



# Goat Newsletter

Cooperative Extension Program  
Langston University

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

Fall 2009

## From the Director's Desk



This is the time of the year that we are busy with activities such as preparing for the breeding season, shearing, and seeding pastures with cool-season forages. It is also the time of the year that our scientists are busy preparing grants for one of our primary grant programs; the USDA - 1890 Institution Teaching and Research Capacity Building Grants Program. I am always looking for feedback from producers and if you have ideas for research that you would like to see undertaken here at the Institute, please do not hesitate to call or email me with your suggestions.

Ongoing research projects are being carried out and the preliminary results of those projects and final results of completed projects are being

disseminated. One avenue used in disseminating results is through the national meetings of the American Society of Animal Science and the American Dairy Science Association. Being able to present findings to our peers and having it evaluated is a beneficial step in the dissemination process. In July, Drs. **Terry Gipson**, **Art Goetsch**, **Steve Hart**, **Roger Merkel**, **Ryszard Puchala**, **Zaisen Wang**, **Steve Zeng**, and I were able to attend those meetings in Montreal, Canada. It is often the practice at these meetings that leaders in the field are invited to give special presentations at a symposium. I am very pleased to say that Dr. **Goetsch** was invited to give such a presentation. We are fortunate to have a research scientist of Dr. **Goetsch's** caliber here at Langston University and to have him recognized by the research community as a leader and innovator is a plus for the Institute. Dr. **Goetsch's** presentation was a compilation of several research topics that we have been working on over the past few years dealing with grazing behavior and energy expenditure. The following paragraph is the summary of

Dr. **Goetsch's** presentation.

*Factors influencing feeding behavior of goats include grazing management practices, type of vegetation and season, breed and stage of production, group size, and properties of diets fed in confinement. Considerable information has been gathered from visual observation during daylight. However, there are now tools available to characterize feeding behavior of goats while grazing and in confinement throughout the day. Global positioning system collars can be used to assess horizontal and vertical distances traveled, up/down position of the head, and movement within pasture/rangeland areas. A commercially available leg activity monitor allows estimation of the number of steps and time spent standing, lying, and moving rapidly without grazing. However, these measurements do not directly determine grazing. Therefore, prediction equations based on visual observation must be developed. Classification tree analysis is a robust method in developing these equations because the decision tree can be pruned or expanded to provide*



Goat Newsletter is published quarterly by the Cooperative Extension Service of the E (Kika) de la Garza American Institute for Goat Research, Langston University, Langston, Oklahoma.

Dr. Marvin Burns,  
Dean,  
School of Agriculture and  
Applied Sciences

Dr. Vernon Jones,  
Associate Dean,  
School of Agriculture and  
Applied Sciences

Dr. Tilahun Sahlu,  
Director,  
E (Kika) de la Garza  
American Institute for  
Goat Research

E (Kika) de la Garza  
American Institute for  
Goat Research  
Langston University  
P.O. Box 730  
Langston, OK 73050  
Phone: (405) 466-3836  
FAX: (405) 466-3138  
<http://www2.luresext.edu>

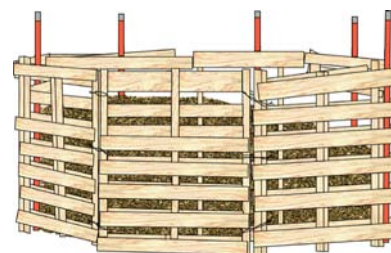
Newsletter Editor  
Dr. Terry A. Gipson

The Cooperative Extension Program at Langston University, provides educational programs to individuals regardless of race, color, national origin, religion, sex, age, disability or status as a veteran. Issued in furtherance of Extension work, Act of September 29, 1977, in cooperation with the U.S.

