

ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

RESEARCH AND COOPERATIVE EXTENSION

Langston University

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A. Planned Programs

National Goal 1

An agricultural system that is highly competitive in the global economy. Through research and education, empower the agricultural system with knowledge that will improve the competitiveness in domestic production, processing, and marketing.

Overview

Langston University Research and Extension continue to carry out programs/projects designed to make our clientele highly competitive in the global economy of a world with ever shrinking boundaries. Research personnel are addressing nutritional needs of goats. Knowledge regarding nutritional needs of goats lags far behind the knowledge of cattle and sheep nutrition. Nutritional needs of goat have impacts in many areas such as reproduction, breed or biological type, internal parasitism, growth rate and overall management. Results from this research will help goat producers to increase the level and efficiency of their goat herds' productivity.

A very important factor in meat goat production is the growth rate efficiency of kids. Langston University Cooperative Extension personnel have developed a meat buck performance test to determine growth rate efficiency in goat kids. The test allows for identification of genetically superior meat goat lines. Use of genetically superior meat goat lines has helped some Oklahoma producers to become more competitive in meat goat production.

A highly effective Extension tool for knowledge dissemination of goat research findings has been the annual goat field day. Langston University's 20th annual field day was conducted in April of 2005. The field day had 404 registered participants and disseminated 500 copies of the 20th Annual Goat Field Day Proceedings.

In the area of aquaculture, Langston University researchers are working to make small fish farms in Oklahoma and other parts of the United States more competitive. The culture of Channel Catfish for processing is hampered by development of off-flavors. These off-flavors accumulate in the fish's flesh from algal products present in culture ponds. Up to 50% of the standing stock of United States catfish production is off-flavor at any given time. In response to the off-flavor, producers are forced to increase their culture costs by holding catfish until their flavor improves. This step in catfish culture incurs additional expenditures and increased fish mortality.

Total FY 2005 Expenditures and Full-time Equivalents (FTE) for Reported Projects

Smith-Lever: \$ 29,008 FTE: 2.00

Evans-Allen: \$ 76,711 FTE: 5.03

Key Theme – Animal Production Efficiency (Research)

- a. The knowledge base for goat production (including nutrition, management and product development) lags behind that for other ruminant species such as cattle and sheep. It is with this premise in mind that the general objectives of these projects were to study goat nutrient requirements, management practices and systems in order to increase the level of production efficiency in goats.
- b. **Impact** – Goat enterprises are important components of many farms and farming systems in the United States; especially among small and resource-limited units. In addition, there are growing numbers of farms where sales of goats or goat products provide a sizeable amount of on-farm income and some large operations have added goats to their more conventional production systems.

In 2005, work performed in the area of animal production efficiency helped farmers to improve their goat management practices and the overall efficiency of their goat enterprises.

- c. **Source of Federal Funds:** Evans-Allen
- d. **Scope of Impact** – Oklahoma/the United States

Key Theme – Aquaculture (Research)

- a. During 2005, aquaculture researchers investigated the feasibility of using a seafood processing technique (acid solubilization) as a tool for removing off-flavor compounds from channel catfish flesh. Channel catfish were contaminated with either geosmin or 2-methylisoborneol by immersion in water containing 1 ppb of either target compound. After 24 hours, the fish were processed and analyzed for off-flavor. A single fillet from each fish was ground and acid solubilized. Paired samples from each fish (fillet and solubilized protein gel) were compared for off-flavor content by gas chromatography/mass spectrometry.
- b. **Impact** – Off-flavor was reduced by over 90% in all channel catfish samples. The commercialization of this off-flavor elimination technique will allow catfish culturists to reduce production costs because they will no longer need to hold their catfish until the flavor improves. This has the potential of significantly reducing production costs for catfish farmers.

- c. **Source of Federal Funds:** Evans-Allen
- d. **Scope of Impact** – Oklahoma/the United States

Key Theme – Animal Production Efficiency (Extension)

- a. A very important factor in meat goat production is the growth rate efficiency of goat kids. Objective performance records are needed when making sound genetic selections to improve average daily gain and/or feed efficiency in goat herds. In order to compare animals from different ranches or environments, a central performance meat buck testing site was developed at Langston University.
- b. **Impact** – Over the nine-year period in which meat buck performance tests have been conducted, meat goat producers have been able to purchase performance-tested bucks via a public auction. Some producers improved the genetics of their meat goat herds resulting in profits during 2005. One producer attributed increased market values of his goats directly to the Langston University buck performance test.
- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of Impact** - Oklahoma/the United States

<p>National Goal 3</p>

A **healthy, well-nourished population**. Through research and education on nutrition and development of more nutritious foods, enable people to make health promoting choices.

