Extension Overview
Terry A. Gipson
Goat Extension Leader

The year 2007 was a busy year for the Langston Goat Extension program. The goat extension specialists have answered innumerable producer requests for goat production and product information via the telephone, letters and e-mail, have given numerous presentations at several state, regional, national and international goat conferences for potential, novice and veteran goat producers, and have produced a quarterly newsletter. They have also been busy with several major extension activities. These activities include the annual Goat Field Day, Langston Goat Dairy Herd Improvement (DHI) Program, grazing demonstrations, the eighth annual meat buck performance test and various goat workshops on artificial insemination and on internal parasite control.

Goat Field Day

Our annual Goat Field Day was held on Saturday, April 28, 2007 at the Langston University Goat Farm. This year’s theme was Herd Health - Old, New, and Emerging Issues.

Adult Activity (morning session): This year, our featured speakers was Dr. Bruce Olcott of Louisiana State University, who spoke on Goat Herd Health Procedures and Prevention with Emphasis on Biosecurity, and Dr. Lionel Dawson of Oklahoma State University, who spoke on Common and Uncommon Diseases of the Goat.

Dr. Bruce Olcott, DVM, MS, MBA is an Associate Professor at the Louisiana State University School of Veterinary Medicine. He received his BS from William & Mary in 1974 and his DVM from the University of Georgia in 1978. Dr. Olcott received his Master's degree from Washington State University in 1981 and his MBA from Louisiana State University in 1995. He and his wife, Dr. Donya Olcott, operate a farm with 250 goats and sheep.

Dr. Lionel Dawson, DVM, MS is a faculty member in the Department of Veterinary Medicine and Surgery in the College of Veterinary Medicine of Oklahoma State University. He received his undergraduate degree at Madras Christian College and professional degree at the Madras Veterinary College. After completing veterinary school, Dr. Dawson moved to Iowa where he did graduate work in Theriogenology at the School of Veterinary Medicine at Iowa State University. Dr. Dawson is board certified with the American College of Theriogenologists. In July of 1998, Dr. Dawson received a joint appointment between Oklahoma State University and Langston University.

Adult Activity (afternoon session): In the afternoon session, participants broke into small-group workshops. There were a total of thirteen workshops:

1. Continued Biosecurity/Prevention session with Dr. Bruce Olcott,
2. Continued Goat Diseases session with Dr. Lionel Dawson,
3. Basic Goat Husbandry - hoof trimming, injection sites, farm management calendar, disbudding, etc. with Mr. Jerry Hayes,
4. Nutrition for Health and Production - calculation of energy, protein and feed intake requirements and ration balancing using our Internet-based calculation system with Dr. Steve Hart,
5. Cheesemaking Overview - basics of cheesemaking with Dr. Steve Zeng,
6. Tanning Goat Hides - demonstration of basic goat hide tanning techniques with Dr. Roger Merkel,
7. Body Condition Score as a Management Tool - overview/hands-on of conducting body condition scoring for management use in meat, dairy or fiber goat production with Dr. Maristela Rovai,
8. Managing External Pests - control of external parasites and pests on goats with Dr. Justin Talley,
9. Internal Parasite Control - sustainable internal parasite control program with Dr. Dave Sparks,
10. Introduction to Goat Barbecue - overview of how to prepare goat barbecue with Mr. Willy Young,
11. USDA Government Programs - overview of USDA Natural Resource Conservation Service’s work with goats and its cost-sharing program with Mr. Dwight Guy,
12. DHI Training - supervisor/tester training for dairy goat producers including scale certification with Ms. Eva Vasquez,
13. Fitting and Showing for Youth and Adults - tips and pointers on fitting and show ring etiquette with Ms. Kay Garrett.

All Day Youth Activity: Ms. Sheila Stevenson hosted a full day of activities for youth ages 5-12 in the Fun Tent. This allowed the parents and older teens to enjoy the workshops knowing that their little ones were having fun in a safe environment. Last year, some activities included goat education (i.e., goat petting area, goat bingo), pony and horseback riding, fishing, pot your own plant, and many other activities.

