ANNUAL REPORT OF ACCOMPLISHMENTS AND RESULTS

COOPERATIVE EXTENSION AND RESEARCH

(Langston University)

Reporting Period: October 1, 2000 - September 30, 2001

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A. Planned Programs

National Goals

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 Programs are contributing to make our clientele more competitive in a global economy. An extension project is being conducted to improve both the health of goat herds and save goat producers money. Workshops have been conducted to teach goat producers how to efficiently control internal parasites. Parasite control is the second highest production cost, next to nutrition, when raising goats. Workshops show goat producers how and when to administer anthelmintics for internal parasite control. They are also taught how to administer the correct dosages.

A meat buck performance test has been developed by extension personnel at Langston University. A very important aspect of meat goat production is growth rate efficiency in kids. Meat buck testing allows Langston University Cooperative Extension personnel to identify genetically superior meat goats and promote their use in production and breeding. Use of genetically superior meat goat lines will help producers to become more competitive in meat goat production.

Meat buck performance testing, parasite control and many other viable aspects of goat production are shared with goat producers each year during our Annual Goat Field Day. The 2001 field day had 211 attendants primarily from Oklahoma and surrounding States. Over 475 copies of the proceedings from the field day have been disseminated to the public.

An aquaculture project has been designed to help our clientele to become more competitive in fish production by raising bigmouth buffalo fish and channel catfish via polyculture.

Total Expenditures by Funding Source: $35,535.00

Full-time Equivalents : 0.89

Key Theme - Agricultural Profitability (Research)

a. A very important aspect of 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 Langton University.

b. **Impact -** Increasing the growth rate efficiency of goat kids results in less feed required for production and hence more profits. In 1999 average daily weight gains for kids enrolled in the performance tests was 0.52 lb/day. This rate increased to 0.59 lb/day in 2000 and 0.60 lb/day in 2001. Over the entire testing period, average goat kid weight gains were 33.5 lbs in 1999, 45.1 lb in 2000 and 50.1 lbs in 2001.

c. **Source of Federal Funds:** Smith-Lever.

d. **Scope of Impact** - Oklahoma and U.S.A.

Key Theme - Agricultural Profitability (Research)

a. Aquaculture researchers at Langston University demonstrated that polyculture of bigmouth buffalo fish could increase a producer's income by at least 10%. A fact sheet on bigmouth buffalo culture was published by the Southern Regional Aquaculture Center. Researchers demonstrated that large (3 plus pounds) channel catfish can be grown economically and marketed for up to three times the current wholesale price.

b. **Impact** - A producer was provided with design plans for a pond aeration system that will potentially allow him to double his fish production while increasing production costs by less than one cent per pound.

c. **Source of Federal Funds** - Evans-Allen.

d. **Scope of Impact** - Oklahoma and Southern U.S.A.

Key Theme - Animal Health (Extension)

a. Controlling internal parasites is the number two cost of production for goat producers. Anthelmintics are used for internal parasite control. However, many of the anthelmintics on the market are not labeled for goats and there is considerable confusion about effective control programs among goat producers. Goat producers tend to underdose or overuse anthelmintics; both hasten anthelmintic resistance by parasites. Langston University initiated a "Sustainable Internal Parasite Control" workshop to help goat producers develop a sustainable control program for internal parasites. During these workshops, goat producers learn about the life cycles of the most common and the most pathogenic parasites, various families of anthelmintics, correct dosage, dosing procedures, how to collect fecal samples and how to conduct fecal egg counts. An understanding of parasite

life cycles enables the goat producer to devise seasonal control strategies. An understanding of anthelmintics enables the goat producer to rotate anthelmintics for more efficacious control and to follow withdrawal times. An understanding of correct dosage and dosing procedures enables the goat producer to administer anthelmintics to achieve optimal effects.

b. **Impact** - The ability to conduct fecal egg counts allowed producers to deworm their goats on an as-needed basis instead of on a calendar basis. A decrease of just one deworming saved the goat producer $1.20 per goat, slowed anthelmintic resistance and better ensured a wholesome product. For a veterinarian to conduct a fecal egg count it would costed between $6 and $10 per animal. Producers were able to conduct fecal egg counts themselves at a cost of $0.25 per animal and thus save on their goat production costs.

c. **Source of Federal Funds**: Smith-Lever

d. **Scope of Impact** - Oklahoma

Key Theme - Animal Production Efficiency (Extension)

a. Goat production is an evolving livestock enterprise in the United States. Scant information exists for goat producers to make management decisions. Langston University has established the E (Kika) de la Garza Institute for Goat Research to conduct research in milk, fiber and meat production. The Institute established an annual field day to educate goat producers and to highlight and disseminate research findings of the Institute. The 17th annual Goat Field Day was held April 28, 2001.

b. **Impact** - In 2001, two hundred eleven (211) participants attended the field day. Twenty-two of the 211 participants youth and were enrolled in a fitting and showing workshop. The majority of the participants were from Oklahoma. 500 copies of the proceedings of the 17th annual Goat Field Day were printed and over 475 copies have been disseminated either via the 17th Goat Field Day or later via telephone or e-mail request.

c. **Source of Federal Funds:** Smith-Lever

d. **Scope of Impact** - Oklahoma; other U.S. Goat Producing States

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

Research and extension personnel at Langston University are contributing to achieve greater harmony between agriculture and the environment through sustainable aquaculture. Aquaculture scientists investigated sources of off-flavors in aquaculture ponds. Off-flavors can lead to losses in fish sales and reduced profits.

