—Washita county Leadership and Entrepreneurial Program

Issue:

The Initiative for the Future of Rural Oklahoma Leadership Program for Washita County is designed to build capacity in Oklahoma communities through local leadership development. It helps leaders deal with local transitions and changes. It addresses economic, educational, social, governmental, and quality of life concerns through a teamwork approach. The mission is to enable every rural resident to achieve his or her full entrepreneurial and leadership potential.

What Has Been Done:

The program was given the residents an opportunity to achieve and enhance their entrepreneurial and leadership skills by attending workshops on, “Understanding Your Community”, “Understanding Yourself”, “Strategic Planning”, “Looking at the Past, Present, and Future”, plus development a project for Washita County on value-added and ways to secure funding for it. This project has given a sense of hope, purpose about the future of the county and communities within.

Impact:

- Three individuals took leadership roles in their community –two City Council Members and one Mayor.
- Added two E-Commerce businesses in the county since starting program.
- Class participants, to help strengthen the economic condition in the county, have started four entrepreneurial projects.
- Secured an USDA Grant on value-added project for Washita County-\$37,000.00
- Developed economic development promotion to bring residents and business to Washita County and the area.
- Developed a positive attitude and outlook for Washita County.

Funding: State, Smith-Lever

Scope: County

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Title: Hazard Mitigation Planning

Issue:

Hazards, whether manmade or natural, are part of everyday life in each citizen's life. Federal legislation has mandated that counties have an All Hazard Mitigation Plan in place to qualify for "individual" federal disaster assistance. Canadian County Extension took the lead role in writing a grant for funding a Geographic Information System (GIS) in Canadian County. This equipment is used to overlay statistics, demographics and digital data into a geographic area for extrapolating maps that combine digital data with desired geographic mapping areas. Such equipment can also be utilized for economic development projects, homeland security, and mitigating the results of any future disaster. Citizen committees representing each community in the county are on an advisory board to guide the project with the goal of preventing and limiting the effects any natural or manmade disaster may have on the quality of life for the people living in Canadian County.

What Has Been Done:

In 2002, a grant was written to request funding for a GIS system through an OSU Cooperative Extension *Rural Community Development* effort called IFRO (Initiative For Rural Oklahoma). This grant requested \$90,000 to build and support a GIS system to be housed and operated out of the county courthouse's County Commissioners office. While we were unsuccessful in obtaining any funds via an IFRO grant, we did submit our proposal to various state and federal agencies that showed interest in the project. The Federal Emergency Management Agency (FEMA) identified our grant as having enormous potential to assist Canadian County with its Hazard Mitigation Planning. They awarded us \$66,000 in matching grant funds to install and maintain GIS for Canadian County.

Impact:

In the short time Canadian County has had the GIS plotter, software and other computer hardware purchased by the FEMA grant, we have had several successes. The county has been successful in its countywide effort to complete a 911 calling system for our rural areas. The largest impact to every citizen of Canadian County has been the fact the GIS system helped gain approval of our county's All Hazards Mitigation Plan at the local and state levels making Canadian County the first Oklahoma county to submit a finalized plan to FEMA before the November, 2004 deadline.

The impact and importance of having an approved county plan is that Canadian County now qualifies for both FEMA "public assistance" (funds available to cities, county, Indian Tribes, schools, etc.) and also FEMA "individual assistance" (private individuals) at a rate of 15% of the disaster funding awarded for "public assistance". Counties without an approved plan by November 2004 will still be eligible for "public assistance" but their individual citizens will not be eligible for "individual assistance" and thereby not receive any federal FEMA aid. Canadian County individual citizens are now eligible for millions of dollars in aid after future disasters because of our efforts to get in line with Federal mandates. One only need look to the ice storm in January of 2001 and see the impact our grant and plan approval will have in the next natural or manmade disaster.

Scope of Impact: County

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Key Theme – Family Resource Management**Title: Money Management Education****Issue:**

The latest Oklahoma Cooperative Extension Service needs assessment stated that many individuals and families are living “on the financial edge.” Savings available for emergencies and long-term needs such as college and retirement are diminishing. The problem is not isolated to any particular socio-economic or age group. Even teenagers are experiencing increasing money management problems.

Four significant factors were identified in the needs assessment as contributing to the problem of inadequate money management skills: increased debt, excessive use and abuse of credit, living pay check-to-pay check, and inability to generate adequate income

What Has Been Done:

The Oklahoma Cooperative Extension Service provides an on-going focused program that addresses life-span economic educational issues. Targeted audiences include high school students, potential homebuyers, and TANF recipients who need assistance with job preparation and life skills.

Impact:

- Over 800 people enrolled in financial management classes.
- 450 youth learned entrepreneurship skills through Mini-Society.
- 2,000 people per year receive homebuyer education.
- 4,500 students participate in money management education (utilizing the High School Financial Planning Program®) each year.
- Money management education was provided for low to moderate income households.
- Financial management class participants:
 - Have savings of over \$2 million dollars.
 - Reduced their debt by nearly \$1.8 million dollars.
 - 73% are saving for long-term goals.
 - 48% started budgeting.
 - 59% have set financial goals.
- 33% of homebuyer education participants purchased a home with a total estimated value of homes purchased now exceeding \$37 million dollars.

- 86% of participants in the HSFPP® increased their financial knowledge or positive money management behaviors (based on results from an earlier survey).

Scope of Impact: State Specific

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Key Theme: Home-based Business Education

Title: Economic Development through Micro, Home-Based and Small Businesses

Issue:

Enhancing the well being of individuals, families and communities through successful home-based and micro- businesses.

What Has Been Done:

In 1985, OCES recognized the growing trend of people working at home. Through the statewide network of Extension Educators OCES provides written materials that help a business owner get started and market their product or service. Specific materials for specific needs are available. Over a dozen workshops on a wide variety of topics are offered each year. One-on-one assistance is provided.

Impact:

- There are 125,000 home-based businesses in Oklahoma with an average income \$24,374; totaling a \$3 billion annual economic impact.
- 80% of those businesses with whom the program has worked with are still in business after four years.
- Over 23,000 home-based and micro businesses have been assisted
- An owner's start-up guide, Putting It All Together, has been provided to over 400 Oklahoma entrepreneurs and also to 15 other states. It has been rated as an excellent resource by over 90% of survey respondents
- Resource directories providing contact information for business assistance have been provided to more than 8000 people since 1998
- 30 new food-based businesses have started after participating in "Basic Training"
In a 1998/99 survey, 28% of respondents have started a business. With an average income, this means over \$1,000,000 has been added to the local economy.

Funding: Smith-Lever; State

Scope of Impact: State Specific

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Key Theme – Jobs/Employment

Title: Applications Engineers Impact Statement

Issue:

The Oklahoma Department of Commerce Manufacturers database lists about 6,500 manufacturing firms in Oklahoma. Only 70 have more than 500 employees (1%). Another way of stating this, 99% have fewer than 500 employees, 93% employ fewer than 100 and 87% employ fewer than 50. Approximately half of these small firms are located in rural areas and are extremely important to their local economies. The loss or downsizing of even one of these wealth-generating small or mid-sized companies can have devastating consequences for the host and surrounding communities. While products are quite diversified, there is limited global perspective with respect to markets and technology. These rural firms face particular difficulty in getting relevant and usable information and technical assistance that will keep them abreast of the rapid changes in manufacturing technology.

What Has Been Done:

During FY 2003, the Applications Engineers, in cooperation with the Manufacturing Extension Agents of The Oklahoma Alliance for Manufacturing Excellence, served more than 100 small, mostly rural, manufacturers that employ more than 5,000 of our citizens. This effort included more than 4,000 hours of direct engineering assistance and technology transfer activities. Examples of engineering projects include assisting small manufacturers in implementing processes and procedures to comply with OSHA and EPA rules and regulations, process and product development, manufacturing facility layout and manufacturing cost analysis.

In addition, the Applications Engineers mentored several senior engineering class design project teams during the fiscal year. These senior design team projects allow the students to work with a small manufacturer on a real world problem, and at the same time, provide the manufacturer access to some of our best and brightest soon to graduate engineers at virtually no cost. These project activities provide a win-win situation for both students and manufacturers.

Impact:

In order to receive engineering assistance the client must agree to a post project impact assessment. This impact assessment is done using procedures developed by the National Institute

for Standards and Technology for the Manufacturing Extension Partnership. The client is contacted some months after the completion of an activity and is asked a series of questions designed to assess the impact of the effort.

The impact of this program is measured in several ways. One is the economic value of the service to the company as reported by the client. Another measure is the number of jobs created or retained. Both impacts are measured by an independent survey of the client. Number of jobs created or retained is translated into economic impact using an income multiplier to compute the direct, indirect, and induced effects due to a change in the number of jobs in the manufacturing sector.

The multiplier was developed from data collected from two different sources. First, the average salary for manufacturing in Oklahoma (\$34,323) was taken from the U. S. Bureau of Labor Statistics published information for 2001. Secondly, the income multiplier of 2.2 was obtained from IMPLAN data for Oklahoma. The total economic impact can be computed by multiplying the average annual salary times the income multiplier to arrive at \$75,511 for each new or retained job in the manufacturing sector.

In FY 2003, the Applications Engineers client projects had the following impacts:

Sales increase	\$41,019,950
Sales retained that would have otherwise been lost	\$35,989,700
Cost savings	\$2,517,942
Costs avoided	\$1,881,857
436 new jobs created at \$75,511 per job	\$32,922,796
177 jobs retained at \$75,511 per job	\$13,365,447
19.5 jobs lost at \$75,511 per job	-\$1,472,465
Investment in new plant facilities and equipment	\$17,412,675
Total impact	\$143,637,902

Scope of Impact: State Specific

Funding Sources: Grant; State; Smith-Lever

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Key Theme – Leadership Training and Development

Title: Initiative for the Future of Rural Oklahoma – 1-Year Projects

Issue:

During the Oklahoma Community Listening Sessions sponsored by the Oklahoma Cooperative Extension the following guiding question was posed: “*Considering the next 3 to 5 years, what are the critical issues in your community and in Oklahoma that need to be addressed to realize a positive future for you, your family, and your community?*” When the responses were considered, one category of issues rose to the top: “Community and Economic Development.” This issue was mentioned in 75 of the 77 counties. Clearly, Oklahoma residents are concerned about the sustainability of their local economies. Residents from Washita County said it well when they indicated a need for a “higher pay scale and better paying jobs [to] keep young people in the community after college.” The *Initiative for the Future of Rural Oklahoma* project directly address the issues of leadership and community economic development that rural Oklahomans so powerfully expressed in the community listening sessions.

What Has Been Done:

In the spring of 2002, the *Initiative for the Future of Rural Oklahoma* project was unveiled. The goal of the *Initiative* is to empower local leaders so that they, in turn, can move their communities forward. The county offices of the OCES were designed to be a part of this effort through this pilot program. To become a part of the *Initiative*, counties were required to submit proposals for their project. In all, proposals representing 37 counties were submitted. Several of the proposals involved multi-county efforts. After a painstaking review process, 13 projects, representing 17 counties, were selected to participate in the *Initiative*.

Ten one-year projects that focused on leadership training were funded. Each was awarded up to \$10,000. These projects are: Blaine, Custer, and Dewey Counties (multi-county), Cimarron County, Coal County, Greer County, Jackson County, Johnston County, Kiowa County, Payne County, Pushmataha, Choctaw, and McCurtain Counties (multi-county), and Wagoner County. Three three-year proposals (Alfalfa County, Murray County, and Washita County) were awarded grant funds of up to \$100,000. These projects also focused on leadership training, but, in addition, they identified a community project that related to leadership development and/or economic development. This is an impact statement for the 10 1-year projects.

Impact:

- The 10 projects affected 14 counties in Oklahoma.
- A total of 236 leaders were trained in the first year, and the 10 projects were in contact with 668.
- A total of 82 programs were presented by Extension Specialists as well as other partnering agencies.
- The 10 projects produced 103 newspaper articles, 24 newsletters, and 11 radio broadcasts.
- One videotape and 8 other promotional tools (such as fliers or brochures) were developed.
- The impacts are best described by the local participants:
 1. “We have received more good from the Oklahoma Cooperative Extension Service and the Greer County office in the past year than I can ever remember before.” (Greer County)
 2. “We are very pleased with participation, especially of new potential leaders stepping up to the commitment. Now they are motivated and interested in certain projects to improve our community. The training is not only providing education but motivation and interest in leaders.” (Payne County)

3. "In a word, we feel your leadership program is mostly responsible for this new found attitude of our citizens and those of the entire county." (Kiowa County)
4. "If it hadn't been for the leadership project, we would not have known of all the opportunities and programs available." (Wagoner County)

Funding: OCES

Scope of Impact: Multi-county but limited to the 10 selected pilot 1-year projects representing 14 counties in Oklahoma.

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Title: Enhancing Tourism and Stimulating the Economy in Alfalfa County

Issue:

Across America the rural economy is crumbling. As is the case with many rural counties traditional agriculture pursuits are resulting in economic decline. Some areas are content to accept their destiny, Alfalfa County is not. There have been multiple public meetings which identified economic diversity and promotion of tourism as two of the top ten priorities for our area. Alfalfa County natural resources are one of its strongest assets. These natural attractions are extremely enticing to nature tourist, bird watchers, hunters, fishermen, history buffs and selenite crystal diggers. With all this rich natural diversity, we have an abundance of assets to promote and market tourism as a economic tool.

What Has Been Done:

The Initiative for the Future of Rural Oklahoma in Alfalfa County is a three-year grant to promote tourism and economical opportunities. This project is multi-faceted. Currently, we have completed the first year of a three-year grant. Community leaders, individuals, and agency personnel have participated and attended meetings concerning the Great Plains Trail of Western Oklahoma, Great Salt Plains Association, Super Retreat, County Wide planning meetings, Core Team meetings, Community Representative meeting, IFRO campus visit and Team Member meetings. The video production on Alfalfa County to promote and market tourist attractions has been completed. The video will be utilized for marketing and promotion of tourist sites in our area as well as to train residents about their County's assets. The web site enhancement has been of the utmost importance in providing the highest technological capabilities. This technology will provide the tourist with information on our area. Surveys and/or evaluations were conducted throughout the year included Leadership, Tourism, Cherokee Main Street and Cherokee Main Street Business survey. Educational programs were conducted to residents.

Impact:

- Web site enhancement
- Video production to promote tourism completed
- Apprentice gained tremendous knowledge on video production
- Agencies networking
- Communities within the county working together towards the idea of tourism
- 12 leaders trained throughout the year
- 11 programs presented
- 166 contacts at training sessions/programs
- 359 contacts by one on one and programs activities

Scope of Impact: County, State

Funding Source: Initiative for the Future of Rural Oklahoma Grant OCES

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Title: Citizen Engagement Through Public Deliberation (CEPD)**Issue:**

Stories abound of angry, frustrated citizens who feel they have little power to influence important public decisions affecting their lives. This frustration is often characterized as apathy with little effort made to look deeper at the desire of regular people to express their views on public issues but believe they do not have a venue to do so.