*the best fit. Another equipment system determines time spent eating, ruminating, and idle from pattern of jaw movement. In addition to use of n-alkanes as internal markers to estimate digestibility, their profile can provide an indication of botanical composition of the selected diet. Automated feeding systems for confined goats permit determinations such as number of feeder visits and meals, eating time, and rate and pattern of feed intake. Heart rate measured while goats are in normal production settings can be used to predict total energy expenditure through multiplication by energy expenditure per heart beat of individual animals. To partition the activity energy cost, an estimate of metabolizable energy intake or measures of change in body energy status and milk energy yield are needed to determine other sources of heat to be subtracted from total energy expenditure. These methods create opportunity to gain a fuller understanding of factors influencing feeding behavior of goats and relationships with levels and efficiencies of production.*

On the extension side, Drs. **Roger Merkel** and **Terry Gipson** have been busy this summer with a mortality composting demonstration project. Why compost sheep and goat mortality? Well, all livestock producers encounter mortality. Goat and sheep operations may experience annual mortality losses of approximately 10% of young before weaning and 5% of adult breeding animals. Finding appropriate disposal

methods can be challenging. The State of Oklahoma Department of Agriculture, Food and Forestry lists five acceptable options for animal carcass disposal: 1) rendering, 2) burial, 3) incineration, 4) landfills, and 5) composting. Composting is an inexpensive, environmentally friendly method of disposing of animal mortality that is commonly used in the poultry and swine industries. Drs. **Merkel** and **Gipson** have constructed several different styles of composting bins. One simple design is made of wooden pallets and t-posts as illustrated below.



They also conducted a workshop on mortality composting and developed a fact sheet.

The results of the 2009 Buck Performance Test are presented on pages 6. I wish to personally thank the meat goat producers who have support the performance test, this year and past years.

Lastly, we are gearing up for our 25th annual Goat Field Day, which will be on Saturday, April 24, 2009, and will be a special event. You can read more about it on page 3.

***I hope to see you at the Silver Anniversary Goat Field Day.***

# Preview of the 25th Annual Goat Field Day: The Goat Man

On April 24, 2010, the annual Goat Field Day at Langston University will celebrate its silver anniversary. In those twenty-five years, the goat industry has changed tremendously and there has been one person there to chronicle every change. That person is The Goat Man. We are proud to announce that The Goat Man will be our featured speaker at the 2010 Goat Field Day. You won't want to miss this opportunity to listen to the wit and wisdom of The Goat Man.



*Could this be our special featured speaker for our Silver Anniversary?*

We would like to use this newsletter and subsequent newsletters to introduce The Goat Man to you. The Goat Man was not born The Goat Man but evolved into that status. Here is the history, in his own words, of The Goat Man before he was The Goat Man.

The Goat Man was born into a clan of Alabama/Mississippi cotton sharecroppers south of Dallas, TX. His widowed mother relocated to Grapeland, TX in 1935 as a newly minted primary-grade teacher and, in 1938, married a local cattleman and farmer. Just prior to the marriage, as The Goat Man recounts the story, he cut a deal with the cattleman to swap, even-stein, his mother for a horse, saddle, two Jersey heifers, and, in the new house, his very own room with bookshelves, desk and inkwell.

Seems that The Goat Man had been taking recurring heat from his mother about reading more books, speaking more correctly, practicing better penmanship, brushing regularly, and washing his feet every night. He thought, deviously, that the new husband might somehow divert her attention. Apparently it worked out, because The Goat Man still thinks it one of the best deals he ever made. This in spite of the fact that the heifers had calves, The Goat Man had to milk them, and peddle it in Mason fruit jars, 15 cents/quart, home-delivered by horseback.

After two years in the Navy as a delivery room instrument nurse (546 babies in 18 months—he was a pre-Vet major), this early milk business venture apparently influenced him to major in dairy science

(B.S. from OK A&M College in 1950; M.S. from TX A&M College, 1955). He taught dairy and animal science at Southwest TX State College from '56 to '67 while earning a Ph.D. in ruminant nutrition (minors in agricultural economics and rural sociology) in 1967.