Learning to appreciate the harmony and balance between agriculture and the environment needs to start at an early age. Extension specialists have developed school enrichment curriculums in aquatic environmental education. During the 2000-2001 school year, over 63 events were held in Oklahoma Schools reaching over 10,000 students who were taught about water quality.

Total Expenditures by Funding Source: $ 102,618.00

Full-time Equivalents: 2.00

Key Theme - Water Quality (Extension)

a. Langston University aquaculture researchers investigated and identified potential treatments for algal-induced off-flavors in aquaculture ponds.

b. **Impact** - Langston University aquaculture researchers provided consultation for the State Department of Environmental Quality during revision of the wastewater discharge permit for aquaculture facilities. Water quality monitoring rules were replaced with Best Management Practices. These practices have enhanced water quality in Oklahoma streams and provide annual saving of over $2,000 for some individual farmers.

c. **Source of Federal Funds:** Smith-Lever.

d. **Scope of Impact** - Oklahoma

Key Theme - Water Quality (Extension)

a. Understanding the relationships of aquatic organisms with their environment can

stimulate interest in water quality problems and habitat degradation. Many youngsters may never be able to participate in a "hands-on" aquatic ecology program because they have not been academically or experientially exposed to water, fish or aquatic systems. An interesting aquatic education program can help participants to make better choices both as water consumers and future voters. Langston University created a school enrichment program in aquatic environmental education which captures young peoples' attention by allowing them to work directly with live aquatic animals. There are three components to this program which include: 1) the aquarium program where a 55 gallon aquarium stocked with native fish, crayfish, and mussels is taken to the classroom along with a water quality test kit, five instructional videos, and a curriculum workbook which contains ten written lesson plans; 2) the natural resource day where students are typically transported to a nearby lake and given ***"hands-on"*** demonstrations and lectures about water quality, aquatic ecology, and other natural resource issues; and 3) the recirculating tank aquaculture system where a large tank is set up and stocked with fish which the students raise and thereby learn about water quality through both curricula and direct experience with their fish.

b. **Impact** - During the 2000-2001 school year, Langston University took these programs to 63 schools where over 10,000 students were exposed to principles of aquatic ecology and water quality. Teachers stated that the live fish hooked their students' attention and allowed them to more effectively teach about water quality and aquatic ecology. The program stimulated a number of schools to set up their own aquariums or recirculating fish tanks so they can have a live teaching tool on display throughout the school year. A short pre- and post-test included with the curriculum materials indicated an average of 62% of students participating in the program increased their water quality I.Q.'s.

c. **Source of Federal Funds** - Smith-Lever.

d. **Scope of Impact** - Oklahoma.

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

Extension personnel at Langston University are contributing to enhance economic opportunities and quality of life for Americans. Character has become a common topic and

concern from the workplace to the school classroom. Langston University Cooperative Extension personnel are addressing the challenges of character development and ethics education for youth through after-school and summer programs. These programs are designed to help youth use their energy while engaging in wholesome activities.

One means of enhancing the quality of life for Americans is through education and securing profitable careers. An obstacle to many students becoming high achievers in school is poor reading skills. The 4-H Summer Reading Program was developed to enhance the basic reading skills of students.

Leadership training and development can also inspire youth to seek economic opportunities and improve their quality of life. Langston University is working with Native American and other youth in Northeast Oklahoma. Students have been enrolled in an entrepreneurship program that provides an introduction to the world of owning their own business. Students have shown increased awareness of entrepreneurship principles and money management.

Cooperative Extension also instills leadership in youth through our Summer Arts and Recreation Program. During the summer, youth participants engage in structured educational activities that are geared toward particular art areas such a visual arts or the performing arts.

Total Expenditures by Funding Source: $ 43,362.00

Full-time Equivalents: 1.75

Key Theme - Children, Youth and Families at Risk (Extension)

a. The Langston University Cooperative Extension Literacy In Action 4-H Summer Reading Program conducted a six-weeks, four hours per day, Reading Camp for students in grades one through five. The Reading Camp was held at the Langston Community Housing Authority Building.

The Literacy in Action 4-H Summer Reading Program is designed to help youth maintain their reading skills during their vacation from school. Research shows that reading and writing, as little as thirty minutes a day, can help students become more successful in improving their academic skills and abilities. Reading outside of regular school hours can maintain, and in most cases increase levels of reading growth reached in the classroom. Sixty-two students participated in rotational Reading Enrichment Centers including: *Reading Games, Recreational Reading, Competitive Reading, Creative Writing, Literary Growth and Mathematical Evolution.*

b. **Impact** - Students who maintain active reading skills during the summer are less likely to experience a regression in reading capabilities. The Literacy In Action 4-H Summer Reading Program was effective in helping students to maintain essential reading exercises during their summer vacation. It is intended that participating students be better prepared to master academic requirements when they return to school in the fall.

c. **Source of Federal Funds** - Smith-Lever.

d. **Scope of Impact** - Central Oklahoma.