Deliberative forums and study circles provide a safe, non-partisan venue for citizens to struggle with challenging public issues. These deliberations are based on the idea that in a democracy citizens have the responsibility to get together to talk through their common concerns, to weigh possible alternative actions to address these problems, and inform policy makers and other community leaders about the desired direction for public action. Public deliberation provides a means by which citizens make choices about the basic purpose and direction for their communities and country. As conveners, moderators, and recorders/reporters of deliberative forums, Extension professionals and other community leaders perform a non-biased, non-advocacy role in engaging citizens in building community.

What Has Been Done:

Founded in 2000 by Daugherty and Williams, the Oklahoma Partnership for Public Deliberation (OPPD) has sustained continuous operation, pursuing its mission to foster participation in

reasoned and informed decision making for the public good. The OPPD has conducted five Public Policy Institutes (PPIs) to prepare approximately 200 Oklahomans to convene, moderate, record and report deliberative forums and study circles. These moderators and recorders are prepared to give leadership to deliberative forums. To date, nearly 175 public forums have been conducted throughout the state on a wide range of topics. Three communities are implementing pilot projects: Carter County Speaks; Norman NIF Network; and Stillwater SPEAKS (Stillwater People Expressing Attitudes and Knowledge): *In Search of Common Ground*.

Impact:

A study conducted in June 2003, involved interviews with Oklahoma PPI participants. Findings:

- Facilitated local forums (65%); additional forums conducted (44%)
- Organized a committee or network to support local forums (32%)
- Common ground reached or a shared sense of direction (65%)
- Contact made with office holders (64%)
- Community taskforce/study group was organized to address the issue (37%)
- Stories about the issue were featured in the local media (67%)
- Issue is now “on the table” in the community (53%)
- Participants began to network with others on the issue (84%)
- Used the deliberative approach in work settings (79%); civic life (75%); family (55%); religious

Comments from respondents: “I’m the mayor . . . I used [the forums] to help decide the direction of our community.”; “I work with a social/civic organization and they refer to [the forums] when working with legislators and the rest of Oklahoma. It kind of gives a pulse of the general public.”

Based on a joint study conducted by Oklahoma Cooperative Extension and Missouri Outreach and Extension, the following impacts are projected for Oklahoma forum participants:

- Contact made with office holders (62%)
- Community taskforce/study group was organized to address the issue (42%)
- Stories about the issue were featured in the local media (83%)
- Issue is now “on the table” in the community (38%)
- Participants began to network with others on the issue (52%)
- Additional forums were planned and conducted (59%)

Conclusions: Persons who participate in PPIs use this leadership development experience to foster public deliberation in their communities. Further, citizen engagement increases as a result of public deliberative forums.

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Key Theme – Parenting

Title: HEALTHY FAMILIES: Support & Education for Families with Infants & Young Children

Issue:

In Oklahoma during fiscal year 2002, 13,903 allegations of child abuse and neglect were confirmed, 51% of which were under age six. An average of 37 children die due to maltreatment each year, over 68% of whom did not live to their second birthday. More than 75% of abuse and neglect occurs in the hands of a child's own parents. Further, the most active and significantly influenced brain development period is birth to age 3. Research indicates that home visiting and parent education and support services to parents around the time of a baby's birth and in early childhood reduces the risk of child abuse, and contributes to positive, healthy childrearing practices and family functioning.

What Has Been Done:

OCES implemented home visitation parent education programs in 1991 and launched the state's first Healthy Families America site in 1995. Program goals are to assess family strengths and needs, enhance family functioning, promote positive parent-child interaction, and promote healthy childhood growth and development. Families may enroll prenatally or around the time of a baby's birth, and may continue until the child is age five. Participation is voluntary. Services include home visitation, center-based education and support, and referrals to health care providers and other community resources.

In FY 2003, OCES Healthy Families programs served five counties: Canadian, Delaware, Texas, Cotton and Jefferson. A Parents as Teachers program was also added in Texas County. During the year, 154 families with 161 children were provided 2,148 home visits and 82 parent education and support group sessions. FY 2003 contracts totaling \$415,796 were received from the Oklahoma State Department of Health, Child Abuse Prevention Fund, as well as a \$21,000 subcontract with Guymon Public Schools through a grant from the Oklahoma State Department of Education. Collaboration with other community agencies is emphasized to better utilize scarce resources and provide a comprehensive array of services to effectively meet families' needs.

Participant surveys conducted during the year indicated a high level of satisfaction with the helpfulness, service quality, and increased knowledge received. Previous evaluation of the programs suggests that first-time parents made significant increases in parenting knowledge, child development knowledge, and home safety practices, and the rate of second pregnancies for adolescent parents was 5% compared to the national rate of 25%. Other studies on Healthy Families programs suggest that enrolled families are 1/3 to 1/2 as likely to maltreat their children as comparable families not enrolled. Evaluations of Parents as Teachers program participants have shown reliable gains in parent knowledge and in children's cognitive and motor development. Research suggests that for every dollar spent on such prevention efforts, at least two dollars are

saved on services such as health and mental health care, foster care, child welfare, juvenile facilities and special education.

Scope of Impact: State Specific

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Key Theme – Promoting Housing Programs

Title: Homebuyer Education

Issue:

Assisting potential homebuyers achieve financial literacy necessary for successful home ownership because affordable housing is a major concern for all Americans. A recent survey sponsored by the Fannie Mae Foundation found that 41% of working families consider affordable housing to be a big or fairly big problem. Private mortgage insurance, specialized funding and down payment assistance have expanded home buying opportunities for many potential homebuyers, many still lack the requisite skills and information for maintaining homeownership and some groups, i.e. minorities and rural residence, are not homeowners. Foreclosures cost the lender, the community and the consumer. Homebuyer education can provide a means for assessing the suitability of a home purchase and provide an education in the kinds of financial basics that consumers need to take this step.

What Has Been Done:

Recognizing the need to develop standards in homebuyer education for traditionally underserved audiences, state agencies involved in providing services and education for homebuyers worked cooperatively to develop the Oklahoma Homebuyer Education Association. The organization has developed agreed-upon bylaws, curriculum, and certification standards for homebuyer educators and continuing education requirements for maintaining certification. Oklahoma Cooperative Extension Service has provided leadership and consultation throughout this process. Additionally, state faculty has assisted in providing the instruction for homebuyer educators' certification.

Impact:

Garvin County Family and Consumer Science Extension Educator went through the certification process and achieved certification. She has worked cooperatively with the Community Action Housing Director, who is also certified, to provide homebuyer education on a bi-county level to 98 participants. Homebuyer education is an avenue for familiarizing these audiences with special loans and funding products designed to assist individuals who would otherwise not have the opportunity to own a home. The average cost of homes purchased by the homebuyers going through homebuyer education classes is \$50,235 with 33.5% actually purchasing homes. The

economic impact of Homebuyer Education throughout the state is estimated to be \$37,023,195.00 in home purchases alone. This figure includes the 98 from the Garvin County Extension Educators classes which averaged closer to double the 33.5% state rate of those purchasing homes.

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Title: Stillwater Homebuyer Education

Issue:

Affordable housing in Stillwater has become an increasing problem. Only 36% of the population owns their own homes with the remaining 64% renting. The median household income is \$27,115.00 with an average home price in August of 2003 of \$169,441.00, thus it is difficult for lower income people to own a home.

What Has Been Done:

In early 1999 Extension Educators met with Stillwater business people who were forming the Stillwater Partners for Affordable Housing. The group wanted to begin Homebuyer Education in Stillwater in cooperation with the City of Stillwater. City of Stillwater had grant funds from the CDGB to provide up to \$3500.00 in closing cost assistance. OCES provided the curriculum outline for all local professionals to standardize the Homebuyer Education classes, which began April 10, 1999.

Homebuyer Education classes cover; Credit – CCCS, Pre-qualifying for a loan & Mortgages – Local Lender, Home Inspections & Maintenance – Local Home Inspector, The Purchase Contract – Local Realtor, Homeowners Insurance – Local Insurance professional. The remaining classes are taught by OCES Extension Educators. These include; Housing Priorities, Homeownership Pros & Cons, Goals, Choices & You, Basics of Financing a Home and Avoiding Foreclosure and Money Management Techniques & Personal Finance. Evaluations are also done by OCES.

Impact:

Since 1999 29 sessions of Homebuyer Education have been held with over 750 participants from Stillwater and other parts of the state. Fifty-three percent (53%) of those attending had incomes below \$25,000. One Hundred seventeen (117) homes have been purchased in Stillwater city limits, through this cooperative effort, for a total of \$6,882,703.85 in value. The average home price purchased through this program is \$56,821.97. Closing cost assistance provided totaled \$374,483.06.

This information does not include impact data from Native American tribes from various areas that attend the classes to qualify for their individual program or information from those attending and purchasing homes outside the City of Stillwater limits.

Scope of Impact: State Specific

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Key Theme – Tourism

Title: Strategic Plan for Sustainable Tourism and Economic Development in Murray County

Issue:

Murray County, located in the heart of the Arbuckle Mountain Region, is a Mecca of beautiful natural resources, geological formations, clear springs, and pristine waters. Over two million visitors a year enjoy the county's attractions and recreational opportunities. Tourism is Murray County's number one source of income, generating tax dollars to support our county infrastructure along with many of our services. This scenario sounds wonderful, however it soon becomes a nightmare when groups and communities do not work together, do not communicate with each other, pull different directions in attracting tourists, and are not totally aware of the resources available to capitalize on for the opportunity to enhance further economic diversity of increased tourism to the county.

What Has Been Done:

Under the direction of the Murray County OSU Extension Service community leaders met for the first time to plan together for the application of grant dollars known as "Initiative for the Future of Rural Oklahoma"; an opportunity of the Oklahoma Cooperative Extension Service. When the grant recipients were announced Murray County was one of three counties in the state to receive \$100,000 for a three year period of time. A full time employee titled "Murray County Tourism Assistant" was hired to oversee the grant's identified roles.

Impact:

Through the IFRO grant dollars the following impact has been made on tourism and coordination of tourism efforts in Murray County:

- ◆ County planning retreat conducted where over 40 community leaders set down at the table for the first time in history to begin planning "together" for the county's future
- ◆ Three committees were identified at the retreat; (1)develop a strategic plan (2) beautification of county (3) lodging fee initiated in county
- ◆ Strategic plan has been developed and implemented

- ◆ First joint Chambers of Commerce annual banquet held in January 2004
- ◆ Joint Chambers of Commerce newsletter being designed by tourism assistant and mailed to county residents and business owners
- ◆ Oklahoma PRIDE program is being conducted and to date over 150 people have been trained
- ◆ PRIDE materials have been customized for Murray County
- ◆ Beautification committee is actively meeting and one fundraiser has been held netting over \$2,000 for landscaping both Sulphur and Davis' new Chamber of Commerce buildings
- ◆ Leadership Murray County Class has been established and Class I with 30 students will graduate in May 04; this was a joint effort between OSU Extension Service and Southern Oklahoma Technology Center
- ◆ Lodging fee committee has plans developed and vote prepared to take to the people in May 2004 – proceeds generated by tax will be used for advertising and possible future hiring of Tourism Director

A *testimonial* from one of those involved with the grant states, “You can’t put a price on what this grant has done for Murray County. How does one put value on building communities, developing working relationships, and in connecting to work together to build partnerships that will last for years to come”?

Scope of Impact: County, State

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Key Theme – Workforce Safety

Title: Oklahoma AgrAbility Project

Issue:

Disabling injuries have a significant impact on the agricultural population. In a recent survey of Oklahoma farmers and ranchers, 26% of the respondents reported a disability. This translates to over 17,000 individuals who have a disability that limits their ability to perform certain work-related tasks as well as difficulties with tasks associated with daily living. To remain actively engaged in agricultural-related work, these rural families must overcome significant barriers – isolation from rehabilitation technology, lack of information by disabled individuals, excessive distance to travel to obtain adequate services, and lack of financial resources. To address these barriers, Oklahoma agricultural families affected by disabilities need to be aware of new services; learn about low-cost modifications to the farm, home, equipment, and work site operations; and obtain technical assistance to make appropriate modifications.

What Has Been Done:

A four-year AgrAbility grant from USDA-CSREES was secured by the partnership of Oklahoma Cooperative Extension Service, Langston University through the Center for Outreach Programs, and Oklahoma Assistive Technology Foundation with services provided through Oklahoma ABLE Tech. The mission of the Oklahoma AgrAbility Project is to provide education, assistance, and support to farmers, ranchers, and their families who have a disability or debilitating injury that limits their ability to perform essential farm tasks. Project awareness activities include: articles in the Sunday Oklahoman, Cowboy Journal, and various other media sources; booths at the Oklahoma Farmers Union Convention, FFA State Convention, Oklahoma Farm Show, Tulsa Farm Show, Oklahoma Pork Congress, and the Enid KNID Agrifest; presentations to various groups within extension; and a bi-monthly newsletter highlighting health and assistive technology issues.

Impact:

Over 30,000 individuals have been made aware of the program through trade shows and media sources. AgrAbility partners have attended over 50 public awareness events. Over 300 individuals, who have a variety of injuries and/or impairments, have been provided a variety of resources, including possible farm site modifications to make daily tasks easier and safer.

Funding Sources: USDA-CSREES, State, Smith-Lever

Scope of Impact: State specific

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Key Theme – Youth Development/4-H**Title: Roger Mills County Outdoor Classroom****Issue:**

In 1992, the 4-H Youth Development Program Advisory Council identified the need to provide conservation programs for youth. This was a time when recycling solid waste and water conservation were priority issues for people statewide. The PAC decided that the best way to educate adults was to first teach youth and encourage them to share what they learned with the significant adults in their lives.

What Has Been Done:

The Extension staff made contact with the Natural Resource Conservation Service and a partnership was formed. These two agencies established a common goal of establishing an outdoor classroom for third grade students in our county.

The partnership between NRCS and Extension has conducted an annual outdoor classroom experience for youth for the past 12 years and shows no sign of ending. It has survived personnel changes, funding challenges and stormy weather.

We have reached about 2297 third grade students with the help of 590 adult volunteers over the past 12 years. The program has expanded to include schools from Beckham, Washita and Dewey Counties along with the Roger Mills County students.

Impact:

At least 10 state agencies besides the original partners are involved in the outdoor classroom each year. The students rotate from one workshop to another every 20 minutes throughout the day. They are exposed to subjects related to recycling, water conservation, animal tracking, wildlife identification and conservation, identification of soil types, soil conservation practices, natural resource management, water pollution, career opportunities, etc.

As the students enter high school, they often contact the Extension office for resource information when they are writing research papers. They remember a hands-on activity from their third grade outdoor classroom experience and want to know about a certain subject now that they are capable of handling more knowledge.