Overview

Obesity is the number one malnutrition problem in the United States today. Studies show that individuals who are 20 percent or more overweight run an elevated risk of developing diabetes mellitus, hypertension, coronary heart disease, stroke, arthritis, and some forms of cancer. The two main factors contributing to overweightness and obesity are hereditary and environmental. Two additional contribution factors include lifestyle and eating patterns.

Nutrition wellness programs were conducted by Langston University personnel for clientele in Oklahoma counties. 4-H Youth Development staff collaborated with other organizations to provide educational programs to youth and adults in underserved areas. These programs were beneficial to all participants. Food selection, preparation, and exercise practices were key components of the presentations. The programs were

instrumental in reaching youth and adults attending health fairs, workshops and educational events.

During 2005, Langston University's Goat Kid In The Classroom program addressed the subject of human nutrition. Sessions targeted youth (Pre-K to 12) and adults and taught them the nutritional benefits of goat products such as goat meat, milk and cheese.

Total FY 2005 Expenditures and Full-time Equivalents (FTE) for Reported Projects

Smith-Lever: \$ 3,500 FTE: 0.20

Key Theme – Human Nutrition (Extension)

- a. Good nutrition and exercise are vitally important to good health among youths and adults. The objectives of the “Healthy You” and “Goat Kid In The Classroom” programs were to provide information and/or demonstrations in the areas of nutrition education, exercise regiments and healthy alternative forms of dairy and meat products.
- b. **Impact** – Participants in the Healthy You program reported that these programs increased their knowledge of the importance of consuming healthy foods and developing a healthy diet. They expressed appreciation that these sessions have helped them to select, prepare, and maintain foods that are more nutritious. Comments from 2005 participants included testimonials that information obtained from these meetings and learning experiences provided them with additional knowledge to assist them in making positive changes in their lives, income management and personal development. Participants are also participating in exercise programs and have developed positive attitudes toward eating and exercising.

Over eight hundred Goat Kids In The Classroom participants were instructed in the area of the nutritional values of goat products. Some parents were enlightened on the value of goat milk as a substitute for cow's milk for lactose intolerant children.

- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of Impact** – Oklahoma

National Goal 4

Greater harmony between agriculture and the environment. Enhance the quality of the environment through better understanding of and building on agriculture's and forestry's complex links with soil, water, air, and biotic resources.

Overview

Ponds and their watersheds are natural resources that are often under-utilized and mismanaged. Owners are pursuing opportunities to improve recreational angling in their ponds and home food fish production. Pond owners are also interested in environmental issues such as pond aesthetic value through aquatic vegetation control, erosion control, ornamental plantings and clearing of muddy water.

Total FY 2005 Expenditures and Full-time Equivalents (FTE) for Reported Projects

Smith-Lever: \$ 30,000 FTE: 0.95

Key Theme – Sustainable Agriculture (Extension)

- a. During 2005, sessions were conducted with poultry producers, homeowners' associations and individual pond owners. Those seminars/demonstrations were conducted to help participants understand the connection between the environment and poultry litter use. Sessions also dealt with how multiple activities conducted in a watershed affect water quality and fish populations.
- b. **Impact** – A group of twenty-five members of an Enid, Oklahoma homeowners association organized a workday, cleaned their pond and installed aeration units. Pond algae and rooted aquatic vegetation have been reduced by an estimated amount of 50%. The pond no longer has an offensive smell and neighborhood fish angling activity has increased. Dissolved oxygen levels in the pond are now less likely to cause fish kills. Residents now have an increased awareness and appreciation for the effects of lawn and garden fertilization on their neighborhood pond.
- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of Impact** – Oklahoma/the United States

National Goal 5

Enhanced economic opportunity and quality of life for Americans. Empower people and communities, through research-based information and education, to address economic and social challenges facing our youth, families, and communities.

Overview

Langston University Cooperative Extension personnel are implementing programs to enhance economic opportunities and quality of life for Americans. A quality education is perhaps the greatest avenue for enhancing future economic opportunities for youth. Two of the most glaring obstacles to many youth becoming high achievers in school are poor reading and speaking skills. The Cooperative Extension 4-H reading program is achieving success in enhancing youth participants' reading and speaking skill levels. These enhancements are taking place through 4-H after-school enrichment sessions and a 4-H summer reading camp.