Half Day Youth Activity (morning): The Oklahoma Goat Producers Association sponsored three contests (Poster, Speech and PowerPoint) during the 2007 Langston University Goat Field Day. There were two age divisions for each contest. Junior division is 12 and under and senior division is 13 to 18. Cash prizes were awarded for 1st, 2nd, and 3rd place for each division and contest. The theme for the poster contest was "Why Goat Products Are Good For You". Speech and PowerPoint contestants were allowed to present their speech on any aspect of the goat industry. Contestants who are entering the speech contest were allowed to use any props or visual aids of any kind.

Half Day Youth Activity (afternoon): Other youth and interested adults were able to participate in a half-day clipping, fitting, and showing workshop conducted by Ms. Kay Garrett of the Oklahoma Meat Goat Association. Participants had the opportunity to have hands-on practice of clipping and fitting a goat and then show it before a judge in the show ring.

Attendance at the Goat Field Day continues to increase. This year 316 people pre-registered. The breakdown of participants by state of residence is shown in the figure to the left.

2007 Goat Field Day Pre-Registration

Goat DHI Laboratory
The Langston Goat Dairy Herd Improvement (DHI) Program is housed at the dairy farm, west of campus, operates under the umbrella of the Texas DHIA. In February 1998, the Langston DHI program became the first DHI program to introduce forms and reports in goat terminology to dairy goat producers in the United States. A national Dairy Herd Improvement Association (DHIA) has been in existence for a number of years.
However, until 1996 DHIA catered only to cow dairies. The Langston DHI program has been very popular with dairy goat producers and has grown significantly since its establishment in 1996. Goat producers are now able to get records for their animals that reflect accurate information with the correct language. Currently we are serving a 27 state area that includes a majority of the eastern states. We have over 100 herds in these 27 states enrolled in the Langston Goat Dairy DHI Program. Langston University continues to serve the very small-scale dairy goat producer. The average herd size on test with Langston University is 10 animals. This is significantly smaller than the herd size average for the five other processing centers.

For those interested in becoming a Langston goat DHI tester, training is available either in a formal classroom setting or through a 35-minute video tape. Every tester is required to attend the DHI training session or view the tape and take a test. Upon completion of the DHI training, the milk tester can start performing monthly herd tests.

**Goat Newsletter**

The Goat Extension program published four issues of the 8-page Goat Newsletter in 2007. Interest in the newsletter has grown and we currently have over 3400 subscribers to our free quarterly Goat Newsletter and the subscription list continues to increase every year. The Goat Newsletter is mailed to every state in the nation and to 10 countries overseas. Ninety-seven percent of the mailings go to American households. At least one newsletter is mailed to a household in every state in the nation. Fifty percent of the newsletters are mailed to Oklahoma households. An additional thirty percent of the newsletters are mailed to households to state adjacent to Oklahoma.

**Artificial Insemination Workshop**

The use of superior sires is imperative in improving the genetic composition of breeding stock. Artificial insemination has long been used in the dairy cattle industry and is a simple technology that goat producers can acquire. However, opportunities for goat producers to the necessary skills via formal and practical instruction are not widespread. Langston University has instituted a practical workshop for instruction in artificial insemination in goats. Producers are instructed in the anatomy and physiology of the female goat, estrus detection and handling and storage of semen. Producers participate in a hands-on insemination exercise. An understanding of the anatomy and physiology enable the producer to devise seasonal breeding plans and to troubleshoot problem breeders. An understanding of estrus detection enables the producer to effective time inseminations for favorable conditions for conception and to effectively utilize semen. An understanding of semen handling and storage enables the producer to safeguard semen supplies, which can be scarce and costly. The experience of actually inseminating a female goat enables the producer to practice the knowledge that they have gained. The acquisition of these inseminating skill will allow producers the use of genetically superior sires in their herds that they normally would not have access to. It also allows producers to save money by conducting the inseminating themselves instead of hiring an inseminator. In 2007, AI workshops were held in September at the Langston University campus and in October at the county fairgrounds in Tahlequah and the county fairgrounds in Antlers.
United States Cheese Championship