Key Theme - Leadership Training and Development (Extension)

a. The Langston University Cooperative Extension Office in Northeastern Oklahoma (Tahlequah) works in counties with Native American populations ranging from 8% to 42% and poverty levels from 14% to 26%. School enrichment programs have been conducted with public schools as well as home schooled audiences in Northeast Oklahoma. One school enrichment program of special interest is the youth entrepreneurship program (Mini Society).

b. **Impact** - The Mini Society, entrepreneurship program taught Cherokee Nation youth the elements involved in running their own business, as well as, such rudimentary skills as check writing, balancing a checkbook, being a wise consumer and managing a budget. Pre-and post-tests showed over a 50% increase among participating youth in entrepreneurship skills.

c. **Source of Federal Funds** - Smith-Lever.

d. **Scope of Impact** - Northeast Oklahoma

Key Themes - Aging (Extension)

a. A Healthy Lifestyle Program is being conducted in the Langston Community primarily for senior citizens. This weekly program has provided educational information and knowledge which have benefitted the clientele residing in the community. Participants are educated *on eating aright for healthy bodies, exercise, money management and healthy minds and action.*

b. **Impact -** Senior citizen participants have benefitted from this program. Arthritis is a common and often debilitating problem for senior citizens. The program's exercise regiments have helped to keep participants mobile and taught them how to continue these exercises while home to lessen the effects of arthritis. Sessions on eating healthy foods from the Food Guide Pyramid have helped participants in the selection of nutritious foods. Participants have stated that the Healthy Lifestyle Program has improved the way they feel through exercise and eating healthier foods. The program has also helped some senior citizens to become thriftier money managers.

c. **Source of Federal Funds** - Smith-Lever.

d. **Scope of Impact** - Central Oklahoma

Key Themes - Leadership Training and Development (Extension)

a. Langston University conducted the 2001 Logan County Summer Arts and Recreation (SAR) Project in the towns of Langston and Guthrie, Oklahoma. Youth in Logan County have limited access to structured educational, recreational and art enriching activities during the summer months. Collaborations were forged with the Oklahoma State Arts Council and the Oklahoma Department of Human Services. Through these partnerships, 147 students from Langston and Guthrie were able to participate in the summer arts and recreation project.

b. **Impact** -Youth were provided a safe environment during the summer months to have fund and learn more about the fine arts. Participants learned how to interpret music and perform in front of crowds. Students also learned the origin of certain types of music and musical instruments and how to do creative writing. Participants enjoyed playing board games, going swimming and other activities. The intent of this program is to instill an appreciation for the fine arts in our youth and to use it as a tool for developing healthy self-esteem and leadership qualities in our youth.

c. **Source of Federal Funds** - Smith-Lever.

d. **Scope of Impact** - Central Oklahoma

B. Stakeholder Input Process

Projects, programs and priorities of Cooperative Extension and Research at Langston University are strongly impacted by stakeholder input. Input from our stakeholders is an ongoing process. That process includes the following methods:

- Input from advisory boards
- Input during and following Research & Extension Field Days
- Stakeholder surveys

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 two:

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 the DHI labs across the country are used to identify high producing does. These records are also useful for the exportation of these does to foreign countries. In the past, incorrect records were costing goat producers to lose money on the resale value of their does and offspring. Langston University established a certified DHI laboratory that calibrates the 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 there 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 27 state area that includes a majority of the eastern states.

Biological Weed Control

In cooperation with Kansas State University, Kansas Cooperative Extension, Emporia State University, and the Army Corps of Engineers, a field demonstration was conducted using goats to control sericea lespedeza, an invasive plant that is infiltrating the native range in the Flinthills of Kansas, choking out the grasslands that are a major land and economic resource. Sericea lespedeza infestation will reduce carrying capacity of native range to zero animals/acre. Stocker goats made significant progress in controlling sericea lespedeza. Stocker goats gained 10 kg during the summer grazing season. This resulted in a net profit of $5.00/hd or $20.00 per acre while controlling sericea lespedeza. In addition, goats were effective at controlling red cedar, sumac, honey locust, plum and blackberry. A field day was held to show producers (86 in attendance) the results of the demonstration. Results of the demonstration were also presented during a Lespedeza conference in Oklahoma (attended by 120 producers) and two lespedeza conferences in Kansas (combined attendance of 180 producers). The results have been presented in a number of producer's results and as an abstract at a national meeting.

These projects addressed critical issues of strategic importance, including needs of under-served and under-represented groups. Planned programs described the expected outcomes and impacts. The planned programs resulted in improved program effectiveness and efficiency.

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(Langston University)

Reporting Period: October 1, 2000 - September 30, 2001

Certification:

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