As a result of conducting the annual outdoor classroom, a Wetland Outdoor Classroom Advisory Committee was established several years ago. We wrote and received a Learn and Serve America grant that started the construction of a permanent wetlands outdoor classroom. We have numerous partners on this project with well over \$150,000 dollars invested in the classroom. It is a very involved project with completion expected by 2005. It will completely be handicapped accessible and the only classroom of its kind in Western Oklahoma and the Texas Panhandle.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific

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Title: Agriculture Literacy in Canadian County

Issue:

Today less than 3 percent of the population is directly involved in agricultural production. Fewer and fewer Americans are tied to the land. For this reason many people have no idea how food gets to their table. Agriculture is the most basic and essential enterprise in our society. It is agriculture that converts natural resources – soil, water, air, sunlight and minerals into the foods that nourish us and keep us healthy. If we manage these resources properly they will sustain us forever.

Few Oklahomans are aware of the role agriculture plays in our state's economy. In Oklahoma, we have 32 million acres in agricultural production. Twenty-seven percent of our state's work force is involved in employment related to agricultural production, processing or marketing. Agriculture is important to every citizen in Oklahoma because it is as essential to our fiscal health as it is to our physical health.

Tomorrow's citizens, consumers, business leaders, legislators and educators must be agriculturally literate in order to protect and preserve the advantages we gain from a strong agriculture. Even though most of our citizens will continue to live in cities, all of us will continue to depend on agriculture for the most essential things in our lives.

What Has Been Done:

Canadian County 4-H offers Agriculture Literacy programming through school enrichment programs, Natural Resource Days and the Kirkpatrick 4-H Farm.

School Enrichment - "Food – Farm to Table" is a program presented in schools to youth in the fourth grade and up. In its entirety, it is about 2 hours long and starts with where major food products are grown in the U.S. and why they are grown there. It then discusses agribusiness, and what happens at each stage of processing, distribution, and transportation. The final activity deals with forming a class business to make a trail mix. The class brainstorms what is involved in running a company using the information provided throughout the program. They make many decisions from where to purchase the commodities of peanuts, raisins, chocolate chips and small cookies to advertisement and distribution. All of the class is involved as well as the teachers and at the end, they get to taste test their own product.

Kirkpatrick 4-H Farm offers hands-on agricultural learning experiences. The Farm Class Program is marketed to schools, day cares, and youth organizations. Each month a different topic is highlighted. Topics include: Pumpkin Seeds & Apple Cider; Wool & Fiber; Birds, Scarecrows & Bird Feeders; Cooking & Nutrition; Livestock & Their Young; Dirt+Compost=Soil; Fruits & Vegetables; and Tree Identification. Classes sign up for a day of activities, which include: a nature walk, a hands-on project, lunch and games. The Farm Kid Program offers urban youth the opportunity to raise, care for, and develop the life skills involved with animals. They learn about the responsibilities of daily care, general animal health, grooming, and finances, which are all a part of a livestock project.

Natural Resource Days offers youth an opportunity to learn more about the historical aspect of agriculture, natural resources and how modern times have impacted us. The one-day session is held at the Kirkpatrick Property in Yukon in conjunction with the Chisholm Trail Preservation Society. Youth are given the opportunity to view how important agriculture and natural resources

were to the pioneers and continue to be today. Workshops during the day focus on wildlife preservation, water conservation and using resources wisely.

Impact:

During the 2003-2004 school year, 280 students participated in the “Food – Farm to Table Program. Teachers administered a pre and post program survey of information learned by students. The survey showed a 78% retention of materials learned during the program. All of the classrooms involved in last years programming have registered to receive the program again, and comments from teachers indicate that the materials taught compliment and reinforce what is being taught in the classroom.

During the 2003-2004-program year, over 2,000 students were involved in programming at the Kirkpatrick 4-H Farm. Participants ranged in age from 2–18 and represented local schools, as well as schools from surrounding counties. After experiencing the farm, many youth and teachers indicated a greater knowledge and better understanding of the importance of agriculture to our lives and economy. Another area, which has had a positive impact, is the “Farm Kid” program. Each year, students are allowed to apply for a scholarship position at the farm where they can maintain an animal. This year there were 8 youth involved in this aspect of the farm. The program gained two new volunteer leaders that worked with the youth on a weekly basis with their animal projects. A graduate from the “Farm Kid” program continues to be involved today as a newly certified leader. He is still in charge of the two nanny goats that were his project as a “Farm Kid”. He is entering his third year with the two nanny goats, which have been bred and will kid out this spring. He continues to be involved in leadership and citizenship roles at the farm.

The 2003 Natural Resource Day was attended by 500 youth from six schools. Thirteen workstations were available for them to participate in. Each school participated in the “lunch day – less is best” activity. Each student was asked to bring a sack lunch for the day. The school with the least amount of trash from their lunches won curriculum for their classrooms that highlighted agriculture and wise use of resources.

Funding Source(s): State; Smith-Lever

Scope of Impact: State Specific

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Title: 4-H Clubs, Events, and Activities Conducted on State’s Military Installations

Issue:

Oklahoma is home of five military installations located in five different counties. In the past year over 12,538 military personnel have been deployed through the five installations, Reserve, and Guard units. With these deployments many spouses and youth were left in our communities. The challenge is to provide safe and educational opportunities for the youth left home.

What Has Been Done:

Four-H Clubs have been established at Ft. Sill and McAlester Army Post and Tinker and Altus Air Force Bases. Youth at these installations have been introduced to traditional 4-H activities and events through the leadership of the county Extension staff and the installation's Youth Service personnel. Researched base curriculum produced by CCS was made available at the Army installation and presently being obtained for use on Air Force bases. Eighteen County Educators and Youth Service personnel have received training conducted by the USDA. Staff at four of the five installations has received an orientation required for state leader certification. All installations, including Vance Air Force base are using 4-H School Enrichment programs from county Extension offices.

Impact:

Youth from the military installation are participating in county events and activities. Youth are participating in county speeches, demonstrations, illustrations, dress revue, food fair, and countless day camps and workshops. Special activities have included shooting sports, environmental education, entomology, gardening, cooking, Learn to Earn, safety, and many citizenship projects.

Four-H enrollment on military installations has increased to over 300 members with over 100 additional youth who are not members participating in events and activities conducted by 4-H members. Lock-ins between McAlester and Ft. Sill has been conducted at both installations. Workshops on Character Education and Leadership were conducted for youth. Youth from all five installations and Sheppard AFB in Wichita Falls have been invited for leadership training lock-in conducted at Ft. Sill. This lock-in is scheduled to be conducted over spring break 2004. Participation in county events continues to increase by youth from installations.

Funding: Grants, state, Smith-Lever

Scope: State

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Title: Oklahoma County HUGS Project

Issue:

During Oklahoma's cold winters, families sometimes find that their limited budgets don't always extend far enough for warm gloves and hats, or even warm socks and underwear, to protect children against the cold. So when the Oklahoma County 4-H clubs kicked off their 4-H month during the national centennial of their club, they decided to take that opportunity to do something for someone else. . . . and H.U.G.S. was born. H.U.G.S. is a 4-H community service program where 4-H'ers collect new hats, underwear, gloves and socks for kids who need them. 4-H'ers collect H.U.G.S. from sources all over their communities then each club gets to decide where the H.U.G.S. should go and which kids need them the most.

What is so exciting about H.U.G.S. is that it allows our communities in Oklahoma County to work with 4-H'ers in doing something good for someone else. Before this program, people might say "Who Cares?" when they heard that it was national 4-H week. If someone wasn't a member of 4-H, that announcement was not important to them. But with the H.U.G.S. program, people now know that National 4-H week means it's time to start buying a few extra hats, underwear, gloves and socks to donate to a 4-H club. This project helps 4-H get everyone involved!

What Has Been Done:

Last fall (the third year for this project.), 4-H'ers collected more than 1,500 H.U.G.S. throughout the county. What's more, the County Assessor's office got into the act and held a chili lunch cook-off to benefit H.U.G.S. All of the proceeds went to buy new H.U.G.S.

What helped make H.U.G.S. so successful this year was the fact that so many county offices gave their helping hands. The Oklahoma County Election Board, all of the County Commissioner offices, the County Clerk offices and the County Assessor's office were more than willing to help out. One of the most successful H.U.G.S. campaigns this year came from the office of Mike Means, the Oklahoma County Assessor,. For the second year in a row, this office held a Chilli Cook-off Lunch, with all the proceeds going to buy new H.U.G.S. H.U.G.S. also went to the Infant Crisis Center in Oklahoma City. This organization helps new mothers cope by helping them clothe and feed their children. Now, those new mothers will have warm socks and hats for their babies.

Impact:

Oklahoma County 4-H also donated H.U.G.S. to Positive Tomorrows, which is a special school designed to allow children without a permanent residence or who live in homeless shelters to continue in school. H.U.G.S. were also given to the Christmas Connection. The Christmas Connection is an organization that gives families in need useful objects, gifts and food during the Christmas Holidays. Finally, the Salvation Army, which houses people in trouble and offers aid to Oklahoma County residents of all ages, were able to offer new H.U.G.S. to the children in their programs because of this 4-H project.

All in all, the communities in Oklahoma County were improved because of the time and effort of the 4-H'ers who live in them. H.U.G.S. helped show our communities that kids care about kids. It also allowed the public to take part in something 4-H'ers were doing. Now, people know more about 4-H and realize that it works for the good of our

communities.

Funding Source(s): State, Smith-Lever, National Colgate Youth Award, Oklahoma County Assessor's Office

Scope of Impact: Oklahoma County

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B. Stakeholder Input Process

The Oklahoma Cooperative Extension Service (OCES) has a well-defined program advisory committee system that provides grass roots input for program planning. Each January or February, county extension staff seeks input from program advisory committee (PAC) members on program needs related to OCES strategic program priority areas. Advisory committee members are selected to represent various geographic areas of each county. They are representative of agricultural and natural resources interests, youth, families, community and government leaders, and the general public. Committee members also represent the ethnic diversity of the county, as well as different socioeconomic groups. These PACs continue as described in the Plan of Work.

As reported in last year's report, Extension hosted Community Listening Sessions in every county in Oklahoma. They began in September and continue through the first half of December 2002. The goal was to invite citizens to identify, discuss, and define their community's needs and opportunities at open forums, while building on the assets that presently exist. The critical question asked of the 2,800 attendees at the 78 listening sessions was "Considering the next 3-5 years, what are the critical issues in your community and in Oklahoma that will need to be addressed to realize a positive future for you, your family, and your community."

A report of local issues prioritized by importance, highlighting the results of the Listening Session, including the participant data that can be shared with other stakeholders in the county was distributed to participants, community leaders, state leaders, agencies, etc. Seventy-seven different county reports with listening session results and other community, business, demographic and related data were distributed. In addition, a statewide summary was prepared and provided to selected stakeholders and leaders. All reports, county and statewide, will be available on a website available to the public.

Considerable stakeholder input is also received through other means. 1) The state legislative and administrative branches frequently make laws, conduct hearings, empower taskforces and committees, make regulations, conduct interim studies, and directly express needs and problems which result in priority program issues. Input comes from Extension personnel participating in these processes as well as official directives. 2) Extension also regularly seeks input from commissions, agencies, groups, foundations and other organizations representing various segments of the Oklahoma public. 3) Many key program components and programs within those components have advisory groups made up of stakeholders. 4) The Director has a statewide advisory group representing a wide array of interests relevant to our mission. This group has a three-year rotating membership and meets twice a year. It is also called upon at other times to provide input to items such as extension planning and the Division strategic plan.

C. Program Review Process

No significant changes were made to the program review process stipulated in the Oklahoma five-year plan of work.

D. Evaluation of the Success of Multi and Joint Activities

1). The planned integrated activities reported in section F addressed many of the critical issues of strategic importance to stakeholders. Several of these programs directly addressed issues of cattle production and forage/hay production. These issues were consistently among the highest priorities included in input from Oklahoma agricultural producers. Similarly, several multi-state activities concentrated on production, management and economic programming related to cattle production, economic situation of farmers and public policy alternatives and actions. Each of which consistently surfaced as an important issue. Both integrated and multi-state planned activities addressed many of the community and economic development issues addressed in the listening sessions mentioned in prior section. Several of these planned activities concerned issues around alternative products - another high priority identified. The cropping integrated activities were very high priorities identified by groups representing some of the leading crops produced in the state - wheat, cotton and peanuts. Many of the pest, pesticide application, invasive species, animal waste management, and water quality issues important to Oklahoma producers don't know state boundaries and the multi-state activities are important in these efforts. National programs such as income taxes, forage testing, water quality, fire training, and youth and school programs improve efficiencies of programming over each state re-inventing the curricula. Rural health care issues are among the most often identified by groups representing communities. Integrated and multi-state activities in this area addressed this issue. Other integrated and multi-state activities addressed high priority areas of IPM and water quality.

2). Integrated activities related to alternative crops (vegetables, watermelons, peaches) particularly addressed and were conducted in areas of the state where small farm, Native American and African American audiences are particularly targeted. Several integrated programs in community and economic development particularly served geographic areas with concentrations of African American and Native American populations. Multi-state programs in alternative crops, policy and

structural issues of agriculture, water quality, rural health care, home-based business, and youth also impact traditionally under-served audiences.

3). The integrated research and extension activities and multi-state activities described expected outcomes and impacts.

4). Oklahoma Cooperative Extension Service (OCES) has a long history of integrated planned programs and multi-state planned programs. Those programs reported in sections E and F are only a portion of all programs OCES conducts that are integrated between research and extension and/or are multi-state. Integrated and multi-state programs are conducted because they address the issues, problems and needs expressed by our public and they are more effective or efficient than would be the case otherwise. Thus the answer is yes. Without the closely integrated research, many of the issues and questions raised for and through the extension would not be addressed. Likewise the obviously close relationship created by joint appointments makes the feedback to research from the extension of knowledge and technology immediate. Multi-state planned activities allows extension professionals to rely on one another in the development and sharing of resources, ideas, educational materials, and the development of new and innovative programs. Those planned activities presented in sections E and F are examples of efforts that result in programs that are better and more effective.