Dr. Steve Zeng, our Dairy Product Specialist/Associate Professor at the E (Kika) de la Garza American Institute for Goat Research, was invited as an Official Judge to the 2007 United States Cheese Championship in Milwaukee, WI March 11-14, 2007. The judge panel consisted of 12 university professors and industry experts. It was the first time that a professor from an 1890 Land Grant university/college such as Langston University has been invited to participate in this national prestigious cheese contest. During this championship, a total of 1,158 cheese entries were presented. In all, 53 classes of cheese varieties were judged. Among them were 89 goat milk cheese entries along with 10 sheep milk cheeses. Goat cheese entries were put into five classes: plain soft cheese, flavored soft cheese, semi-soft cheese, hard cheese and mixed milk cheese. As an official judge, Dr. Zeng was able to taste and judge many varieties of cheeses from all over the nation. He was totally impressed how good the overall quality of all the cheeses was and believed that the U.S. cheese industry has established its own identity. In addition, all the judges were optimistic that goat milk cheese is not only getting popular as a specialty cheese but also becoming a favorite cheese to American consumers, especially in the northern states, the east and west coasts. As a goat cheese enthusiast, Dr. Zeng encourages goat cheese makers to actively participate in similar national and regional competitions. Dr. Zeng says “Submit your cheese entries to the contests and take a full advantage these contests have to offer. If you are an experienced cheese maker and have a potential award-winning cheese, the competition will validate the quality of your cheese and expend market for you. It’s like a ‘free’ national advertisement. If you are a new cheese maker, you will get some expert advice as you will receive judges’ original Score Cards and specific comments on cheese defects and can improve the overall quality of your cheese in the future.”

Meat Goat Production Handbook

The Meat Goat Production Handbook, which is a companion to the Web-based Training and Certification Program, both of which were funded through an USDA/FSIS grant. The 400-plus page Meat Goat Production Handbook is an answer to the paucity of information, especially on the aspect of quality assurance, which will be a key production element as the meat goat industry grows and evolves. A quality assurance program ensures the production of a safe, healthy product that satisfies consumers and increases profit for the production industry. Conventional topics such as herd health, nutrition, herd management, and many others are covered comprehensively, yet remain clear and easy-to-read. Additional topics generally not covered in conventional handbooks are also included, topics such as disaster preparedness, legal issues,
and organic meat goat production. Even though Langston University has taken the lead in this project, this handbook is not the product of one person nor of a single university. Our collaborating project institutions/organizations, which include Alcorn State University, American Boer Goat Association, American Meat Goat Association, Florida A&M University, Fort Valley State University, Kentucky State University, Langston University, Prairie View A&M University, Southern University, Tennessee Goat Producers Association, Tennessee State University, Tuskegee University, United States Boer Goat Association, University of Arkansas Pine Bluff, and Virginia State University. Handbook contributing institutions/organizations include Allen Veterinary Clinic, American Boer Goat Association, American Meat Goat Association, BIO-Genics, Ltd., Bountiful Farm, Cornell University, Fort Valley State University, Kentucky State University, Langston University, Law Office of Wheeler and Mueller, Louisiana State University, Louisiana State University AgCenter, NCAT / ATTRA National Sustainable Agriculture Information Service, North Carolina State University, Oklahoma State University, Texas A & M University, United States Boer Goat Association, and Virginia State University.