In '68, he joined the University of Kentucky and was posted to Thailand as livestock specialist and, later, Administrator of the nascent Northeast Agricultural Research and Extension

Center. The Center was an agricultural development project of the U.S. Agency for International Development designed to keep rural Thailand from 'going Communist' like neighboring Laos, Cambodia, and Viet Nam. Among other things, The Goat Man fought communism via a Brahma cattle improvement project in which Thai paramilitary personnel delivered frozen semen to owners, via motorcycle, upon request from the Puyai Ban (village mayor, the only one with a phone).

In '73, after a year back at UKY as Coordinator of the Feed Control Service, he went to Tokyo as Asian Director of the U.S. Feed Grains Council to conduct demonstrations using American corn and sorghum in beef, dairy, and swine operations in Japan, Korea, Taiwan, Hong Kong, and the Philippines (also Poland's first beef feedlot using recycled manure as a protein and mineral supplement). The Goat Man also undertook a series of short-term livestock development programs in Morocco, Nigeria, Egypt, Syria, Sudan, and Iran for the USFGC.

The Goat Man returned to TX in '77 and joined Prairie View A&M University, a unit of the Texas A&M University system, where he taught and managed the dairy farm and creamery. It was at this point in The Goat Man's life that he really became The Goat Man; more on that aspect in the next newsletter.





# The Dutch Masters and Goats

by Terry Gipson

On a recent trip to Ethiopia, I had a ten-hour layover in Amsterdam and decided to visit the Rijksmuseum, which is the national museum of the Netherlands. The most famous painting of the Rijksmuseum is Rembrandt's *Night Watch* (more properly titled *The Company of Frans Banning Cocq and Willem van Ruytenburch*) but I found the works of another Dutch Master to be more interesting. That is the works of Karel Dujardin (1626-1678), who was an animal and landscape painter. Dujardin was born in Amsterdam and after training with Nicolaes Berchem (1620-1683), Dujardin went to Italy. According to Wikipedia, "Most of his [Dujardin] paintings are cabinet paintings of Italianate landscapes and or with farm animals and peasants. His landscapes have spirit and harmony, his figures expression, and his colour the brilliancy which distinguishes his school. His paintings are rare and command a high price. He also published fifty-two etchings of similar subjects, with great spirit and ease." I liked Dujardin's *Italian Landscape with Girl Milking a Goat*, which is shown below. I especially liked the simplicity of the pastoral scene of this painting with its vivid colors. The goat docilely stands while the milk maid milks her and chats with the passing farmer. It appears to be early morning as the sun is rising in the East and the farm animals are arising from a long night's slumber, although the dog is reticent to leave its bed. If you have a chance to visit the Rijksmuseum, do stop and gaze at this painting and two other Dujardin's that have goats as central to their theme.



*Italian landscape with girl milking a goat, 1652*

Karel Dujardin

Property of the Rijksmuseum (reprinted with permission)

# Research Spotlight

## *Electronic bolus for ID*

A total of 295 goats from 4 breeds (Alpine, n = 74; Angora, n = 75; Boer-cross, n = 73; Spanish, n = 73) were used to assess the retention of 3 types of electronic ruminal boluses (B1, 20 g (0.7 oz), n = 95; B2, 75 g (2.6 oz), n = 100; and B3, 82 g (2.9 oz), n = 100) according to breed and feeding conditions. Time for bolus administration, reading with a handheld reader, and animal data recording (goat ID, breed, and bolus type) were registered. Each goat was also identified with a flag-button plastic ear tag. Retention of boluses and ear tags was regularly monitored for one year. Time for bolus administration differed by bolus type (B1,  $14 \pm 2$  seconds (s); B2,  $24 \pm 2$  s; B3,  $27 \pm 2$  s) and goat breed (Alpine,  $34 \pm 3$  s; Angora,  $17 \pm 2$  s; Boer-cross,  $16 \pm 1$  s; Spanish,  $19 \pm 2$  s), although differences were due to greater times for B2 and B3 in Alpine goats. Time for bolus administration averaged  $22 \pm 1$  s, and overall time for bolusing, reading, and data typing was  $49 \pm 1$  s on average. At 6 mo, electronic boluses showed greater retention than ear tags (99.7% vs. 97.2%). At 12 mo, bolus retention was 96.3, 100 and 97.8% for B1, B2 and B3, respectively, not differing between B1 and B3. No effect of breed and bolus type on bolus retention was detected. No goat losing, at the same time, both bolus and ear tag was observed. Ear tag retention (91.7%) was lower than all types of bolus (98.1%) on average. Ear tag retention in Boer-cross (98.6%) and Alpine (96.9%) goats was greater than in Spanish (88.7%) and Angora (82.9%), and tended to differ between Spanish and Alpine. In conclusion, unlike flag-button visual ear tags and mini-boluses used here, properly designed boluses (e.g. standard bolus) met ICAR and NAIS retention requirements for goat identification under US conditions, and are recommended in practice.