**U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities
 (Attach Brief Summaries)**

Institution OSU Cooperative Extension
State Service

 Oklahoma

Check one:
 _____ **Multistate Extension Activities**
 _____ **Integrated Activities (Hatch Act**
 _____ **Funds)**
 X **Integrated Activities (Smith-Lever Act Funds)**

Title of Planned Program/Activity	Actual Expenditures			
	FY 2000	FY 2001	FY 2002	FY 2003
<u>Competitive/Sustainable Agricultural Production System</u>	<u>421,568.35</u>	<u>839,007.94</u>	<u>927,752.75</u>	<u>774,194.08</u>
<u>Healthier, More Well Nourished Population</u>	<u>28,018.95</u>	<u>62,130.99</u>	<u>40,432.29</u>	<u>-</u>
<u>Protected & Sustained Environment</u>	<u>26,771.31</u>	<u>62,220.45</u>	<u>39,419.93</u>	<u>42,469.82</u>
<u>Enhanced Economic Opportunity & Quality of Life</u>	<u>60,756.96</u>	<u>106,287.66</u>	<u>121,287.35</u>	<u>131,413.09</u>
Total	<u>537,115.57</u>	<u>1,069,647.04</u>	<u>1,128,892.32</u>	<u>948,076.99</u>

 Director _____
 Date

Reports

CSREES Goal 1: Integrated Activities

Name of Planned Program/Activity: Integrated Research and Extension Activities for Cooperatives

Progress Report: A research project investigated the feasibility of cooperatively owned unit train load-out facilities. The project was conducted in conjunction with an Oklahoma cooperative. The research results were presented at the Southern Agricultural Association Annual meeting and have been submitted for publication. The results were also presented to Oklahoma cooperative managers at two industry conferences in Oklahoma. The research results highlighted the importance of grain cleaning on the efficiency and profitability of a unit-train load out facility. As a result, the recently constructed unit-train load out facility operated by an Oklahoma cooperative has been able to add over seven cents per bushel to their farmer/owners wheat price.

Contact: Phil Kenkel

Name of Planned Program/Activity: Livestock Production and Marketing Decision Making

Progress Report:

Previous research has found small price premiums paid by buyers for preconditioned calves. Two data sets, one time series and one cross sectional, were used to estimate the market value of feeder calf preconditioning programs. Feeder cattle buyers paid price premiums ranging from \$1.96 to \$3.36/cwt. This premium was less than the amount needed to offset the added costs of preconditioning by itself. However, supplementing the gain from a price premium with selling more pounds of healthier calves, can make preconditioning cost effective. A spreadsheet was developed to assist producers evaluate the marginal costs and returns from preconditioning programs.

A survey of cattle feeders in four major cattle feeding states (TX, KS, NE, IA) showed clearly that grid pricing is rapidly replacing live weight pricing of fed cattle. Two efforts were made to enhance learning about grid pricing. First, grid pricing was incorporated into the *Fed Cattle Market Simulator* for three genetic types of cattle (high quality, low yielding; medium quality, medium yielding; low quality, high yielding). Second, a grid pricing calculator (spreadsheet) was developed to assist producers learn the implications of feeding cattle for alternative grids and for purchasing feeder cattle that will perform differently in carcass form. Preliminary analysis indicates recommendations regarding how to price cattle depend both on cattle genetics and market conditions.

The method cattle feeders and meatpackers use currently to determine the base price in grids is problematic. The recent cattle feeder survey clearly indicated the primary method is a formula price arrangement tied to the cash market. However, the same survey indicated cattle feeders prefer other alternatives. Research was undertaken to identify advantages and disadvantages associated with finding the base price in grids. In addition, other limitations of grid pricing, those associated with the discreet nature of premiums and discounts, were addressed.

Contact: Clement Ward

Name of Planned Program/Activity: Expanding value-added calf management in Oklahoma

Progress Report: Research and educational efforts were continued to encourage further adoption of value-added calf management throughout Oklahoma. The objective is to add value to Oklahoma's calf crop and capture at least part of the added value for both producers and their customers. One example of this effort is the Oklahoma Quality Beef Network (OQBN). The OQBN is a collaborative effort between the Oklahoma Cattleman's Association and the Oklahoma Cooperative Extension Service. The OQBN includes a source and process verification system and marketing alternatives for producers. The process verification system is focused on standard health and management procedures that occur around the time of weaning. In general, OQBN process verification (or certification) requires producers to wean their calves at the home ranch for a minimum of 45 days and follow specific quality assurance, vaccination and nutritional guidelines. Faculty and extension personnel have collaborated to collect extensive evaluation data. One evaluation data set now includes just over 30,000 head of OQBN certified and non-certified cattle. These data have been used to determine the financial impact of the program. In addition, participating cattle producers (both sellers and buyers) have received a follow-up survey. This survey provides valuable feedback for the purpose of documenting the programs impact as well as strengths and weaknesses. Seven case studies were conducted to document typical program costs and changes in gross revenue. Results from these research projects and case studies have been published in a student's thesis and a portion of the data has been submitted (and accepted) for publication in a peer-reviewed journal. Another research project has been initiated in cooperation with the Noble Foundation. The objective of this experiment is to document animal health and performance differences among preconditioned (process verified) and non-preconditioned cattle that are purchased to graze wheat pasture.

Contact Name: David Lalman

Name of Planned Program/Activity: Acceptance of Ethanol-blended Gasoline in Oklahoma

Progress Report: Prior to January 2003, ethanol-blended gasoline had not been available to the Oklahoma consumer for the past two decades. In the fall of 2002, a study was conducted to assess consumers' knowledge and perception of this fuel. A total of 685 responses was received using a mail survey sent to a random sample of Oklahoma registered voters. Based on these responses, a majority of consumers recognize the fact that ethanol-blended gasoline is better for the environment than gasoline. Respondents indicated that a reduction in foreign oil dependency was the greatest potential benefit in using ethanol-blended gasoline. Consumers perceived that ethanol would have a positive effect on Oklahoma's economy. Cost was the most important variable for consumers when deciding to purchase ethanol-blended gasoline. Nearly two-thirds of the respondents indicated they would purchase ethanol-blended gasoline if it were available in the state. The information gained from this study will help the ethanol-blended gasoline industry understand the barriers that should be addressed plus the positive effects that could be expanded.

Contact Name: Raymond L. Huhnke

Name of Planned Program/Activity: Scheduling Fungicide Applications for Control of Watermelon Anthracnose

Progress Report: Watermelons are the most important vegetable crop grown in Oklahoma. In any given field of watermelon, anthracnose is more likely to cause complete crop failure than any other single factor. Outbreaks of anthracnose are sporadic because they are mediated by weather. However, fungicide typically is applied every 7 to 10 days to control the disease. In this integrated research and extension project, county educators and area and state extension and research specialists in Oklahoma are collaborating to demonstrate and evaluate a method of scheduling fungicide applications that is based on site-specific measurements on relative humidity and temperature. Data are being analyzed to compare the weather-based schedules of fungicide application with typical calendar-based schedules. The cost of applying a fungicide to a watermelon crop is approximately 20 \$/acre. Approximately 24,000 acres of watermelon are planted in Oklahoma each year. Assuming that the equivalent of one application of fungicide is withheld on only one quarter of the 24,000 acres of watermelon are planted in Oklahoma each year, the automated fungicide scheduling system can provide watermelon producers with an annual saving totaling \$120,000.

Name of contact: Jim Duthie

Name of Planned Program/Activity: Response of Winter Wheat to Bird Cherry-Oat Aphid (*Rhopalosiphum padi*) Infestations

Progress Report: The effect of aviruliferous bird cherry-oat (BCO) aphids on winter wheat was studied by infesting 10-day-old wheat seedlings grown hydroponically with 0, 10, 20, or 30 BCO aphids for 2, 4, 6, 8, or 10 days. After the appropriate length of infestation, roots and shoots of seedlings were measured quantitatively using a scanner and Root Edge software. Seedlings were transplanted into soil, vernalized, and grown to maturity. Results indicated that low population levels of aviruliferous BCO aphids adversely affected root and shoot length of seedling wheat, and increasing aphid density decreased number of heads, number of seeds, and grain weight.

Contact Name: Robert M. Hunger

Name of Planned Program/Activity: Effect of Aviruliferous and Viruliferous Bird Cherry-Oat Aphids (*Rhopalosiphum padi*) on Hard Red Winter Wheat Grown Hydroponically and in Soil

Progress Report: The effect of aviruliferous (AVR) and viruliferous (VIR) bird cherry-oat (BCO) aphids on winter wheat was studied. Ten-day-old hard red winter wheat seedlings grown hydroponically and in soil were infested for 0 aphid-days (ADs), 10 ADs (5 aphids for two days), 50 ADs (5 aphids for 10 days or 25 aphids for 2 days), and 250 ADs (25 aphids for 10 days) with AVR or VIR BCO aphids. Following infestation, root and shoot growth of hydroponically-grown seedlings were compared by scanning and the use of RootEdge software. Soil-grown seedlings were vernalized following infestation and grown to maturity. Results from hydroponic studies indicated that although both AVR and VIR BCO aphids reduced root and shoot growth, VIR

aphids were the most damaging. Results from studies conducted in soil demonstrated that although both AVR and VIR BCO aphids reduced height, tillering, fertile head number, seed yield, and seed weight, VIR BCO aphids reduced these parameters significantly more than did AVR BCO aphids.

Contact Name: Robert M. Hunger

Name of Program/ Activity: Potential impact of *Phytophthora ramorum*, cause of the Sudden Oak Death epidemic in California, for Oklahoma ornamental nurseries

Progress Report: In 2001 a new pathogen of coastal forests in California and Oregon was identified as *Phytophthora ramorum*. This pathogen was killing oaks and understory plants at an alarming rate. It was also determined that the pathogen could be spread by nursery material. Ornamental nurseries in California and Oregon routinely ship plant material long distances to other parts of the USA, including Oklahoma. This raised fears that the pathogen could be spread to other regions by ornamental nursery material. Surveys in Oklahoma wholesale nurseries of known hosts of *P. ramorum* were conducted in July 2002 and in May-June 2003. *Phytophthora ramorum* was not detected in any of the 134 samples from symptomatic plants by either PCR analysis or by culturing. Other *Phytophthora* spp. (*P. cinnamomi*, *P. citricola*, *P. citrophthora* and *P. parasitica*) were isolated from samples by culturing from all four hosts surveyed (viburnum, pieris, rhododendron and honeysuckle). Educational programs on the potential impact of this new pathogen on Oklahoma's nursery industry were presented at industry meetings and the results of the surveys were presented at scientific meetings. A web site for Oklahoma growers on Sudden Oak Death, <http://entopl.okstate.edu/users/svb/sod/>, was developed and is updated periodically as new information and regulated hosts become known.

Contact: Sharon L. von Broembsen

Name of Planned Program/Activity: Cooperative Projects 2003

Progress Report: Projects during 2003 included efforts directed at evaluation of vegetable and strawberry germplasm, screening of new weed control materials for use in vegetable crops and initiation of efforts on the biological control of weeds. Detailed results of these studies are included in the 2003 Vegetable Trial Report MP-164 and are available through the Department of Horticulture at Oklahoma State University.

Contact: Lynn Brandenberger

Program Title: Pecan and Beef Cattle Production Systems.

Progress Report: The annual Oklahoma Pecan Management Course is now in its 7th offering and has reached over 250 growers since 1997. The course continues to be the standard for excellence in pecan extension programs for commercial producers. Effective January 2004, a web based pecan management course was launched to reach producers unable to take the resident course.

Contact: Dean McCraw and Becky Carroll

Program Title: Peach Orchard Management Systems.

Progress Report: The project emphasis is on effective reduced spray total orchard management programs for commercial fresh market peach production. The program's current thrust emphasizes refinement of trapping and thresholds, quality assessment and effects on market acceptability. Data collection over the past 5 years suggest that pesticide applications can be reduced from the industry standard of 10 or more to a maximum of 6 utilizing best management practices without sacrificing product quality. Oral presentations of results have been made at grower and professional meetings

A study to evaluate high density peach planting trained in a perpendicular "V" was established in 2002. The study compares replant and new site, with and without fumigation using Guardian and Halford rootstocks. Data will include yield and tree longevity over 7 years.

Contact: Dean McCraw and Becky Carroll

Program Title: OK Wine Grape Cultural Systems and Cultivar Evaluation

Progress Report: A grape research/demonstration cultivar trial consisting of 13 cultivars of wine grapes with potential for production in OK as well as two rootstock evaluation trials was established in April 2001 at the Oklahoma Fruit Research Station. Entries are under evaluation for hardiness, vigor, growth characteristics and wine quality. On farm test plantings have been established with commercial vineyards at three locations to compare grafted with own root vines of 12 varieties under varying climatic conditions in Oklahoma. Likewise, pest management programs including insect and disease scouting and assessment are underway on station plots as well as grower vineyards in at least three locations.

The Extension program accompanying this project includes the Oklahoma Grape Management Course now in its fourth offering. The course that consists of 7 monthly meetings utilizes the research station plots throughout the year and has included 250 present and prospective grape growers.

Contact: Dean McCraw and Becky Carroll

Name of Planned Program/Activity: Cultural Practices for Vegetable Production

Progress Report: A watermelon cultivar evaluation trial was conducted at Lane, Oklahoma to determine the cultivars with the best yield, sugar content, lycopene content, and soil-borne pathogen resistance when grown under Oklahoma conditions. The purpose of the study was to provide current, detailed information to state and national producers, and to seed company breeders, to enable them to produce high quality food under the most efficient and reliable system. This study involved research efforts to determine the best cultivars for local conditions and extension efforts to disseminate the information to appropriate end-users. Forty-one watermelon cultivars were grown under practices similar to those encountered by local farmers. Fertilizer and

pest control methods were followed according to OSU recommendations, and were similar to those followed by Oklahoma farmers. The study included horticulturists, entomologists, and weed scientists with research and extension appointments from Oklahoma State University, as well as pathologists and physiologists from USDA/ARS. This study was conducted in cooperation with various seed companies, who contributed seed samples from currently available cultivars, as well as experimental cultivars that might be available in the near future if they are determined to be suitable for grower conditions. The experiment was demonstrated to local and state farmers and agri-business personnel at a statewide field day in June 2003. Results of the study were presented at a multi-state cucurbit meeting in Chickasha, Ok in December 2003. Results were also presented at a Southern Region - ASHS meeting in Tulsa, Oklahoma in February 2004. Written reports detailing the results were printed in an OSU variety trial publication and were made available to Oklahoma farmers and county extension personnel in January 2004. A written abstract will be submitted for publication later this year in a national journal (HortScience) detailing the results to a national audience. The result has been to provide farmers and associated decision makers with current, up-to-date information about watermelon production.

Contact: Warren Roberts

Name of Planned Program/Activity: Increased Use Of Better Adapted/More Appropriate Turfgrasses That Are More Resource-Use-Efficient

Progress Report: The turfgrass industry remains under intensive scrutiny to reduce labor, pesticide, fertilizer and other cultural inputs while providing cost effective i) sod or sprig production, or in the case of maintained turf, ii) soil erosion control, high visual quality and/or functional quality for the playing of sports. We have tested some 1,395 commercially available and 3,075 experimental turfgrass varieties across 21 species for adaptation to lawn, roadside, parks & grounds, golf course and sod production applications in OK during the last 13 years. Research continued in 2003 regarding cultivar testing and proper management. Research results can be used directly by the turfgrass specialist or end user when making recommendations concerning turfgrass selection for a given site. Over 225 consultations were conducted in 2003 via phone, fax, US mail, email and site visits concerning selection, installation and management of the best adapted turfgrass varieties. During phone consultations, approximately 70% of consultees indicated that they would pursue purchase and installation of the best adapted cultivars as indicated by the turfgrass specialist. This percentage is expected to rise once addition stocks of newly released cultivars increase to fill market demand. Over 553 individuals received training on proper turfgrass selection and management in 4 workshops and conference conducted in the region during 2003. During new construction and renovation of golf courses and athletic fields, better-adapted turfgrass varieties are being utilized in over 98% of cases in Oklahoma. Fungicide use for dollarspot disease control has been reduced by at least 10% when L-93, A-4 and G-2 creeping bentgrasses have been implemented on golf course putting greens in Oklahoma.

