



# Goat Newsletter

Cooperative Extension Program  
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research

Winter 2011

## From the Director's Desk



Winter can be depressing for many but as I sit in my office on this gloomy, rainy, winter day, I am filled with hope and optimism. After a long and parched year, the rains are a welcome sight. According to the Oklahoma Climatological Survey, 2011 has been the 6<sup>th</sup> driest year since 1921. Last winter, our rains didn't really come and that trend continued on into spring. Generally, summer is very dry in Oklahoma but this year was even drier than normal and the excessive heat only exacerbated the drought. This summer was the warmest summer on record with nearly 100 days above 100°F. Only since this last October have we returned to normal or above normal precipitation and temperatures. The short-term prediction is

an easing of the drought and a return to normal precipitation levels; however, the long-term has a 50-50 chance of the drought returning.

The one-two punch of high prices and scarcity of hay due to the drought and the high prices of corn due to the ethanol market, have lead many Oklahoma livestock producers to reduce greatly livestock numbers or to liquidate totally their herds. The National Agricultural Statistics Service of the USDA forecasted that the Oklahoma cow/calf numbers by the end of 2011 would see a decrease of 27% from that of the beginning of the year. That is one of the largest single year decreases that we have seen. We don't know how many goat producers have reduced or liquidated their herds but we have heard anecdotal evidence of it happening. Will these livestock producers rebuild their herds when climatic conditions improve? Will cattle producers look to include goats in their cattle operations as they rebuild or maybe even completely replace cattle with goats? The cost associated with rebuilding a goat herd or including goats is significantly

less than rebuilding a cattle herd. These and several other questions are awaiting answers as we ponder the future of the livestock industry.

As livestock producers retrench, one strategy is to cull unprofitable animals and only keep the best genetics for rebuilding in the future. This is a strategy that I encourage Oklahoma goat producers, as well as goat producers in other states suffering from drought, to pursue. We are implementing this strategy in our research herd to an extent. We have research project commitments that require us to maintain a certain number of animals; however, any animals not allocated to a research project are being heavily scrutinized. Which leads me to ask "What are your best genetics?"

Selection is the key to livestock improvement. Is your goal to produce prospect wether goats for youth shows or is it animals that grow fast or is it does that give more milk or is it animals that are more parasite-resistant or is it females that are more reproductively efficient or is it greater fleece weights? There are many niches in the goat industry and each pro-



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ducer must define his/her own selection objectives. Having a lot of animals does not necessarily equate to having good animals. Selection and culling are keys to the success of any operation.

Speaking of numbers, I just received a letter from Oklahoma Field Office of the USDA - National Agricultural Statistics Service (NASS) concerning their upcoming sheep and goat survey in January 2012. The Sheep and Goat Report was slated to be cut from the USDA - NASS Estimation Program because of budgetary restrictions, but fortunately, was re-instated. I say fortunately because this report gives us a clear and accurate view of the goat industry and the direction it is heading. From the January 2011 Annual Sheep and Goat Review, we had approximately 21,000 more goats, of any kind, than sheep in Oklahoma. In January of 2011, NASS estimated that we had 75,000 sheep and lambs, 91,000 meat goats, and 6,000 milk goats. Meat goat inventories peaked in 2009 with 115,000 head and milk goat inventories peaked in 2006 with 10,000 head. Texas is the state with the largest goat inventory, followed by Tennessee, California, Oklahoma, and then North Carolina. In January 2011, the total goat inventory in the United States was 3.0 million head, which was down 1% from 2010. Breeding goat inventory totaled 2.49 million head and market goats and kids totaled 514,000 head, both were down 1% from 2010. Concerning Oklahoma sheep, Kay county