**Small Farmer Goat Management Workshops**

Dr. Chongo Mundende, coordinator of Langston's Outreach Program, was awarded a Risk Management grant to deliver a series of management workshops for socially-disadvantaged farmers. These workshops were conducted through the local outreach offices located in Anadarko, Idabel, Muskogee, and Wewoka, as indicated on the map to the right. Topic that were presented are indicated in the table below. Successful participants were given a Meat Goat Production Handbook as a resource for the seminars.

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Presenters</th>
</tr>
</thead>
<tbody>
<tr>
<td>February</td>
<td>General Introduction, Fencing and Housing, Quality Assurance</td>
<td>Steve Hart</td>
</tr>
<tr>
<td>March</td>
<td>Breeding and Kidding Management, Selection of Breeding Stock, Traits to Consider</td>
<td>Terry Gipson</td>
</tr>
<tr>
<td>April</td>
<td>Nutrition and feeding, Pastures, Vegetation Management, Body Condition Scoring</td>
<td>Steve Hart</td>
</tr>
<tr>
<td>May</td>
<td>General Goat Management, Internal Parasites, Predator Control, Livestock Guarding Dogs</td>
<td>Steve Hart</td>
</tr>
<tr>
<td>June</td>
<td>Herd Health, Biosecurity</td>
<td>Terry Gipson</td>
</tr>
<tr>
<td>July</td>
<td>Marketing, Budgets, Recordkeeping</td>
<td>Roger Sahs and Steve Hart</td>
</tr>
<tr>
<td>August</td>
<td>Reproduction, Genetics, Acquisition of Breeding Stock</td>
<td>Terry Gipson</td>
</tr>
</tbody>
</table>
**Controlling Internal Parasites Workshop**

In 2007, Langston University conducted seven workshops on controlling internal parasites with more than 200 participants in total. Controlling internal parasites is the number two cost of production for goat producers. 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 and overuse anthelmintics; both hasten anthelmintic resistance. Langston University initiated a workshop to help goat producers develop a sustainable control program for internal parasites. In the workshops, goat producers learn about the life cycles of the most common and the most pathogenic parasites, various families of anthelmintics, correct dosage and dosing procedures and how to collect fecal samples and how to conduct fecal egg counts. An understanding of 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 efficacy. The ability to conduct fecal egg counts allows producers to deworm their goats on an as-needed basis instead of a calendar or other equally unreliable bases. A decrease of just one deworming will save the goat producer $1.20 per goat, slow anthelmintic resistance and better ensure a wholesome product.

<table>
<thead>
<tr>
<th>Workshop location</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antlers, OK</td>
<td>22</td>
</tr>
<tr>
<td>Butler County, KS</td>
<td>25</td>
</tr>
<tr>
<td>Tulsa, OK</td>
<td>24</td>
</tr>
<tr>
<td>Atoka, OK</td>
<td>30</td>
</tr>
<tr>
<td>Pawnee, OK</td>
<td>35</td>
</tr>
<tr>
<td>Claremore, Ok</td>
<td>22</td>
</tr>
<tr>
<td>Ada, OK</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>218</strong></td>
</tr>
</tbody>
</table>

**Nutrient Requirements of Goats**

Under a research project which developed equations for energy and protein requirements for goats, as well as prediction of feed intake, an extension sub-project developed a website calculation system for “Nutrient Requirements of Goats” (http://www2.luresext.edu/goats/research/nutreqgoats.html). Most calculators were based on studies of the project reported in a Special Issue of the journal Small Ruminant Research. For calculators with score inputs (i.e., grazing and body conditions), pictures are available to aid in determining most appropriate entries. Realistic examples are given, as well as discussion of appropriate and inappropriate usage. However, for the experienced user there is an option to hide text and examples and to view only inputs and outputs.

In 2005, a calculator for calcium and phosphorus requirements was added to the existing calculators for metabolizable energy, metabolizable protein, and feed intake for suckling, growing, mature, lactating, gestating, and Angora goats. Also in 2005, the interface of the calculators was unified into a single calculator with the English measurement system used. This will encourage the use of the calculators by American producers. The least-cost ration balancer was modified so that it incorporates the least-cost feed percentage into the diet. Also, calculators are equipped with printable version commands to obtain inputs and outputs in hard copy format. In 2007, the calculators were continued to be updated.