Contact: Dennis Martin

Name of Planned Program/Activity: Integrated Strategies For Management Of Spring Dead Spot Disease Of Turf Bermudagrass

Progress Report: Spring dead spot (SDS) is the most serious disease of turf bermudagrass in Oklahoma and in the transition zone states where the temperate and subtropical climate zones converge. Six multi-year trials that screened 80 bermudagrasses for SDS disease resistance have been completed. Three trials testing 52 varieties remained underway in 2003. Ten varieties with good or very good SDS disease resistance have been identified thus far in our joint state cooperative effort with Kansas State University with six of these varieties commercially available in the region. Patriot bermudagrass, a vegetatively propagated variety with improved cold hardiness and increased SDS disease resistance, was developed at Oklahoma State University (OSU) and commercially released in 2002. The first commercial sales of Patriot were made in Maryland (2003) and acreage is sufficient in Oklahoma for commercial sales to begin in 2004. Riviera seeded bermudagrass, developed and released by OSU continues to gain in popularity in the US and has now been used on athletic facilities in Japan and Italy. Four high visibility college stadium fields in Oklahoma have now been converted to the newest and best adapted bermudagrass varieties over older common types. Proper varietal selection information as well as integrated management strategies for SDS management was transferred to 430 turf industry leaders at 5 state/regional conferences 8 master gardener training sessions, the 4rd AR-OK Turfgrass Short Course, the Kansas Turf Conference and the 58th Annual Oklahoma Turfgrass Conference. All attendees (100%) indicated that they would integrate our recommendations into their existing programs to manage the disease. Over 90% of workshop attendees indicated that they will not attempt to use fungicides in controlling spring dead spot, as our research has indicated that currently available fungicides are ineffective in controlling this particular disease. Following our recommended practices will not eliminate but rather reduce severity of the disease, decrease time to recovery, and reduce disease management costs relative to use of fungicides alone.

Contact: Dennis Martin

Name of Planned Program/Activity: Development of Harvest Aid Recommendations for Oklahoma Cotton Producers

Progress Report: New harvest aid materials and/or combinations of materials continue to be evaluated in replicated research plots as well as large scale demonstrations in cotton production areas of Oklahoma. Multi-year results from these replicated experiments are used to develop recommendations for use of harvest aids for Oklahoma cotton producers. Harvest aid recommendations are extended through county educators and at producer meetings prior to the application season. Activities during the 2003 crop year include approximately 90 acres of replicated and strip research and demonstration plots, applied by OSU primarily on cotton grown by local producers. Eight presentations were given to producers prior to the application season, and three field tours showing plot results were presented to producers. High micronaire has been a problem in irrigated production areas, costing producers as much as \$.05 per pound in discounts. This discount in fiber quality is often due to improper harvest aid application and/or improper timing of harvest. OSU purchased a micronaire instrument in 2002 and made fiber evaluation available to producers at no cost. In 2003, over 200 fiber evaluations were made and only one discount for high micronaire was received when producers followed recommendations. Cotton research and demonstrations are made available to producers through a report booklet and results are available on the following web site: osu.altus.ok.us

Contact: J. C. Banks

Name of Program/Activity: Downy Brome and Tansymustard Control in Alfalfa

Progress Report: A field experiment was conducted at the Oklahoma Panhandle Research and Extension Center in Goodwell, OK to examine crop injury and efficacy of various alfalfa herbicides in alfalfa. Herbicides examined were Karmex, Sinbar 80W, Velpar, Sencor DF, Raptor, and Buytyrac. The experiment was established as a randomized complete block design with four replications. The plot size was 10 feet by 25 feet. The herbicides were applied postemergent on March 26, 2003. Tansymustard and downy brome were the dominant weed species present. The tansymustard was 2-6" tall at a density of 2-4 per ft², and 3-5 leaf at application time. Downy brome was 3-4" tall at a density of 0-5 per ft², and 4-9 leaf. Alfalfa was 2-3 inches tall and had broken winter dormancy approximately 3 weeks earlier. Tansymustard and downy brome control was determined at 14 and 30 days after treatment (DAT). Alfalfa forage yield was determined for the first 2 harvests (May 14 and June 25). Downy brome and tansymustard control varied with herbicide and rate. Velpar at 3 pts/acre gave the highest downy brome control at both 14 and 30 days after treatment. Velpar at 2 and 3 lb/A, Raptor, Sencor DF, and Sinbar at 1 lb/A all gave better than 90% control of downy brome at 30 DAT. Sinbar, Velpar, Sencor, and Raptor all gave better than 90% control of tansymustard 30 DAT. 2,4-DB provided very poor control of tansymustard, and no control of downy brome as expected. Karmex, Sinbar, Velpar, and Sencor all caused slight visible crop injury 14 DAT, although the crop injury did not significantly affect yield.

Contact: Curtis Bensch

Name of Program/Activity: Evaluation of Various Herbicides in a Roundup Ready Corn System for Control of Palmer Amaranth

Progress Report: A field experiment was conducted at the Oklahoma Panhandle Research and Extension Center in Goodwell, OK to examine efficacy of various premix and tank mix combinations of new DuPont and Syngenta herbicides in a Roundup Ready corn system. Herbicides examined were Cinch ATZ, Steadfast, Callisto, Atrazine, Distinct, Rimsulfuron, Roundup WM, Lumax, Bicep II Magnum, and Expert. All herbicides were applied at labeled rates. The experiment was a randomized complete block design with four replications. The plot size was 10 feet by 25 feet. Palmer amaranth was the only weed species present in the plots. There was no significant difference between treatments and treatment combinations, with all herbicides treatments examined giving better than 90% control of Palmer amaranth.

Contact: Curtis Bensch

Name of Planned Program/Activity: Alfalfa Integrated Management

Progress Report: The AIM Team works in an integrated research and extension fashion to improve the information available for alfalfa production. The Oklahoma Alfalfa Production Calendar <<http://alfalfa.okstate.edu/alfa-cal.htm>> is a web page designed to supply practical and

timely alfalfa production information. It contains applied information to assist in profitable production of high quality forage desired for marketing and use in Oklahoma and the surrounding area of the southern Great Plains. Information supplied has long-term applications such as stand longevity and immediate utility such as updates on current insect infestations. The ultimate audience for the Oklahoma Alfalfa Production Calendar is alfalfa producers; however, much of the information may reach them through County Extension Educators, Agricultural Consultants, and Crop Scouts. The site is organized around the month and production categories. Users select the month of interest, then indicate the type of production, storage, or marketing information desired. Following that selection, information is arranged from short statements to more in-depth discussions of topics or to references of publications with additional information. Bullet Statements serve as reminders to experienced alfalfa producers; Production Tips provide new information about products, processes, and research; and Information Capsules have information about a particular alfalfa topic. The web page also has links to Fact Sheets, Current Reports, Production Technology Reports, OSU Extension Circulars, and Other References, both on-line and others. Several hundred photos are provided to help understand problems and opportunities for alfalfa production. The web site has users from all alfalfa producing areas of the world. It has been on-line since 1997 and has received a Certificate of Excellence from the American Society of Agronomy, Educational Materials Program.

Contact: John Caddel

Name of Planned Program/Activity: Biology and Management of Pod Decay Diseases on Processing Snap Beans

Progress Report: Snap beans are an important vegetable crop grown for processing in Oklahoma where about 5,000 acres are grown, and in the surrounding states of Missouri, Arkansas, and Texas. Because snap beans are machine harvested in bulk with non-selective cutters, the crop is intensively managed to be nearly free of blemishes from disease, weeds, and insect contaminants. An emerging constraint production across the four-state region is pod decay. Lower pods, particularly those near the soil, develop a wet rot with profuse growth of white, fluffy mold. The disease appears to increase within the canopy through direct contact of diseased pods and leaves with adjacent, healthy pods. Plants in areas with dense foliar growth appear to be most severely affected. Severely affected fields are rejected at a total loss to the grower (production costs) and processor (seed costs). Harvest may proceed in fields with a low level of disease, but the disease often increases dramatically in bulk containers used for transit and storage prior to processing, where the pathogen (s) continue to grow and cause “nested” areas of decayed pods.

In cooperation with Allen Canning Company and the University of Arkansas, studies have been initiated to determine the causal agent and develop disease management strategies. Commercial fields have been surveyed and two species of *Pythium* spp., causes of “cottony leak” have been identified. With external support from the USDA/IR-4 minor use program, fungicides with activity against this class of fungi were evaluated over a two year period. Fungicide programs did not provide adequate disease control. As a result, cultural practices have been identified that might be modified to reduce the susceptibility of plants to infection. These include planting into a no-till stubble to increase plant height and reduce water splash, reduced nitrogen fertility to retard the development of a lush canopy and lodging, and cultivar selection for an upright plant architecture. Additional external funding has been secured from USDA/CSREES So. Region IPM

that will permit the evaluation of these cultural practices over a multi-year period. Results obtained thus far have been transferred to clientele in grower and industry educational programs. While a solution to the problem has not yet been developed, grower expenses for fungicide applications have been reduced on about 50% of the acreage.

Contact: John Damicone

Planned Program or Activity: Dry-land Crop Rotations and Tillage Systems in the Oklahoma Panhandle.

Progress Report: In the first four years of the study, precipitation for April – August has been below the long-term mean. With the drought of 2002 no dry-land crops were harvested. Therefore alternatives to the Wheat-sorghum-wheat rotation have been unsuccessful. In 2004 cotton will replace soybeans.

Contact: Rick Kochenower

Planned Program or Activity: Irrigated Crop Rotations

Progress Report: The year 2000 was to be the first year data was collected, but a hailstorm, insect damage, and irrigation problems were detrimental to crop production. In 2002 irrigation well collapsed and data was not collected. The crop rotation effect exists, corn yields are higher when rotated with soybean and grain sorghum, than when grown continuously in 2001 and 2003.

Contact: Rick Kochenower

Planned Program or Activity: Fourth Annual Panhandle Crop Production Clinic

Progress Report: On March 6, 2003 Crop production clinic was held at the Oklahoma Panhandle Research and Extension Center. Invited speakers gave presentations on Corn weed control, limited irrigation and planting date in the panhandle region. Variable rate fertilizer application and development of the sensors was also presented. Forage grasses and Bermuda grass production for the high plains was also presented. Forty-one producers, agriculture business personnel, extension agriculture educators, and 19 crop consultants attended the clinic.

Contact: Rick Kochenower

Planned Program or Activity: Oklahoma Panhandle Research and Extension Center Research Highlights

Progress Report: One hundred and fifty copies were published and people attending the Crop Production Clinic received forty-nine copies. Another 90 were requested during the rest of the year.

Contact: Rick Kochenower

Name of Planned Program/Activity: Agricultural Law

Progress Report: Research was conducted related to estate planning, livestock and fence laws, real estate transactions, liability issues and regulation of biotechnology. Information was provided to extension clientele in the form of journal articles, written materials that were developed, presentations and responses to phone questions. Information was provided directly to clients in some cases as well as to county agents or others who then used the information to serve their clients. A survey was conducted of elevators concerning their capacity to segregate biotech crops and information from this survey will be distributed to the participants as well as to the public.

Contact: Marcia Tilley

Name of Planned Program/Activity: Introducing Legume Cover Crops into Large Scale Grain-Cattle Production Systems

Progress Report: We are proposing the introduction of legume cover crops to help mitigate the negative impact of the fallow period after wheat harvest and to enhance the sustainability of grain-cattle operations. Cover crops have been rarely studied in the Oklahoma Panhandle; thus, we plan to evaluate several potentially adaptable legume species. Successfully establishing legume cover crops will allow farmers to expand their grazing season. Cattle normally graze on young wheat from December to March. Interseeding cover crop into wheat stubble immediately after harvest would make grazing possible during September, October, and November. Legumes will be selected for their potential to perform well under high temperature conditions, their ability to produce large quantities of high quality biomass, livestock preference and low bloating potential, and their ability to tolerate drought conditions. Legume cover crops will be grown in a reduced tillage environment thereby adding important benefits such as erosion control and enhanced soil and water quality. Additional agronomic benefits may include enhanced wheat suppression with reduced or no herbicide applications, increased levels of soil organic matter, and increased soil nitrogen supplying capacity. This on-farm research project is a jointed effort of the Texas County agriculture educator, research and extension specialists from the Oklahoma Panhandle Research and Extension Center, Natural Resources Conservation Service specialists, and several Texas County producers. The project is being supported by a grant from the Sustainable Agriculture Research and Education-On Farm Research Program and was initiated in spring 2003. Evaluations still under way.

Contact: Jose E. Sanchez

Name of Planned Program/Activity: Developing a White Wheat Marketing System

Progress Report: Domestic and foreign purchasers are requesting white wheat to meet their consumers demand. Presently, U.S. farmers do not produce significant amounts of white wheat, and it has been reported that our country has been unable to take advantage of some foreign market opportunities. This project seeks to identify current white wheat producers and producers interested in growing white wheat, determine their present and future acreage, and assist them in identifying a market for their white wheat. The project will identify potential end user/purchasers and reach marketing agreements. The project will further determine the least expensive way to

collect, segregate, and transport white wheat to a flour mill or purchaser's facility. The project is conducted under the leadership of a research team and assisted by a professional marketing consultant. In 2002, the Oklahoma White Wheat Producers Alliance received a grant from the Farm Diversification and Enhancement Board, Oklahoma Department of Agriculture, Food, and Forestry. In 2003, an additional grant was secured from the Sustainable Agriculture Research and Education-Producer Grant Program. The project is in progress.