has the highest inventory with 6,000 head, followed closely by Craig county with 5,500 head. Every single county in Oklahoma reported stable or slight declines in sheep inventories over the past three years. Nationwide, lamb prices have been increasing slightly over the past several years. In January 2011, NASS projected lamb prices to further and possibly reach as high as \$143 per hundredweight (cwt). In fact, NASS was not far off; lamb prices peaked at 154 per cwt in May of last year. Anecdotally, goat prices have been higher than the peak lamb price but goats are smaller and therefore generate less total revenue. As I mentioned earlier, we know that the drought has negatively influenced livestock producers in Oklahoma with many producer downsizing their herds/flocks or leaving the business altogether. The 2012 Sheep and Goat Report will give us a glimpse into that situation. So, if you are selected to participate in the survey in early January of 2012, I hope that you will respond positively. It is important to have an accurate portrait of the livestock industry, especially the sheep and goat industries. Mr. Wilbert Hundl, Jr., Director of the USDA - NASS Field Office says "Accurate data on sheep and goat inventory and production allows the industry to be more responsive to the American and international public, increase consumer understanding and awareness, and establish an appreciation for the benefits of U.S. sheep and goats, and their products."

# Research Spotlight

## ***Electric Fencing.***

Two experiments were conducted to determine appropriateness of conditions in a method being developed for evaluating efficacy of different electric fence additions to cattle barb wire fence for goat containment. In Experiment 1, two 6×6 Latin squares (LS), each with 24 yearling Boer goat doelings previously exposed to electric fence, were conducted. After overnight fasting, groups of four doelings were placed in 8'×8' m pens without forage. One pen side was five strands of four-point barb wire (non-electrified) at 12", 22", 32", 42" and 52" from the ground adjacent to a pasture with abundant vegetation. Electric fence treatments for each square were addition to barb wire fence of four electric fence strands 6", 11", 17" and 23" from the ground at low voltage of 4–4.5 kV (4S-LV); two strands at 6" and 17" and high voltage of 8.5–9 kV (2S-HV); two strands at 6" and 17" and low voltage (2S-LV); one strand at 6" and low voltage (1S-LH-LV); one strand at 17" and low voltage (1S-HH-LV) and one strand at 9" and high voltage (1S-MH-HV). Experiment 2 was with 30 Boer and 30 Spanish growing doelings. Fence treatments were those of Experiment 1 but without 4S-LV and with slightly lower voltage. Doelings were divided into three sets of 20 and used in a completely randomized design (CRD), and one set continued repeated exposure to the different fence treatments in a 5×5 LS. For the CRD approach, the percentage of doelings exiting in 1 h was >90%. With the LS method the percentage of doelings exiting also was similar among fence treatments but was 75%, 70%, 40%, 70% and 75% for 2S-HV, 2S-LV, 1S-LH-LV, 1S-HH-LV and 1S-MH-HV, respectively. In conclusion, results were not promising for successful use of an LS approach, and large differences between experiments in levels of shock and exit indicate need for further change in conditions.

Goetsch, A.L., G.D. Detweiler, R. Puchala, T. Sahlu, and T.A. Gipson. 2011. Conditions to test electric fence additions to cattle barb wire fence for goat containment. *Journal of Applied Animal Research* DOI:10.1080/09712119.2011.627135.

## ***Protein Intake in Sheep and Goats.***

Boer goat (BG), Rambouillet sheep (RS), and Spanish goat (SG) wethers, ≥2 yr of age, were used in a crossover experiment with 28-day periods. Diets were ad libitum consumption of wheat straw alone (CON) or with a 90% soybean meal, 10% molasses supplement given at 0.22% BW (SBM). Initial BW was 77, 121, and 71 lbs for BG, RS, and SG, respectively. NDF digestibility was similar among animal types and between diets. BW loss tended to be greatest for RS (-.20, -.35, and -.24 lb/day for BG, RS, and SG, respectively). ME intake was similar among animal types (.026, .025, and .028 Mcal/lb BW<sup>0.75</sup> for BG, RS, and SG, respectively) and greater for SBM vs. CON (.035 vs. .018 Mcal/lb BW<sup>0.75</sup>). Total energy expenditure (EE) was greater for RS than for BG (.039, .045, and .044 Mcal/lb BW<sup>0.75</sup> for BG, RS, and SG, respectively) and for SBM vs. CON (.045 vs. .041 Mcal/lb BW<sup>0.75</sup>). EE by the portal-drained viscera (PDV) and liver was similar among animal types. Liver EE was greater for SBM vs. CON (.38 vs. .29 Mcal/day). Net fluxes of ammonia N (AMN) and urea N (UN) across the PDV and liver were similar among animal types. In conclusion, the magnitude of any difference in N recycling among animal types was less than necessary to affect fiber digestibility. Nonetheless, some findings suggest a lesser ability of sheep to modify metabolic functions to cope with limited nutritional planes elicited by feeding crop residue-based diets, perhaps relating to metabolism by extra-splanchnic tissues.