In summary, for nutrient requirement expressions to be of value, they must be readily accessible and reasonably simple. Therefore, a web-based goat nutrient requirement system was developed based on findings
of a recent project. It is hoped that this system will enjoy widespread usage and enhance feeding practices for goats.

**Tanning Workshop**

On November 3, 2007, Dr. Roger Merkel presented the first workshop on tanning goat hides held by AIGR. Six participants attended the one-half day workshop which consisted of a discussion of tanning methods and hands-on practice. Participants learned about skin structure and how it relates to different types of tanning – hair-on, leather and brain tanning (the traditional method of making buckskin) and different tanning chemicals and their usage. The basic steps of tanning - skinning the animal; preserving the hide; fleshing the hide; pickling and neutralizing; the actual tanning process; oiling; drying and softening; and finishing – were discussed and explained.

During the second half of the workshop participants tried some of the tanning steps on several goat hides. Preservation was done by rubbing salt on a hide to stop bacterial action that causes hair slippage. Workshop participants used a fleshing beam (a blunt, rounded edge 2 x 6 board about 5 feet long with one end resting on the ground and legs lifting the blunt edge to waist height) and fleshing knife (a blunt edged curved knife with handles on each end) to flesh, or scrape off, all the fat, meat and membrane attached to the flesh side of a raw hide.

Workshop participants tanned two hides by different methods. One method used a synthetic tanning powder prepared in a solution in which the hide was placed. The second hide was tanned using a “paint-on” tan applied directly to the flesh side of the prepared hide. Care for the hides immediately after tanning and the application of oil to the hides was demonstrated. Finally, the participants all tried softening a hide that had been tanned prior to the workshop. Softening was done by pulling and stretching a tanned hide around a steel cable, hard work but worth the effort to have a soft, velvety hide.

**Internet Website**

http://www2.luresext.edu

The Agricultural Research and Cooperative Extension program of Langston University recently unveiled a new and improved Internet web site. The Internet address (URL) of the new web site is http://www2.luresext.edu.

Capabilities of the new web site include a document library with the complete proceedings of the annual Goat Field Day for the past three years and the quarterly newsletter for the past several years. Both the proceedings and newsletters are also available in portable document format (pdf), which allows for the viewing and printing of documents across platform and printer without loss of formatting.

Information, recent abstracts and scientific articles of completed and current research activities in dairy, fiber and meat production are available for online viewing and reading. Visitors will be able to take a Virtual Tour of the research farm and laboratories, complete with digital photos and narrative. Visitors will also be able to browse a digital Photo Album. Visitors will also be able to subscribe to our free quarterly newsletter online. Visitors will be able to test their knowledge of goats with the interactive goat quiz which covers nearly all aspects of dairy, fiber and
meat goat production. For those questions that are lacking in the interactive quiz database, visitors will be able to submit a question to be included in the database. Visitors will be able to read about research interests of faculty and will be able to contact faculty & staff via email.

**Web-based Training for Meat Goat Producers**

Meat goat production is one of the fastest growing sectors of the livestock industry in the United States. New producers, as well as some established ones, have an expressed need for current, correct information on how to raise goats and produce safe, wholesome products in demand by the public. As the meat goat industry grows and evolves, a quality assurance program is essential. Such a QA program ensures the production of a wholesome product that satisfies consumers and increases profit for the meat goat industry.