Contact: Jose E. Sanchez

Name of Planned Program/Activity: Enhancing the Soil Nitrogen Supplying Capacity for Sustainable Crop and Livestock Production

Progress Report: Nitrogen requirements for crop production in the Oklahoma Panhandle region are supplied by applications of synthetic fertilizers almost entirely. The problem is that N fertilizer is becoming increasingly expensive and farmers are concerned with potential environmental contamination. The problem is exacerbated in irrigated areas where manure from confined operations is heavily applied. In those cases, important amounts of inorganic N can be found deep in the soil profile with the associated risk of reaching the aquifers. Excessive accumulations of N from synthetic fertilizers may also have a negative impact on the soil microbial community ultimately affecting soil quality and nutrient cycling. Thus, the developments of cost-effective more environmentally friendly N management strategies have become essential for the long-term sustainability and for this region to continue as one of the nation's leaders in agricultural production. We are proposing the improvement of the soil's capacity to retain nutrients and the increase of the soil N supplying capacity. Greater soil's nutrient retention capacity can be achieved through increases in soil organic matter and enhanced microbial activity. The soil's N supplying capacity can be enhanced through increases in the labile (easy decomposable) pool of N while controlling its mineralization. We attempt to achieve this by introducing legume cover crops into a wheat crop under a reduced tillage environment then followed by proper grazing management. Generally, a legume cover crop does not require applications of N fertilizer because of its ability to fix atmospheric N. Allowing cattle to graze in adequate numbers on legume cover crops provide the benefit of converting plant biomass into animal weight while avoiding manure overload and recycling the excess of N within boundaries of the farm ecosystem. Nitrogen fixation and recycling is likely to enhance the soil N supplying capacity for the next crop. A soil with greater N supplying capacity will need less N fertilizer without reducing yield. Increasing the soil's nutrient retention capacity would reduce nutrient losses to the atmosphere and to deep layers in the soil profile. Information on corn yield and economics of the cropping systems will be used as indicators of performance and the effectiveness of the proposed strategies. We are expecting to initiate this project in spring 2004 depending grant approval.

Contact: Jose E. Sanchez

Name of Planned Program/Activity: Selecting 2,4-D Tolerant Cultivars to Introduce Wine Grape as a Viable Crop in the Oklahoma Panhandle Region

Progress Report: The development of the wine grape industry has the potential to enhance the economic and environmental sustainability of the region. Unfortunately, the wide-spread use of

2,4-D herbicide throughout the region is preventing the establishment of commercial vineyards. Most grapes are susceptible to injury from exposure to 2,4-D herbicide. Exposure seldom occurs from using 2,4-D herbicide in the vineyard, but it drifts from surrounding agricultural areas. Exposure of 2,4-D generally results in distorted growth, fruit drop, loss of the current season crop and reduction of crop for the next year. Excessive exposure, however, can cause death of grape vines. We are proposing a study to screen grape cultivars and determine those types that successfully tolerate 2,4-D drift. This study will evaluate symptoms, damage, tolerance and mortality rates. A research trial consisting of least 12 varieties will be planted in the spring 2004 and terminated in 2006. This on-farm research project is a joint effort of several farmers from Texas County, researchers from OSU Departments of Horticulture, the Oklahoma Panhandle Research and Extension Center, and Oklahoma Panhandle State University. We are expecting to initiate this project in spring 2004 depending grant approval.

Contact: Jose E. Sanchez

Name of Planned Program/Activity: Development of Dryland Cropping Systems for Sustainable Crop and Livestock Production.

Progress Report: Water is the primary limiting factor for dryland agriculture in the South Central High Plains. Previous investigations of water conservation practices have generally considered the effect of each practice in isolation and have not attempted to combine them into holistic management systems. The primary objective of this study is to develop sustainable dryland cropping systems that combine practical techniques to increase precipitation use efficiency and enhance the soil's ability to store moisture. A 3-year flexible rotation consisting of winter wheat/spring oat-grain sorghum/forage sorghum-forage cowpea will be compared to a 3-year fixed rotation consisting of winter wheat-grain sorghum-fallow. Two management strategies, conservative and aggressive, will be compared to determine the optimal plant nutrition and populations strategy for enhanced production and environmental quality. Increasing biomass production would reduce the region's dependency on imported animal feed. More biomass production combined with reduced tillage and careful grazing management should build a residue mulch layer more rapidly and increase soil organic matter. This would result in less evaporation; greater water infiltration, water holding capacity, and snow/rain catching capacity; and have a beneficial impact in the overall soil physical, chemical, and biological properties. Drought tolerant cultivars and integrated pest management strategies will be used throughout the experiment. Our research plan spans multiple disciplines to develop and evaluate alternative dryland cropping systems based on their agronomic, economic, and risk performance; their ability to enhance soil quality and reduce the environmental impact; and farmers' perceptions regarding the adoption of these methods. This project will serve as a research and education platform encouraging the adoption of more sustainable dryland cropping systems and enhancing collaboration among scientists, extension specialists, and producers throughout the High Plains. We are expecting to initiate this project in spring 2004 depending grant approval.

Contact: Jose E. Sanchez

CSREES Goal 3 – Integrated Activities

Name of Planned Program/Activity: Oklahoma New Communities Project

Progress Report: The Oklahoma New Communities Project is a holistic approach to youth health education including personal health behaviors, physical activity, nutrition, food preparation and food safety. The goal of this project is to translate personal health behavior, physical activity, nutrition, food preparation and food safety recommendations into understandable actions and behaviors youth can apply to their daily lives. Participatory action research using focus groups was used to determine the direction of the educational content and delivery methods. Initial focus groups indicated concerns related to students lack of physical activity, especially for youth not participating in competitive sports, poor nutrition, and lack of food preparation skills. Based on initial focus groups one county New Communities Project has incorporated a garden in an after school program. The garden provides a unique method to actively involve youth in hands-on education related to science, health behaviors, physical activity, food and nutrition, and Native American culture. Pre and post data collection is in progress related to personal health, physical activity, nutrition, food preparation and food safety knowledge, attitudes and behavior.

Contact: Janice Hermann

CSREES Goal 4 – Integrated Activities

Name of Planned Program/Activity: Managing Arthropod Pests on Vegetable Crops in the South Central U.S.

Progress Report:

1. Evaluate alternative insecticides for use in IPM programs on watermelon and leafy greens crops and develop databases sufficient to serve as support for registration and use on the crops.

Integration with extension: During FY2003 we conducted 10 insecticide evaluation trials in small plots at the WWAREC. Results were published in *Arthropod Management Tests*. Results were summarized for producers and presented at state and regional producer meetings as written technical reports and/or verbal presentations. Meetings at which presentations were made included regional growers meetings in Tulsa, Chickasaw and Hydro, OK. The reports were also circulated nation wide to supporting ag industry leaders and representatives. Results were used to support recommendations made to IR4 during the annual prioritization conference and will be used to support Section 18 and 24c labeling for Oklahoma producers.

2. Developing management strategies for key pests of watermelon and processing crops grown in Oklahoma.

Integration with extension: During 2003 we initiated studies defining the spring movement of squash bugs into watermelon fields. Results will be used to develop sampling methods and threshold calendar dates at which growers may not have to be concerned with movement into production fields. Results were reported to producers at meetings in Chickasaw and Hydro, OK.

Contact Name: Jonathan Edelson

Name of Planned Program/Activity: Integrated Pest Management Research and Technology Transfer Concerning Biology and Control of Wood-Destroying Subterranean Termites – CY 2003

Progress Report: Field studies on termite foraging, feeding, taxonomy, distribution, and life habits are underway. These studies concentrate in Oklahoma, but are national and international in scope and include environmentally safe termite baits, new technology non-repellent termiticides, evaluation of the long-term fate and degradation of termiticides in soil, and physical exclusion barriers. Training for pest management professionals at the Pinkston Education Facility for Structural and Urban Pest Control provided certification training for 98 pesticide applicators. More than 1,800 pest control industry professionals, certified pesticide applicators, master gardeners, and private citizens received training at 13 conferences and workshops. Additionally, 12 Oklahoma “Experimental Use Permit” (EUP) homes are in a program to evaluate new termite control methodologies that could lead to reduced pesticide use. This is a USEPA and State (ODAFF) approved program that is run by Kard (OSU) to evaluate new methods in protecting wooden structures from termites. A scientific paper has been published elucidating termite speciation and distribution across Oklahoma. Conferences and workshops have led to business owners expanding their workforce. Teaching IPM has led to increased understanding of sanitation practices around structures, building construction practices, and improved building monitoring and inspection to eliminate conditions that are conducive to termite infestation, leading to cost reductions for termite control.

Contact: Brad Kard

CSREES Goal 5 – Integrated Activities

Name of Planned Program/Activity: Preparing Community Service Tools for Rural Decision Makers

Progress Report: This research project continues to develop tools that Extension personnel can use in Oklahoma and across the U.S. The tools can be classified into two categories; (1) impact models and (2) community service budgets. The impact models have been developed to measure the economic impact of the health sector components on the economy. State and local impact models have been developed. These models have been shared with health professionals across the U.S. through an outreach network called Rural Health Works. Community service budgets have been completed for assisted living and are underway for federally qualified health centers, several clinics and specialty physicians. These budgets plus other we have created in the past allow Extension workers to work with community leaders in determining how to provide essential services within their financial constraints. Budget studies were completed in about 30 communities in Oklahoma in 2003.

Contact: Gerald A. Doeksen

Name of Planned Program/Activity: Retail Trade and Gap Analysis

Progress Report: A database and methodology has been developed and which allows analysis of local retail trade trends. The database is maintained and updated annually. This applied research project is then presented to community leaders as a written report and in PowerPoint format. Over the past year, 38 communities have utilized this program in Extension educational settings. Community leaders express satisfaction with this customized research report.

Contact: Mike D. Woods

**U.S. Department of Agriculture
 Cooperative State Research, Education, and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Multistate Extension Activities and Integrated Activities
 (Attach Brief Summaries)**

Institution OSU Cooperative Extension
State Service _____
 Oklahoma _____

Check one: Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Actual Expenditures

Title of Planned Program/Activity	FY 2000	FY 2001	FY 2002	FY 2003
<u>Competitive/Sustainable Agricultural Production System</u>	<u>81,443.18</u>	<u>167,208.37</u>	<u>185,530.25</u>	<u>225,882.42</u>
<u>Healthier, More Well Nourished Population</u>	<u>1,290.91</u>	<u>2,357.03</u>	<u>4,051.15</u>	<u>5,457.77</u>
<u>Protected & Sustained Environment</u>	<u>41,409.93</u>	<u>81,736.96</u>	<u>67,770.08</u>	<u>64,977.33</u>
<u>Enhanced Economic Opportunity & Quality of Life</u>	<u>32,738.18</u>	<u>58,770.71</u>	<u>58,322.49</u>	<u>63,318.94</u>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total	<u>156,882.20</u>	<u>310,073.07</u>	<u>315,673.97</u>	<u>359,636.46</u>

 Director _____
 Date

Reports

CSREES Goal 1: Multi-State Activities

Name of Planned Activity/Program: Integrated Resource Management

Progress Report: I serve on the NCBA IRM advisory committee and participate in periodic conference calls. Collaboration on a Cow/calf Economics website for TX/NM/OK is continuing with Falconer, Bevers, and McGrann (all associated with Texas A&M) and Jones (Kansas State), although progress has been limited this past year. The website will provide one page answers to frequently asked questions with links to further information and references. We planned and conducted a Managerial Accounting multi-state workshop for accountants and ranchers in Ardmore with 55 participants from 4 states.

Contact: Damona Doye

Name of Planned Activity/Program: Southern Extension Farm Management Committee (SEFMC) and North Central Farm Management Extension Committees

Progress Report: I chaired the sub-committee that planned the national enterprise budget conference sponsored by the Southern Extension Farm Management committee to increase awareness of existing budgets and budget generating software tools among Extension staff and educators nationally. I presented e-Extension and multi-state collaboration ideas, searchable database overview, and OSU budgets. One outcome is that the southern region's searchable enterprise budget database is being merged with one developed by the Center for Farm Financial Management. These efforts were part of the Risk Management project, "Southern Region Enterprise Budget Resources: Database, Training and Educational Materials", for which I was a co-PI. The SEFMC continues to share new materials developed (e.g. Quicken notebooks and newsletters) on an ongoing basis so educators don't have to re-create the wheel and producers benefit from years of experience. I also participated in a meeting with CFFM staff to discuss the potential for National Technology team.

Contact: Damona Doye

Name of Planned Activity/Program: National and Regional Professional Associations

Progress Report: I served on American Agricultural Economics Association (AAEA) Extension Section board, president-elect through July, president for remainder of year. The board helps plan contributions to AAEA meetings (pre-conference, ag study tour, organized symposia, outlook sessions, luncheon, receptions, etc.) to increase their value as a professional development opportunity to Extension economists. We launched first new product for AAEA (expanded searchable directory of membership). I helped develop a survey for department heads regarding the potential for a new Extension award and we now have tentative approval for a new award for Extension Economists with less than 10 years experience. Monthly conference calls are used to conduct business.

I was the organizer for two symposia featuring national speakers at the AAEA meetings: "National Risk Management Technology Team" and "e-Extension and Opportunities for Agricultural Economists".

I participated in the regional e-Extension conference in Kansas City. I was a presenter at national and regional conferences. Presentations at the national risk management conference included “Quicken for Farm/Ranch Financial Records” and “Enterprise Budget Resources” for the national risk management conference. At the Southern Extension Committee meetings, I addressed “Future Extension Programs and Some Survey Results for the South”.

I contributed to development of a multi-state RMA grant proposal with Kansas State, to CECP taxonomy for basic economics, served on the Arkansas Departmental Review team, participated in North Central Farm Management committee meeting in St. Louis, and agreed to serve on WAEA Extension Awards committee. I also served on the Southern Ag Econ Association Extension Awards Committee and helped plan SAEA social for 2004 meetings.

Contact: Damona Doye

Name of Planned Activity/Program: Triennial Extension Conference (North Central and Southern Farm Management Committees)

Progress Report: I serve as co-chair for the planning committee for the national conference and I am responsible for receiving proposals for presentations, coordinating the review, and organizing the program.

Contact: Damona Doye

Name of Planned Program/Activity: Value Determination Alternatives for Fed Cattle

Progress Report: A survey of cattle feeders in four states (TX, KS, NE, IA) clearly indicated a shift to grid pricing and away from live weight pricing. Grid pricing involves a base price plus premiums and discounts for carcass characteristics of each carcass in the sale lot. Two key issues were addressed in this program. First, what alternatives exist for the base price in grids. Second, how can the premium-discount grids be made more efficient and effective at sending price signals for management decision making. A report was prepared for presentation in March 2003 to the industry group funding the project. Publications and professional presentations were prepared from this work during 2003.

Contact: Clement Ward

Name of Planned Activity/Program: North Central Region Cow/Calf Committee

Progress Report: The objective of this multi-state group is to exchange ideas, data, information, and research techniques in a cooperative, interdisciplinary effort among research stations to maintain an environmentally and economically sound beef cow/calf industry. The group meets annually for a two-day sharing and planning session. The meeting location is rotated among states so that different production systems and research programs can be visited. The group also collaborates to publish fact sheets and sponsor/organize an annual symposium at the Midwest Animal Science Meetings in Des Moines, Iowa. Proceedings from this symposium are published in peer-reviewed journals or published as extension fact sheets. One symposium was held at the

Midwest Animal Science Meetings and two review articles were published in 2003. Dr. Lalman presented an abstract and a paper at the symposium.