*S. Carné, T. A. Gipson, M. Rovai, R. C. Merkel and G. Caja. 2009. Extended field test on the use of visual ear tags and electronic boluses for the identification of different goat breeds in the United States. J. Anim Sci. 2419-2427.*

## *Healthier Cheese*

Dietary supplements of conjugated linoleic acid (CLA) containing trans-10, cis-12 CLA reduce milk fat synthesis in lactating goats. This study investigated effects of milk fat depression induced by dietary CLA supplements on the properties of semi-hard goat cheese. Thirty Alpine does were randomly assigned to 1 of 3 groups and fed diets with lipid-encapsulated CLA that provided trans-10, cis-12 CLA at 0 (control), 3 (CLA-1), and 6 grams per day (CLA-2). The experiment was a 3 x 3 Latin square design. Periods were 2 wk in length, each separated by 2-wk periods without CLA supplements. Bulk milk was collected on d 3 and 13 of each of 3 periods for cheese manufacture. The largest decrease (23.2%) in milk fat content, induced by the high dosage (6 grams per day per doe) of trans-10, cis-12 CLA supplementation at d 13 of treatment, resulted in decreases of cheese yield and moisture of 10.2 and 10.0%, respectively. Although CLA supplementation increased the hardness, springiness, and chewiness, and decreased the cohesiveness and adhesiveness of cheeses, no obvious defects were detected and no significant differences were found in sensory scores among cheeses. In conclusion, milk fat depression induced by a dietary CLA supplement containing trans-10, cis-12 CLA resulted in changes of fat-to-protein ratio in cheese milk and consequently affected properties of semi-hard goat cheese.

*S. X. Chen, M. Rovai, A. L. Lock, D. E. Bauman, T. A. Gipson, F. Z. Ren, and S. S. Zeng. 2009. Effects of milk fat depression induced by a dietary supplement containing trans-10, cis-12 conjugated linoleic acid on properties of semi-hard goat cheese. J. Dairy Sci. 2009 92:2534-2538.*

[Editors note: one pound equals 454 grams and one ounce equals 28.5 grams]





# 2009 Buck Performance Test Results

The eleventh annual meat buck performance test started June 6, 2009 with 93 bucks enrolled from 16 different breeders (51 bucks from private producers and 42 from Langston University). Geographical distribution is given in the table below.

State	Bucks
KS	7
NE	9
OK	18 (42)
TX	17
Total	51 (93)

Breed distribution is 77 Boer (42 Boer from Langston University); 1 Boer Cross; 9 Kiko; 3 Ranger; and 3 Spanish.

Bucks were given a physical examination by Dr. Lionel Dawson, dewormed with Cydectin (moxidectin), deloused with Atroban De-Lice, given a preemptive injection of long-acting antibiotic for upper respiratory infections, and those bucks that needed booster or initial vaccinations for enterotoxemia and caseous lymphangitis. Half of the bucks were randomly assigned within breeder to either Calan feeders or Feed Intake Recording Equipment (FIRE) system.

Average age in days and entry weight are detailed in the table below.