Asmare, A., R. Puchala, K. Tesfai, G.D. Detweiler, L.J. Dawson, A.R. Askar, T. Sahlu, Z. Wang, A.L. Goetsch. 2011. Effects of small ruminant type and restricted protein intake on metabolism. *Small Ruminant Research* 98:111-114.

[Editors Note: BW<sup>0.75</sup> is metabolic weight and yields a scale on which animals of unequal body mass may be compared. In 1932, physiologist Max Klieber of the California Agricultural Experiment Station in Davis, CA examined metabolic rates of animals ranging from rats to steers. He noticed that when metabolic rate was expressed as (kcal/day)<sup>2</sup> then a logarithmic plot of the metabolic rate of the various species yielded a straight line with a slope of 0.74]

# Tanning Hides Workshop

Have you ever wondered how to tan a hide? On Saturday, March 10, 2012, a tanning hides workshop will be held at Langston University from 8:00 a.m. to 12 noon. The focus of the workshop will be tanning hair-on hides but the process of dehairing hides and making leather and buckskin will also be discussed. After discussing the stages of tanning from how to handle and store a raw hide to softening and finishing a tanned skin, participants will have hands-on practice with goat skins in several of the different tanning steps. Participants can practice fleshing, will apply tanning chemicals, and soften a goat skin prepared for the workshop. Various tanning methods will be discussed and examples of tanning kits and chemicals displayed. All of the tanning procedures presented and chemicals used are appropriate for home tanning with all of the work done by hand. While the tanning of goat hides will be demonstrated, the processes learned can be used on deer, coyote and other skins. Registration is limited to 10 participants.



*Dr. Merkel explains fleshing to a National Guard member during a training in 2010.*

***A registration fee of \$15 is charged. Refreshments will be provided.***



For more information regarding the tanning hides workshop, contact Dr. Roger Merkel at 405-466-6134 or [rmerkel@langston.edu](mailto:rmerkel@langston.edu). A registration form is available online at <http://www2.luresext.edu/goats/extension/tanning.htm>.



## Artificial Insemination Workshops



The Goat Extension Program will be conducting two artificial insemination workshops in the fall of 2012. The schedule will be:

- Langston University on Saturday, September 8, 2012.
- Pushmataha County Fairgrounds in Antlers, OK on Saturday, October 20, 2012.

**Both workshops will be hands-on and will follow the same format.** Workshops will present basic anatomy and physiology of goats, estrus detection and synchronization in goats, and semen handling. Participants will have the opportunity to practice with harvested reproductive tracts and with live animals. Registration for each workshop is limited to 20 participants. **Registration fee is \$45 per person.** Included in the cost of registration are handouts and snacks for breakfast and breaks.

For information regarding the AI workshops, contact Dr. Terry Gipson at 405-466-6126 or [tgipson@langston.edu](mailto:tgipson@langston.edu). Registration forms are available online at: [http://www2.luresext.edu/goats/extension/workshops\\_field\\_day.htm](http://www2.luresext.edu/goats/extension/workshops_field_day.htm)



*Practice with live animals.*

# Farmer to Farmer in Haiti

by T. Gipson

Langston University is dedicated to service learning and encourages its students, staff and faculty to engage in community service, whenever possible. I recently had the opportunity to volunteer for such community service in Haiti. This volunteer assignment was sponsored by Partners of the Americas (<http://www.partners.net> or <http://farmertofarmer.blogspot.com/>), specifically the Farmer to Farmer Program. The Farmer to Farmer Program improves economic opportunities in rural areas of Latin America and the Caribbean by increasing food production and distribution, promoting better farm and marketing operations and conserving natural resources. The program is supported by Congress and the Agency for International Development as part of the United States foreign assistance program. Farmer to Farmer brings together agricultural professionals and practitioners from the U.S. and the Caribbean. Volunteers from the U.S. work with farmers and agribusiness owners in Guyana, Haiti, Nicaragua, the Dominican Republic, and other countries to identify local needs and design projects to address them.