Langston University was awarded funding by the Food Safety and Inspection Service of USDA to develop training and certification for meat goat producers. Langston University organized and led a consortium of 1890 universities and producer associations in this project. The consortium identified the subject topics most pertinent and pressing for the instructional modules. The consortium then identified experts on the selected subject topics and pursued these experts as module authors. These authors represent the most qualified persons in their field in academia as well as in the industry. Langston University translated the sixteen instructional modules into web pages with accompanying images, and pre- and post tests for those producers wishing to pursue certification. All modules are also available in pdf for easy printing and the introductory module is available as a podchapter for downloading and listening on your favorite mp3 player. The web-site ([http://www2.luresext.edu/goats/training/qa.html](http://www2.luresext.edu/goats/training/qa.html)) was unveiled in late 2005.

Even though this web-site ([http://www2.luresext.edu/goats/training/qa.html](http://www2.luresext.edu/goats/training/qa.html)) was only unveiled in 2007, 605 producers have enrolled for certification and 52 have completed the certification process. These instructional materials will best serve meat goat producers in assisting them to produce a safe, wholesome, healthy product for the American consumer. Funding source for this project was USDA/FSIS/OPHS project #FSIS-C-10-2004 entitled “Development of a Web-based Training and Certification Program for Meat Goat Producers.”

<table>
<thead>
<tr>
<th>Breed Association</th>
<th>Number of Members Certified</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Boer Goat Association</td>
<td>24</td>
</tr>
<tr>
<td>American Kiko Goat Association</td>
<td>6</td>
</tr>
<tr>
<td>American Meat Goat Association</td>
<td>10</td>
</tr>
<tr>
<td>International Kiko Goat Association</td>
<td>2</td>
</tr>
<tr>
<td>United States Boer Goat Association</td>
<td>8</td>
</tr>
<tr>
<td>Alberta Goat Breeder’s Association</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>14</td>
</tr>
</tbody>
</table>

The table above shows the association affiliations for the 52 certified producers. Please note that certified producers may be a member of more than one association. The table below shows the distribution of the certified producers by state.
<table>
<thead>
<tr>
<th>State</th>
<th>Number Certified Producers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AB</td>
<td>1</td>
</tr>
<tr>
<td>AL</td>
<td>1</td>
</tr>
<tr>
<td>AR</td>
<td>3</td>
</tr>
<tr>
<td>BC</td>
<td>1</td>
</tr>
<tr>
<td>CO</td>
<td>1</td>
</tr>
<tr>
<td>FL</td>
<td>3</td>
</tr>
<tr>
<td>GA</td>
<td>2</td>
</tr>
<tr>
<td>IA</td>
<td>1</td>
</tr>
<tr>
<td>IL</td>
<td>1</td>
</tr>
<tr>
<td>IN</td>
<td>1</td>
</tr>
<tr>
<td>KS</td>
<td>2</td>
</tr>
<tr>
<td>KY</td>
<td>3</td>
</tr>
<tr>
<td>MA</td>
<td>1</td>
</tr>
<tr>
<td>MB</td>
<td>1</td>
</tr>
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<td>MN</td>
<td>1</td>
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<tr>
<td>MO</td>
<td>2</td>
</tr>
<tr>
<td>MS</td>
<td>2</td>
</tr>
<tr>
<td>MT</td>
<td>1</td>
</tr>
<tr>
<td>NV</td>
<td>1</td>
</tr>
<tr>
<td>OH</td>
<td>1</td>
</tr>
<tr>
<td>OK</td>
<td>4</td>
</tr>
<tr>
<td>ON</td>
<td>1</td>
</tr>
<tr>
<td>TN</td>
<td>6</td>
</tr>
<tr>
<td>TX</td>
<td>8</td>
</tr>
<tr>
<td>VA</td>
<td>1</td>
</tr>
<tr>
<td>WY</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>52</strong></td>
</tr>
</tbody>
</table>
Meat Buck Performance Test

Meat goat production represents the most rapidly growing animal industry in the US today, and is becoming a mainstream livestock enterprise. To further genetic progress through the identification of superior sires in the industry, Langston University and the Oklahoma Meat Goat Association established a meat goat performance test in 1997.