Data	Total
Average of Entry Weight (lbs)	42
Average of Entry Age (days)	84

## **Adjustment Period**

All bucks underwent an adjustment period of two weeks immediately after check-in and the test officially started on June 24, 2009. During the adjustment period, bucks were acclimated to the test ration and to the Calan feeders or to the FIRE system. For the Calan feeders, each buck wears a collar with an electronic "key" encased in hard plastic. The key unlocks the door to only one Calan feeder, thus enabling the buck to eat out of his individual feeder. Each morning, yesterday's feed that remains in the Calan feeder is weighed and removed from the Calan feeder. Fresh feed is weighted and placed into the Calan feeder. The difference in weights between the fresh feed place in the Calan feeder one morning and the remaining feed the next morning is the

amount consumed. Because only one goat is capable of opening the Calan door and eating, it is possible to calculate the feed intake of the individual bucks. For the FIRE system, feed intake is automatically recorded every time a buck enters into the FIRE system to eat.

This year we were fortunate to hire a Langston University undergraduate, Ms. Amanda Manley, to help with the bucks. Amanda did a wonderful job with the bucks.

## **Ration**

Nutritionists at Langston University formulated the test ration. The ration was fed free-choice during the adjustment period and during the 12-week test. The crude protein content of the ration is 16% with 2.5% fat, 20.4% fiber and 60.6% TDN. Calcium phosphorus and sodium levels are .74%, .37% and 1.07%, respectively. Zinc concentration is 33.04 ppm, copper is 17.15 ppm and selenium is .21 ppm.

## **ABGA Approved Performance Test**

In the year 2000, the Oklahoma performance test was designated by the American Boer Goat Association Board of Directors as an ABGA Approved Performance Test. Qualified fullblood or purebred Boer bucks are eligible to earn points towards entry into the "Ennobled Herd Book". Candidate bucks must pass a pre-performance test inspection conducted by one (1) or more ABGA approved breeders. Ten (10) points will be awarded to a Boer buck that shows an average daily weight gain (ADG) in the top five percent (5%) of the animals on test. Five (5) points will be awarded to a Boer buck that shows an average daily weight gain (ADG) in the next fifteen percent (15%) of the animals on test. All bucks must gain at least three tenths (.3) pounds per day to be awarded any points.

## **International Boer Goat Association, Inc. Sanctioned Test**

In 2003, the Oklahoma buck performance test was sanctioned by the International Boer Goat Association, Inc.

*(cont. next page)*

**Complete results of the 2009 Buck Performance Test can be found at <http://www2.luresext.edu/goats/extension/demonstrations.htm>.**

## ***Gain***

The official performance test started on June 24 after the adjustment period was finished. Weights at the beginning of the test averaged 51 lbs with a range of 32 to 84 lbs. Weights at the end of the test averaged 92 lbs with a range of 65 to 139 lbs. Weight gain for the test averaged 41 lbs with a range of 18 to 64 lbs.

## ***Average Daily Gain (ADG)***

For the test, the bucks gained on averaged 0.49 lbs/day with a range of 0.21 lbs/day to 0.76 lbs/day.

## ***Feed Efficiency (Feed Conversion Ratio)***

For the test, the bucks consumed an average of 294 lbs of feed with a range of 154 to 496 lbs.

For the test, the bucks averaged a feed efficiency of 7.34 (feed efficiency is defined as the number of lbs. of feed needed for one lbs. of gain), with a range of 4.22 to 11.79.

## ***Muscling***

The average loin eye area as determined by ultrasonography was 1.8 square inches with a range of 1.2 to 2.3 square inches and the average right rear leg circumference was 14.9 inches with a range of 12.0 to 19.5 inches.

## ***Index***

For 2009, the index was calculated using the following parameters:

- 30% on efficiency (units of feed per units of gain)
- 30% on average daily gain
- 20% on area of longissimus muscle (loin) at the first lumbar site as measured by real time ultrasound adjusted by the goat's metabolic body weight ( $BW^{0.75}$ )
- 20% circumference around the widest part of the right rear leg as measured with a tailor's tape adjusted by the goat's metabolic body weight.

The adjustment to metabolic body weight gives lighter weight goats a fair comparison of muscling to heavier goats.