*Local goats in Haiti. Generally, goats are tethered during the day for grazing and then returned home for the evening. You will notice in this photo a goat wearing an apparatus preventing it from going through a fence or other barrier.*

common throughout Haiti, yet producers often lack the basic information they need to improve their herd's genetics or otherwise properly care for goats. While in Haiti, I worked closely with the Ministry of Agriculture, Makouti Agro Enterprise, and numerous attending farmers who were interested in enhancing their knowledge in goat reproduction. With this information in basic management practices provided through hands-on demonstrations and workshops, the farmers should be equipped with the knowledge, skills, and abilities to improve the health, productivity, and genetics of their goats.

Founded in 1964, Partners of the Americas links U.S.



*Rabbit raising in Haiti. Cuniculture (rabbit raising) and apiculture (beekeeping) are two successful and well established Farmer-to-Farmer enterprises. Goat production is a new endeavour.*

states with Latin American and Caribbean countries in partnerships that use the energy and skills of citizen volunteers, their institutions and communities to address shared concerns of social, economic and cultural development. Its work covers areas as diverse as emergency preparedness, agriculture, cultural and educational exchange, domestic violence and local government strengthening. Partners is a private, nonprofit, non-partisan organization with international offices in Washington, D.C.

On this volunteer assignment, I traveled to Haiti to provide training to goat producers and university students in goat breeding and management. Goat raising is very



*Improver (percentage Boer) buck in northern Haiti. In the past, several NGOs have imported Boers and Nubians to improve the local breed but this has sometimes caused management and dystocia problems.*

common throughout Haiti, yet producers often lack the basic information they need to improve their herd's genetics or otherwise properly care for goats. While in Haiti, I worked closely with the Ministry of Agriculture, Makouti Agro Enterprise, and numerous attending farmers who were interested in enhancing their knowledge in goat reproduction. With this information in basic management practices provided through hands-on demonstrations and workshops, the farmers should be equipped with the knowledge, skills, and abilities to improve the health, productivity, and genetics of their goats.

I would encourage interested faculty, staff, and farmers to volunteer whenever possible and share your knowledge and skills with your neighbor across the road or across the ocean.

# Ethiopian Sheep and Goat Productivity Improvement Program

In the last issue of the Goat Newsletter, the Genotype and the Training components of the recently completed Ethiopia Sheep and Goat Productivity Improvement Program were highlighted. In this issue, the remaining two components of Animal Health and Production are highlighted.

## Animal Health

The Animal Health component combatted the problem of external parasites downgrading the quality of Ethiopian sheep and goat skins for the important leather industry by training villagers to be providers of dipping and spraying services to control these pests. Studies on lamb and kid mortality aimed to find most common causes of mortality of young animals and design means to ameliorate this problem. Another important activity was training of staff of purebred and crossbred breeding sites, as well as veterinary care officers in areas of improved genotype distribution, in animal health care management.

## Production

For the Production component, the great majority of ESGPIP research was on-farm, which was the desire of the donor, USAID-Ethiopia. In this regard, extension is integral in these activities, with inclusion of field days. Moreover, frequently nearby farmers not directly involved in the activities have been observed to adopt the new technologies without assistance.

The two general approaches in on-farm research were formation of Farmer Research Groups (FRG) and work with households on an individual basis. A study with the former method might have entailed three to five FRG, each with perhaps ten households. Households contributed a number of animals equal to the treatments, commonly three or four. Then, all animals of a FRG were housed during the evening in different pens of a barn situated at a household of the FRG to receive the different feeding treatments. Conversely, with the individual farmer approach, a number of villages also participated, but with animals located at individual households and usually subjected to one of the treatments.