Entry

The eleventh annual meat buck performance test started May 5, 2007 with 23 bucks enrolled from 6 different breeders. Geographical distribution is given in the table below.

<table>
<thead>
<tr>
<th>State</th>
<th>Bucks</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO</td>
<td>4</td>
</tr>
<tr>
<td>OK</td>
<td>3</td>
</tr>
<tr>
<td>TX</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
</tr>
</tbody>
</table>

Bucks were given a physical examination by Dr. Lionel Dawson, dewormed with Cydectin (moxidectin), deloused with Atroban De-Lice, given a preemptive injection of Nuflor for upper respiratory infections, and those bucks that needed booster or initial vaccinations for enterotoxemia and caseous lymphadenitis. Four weeks after check-in, all bucks were given a booster vaccination for enterotoxemia and caseous lymphadenitis.

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

<table>
<thead>
<tr>
<th>Data</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average of Entry Weight (lbs)</td>
<td>59.7</td>
</tr>
<tr>
<td>Average of Entry Age (days)</td>
<td>92</td>
</tr>
</tbody>
</table>

Adjustment Period

The Feed Intake Recording Equipment (FIRE) system was used for all animals. The FIRE system is a completely automated electronic feeding system, which was developed for swine but we have adapted it to goats. Animals wear an electronic eartag, which is read by an antenna in the feeder. The FIRE system automatically records body weight and feed intake. All bucks underwent an adjustment period of two weeks immediately after check-in. During the adjustment period, bucks were acclimated to the test ration and to the FIRE system.

The area immediately around FIRE feeders and waterers is concrete, however, the large majority of the inside pen is earth and is covered by pine shavings. Pine shavings were periodically added as needed to maintain fresh bedding. Bucks had free access to water provided by float-valve raised waterers. Whenever the weather was permitting, the bucks had access to the outside pens as well as the inside pens.

In 2007, we were fortunate to hire a second year veterinary student from Oklahoma State University, Ms. Janelle Blaylock. Janelle did a wonderful job with the bucks.

Ration

Nutritionists at Langston University formulated the following ration. In 1999, the amount of salt and ammonium chloride was doubled due to problems with urinary calculi the previous year. Except for the increase in salt and ammonium chloride, the ration was unchanged from that which was used in the first two meat buck performance tests. The ration was fed free-choice during the adjustment period and during the 12-week test.
<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Percentage (as fed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottonseed hulls</td>
<td>29.07%</td>
</tr>
<tr>
<td>Alfalfa meal</td>
<td>19.98%</td>
</tr>
<tr>
<td>Cottonseed meal</td>
<td>15.99%</td>
</tr>
<tr>
<td>Ground corn</td>
<td>15.99%</td>
</tr>
<tr>
<td>Wheat midds</td>
<td>9.99%</td>
</tr>
<tr>
<td>Pellet Partner (binder)</td>
<td>5.00%</td>
</tr>
<tr>
<td>Ammonium chloride</td>
<td>1.00%</td>
</tr>
<tr>
<td>Yeast</td>
<td>1.00%</td>
</tr>
<tr>
<td>Calcium Carbonate</td>
<td>0.95%</td>
</tr>
<tr>
<td>Salt</td>
<td>0.50%</td>
</tr>
<tr>
<td>Trace mineral salt</td>
<td>0.50%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>0.02%</td>
</tr>
<tr>
<td>Rumensin</td>
<td>0.01%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

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. In 2003, competitive bids were sought for the buck-test feed and Bluebonnet Feeds of Ardmore, OK was awarded the contract to supply feed for the buck performance test for 2003, 2004, 2005, 2006, and 2007.

**ABGA Approved Performance Test**

In early 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 will be 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 a Boer buck who shows an average daily weight gain (ADG) in the top five percent (5%) of the animals on test. Five (5) points will be awarded a Boer buck who 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.

The Oklahoma performance test continues to grow and to serve the meat goat industry.