Langston University Cooperative Extension is addressing what has been labeled as being "a bad manners epidemic". According to a U.S. News and World Report Survey: 78% of the nation's population feel that rudeness has worsened in the past 10 years; 90% of the population feel that rudeness has contributed to increased violence; and 85% of the population feel that rudeness divides the national community.

Total FY 2005 Expenditures and Full-time Equivalents (FTE) for Reported Projects

Smith-Lever: \$ 21,000 FTE: 3.2

Key Theme – Literacy (Extension)

- a. Youth residing in three Oklahoma communities and who attend Coyle Public Schools (Pre-K through 12) were provided an opportunity to participate in an after-school enrichment program. Students engaged in numerous learning by doing activities.

The Langston University Cooperative Extension's 4-H Youth Development Extended Education Program created a Literacy in Action 4-H Summer Reading Camp especially for students in grades kindergarten through fifth. The program is uniquely designed to help participants develop and maintain literacy skills, and develop reading for pleasure habits during their summer break. The six week Reading Camp was conducted at a Langston community site. All students participated in four, forty-five minute rotational sessions daily. The sessions

included: reading games, competitive reading, creative writing, storytelling, sign language, and beginners French.

- b. **Impact** - The 4-H after-school enrichment program and the 4-H Summer Reading Camp provided participating students with a safe learning environment where reading, speaking, leadership and other sessions were taught to supplement and reinforce subjects taught in the public school system during the regular school year. Parents reported that the 4-H Summer Reading Camp provided academic support in the form of an “academic jump start” with “perfect timing before the new school term begins”. Parents also reported that the program helped their children to develop a greater interest in recreational reading. Teachers reported that the camp helped to improve the “summer slide effect”, and that students returned to school with better attitudes concerning their academic performance. Both parents and teachers considered it to be beneficial and effective.
- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of Impact:** Central Oklahoma

Key Theme – Character/Ethics Education (Extension)

- a. The Langston University Cooperative Extension Program provided a series of educational sessions on etiquette, manners and table settings for youth ages 5 to 12. The sessions included the use of worksheets, flipcharts, books, videotapes, dishes, silverware, glasses, placemats and napkins. Youth were taught how to properly set a table for dining and the proper use and approach to each item in the place setting.
- b. **Impact** – Good manners and social skills provide children with vital tools needed to climb the ladder of success. Proper social etiquette plays an important role in the job interview process and often in career advancement. Comments from parents who had children attending sessions have been positive. Parents have commented on how these sessions have improved their children’s table manners and behavior.
- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of Impact:** Central Oklahoma

B. Stakeholder Input Process

1. Actions taken to seek stakeholder input that encourage their participation

The research and extension components of Langston University are continually encouraging and seeking input from stakeholders to improve the effectiveness of our scientific research and information delivery systems.

Actions taken to obtain stakeholder input include:

- (i.) Interaction with stakeholders at field days and workshops
- (ii.) Newsletters
- (iii.) Phone calls
- (iv.) Our website
- (v.) On-farm visits
- (vi.) Stakeholder surveys
- (vii.) Advisory committees

2. **A brief statement of the process used to identify individuals and groups who are stakeholders and to collect input from them.**

(a) Stakeholder Identification

A listing is compiled of people who are involved in one or more of the following:

- (i.) Call us
- (ii.) Write us
- (iii.) Contact us via e-mail
- (iv.) Attend our goat and aquaculture field day
- (v.) Attend our meetings and workshops
- (vi.) People who request to have their name added to our newsletter mailing list
- (vii.) People who contact us via our website
- (viii.) People identified by an advisory committee and/or community leaders
- (ix.) Clientele who enroll in our specialty services such as our Dairy Herd Improvement laboratory program.
- (x.) Associations such as the American Boer Goat Association, American Meat Goat Association, American Dairy Goat Association, Green

County Dairy Goat Association, Red Plains Dairy Goat Association, Tennessee Goat Producers Association, United States Boer Goat Association, Archer Daniels Midland Corporation, BASF, Sweetlix Corporation, Purina Mills and others.

- (xi.) Also, some state and government agencies interested in working in the area of small ruminants have been identified. They include but are not limited to the Oklahoma Department of Agriculture, USDA Natural Resource Conservation Service, USDA ARS, Appalachian Farming Systems Research Center, USDA ARS Dale Bumpers Small Farm Center, and others.
- (xii.) Tribal government agencies that have expressed a desire to work in the area of small ruminants have been identified through contacts and they include the Osage, Cherokee, Greater Seminole, Sac and Fox and Choctaw Nations.
- (xiii.) Stakeholders are also identified through interaction with colleagues at professional meetings.