Many different topics were studied in on-farm research. One area also addressed in demonstrations and field days is ammoniation of crop residues via treatment with urea. Previously, ammoniated crop residues were used with cattle but not extensively with small ruminants. This technology was readily adopted in all areas where introduced. In fact, a number of other non-governmental organizations (NGO) have followed the ESGPIP lead and copied its methods in other areas. Byproduct feedstuffs studied include leftover khat and poultry litter, and experiments were conducted with urea-molasses multi-nutrient blocks, various supplements such as cactus, noug cake, sweet potato vines, and wheat bran, and trace mineral supplementation. Field days not directly associated with on-farm research also were conducted.



*Ammoniation of teff straw.*



*End product after ammoniation, ammoniated straw in producers right hand and untreated in his left hand.*

# ESGPIP (cont.)



*Fabrication of urea-molasses blocks.*



*Local sheep utilizing urea-molasses block.*

Typically, a number of technologies were demonstrated, such as ammoniation, making and use of urea-molasses blocks, and improved forages. There was a major effort to aid in the distribution of seeds and seedlings of improved forages, in coordination with similar activities at sites of introduction of improved genotypes. This included promotion of sales of cultivated fodder crop species, including Elephant grass, Rhodes grass, and Pigeon pea.

From the on-farm research conducted, seven MSc and PhD Theses and Dissertations were prepared and defended, and three more MSc Theses will be completed by the end of 2011. Six scientific manuscripts have been prepared and published in peer-reviewed journals, which are listed below.

<b>Title</b>	<b>Journal</b>
On-farm performance of Arsi-Bale goats receiving different concentrate supplements.	Livestock Research for Rural Development
Considerations for on-farm research and demonstration of useful feeding/nutrition practices for small ruminants in Ethiopia	Tropical and Subtropical Agro Ecosystems
Effects and interactions of origin of sheep in Ethiopia (highland vs. lowland areas), feeding, and lengths of rest and feeding on harvest measures	Journal of Applied Animal Research
Effects of small ruminant species and origin (Highland and Lowland) and length of rest and feeding period on harvest measurements in Ethiopia	African Journal of Agricultural Research
Effect of form of leftover khat ( <i>Catha edulis</i> ) on feed intake, digestion and growth performance of Hararghe Highland goats	Small Ruminant Research
Effect of level of concentrate supplement on growth performance of Arsi-Bale and Boer × Arsi-Bale male goats consuming low-quality grass hay	Tropical Animal Health and Production

As women typically are responsible for care of sheep and goats in Ethiopia, the formation of women groups for sheep and goat production was promoted and technical assistance was provided. Activities performed include the following:

- Assisting women groups involved in breed improvement (facilitation of the acquisition of improved sires)
- Assisting women groups involved in short-term fattening of sheep and goats
- Providing training in forage development, feeding, and management
- Providing training in business skill development
- Experience sharing through visits to forage development and purebred animal breeding sites
- Providing input for technology demonstration
- Establishment of revolving credit schemes using live animals

# Noteworthy News

► In October, Dr. **Steve Hart** presented an invited paper on Effective and Sustainable Control of Nematode Parasites in Small Ruminants: The Need to Adopt Alternatives to Chemotherapy with Emphasis on Biological Control at the Fifth International Symposium on Sheep and Goat Meat Production in Joao Pessoa, Brazil.

► In October, Drs. **Terry Gipson, Roger Merkel, Ryszard Puchala, Yoko Tsukahara, Rongzhen Zhong,** and **Steve Zeng** traveled to Cameron University in Lawton, OK to present research findings at the Oklahoma Research Day conference.

► In November, Dr. **Terry Gipson** traveled to Ethiopia to

work on activities of the project entitled “Establishing a New Partnership between Wollo University, Dessie, Ethiopia and Langston University, Langston, Oklahoma.”

► In November, Dr. **Terry Gipson** travelled to Haiti on the Farmer to Farmer Volunteer Program, which is a program of the United States Agency for International Development as implemented by Partners of the Americas.

► In February, Dr. **Steve Hart** will travel to make a presentation on General Goat Management at a regional goat conference in West Central Missouri.



*Season's Greetings*



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