**Gain**

The official performance test started on May 23 after the adjustment period was finished. Weights at the beginning of the test averaged 64 lbs with a range of 42 to 82 lbs. Weights at the end of the test averaged 116 lbs with a range of 85 to 140 lbs. Weight gain for the test averaged 52 lbs with a range of 29 to 72 lbs.

**Average Daily Gain (ADG)**

For the test, the bucks gained on averaged 0.62 lbs/day with a range of 0.35 lbs/day to 0.86 lbs/day.

**Feed Efficiency (Feed Conversion Ratio)**

For the test, the bucks consumed an average of 332 lbs of feed with a range of 223 to 400 lbs.
For the test, the bucks averaged a feed efficiency of 6.69 (feed efficiency is defined as the number of lbs. of feed needed for one lbs. of gain), with a range of 4.95 to 11.14.

Muscling

The average loin eye area as determined by ultrasonography was 1.79 square inches with a range of 1.18 to 2.12 square inches and the average left rear leg circumference was 14.9 inches with a range of 13.0 to 17.5 inches.

Index

For 2007, 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:

\[
\text{area of longissimus muscle (loin)} / \text{BW}^{0.75}
\]

- 20% circumference around the widest part of the hind left leg as measured with a tailor’s tape adjusted by the goat’s metabolic body weight:

\[
\text{circumference of hind left leg} / \text{BW}^{0.75}
\]

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. Ralph Webb of Monroe, OK
  for having the Top-Indexing buck
  in the 2007 Oklahoma Meat Buck Performance Test

Also, deserving congratulations are:

- Mr. Marvin Shurley of Sonora, TX
  for having the #1 Fastest-Gaining buck
- Mr. Marvin Shurley of Sonora, TX
  for having the #2 Fastest-Gaining buck
- Mr. Ralph Webb of Monroe, OK
  for having the #3 (tie) Fastest-Gaining buck
- Mr. AL Paul of Aubrey, TX
  for having the #3 (tie) Fastest-Gaining buck
- Mr. AL Paul of Aubrey, TX
  for having the #5 (tie) Fastest-Gaining buck
- Mr. AL Paul of Aubrey, TX
  for having the #5 (tie) Fastest-Gaining buck
- Mr. Mr. AL Paul of Aubrey, TX
  for having the Most-Feed-Efficient buck
- Mr. Mr. Ralph Webb of Monroe, OK
  for having the Most-Heavily-Muscled buck

Acknowledgments

The Buck Test supervisor wishes to acknowledge Dr. Lionel Dawson of Oklahoma State University for his contributions as the admitting and on-call veterinarian, Ms. Janelle Blaylock for their 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 Bluebonnet Feeds of Ardmore, OK for custom mixing the feed.
Table 1. Bucks sorted by Index score.

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<thead>
<tr>
<th>Owner</th>
<th>ID</th>
<th>Owner ID</th>
<th>Breed</th>
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<th>Weights (lbs)</th>
<th>Gain (lbs)</th>
<th>ADG (lb/d)</th>
<th>Intake (lb)</th>
<th>FE* (in²)</th>
<th>LEA (in)</th>
<th>RLC (in)</th>
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| Average     | 52.3 | 63.8 | 115.5 | 51.7 | 0.62 | 332.4 | 6.69 | 1.79 | 14.9 | 100.0 |

* lbs of feed for one lb. of gain.
Table 2. Bucks sorted by Gain (ADG).

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Average: 52.3 63.8 115.5 51.7 0.62 332.4 6.69 1.79 14.9 100.0

* lbs of feed for one lb. of gain.
Table 3. Bucks sorted by Feed Efficiency.

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* lbs of feed for one lb. of gain.
Table 4. Estimated weights (at 120, 150, and 180 days of age) and age (at 60, 80, and 100 lbs).

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* adg estimated by regression analysis and therefore may differ from ADG in other tables.
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