(b). Collection of Stakeholder Input

- (i.) The annual Goat Field Day is held to educate producers, highlight and disseminate research findings. The one-day program offers general concern/information presentations during the morning session and practical workshops geared toward dairy, fiber, or meat production in the afternoon. At the end of the morning session, attendees are requested to complete an evaluation assessing their satisfaction with the general session. Attendees are specifically asked what they liked the best, what they liked the least, and what ideas for topics they have for future field days. At the end of each afternoon session, attendees are also requested to complete an evaluation of the session that they just attended.
- (ii.) For buck performance testing, E (Kika) de la Garza American Institute for Goat Research (GIGR) personnel work with Oklahoma Milk Goat Association members to make any adjustments to the performance test that are necessary during the planning stage each year. In addition, feedback is sought from producers who have enrolled a buck in the performance test.
- (iii.) For the artificial insemination workshops, at the end of the training session participants are requested to complete an evaluation assessing their satisfaction with the workshop. Participants are specifically asked what they liked the best, and what they liked the least. Evaluations are summarized and tabulated and the results are disseminated to presenters and GIGR administrators.

- (iv.) For the Langston University Goat Dairy Herd Improvement (DHI) Laboratory, feedback on service is solicited from clientele (dairy goat producers), the American Dairy Goat Association, the Green County Dairy Goat Association and the Red Plains Dairy Goat Association primarily in the form of telephone surveys.
- (v.) Considerable stakeholder input is collected during presentations of research findings at scientific meetings. Moreover, input is received in the peer review process for manuscripts and grant proposals.
- (vi.) E-mail and website stakeholder inputs are collected for use in strengthening our efforts to meet the public's needs.
- (vii.) 4-H programs are evaluated and clientele inputs are collected at the close of sessions.

3. A statement of how collected stakeholder input is considered

In general, our research and extension efforts are stakeholder-driven. More specifically, listed below are ways stakeholder input is used.

- (i.) 4-H programs and activities are tailored to meet stakeholders' needs.
- (ii.) Aquaculture fact sheets and field day topics are designed to meet the interests and concerns of our stakeholders.
- (iii.) From the annual field day, evaluations are summarized and tabulated and the results are disseminated to presenters, administrators, and GIGR colleagues. In addition to the evaluations, GIGR personnel circulate among the attendees and discuss topics of interest and solicit feedback. Suggestions for topics of future field days are reviewed and several have been incorporated into subsequent field days. Examples of feedback incorporated in field days are a youth program to occupy young children while their parents attend morning and afternoon sessions, a fitting and showing workshop for older youth and parents who are interested in showing goats, utilization of portable toilets to alleviate the shortage of facilities for females, and the rearrangement of the morning registration process and location.
- (iv.) For the buck performance test, format and report parameters for the midpoint and final reports have been changed at the suggestions of goat producers. Minor changes have been made in the performance test at the request of the American Boer Goat Association and the International Boer Goat Association, to whom final reports are sent.
- (v.) Evaluations on the artificial insemination workshops are summarized and tabulated and the results are disseminated to presenters and GIGR

administrators. Identified strengths of the workshop are further strengthened and identified weaknesses are addressed.

- (vi.) Inputs received during the presentation of research findings at scientific meetings and from the peer review of scientific manuscripts or grant proposals often lead to experimentation in new areas or with different techniques or with new collaborators.

C. Program Review Process

There have not been any significant changes in the program review process since submission of the 5-year Plan of Work (1999-2004).

D. Evaluation of the Success of Multi and Joint Activities.

Multi and Joint activities include the following:

Dairy Herd Improvement Association Laboratory

A national Dairy Herd Improvement Association (DHIA) Laboratory has been in existence for a number of years. Research has shown that when the laboratory instruments are calibrated with a cow milk standard and then goat milk is tested, there is a 29% increase in somatic cells, a .27% decrease in protein and a .04% decrease in butterfat from the actual values. The records produced by DHI labs across the country are used to identify high producing does. These records are also useful in the exportation of these does to foreign countries. In the past, incorrect records were causing goat producers to lose money on the resale value of their does and offspring. Langston University established a certified DHIA laboratory that calibrates instruments using a goat milk standard. We have also worked in cooperation with Texas A&M University to write a program that utilizes goat language. Goat producers are now able to get records for their animals that reflect accurate information with the correct language. These records not only reflect higher fat and protein values for a doe, but also are easier to understand when dealing with importers from foreign countries. Currently, we are serving a 35 state area that includes a majority of the eastern states.