Documentation of Agreement: Proceedings

Other States Involved: CO, IL, IN, IA, KS, MI, MN, MO, MT, NE, ND, OK, SD, VA, OH, WI

Contact: David Lalman

Name of Multi-State Program/Activity: Western Dairy Management Conference

Progress Report: Developed program in cooperation with extension personnel from California, Texas, Kansas, Arizona, Oregon, Utah, Washington, New Mexico, Colorado, Idaho to provide education on issues specific to the needs of large western dairy herds and the industry personnel serving them. Conference to be held in Reno, NV, March 12-14, 2004. Attendance: 1,800

Next conference planned for Mar 9-11, 2005, Reno, NV.

Contact: Daniel N. Waldner

Name of Multi-State Program/Activity: Heart of America Dairy Herd Improvement Association

Progress Report: Provided technical assistance in training DHIA field technicians and producers in the use and analysis of herd performance data. Conducted 2 educational meetings for HOA on hoof care in Arkansas and Oklahoma.

Contact: Daniel N. Waldner

Name of Planned Program/Activity: "Demonstration of a Sustainable Integrated Production System for Native Pecan and Beef Cattle Producers and its Effect on Ecology in Flood Prone Areas"

Progress Report: A comparison of native pecan and beef cattle double cropping in naturally flood or non flood prone sites with or without legume forage has completed its third year at two locations in Oklahoma and Arkansas. Average pecan yield exceeded 700 pounds per acre over four harvests from non-flooding plots regardless of grazing or forage treatment. Legume plots had the highest nut yield whether grazed or flooded. In the OK trial average beef gain exceeded 300 pounds per acre over three years on non-flood plots with native vegetation. In flood prone plots beef gain was highest on legume forage. In AR beef gain was highest on legume plots. Grazing reduced tree leaf N content by about 10% whether flooded or not. Un-grazed legumes met the total N requirements of the pecan trees.

Contact: Dean McCraw

Name of Planned Program/Activity: S-293: Improved Insect and Mite Pest Management Systems on Pecan

Progress Report: Following the presentation of information developed for the National ESA meetings in San Diego, California in 2001, the group has assembled the symposium into special publication for the Journal of the Southwestern Entomologist. This publication was printed in December of 2003, as a special edition of this refereed journal that focused on pecan insect pest management. Dr. Dutcher moderated the meetings and coordinated the assemblage of manuscripts. Drs. Harris, Mulder and Reid served as the editorial committee for review of these manuscripts.

Results of evaluations and tests conducted throughout the U.S. were shared among attendees. Cooperative tests between Oklahoma, Kansas and Texas were accepted for publication and dealt with the development and utility of new trapping technologies for pecan weevil. Dr. Mulder is first author of this manuscript entitled "Evaluations of trap designs and a pheromone formulation used for monitoring pecan weevil, *Curculio caryae*." Drs. Reid (Kansas State University) and Mulder (Oklahoma State University) also published a manuscript in this same special publication entitled "Insect pest management systems for native pecans." The entire team of cooperators (including Dr. Mulder) also published a detailed treatise that encompassed 37 locations in eight states entitled "Pecan nut casebearer pheromone monitoring and degree-day model validation across the pecan belt." This feature manuscript represents a large cooperative effort of this multi-state project. Cooperative studies between Oklahoma, Louisiana and Texas were completed in 2003. These studies focused on the phenology of phylloxera in native and improved cultivars and the use of a degree-day based system for predicting their prevalence in these areas. Three years of data have been assembled on this project and information from all test sites was presented at the Western Pecan Conference in Las Cruces, New Mexico and at the Oklahoma Pecan Growers Annual Meetings. Preparation of a manuscript is underway and should be submitted in 2004. Drs. Hall and Mulder will co-author this effort. Finally, the group initiated another special symposium for presentation at the 51st Annual meeting of the Southwestern Branch of the Entomological Society of America (SWB-ESA) in 2003. This symposium was developed and arranged by Dr. Mulder who is currently serving President of the SWB-ESA. The meetings were held in Oklahoma City in February 2003. The symposium was entitled "New Developments in Management of Pecan Nut Casebearer in Pecan." The information exchange group will be meeting in 2004 during the Western Pecan Conferences and will be discussing a renewal of the current project and a cooperative grant effort.

Contact: Phil Mulder

Name of Planned Activity: Southwest Wheat Research and Education Consortium

Progress Report: Steering Committee Meeting was held on October 22. Planning for the Annual meeting, to be held March 22-24, 2003 at the Southwest Agricultural Research and Extension Center in Garden City were formalized. The group decided to write a book on Dual-Purpose Wheat production. Minutes of the SWREC meetings have been posted on our website at <http://swrec.tamu.edu/>.

Contact: Tom A. Royer

Name of Planned Activity: Areawide Pest Management Initiative for Cereal Aphid Management

Progress Report: An Areawide Cereal Aphid Pest Management Initiative was funded for \$2.5 million over 5 years with state partners Colorado, Nebraska, Kansas, Oklahoma, Texas and Wyoming. Sean Keenan, the Rural Sociologist hired to coordinate the focus group studies conducted a series of ½ day focus group meetings, consisting of 147 cooperating producers from all cooperating states and is currently summarizing the data. Diane Varner, a communications specialist was hired to produce a quarterly newsletter. Field plots have been established at all locations, and the first year's data has been collected. Additional crop rotation studies have been established in several states to collect additional data. Additional information can be obtained by going to the areawide web site at <http://www.pswcrl.ars.usda.gov/>

Contact: Tom A. Royer

Name of Planned Activity/Program Title: Multi-State Cooperative Projects 2003

Progress Report: Multi-state projects during 2003 included efforts directed at evaluation of vegetable germplasm, screening of new weed control materials for use in vegetable crops. Detailed results of these studies are included in the 2003 Vegetable Trial Report MP-164 and are available through the Department of Horticulture at Oklahoma State University.

Watermelon evaluations included 41 different cultivars including both seeded hybrids and seedless. Evaluations were carried out as a cooperative project with extension and research colleagues at Texas A&M. Dr. Warren Roberts acted as the coordinator of this project which was located at the Wes Watkins Research and Extension Center at Lane. Watermelon evaluations at Lane included the same cultivars, production system and recorded data as completed in Texas. These efforts will allow commercial producers and seedsman to compare commercially available watermelon cultivars over a wide range of conditions when grown under similar production systems.

Southern pea evaluation is a cooperative effort between eight land grant universities located in Oklahoma, Texas, Arkansas, Missouri, Louisiana, Mississippi, South Carolina and Alabama. The program is titled the Southern Cooperative Pea Trial. During 2003 15 advanced breeding lines were included in the replicated trial and 18 in the observational trials at the Goodwell Research Station. Cooperative work was also carried out with the University of Arkansas on the evaluation of eight different advanced breeding lines for tolerance to different herbicides.

Weed control research and demonstration work during 2003 included cooperative work with research colleagues at the University of Arkansas, Texas A&M, Clemson and Interregional Project # 4 of U.S.D.A. (IR-4). Dr. James Shrefler and my self were the primary investigators for this work in Oklahoma. During 2003, 13 different study/demonstrations were carried out throughout the state and included work on watermelon, southern pea, snap bean, spinach, cantaloupe, and honeydew. Work was also initiated on the use of brassica green manure crops for use as a bio-herbicide.

Other States Involved: Oklahoma, Texas, Arkansas, Missouri, Louisiana, Mississippi, South Carolina and Alabama

Contact: Lynn P. Brandenberger

Name of Planned Program/Activity: National Extension Advisory Committee on Federal Taxation

Progress Report: In 2003, the committee cooperated with the Internal Revenue Service to write and distribute the 2003 IRS Publication 225, Farmers Tax Guide that has been distributed to more than 300,000 Ag Producers and tax professionals across the nation. Participants from 20 states are represented on the committee. Members represent both extension and research appointments in their respective states. These activities are conducted under a Memorandum of Understanding between USDA and IRS. The committee meets with IRS in Washington each year in May to jointly write the Farmer's Tax Guide. The agenda also includes presentations from USDA and a meeting with the Joint Committee on Taxation. This important meeting allows our committee to inform the Joint Tax Committee on Ag taxation problems and issues.

Contact: Mike L. Hardin

Name of Planned Program/Activity: National Income Tax Preparer Education

Progress Report: In 2003, representatives of more than 20 states cooperated to develop educational material and conduct seminars and workshops for Farm and Non-farm tax professionals. More than 29,000 tax professionals attended these sponsored seminars nation wide. The National Farm Tax Workbook is also used to provide training for IRS and state department of revenue employees. Contributors represent both extension and research appointments at their respective Universities, IRS employees and individual tax school instructors. Educational materials were used in 28 states. The Land Grant University Tax Educational Foundation, (LGUTEF) coordinates and enhances the effectiveness of national and state tax education activities by land grant university professionals.

Contact: Mike L. Hardin

Name of Planned Program/Activity: Increased Use of Better Adapted Turf Bermudagrasses in Transition Zone States

Progress Report: Selection and use of the best adapted turfgrass varieties results in turfgrass stands providing improved quality of human life through reductions in soil erosion, urban noise, glare, particulate pollution, and sports turf injuries. Reduced potential of off-target environmental impacts also occurs due to reduced maintenance inputs when using best-adapted turfgrasses. Over 835 turfgrass managers were training on proper turfgrass selection techniques during 5 multi-state turf workshops in Kansas, Arkansas and Oklahoma. All managers indicated that they would use the information in making proper turfgrass selection decisions in their respective states. An Arkansas-Oklahoma turfgrass short course manual and digital presentation were updated to meet region-specific needs. These resources were adopted by three additional lawn care enterprises and three University grounds divisions for use in employee training. An on-site turf production demonstration at Salisbury, Maryland resulted in licensing of a progressive grower in 2002. The first commercial sales of the improved OSU turf bermudagrass release named Patriot (OKC 18-4), began in 2003 to end users in the Washington DC area. The licensee will serve in producing Patriot, with most sales going to the states of Maryland, North Carolina and Virginia. Patriot has improved cold hardiness and improved resistance to spring dead spot disease while matching or

exceeding the quality of existing industry standards. Service was completed on the National Turfgrass Evaluation Program (NTEP) Policy Committee, the major committee achievement for 2003 was moving distribution of hard copy reports to more cost-effective reporting using compact CDs for distribution to seed/sod industry cooperators around the U.S. that fund NTEP studies for some 30+ University cooperators. The tremendous storage content of the CDs allowed for end-users to receive not only current NTEP trial reports but also archival reports dating back to the inception of the NTEP in 1984.

Cooperators: Turfgrass programs at the University of Arkansas, University of Illinois and Kansas State University. National Turfgrass Evaluation Program, United States Golf Association, the Golf Course Superintendents Association of America and Oakwood Sod Farm in Salisbury, MD.

Contact: Dennis Martin

Name of Planned Program/Activity: NCR-194 Regional Research On Cooperatives

Progress Report: A research and outreach forum : Farmers Cooperative Conference was conducted in Kansas City during November. The annual two-day forum involving participation from academics, upper and middle management personnel from cooperatives, directors from cooperatives, and researchers in government. It focuses on ongoing research on cooperatives, identifying research issues, and coordinating research projects and outreach efforts among the participants.

Contact: Phil Kenkel

Name of Planned Program/Activity: National Ag Marketing Resource Center

Progress Report: The national Agricultural Marketing Resource Center is a joint project involving Iowa State University, Kansas State University, University of California-Davis and Oklahoma State University. The AGMRC project created an electronic, Web-based library with powerful search capabilities to make value-added information and other resources available to producers. Provide electronically available information and resources on value-added markets and industries including a wide variety of commodities and products. It also provides value-added business and economic analysis tools, including information on business principles, legal, financial and logistical issues. The center also coordinates specialists whose role is to work with producers and value-added producer groups and businesses. The AGMRC web-site (www.agmrc.org) came on-line in July, 2002 and contains over 150 publications. Dr. Rodney Holcomb and I have published several publications through the AGMRC including a beef processing feasibility template, a generic feasibility study template and several reference guides for producer-owned value added efforts.

Contact: Phil Kenkel

Name of Planned Program/Activity: Great Plains Cooperative Consortium

Progress Report: The Great Plains Cooperative Consortium involves academic cooperative specialists from Oklahoma State University, Kansas State University, University of Missouri, Texas A&M University and Colorado State University as well as representatives from state cooperative councils in the above states. The GPCC coordinates research, outreach projects and

conferences in the participating states. Activities completed in 2003 include a study of the post-merger performance of agricultural cooperatives, a survey of the impact of the Farmland Industries bankruptcy on local cooperatives and 12 fact sheets on cooperative management and board of director issues.

Contact: Phil Kenkel

CSREES Goal 3: Multi-State Activities

Name of Planned Program/Activity: CES Southern Region Distance CES-FCS In-Service Training and Education

Progress Report: The CES Southern Region is developing a site, CECP, for distance in-service training and education. CES State Specialists in the Southern Region have been working together to develop CES-FCS core competencies and to develop example distance in-service training modules on the CECP system. As the OCES Nutrition Education Specialist I was involved in evaluating core competencies regarding Nutrition and Health Promotion and I developed an example distance in-service training module on Diet and Diabetes.

Contact: Janice Hermann

CSREES Goal 4: Multi-State Activities

Name of Planned Program/Activity: Southern Region Water Quality Planning Committee and National Water Quality Program

Progress Report: Smolen participated in the Southern Region Water Quality Planning Committee (SRWQPC) at three planning meetings and at the Southern Region Water Quality Conference. Smolen sponsored eight people, who attended the Southern Region Water Quality Conference to share Oklahoma Programs with others in the region. Three poster presentations, three oral reports, and one demonstration were presented by the Oklahoma Representatives.

One individual (Fram) obtained training in storm water programming through a Southern Region program in North Carolina.

Smolen obtained information for on-site waste water training through a site visit to TAMU at College Station, Texas.

Under the SRWQPC, Smolen has formed a committee to plan a Minority Water Quality Summit Conference in which 1862, 1890, and 1994 Institutions will seek to expand program reach, share resources and expertise, and form work teams for future programs.

Four people attended the National Water Quality Coordinators Conference in Tucson and presented reports on their research and extension programs.

Accomplishments: The Southern Region Project expanded the capability of Oklahoma Cooperative Extension Service at the Southern Region Water Quality Conference and at the National Water Quality Coordinators Conference. A Regional Water Quality Conference was held in Ruidoso, New Mexico.

Contact: Michael D. Smolen

Name of Planned Program/Activity: Southern Region Integrated Pest Management Center

Progress Report:

I represent Oklahoma at the Southern Region IPM Center that supplies EPA and USDA with pest management information for Oklahoma and adjoining states. The Southern Region comprises Oklahoma, Texas, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, North Carolina, South Carolina, Florida, Kentucky, and Virginia. We supplied an updated Oklahoma watermelon crop profile, submitted a joint Texas and Oklahoma watermelon crop profile, and completed a pasture and range crop profile. Also a major accomplishment was the completion of a Stored Wheat Pest Management Strategic Plan. This plan provided great insight into the pest management needs of stored wheat facilities in Oklahoma. This provided a mechanism for stakeholder input to EPA and USDA of their pest management needs. This was well received by USDA and the Southern Region IPM center.