The deviation from the average of the parameters measured from the goats in the performance test was used in the index calculation. Thus, the average index score for bucks on-test was 100%. Bucks that are above average have indices above 100% and those below average have index scores below 100%.

## ***Congratulations***

The Oklahoma Meat Goat Association and the Agricultural Research and Extension Program at Langston University congratulate:

- Mr. Sam Stephens of Elm Creek, NE  
for having the Top-Indexing buck  
Also, deserving congratulations are:
- Mr. Sam Stephens of Elm Creek, NE  
for having the #1 Fastest-Gaining buck
- Mr. Jim Rosenbaum of Gainesville, TX  
for having the #2 Fastest-Gaining buck
- Mr. A.L. Paul of Aubry, TX  
for having the #3 (tie) Fastest-Gaining buck
- Mr. Jim Hollinger of Lyons, KS  
for having the #3 (tie) Fastest-Gaining buck
- Mr. Ron Dilley of Stillwater, OK  
for having the #5 (tie) Fastest-Gaining buck
- Mr. John Scott of Lexington, NE  
for having the #5 (tie) Fastest-Gaining buck
- Mr. Jim Hicks of Bristow, OK  
for having the Most-Feed-Efficient buck
- Mr. Cody Gann of Sonora, TX  
for having the Most-Heavily-Muscled buck

## ***Acknowledgments***

The Buck Test was supervised by Dr. Wenping Hu and assisted by Dr. Terry Gipson. They wish to acknowledge Dr. Lionel Dawson of Oklahoma State University for his contributions as the admitting and on-call veterinarian, Ms. Amanda Manley for her management and oversight of the day-to-day activities, Mr. Jerry Hayes and Mr. Erick Loetz of Langston University for aid and supervision, Mr. Les Hutchens and his associates at Reproductive Enterprises, Inc. for conducting the ultrasound measurements for the loin eye area, and Stillwater Milling of Stillwater, OK for custom mixing the feed.



*Buck # 47089 was the top-indexing, fastest growing, and eleventh-most feed efficient buck in the 2009 buck performance test.*

# Noteworthy News

► In July, Drs. **Terry Gipson**, **Art Goetsch**, **Steve Hart**, **Roger Merkel**, **Ryszard Puchala**, **Tilahun Sahlu**, **Zaisen Wang**, and **Steve Zeng** attended the joint national meetings of the American Society of Animal Science and the American Dairy Science Association in Montreal, QB to make research presentations and attend scientific sessions.

► In July, Dr. **Roger Merkel** traveled to Kenya and Ethiopia with colleagues from Oklahoma State University to work on the CAUSE (Consortium of African and U.S. Educators) proposal.

► In August, Dr. **Steve Zeng** traveled to Austin, TX to be a judge for the Cheese Championship of the American Cheese Society.

► In August, Dr. **Terry Gipson** traveled to Addis Ababa, Ethiopia to conduct a database training workshop for animal technicians involved in the Ethiopia Sheep and Goat Productivity Improvement Project.

► In August, Drs. **Tilahun Sahlu** and **Steve Zeng** traveled to NorthWest Agriculture and Forestry University in Yangling, China and Shaanxi Normal University in Xian, China.

► In August, Dr. **Terry Gipson** traveled to Mali to conduct a feasibility study for Winrock International.

► In August, President Admasu Tsegaye of Hawassa University, Ethiopia, visited Langston University.

► In September, Dr. **Steve Hart** was the superintendent for the Boer Goat Shows at the State Fair of Oklahoma in Oklahoma City, OK.

► In October, Drs. **Art Goetsch** and **Ryszard Puchala** traveled to Egypt to collaborate with scientists of the Desert Research Center on two collaborative projects being supported by the U.S.-Egypt Joint Board on Scientific and Technological Cooperation. These projects are entitled "The Grazing Activity Energy Cost of Goats and "Effects of Nutritional Plane on the Maintenance Energy Requirement of Goats".



Goat Newsletter

E (Kika) de la Garza American Institute for Goat Research  
Langston University  
P.O. Box 730  
Langston, OK 73050