Contact: Charles Luper & Jim Criswell

Name of Planned Program/Activity: IR-4 Program

Progress Report: I represent Oklahoma in the IR-4 program that is a National Program to Clear Pest Control Agents for minor uses. I work closely with Texas, and Arkansas representatives to find pesticides that benefit our grower's common needs in our states at the IR-4 food use workshop. We work with other states that might have similar needs for a crop such as Louisiana, Colorado, Georgia, and Tennessee. Oklahoma submitted 85 Pesticide Clearance Reports to IR-4 headquarters for 2003.

Contact: Charles Luper & Jim Criswell

Name of Planned Program/Activity: SERA - Southern Region Information and Exchange Group - SRIPM.

Progress Report: The working group acts to exchange information for on-going IPM programs and reviews the RFP and results from the USDA/CSREES Southern Region IPM grants program. Results of the reviews are submitted to the Directors, CES and AES for incorporation into future RFP's. Impacts: this working group determines scope and direction for the SRIPM grants program. This group nows collaborates with the newly implemented USDA/CSREES funded Pest Management Center currently located at North Carolina State University. I currently serve as the secretary-elect and will serve as the co-chair and then chair for the SERA-SRIEG in subsequent years. Scientists and extension personnel from Texas and Oklahoma prepared and submitted a USDA/CSREES RAMP proposal in 2003 that was not funded. We are currently revising to submit this for the 2004 funding cycle.

New activities: I am preparing a revision of a USDA/CSREES RAMP proposal submitted originally in 2003 that involves cooperation with Texas and integration between research and extension. If funded I project spending 24 days per year for the next 4 years on the project.

Contact: Jonathan V. Edelson

Name of Planned Program/Activity: 4-H Wonderwise

Progress Report: Oklahoma is part of the 10-state project 4-H Wonderwise project led by Nebraska and funded by NSF. Eighteen additional counties were trained in 2003. Extension Educators incorporated Wonderwise into 4-H camps, day camps and a variety of other programs. Science came alive for over 530 youth who participated in 4-H Wonderwise programs conducted 2003. Visibility for Cooperative Extension and science were an additional advantage of the programs. Training was also provided as part of the 2003 State 4-H Leadership Conference.

Contact: Billie Chambers

Name of Planned Program/Activity: 2003 Public Policy Education & Public Issues Education Program

Progress Report: This program grew out of a coordinated effort of the Southern Extension Public Affairs Committee (SEPAC:12 state Extension policy specialists and the National Public Policy Education Committee (NPPEC: representatives from most states). Working with such organizations as Farm Foundation, the Kerr Center for Sustainable Agriculture, and Farm Bureau, members of the committees, are conducting a coordinated, ongoing effort to periodically conduct environmental scans of the controversial issues especially affecting agriculture and rural communities. For example, we have active development efforts to develop programs on environmental issues affecting the Southern Region, biotechnology, conservation programs in the current farm act, farmland protection, the budget and appropriations process, and country-of-origin-labeling. Support and planning of members succeeded in the 2003 NPPEC Conference in Salt Lake with a program that included presentations in the areas of Biotechnology and the Food System, Impacts of an Aging Population on Rural Communities, Payment Limits and Other Agricultural Policy Issues, Growth and Sprawl: Information, Tools and Approaches for Extension Educators, America's Bioenergy Potential: Options and Consequences for U.S. Agriculture. The planning efforts in SEPAC led to the Southern Extension Economists Meeting in Charleston that include presentations on COOL and Implementation of the New Farm Act. As a subgroup of SEPAC, work is also underway with counterparts in Arkansas on programs that target controversial water issues.

Contact: Larry D. Sanders

Name of Planned Program/Activity: National Advanced Resource Technology Center – USDA Forest Service, Marana, AZ

Progress Report: Provided a presentation and training course on maintenance and restoration of native plant communities with prescribed fire and prescribed grazing. This course is for all

Federal natural resource agencies (FS, BLM, FWS) to equip them for ecosystem maintenance and restoration work as mandated by Federal Policy.

Other States Involved: All 50 states plus Guam and the Caribbean Islands

Contact: Terry Bidwell

Name of Planned Program/Activity: National Range Judging Contest – Judging Rangeland for Livestock and Wildlife Values

Progress Report: Conducted the national high school judging contest for 4-H and FFA students to learn about rangeland ecosystems and their management for livestock and wildlife. This contest is the culmination of numerous county, regional, and state contest conducted across the country.

Other States Involved: 37 states

Contact: Terry Bidwell

Name of Planned Program/Activity: Restoration of Lesser Prairie Chicken Habitat

Progress Report: Provided research information; trained state and federal agency personnel, and conducted meetings to improve landowner awareness on lesser prairie chicken habitat restoration. There are 3 demonstration sites in western Oklahoma devoted to this effort. One comprehensive publication was developed this year entitled Ecology and Management of the Lesser Prairie-Chicken, OSU Circular E-970. I am using our long-term research project in western Oklahoma to facilitate the application of patch burning in shinnery oak communities on approximately 60,000 acres (5 ranches) in west Texas. One field day will be conducted in April 2004.

Other States Involved: Texas, New Mexico, Colorado, and Kansas

Contact: Terry Bidwell

Name of Planned Program/Activity: Restoration of Greater Prairie Chicken Habitat

Progress Report: Provided research information on a new fire and grazing system for private landowners that restores greater prairie chicken habitat. Conducted 2 field days on 3 demonstration sites central and western Oklahoma. One comprehensive publication is being developed this year entitled Ecology and Management of the Greater Prairie-Chicken.

Other States Involved: Kansas

Contact: Terry Bidwell

Name of Planned Program/Activity: Sericea Lespedeza Working Group

Progress Report: Coordinated efforts for research and education efforts on control and management of sericea lespedeza. This is part of a national effort to address invasive species. This working group has become inactive. No participation expected in 2004.

Other States Involved: Kansas, Missouri, and Arkansas

Contact: Terry Bidwell

Name of Planned Program/Activity: Black-tailed Prairie Dog State Working Group (part of the multi-state working group)

Progress Report: Provided assistance in preparing a management plan to improve the status of the black-tailed prairie dog and prevent it from being listed as a threatened or endangered species. This involves working closely with private landowners through the Oklahoma Department of Wildlife Conservation. The working group has completed an inventory of prairie dog towns and is in the process of evaluating the data. I am no longer active in this project and it is being effectively administered by one of our former graduate students, Larry Weimers.

Other States Involved: Texas, New Mexico, Colorado, Kansas, Nebraska, Wyoming, Montana, South Dakota, and North Dakota

Contact: Terry Bidwell

Name of Planned Program/Activity: SERA-IEG-6 soil, plant, water, and waste analysis

Progress Report: This group develops, modifies, and documents reference laboratory procedures, "regionalizes" soil test calibration/correlation and interpretation efforts among states that share similar soils and climate, and encourages both analytical proficiency and adequate quality control/quality assurance for nutrient analysis laboratories in the Southern Region of the United States. In June 2003, SERA-6 had its Annual Meeting in Vila Lagura, Puerto Rico to exchange ideas, discuss common issues. I gave a report on Oklahoma's soil testing and nutrient management activities. I served as the secretary of the group, took minutes and submitted a report for web posting. A number of other issues were discussed at the meeting and via list-serve. All those activities greatly enhanced the soil testing program in the southern region, e.g., more consistent results, shorter turn around time and more clientele satisfaction. Several extension publications and collaborative research reports were generated in the past year.

Contact: Hailin Zhang

Name of Planned Program/Activity: SERA-IEG-17 Minimizing phosphorus losses from agriculture

Progress Report: The purposes of this committee are to develop best management practices (BMPs) to reduce agricultural P losses to surface waters by erosion and runoff (surface and subsurface), and to develop environmentally-based critical limits for soil test P and new soil testing methods that can more accurately identify sites where P loss will be of significant environmental concern. I did not attend its annual meeting in Kimberly Idaho in July 2003 due to budget constraints, but actively participated in other group activities. This group established field and greenhouse P runoff study protocol and made significant contribution on P management to minimize the impact agriculture has on water quality. The knowledge I gained from this group has

been widely used in Oklahoma's waste management extension program and in developing a P risk index suitable to our soil conditions.

Contact: Hailin Zhang

Name of Planned Program/Activity: National Center for Manure and Animal Waste Management

Progress Report: Oklahoma State University is a member of the National Center for Manure and Animal Waste Management. I have been involving in most of the planned activities representing OSU. I revised the white paper about the state of science of remediating nutrient loaded soils resulted from heavy manure application I prepared the previous year. I spent significant amount of time to develop an extension curriculum to certify manure operators with scientists from 8 other universities. Many educational programs developed by the center and other multi-state initiatives have been disseminated to producers directly or to extension educators. Surveys and test results indicated that the awareness of water quality protection and nutrient management among our producers has been greatly increased. I attend center meetings twice to plan for the future of the center.

Contact: Hailin Zhang

CSREES Goal 5: Multi-State Activities

Name of Planned Program/Activity: Extension Youth Serving Communities Grant Project

Progress Report: The Southern Extension Region submitted proposals in three areas: 4-H Afterschool, Youth and Adult Partnerships, and Volunteer and Staff Development. Oklahoma staff assisted in writing and submitting a grant in the Afterschool area. The grant has been used to provide support to the development of an online Staff Development Course that has been posted on the SR Cooperative Extension Curriculum Project (CECP) web-based Campus.

The second round of grants is now being awarded and we will be in a multi-state project with North Carolina, Louisiana, Florida, Kentucky, Arkansas, and Texas.

Contact: Jeff Sallee & Charles Cox

Name of Planned Program of Activity: Scientific Focus in 4-H

Progress Report: A team of county and state staff for Oklahoma and Arkansas has been partnered to work on the expansion of science and technology projects for youth in these two states. Both states have developed teams of youth and adults that work primarily to expand science and technology literacy. The two state teams have met twice jointly to discuss science and technology projects. The first meeting was held in Arkansas in November 2002. This meeting covered topics regarding biotechnology in the future. The second meeting was held in Oklahoma in November 2003. At this meeting the two teams focused on 4-H Robotic programs. The teams

are currently considering hosting a science and technology conference for 4-H members from both states.

Contact: Jeff Sallee & Charles Cox

Name of Planned Program or Activity: Kansas City Global 4-H Conference

Progress Report: This event was once planned and conducted by the Kansas City Chamber of Commerce. Over time the event declined and was near the point of being cancelled. A team of faculty and staff was identified with multi-state representation whose charge was to strengthen the education content of the event. The three-day event now features tours, workshops, service learning, and cultural events that prepare youth for future career opportunities.

States Involved: Kansas, Oklahoma, Missouri, Arkansas, Nebraska, and Iowa

Contact: Tracy Branch & Charles Cox

Name of Planned Program or Activity: Southern Region 4-H Program Specialists Biennial Conference

Progress Report: As the chair of the SR 4-H Program Leaders group I was activity involved with the Louisiana 4-H staff in the planning of the biennial meeting. I also made a presentation to the general session on CECP and e-Extension and assisted with a workshop of the 4-H Afterschool on-line CECP course.

Contact: Charles Cox

Name of Planned Program of Activity: SR Cooperative Extension Curriculum Project (CECP) web-based Campus.

Progress Report: Staff from Oklahoma and Arkansas provided leadership the development and posting of two courses for the SR Cooperative Extension Curriculum Project (CECP) web-based Campus. The team worked with input from other SR states that determined the scope and sequence of the core curriculum that would be posted.

Staff from the two states met in Stillwater and did actual computer design work and tested the courses. Following an external review the courses were shared with the other SR states at the annual PLC meeting and also the 2004 SR Biennial Conference.

Contact: Charles Cox, Jeff Sallee, and Darlene Baker (AR)

Name of Planned Activity/Program Title: Economic Tools for Health Planning

Progress Report: Conducted rural health impact and budget workshops in 12 states. (Total of 45 states in last three years) At the workshop, I taught Extension, Office of Rural health Professionals, State Hospital Association, primary care, area health educators, etc. the health

impact model and health budget tools. Taught a health impact workshop sponsored by Southern Rural Development Center. I also presented material at 10 state and regional meetings. I also participated on five regional and national committees..

Contact Name: Gerald A. Doeksen

Name of Planned Program/Activity: National Extension Tourism Conference

Progress Report: The National Extension Design Team is sponsoring a national conference on tourism. The conference will be held in Florida in the fall of 2004. Over 40 submissions for presentations have been sent to the committee to review. In addition, 20 poster sessions have been proposed. This multi-state activity will highlight tourism efforts and educational programs offered by extension.

Contact: Mike D. Woods

Name of Planned Program/Activity: NE-167 - Family Businesses in Economically Vulnerable Communities

Progress Report: Data from second and third surveys are being analyzed. Team will be presenting objective and subjective economically vulnerable indexes that can be used to define economically vulnerable communities. Fourteen manuscripts and were completed during the last year. A conference at Baruch University on home-based businesses was held with a monograph soon expected from the conference. All the material included was from an analysis of the NE-167 data. I currently serve as co-chair of the group. For more information see 2003 annual report at: <http://www.human.cornell.edu/ne167/>

Contact: Glenn Muske

Name of Planned Program/Activity: Family Resource Management Via the Web

Progress Report: This web site was completely revised in 2002. Small updating continues. It continues to be used for in-service training.

States Involved: MT

Contact: Glenn Muske

Name of Planned Program/Activity: Great Plains Inter-Institutional Distance Education Alliance

Progress Report: The Great Plains Interactive Distance Education Alliance (GPIDEA) is a consortium of Human Sciences Colleges at ten universities. Students may pursue a degree offered by a single institution or multiple institutions. Each university brings a unique strength to the multi-institution academic programs. In a multi-institution program, a student is admitted at one institution and enrolls in courses at multiple institutions. Currently the Alliance is in its third year of offering a M.S. degree in Family Financial Planning. The FFP program provides an

opportunity for Extension Educators to get their M.S. degree completely on-line in a CE-FCS priority area and eliminates travel costs and time. Other programs soon to be started are an M.S. degree in Gerontology, an M. S. degree in Youth Development, and classes supporting Home Economics Education programs. FFP program won two awards for its use of technology in education.

States Involved: CO, IA, KS, MI, MT, NB, ND, OK, SD, TX

Contact: Glenn Muske

Name of Planned Program/Activity: 4HCCS Entrepreneurship curriculum

Progress Report: Work on curriculum development team for a 4-H Entrepreneurship program. Proposal has been funded by 4-HCCS with additional private funding being sought. Curriculum is now in the pilot test stage.

States Involved: WV, VA, FL, UT, MD, NC, MN, CSREES, OK, MO

Contact: Glenn Muske

Name of Planned Program/Activity: An in-depth look at copreneurial couples

Progress Report: Funding proposal being submitted.

States Involved: ND

Contact: Glenn Muske