Goat Newsletter

Cooperative Extension Program
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research *Summer 2013*

From the Director's Desk

The summer is a time for us to turn our full attention toward research projects. In the spring, we are busy with kidding activities in the research herd and also preparing for the Goat Field Day, which you can read more about in this newsletter. I would just like to add that I received many favorable comments about our featured cheese-maker this year. Mr. **Patrick Anglade** from southwestern France conducted an excellent workshop on the fabrication of French goat cheeses. I first met Patrick at the International Conference on Goats, which was held on the Canary Islands last year. He was leading a discussion on goat cheeses and I had an opportunity to talk with him in depth at a reception later that evening. I knew then that our American dairy goat producers could benefit from his vast knowledge on French-style cheeses and decided to invite him for the 2013 Goat Field Day and its preceding cheese-making workshop. Drs. **Steve Zeng** and **Terry Gipson** worked tirelessly behind the scene to ensure that workshop requirements and travel arrangements were met so that Patrick could concentrate on the workshop.

As I mentioned, we are busy with research projects and the project that is the most time- and labor-intensive is the "Sustainable Small Ruminant Production through Selection for Resistance to Internal Parasites" project. Dr. **Yoko Tsukahara**, Visiting Scholar on the Fencing project, has agreed to stay and coordinate this project. In addition to Dr. **Tsukahara**, Drs. **Terry Gipson**, **Arthur Goetsch**, **Steve Hart**, **Ryszard Puchala**, and **Zaisen Wang** are busy on this project. This summer, which is the first year of the project, team members are traveling to producer-cooperators' farms and sampling animals. Our cooperators on this project are Dr. **Joan Burke** of the USDA Dale Bumpers Small Farms Research Center in Booneville, AR; **Nate Cannon** of Muskogee, OK; **Nancy Edgerly** of St. Joe, AR; **Michael Hogan** of Moline, KS; **Jason Pelzel** of West Plains, MO; **Marie Iiams** of Jenkins, MO; and **Nancy Gilleland** of Gainesville, GA. **Burke** and **Cannon** are Katahdin breeders, **Edgerly** is a Boer breeder, **Gilleland** and **Hogan** are Kiko breeders, **Iiams** is a Dorper breeder, and **Pelzel** is a St. Croix breeder. On all cooperator farms, we are collecting FAMACHA scores on all does/ewes and kids/lambs when the kids/lambs are 4 and 8 weeks old. At weaning, approximately at 12 weeks of age, we are collecting FAMACHA scores and conducting fecal egg counts on all animals. In the **Burke**, **Cannon**, **Edgerly**, **Hogan**, and **Pelzel** herds/flocks, we will be selecting 15 young bucks/rams for performance testing and an internal parasite artificial challenge at Langston University. In the **Gilleland** and **Iiams** herd/flock, we will

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be selecting 15 bucks/rams for an on-farm natural challenge. On each farm, we will then mate the most-resistant males to the most-resistant females. We will also have a control line of average resistance males mated to average resistance females. We will continue this project for another two years.

Another project that is starting to increase in intensity is the "Technical Support in Small Ruminants to the Tri-Lateral University Partnership", which is a strengthening of the research capacities of Egerton University in Kenya and Bunda College of Agriculture in Malawi. At Egerton, we will concentrate upon improvement of dairy goat milk production and will accomplish this task by the importation of new genetics of Alpines, Saanens, and Toggenburgs, which are currently in health quarantine in South Africa and will soon be shipped to Egerton. Kenya has a fledgling dairy goat industry and the Kenyan government would like to develop it further. A lack of genetic diversity in the aforementioned dairy breeds should be overcome by this importation. We will also assist Egerton with artificial insemination with the use of fresh semen so that cross-breeding can be accelerated in specific geographical areas. At Bunda, we will be concentrating on improvement of laboratory facilities. Bunda's present laboratories are outdated and sometimes non-functional. We have ordered new laboratory equipment and it is currently being shipped to Malawi. Later this year, we will send a team to conduct training in laboratory procedures.

This summer again, we welcome three students from the University of Puerto Rico at Mayagüez (UPRM); Ms. **Marie Negron**, Ms. **Eva Pacheco**, and Ms. **Alexandra Reyes**. UPRM is a collaborator on our project to produce an easy-to-understand Spanish version of our very popular Meat Goat Production Handbook. An ancillary outgrowth of this project is the summer internship for UPRM students. In addition to learning goat production skills that will be helpful in the translation the handbook into Spanish, the three students will also be involved in the ongoing mortality composting project, which you can read more about in this newsletter. **Negron** will be participating in a study on the effect of ambient temperature and time before measuring surface temperature on infrared temperature measurement of reinforcing bar (RB); **Pacheco** will be participating in a study on evaluating the accuracy of using RB and an infrared thermometer versus long-stemmed thermometers in working mortality compost piles; and **Reyes** will participate in a study on evaluating the potential of using traditional trash barrels for composting kid mortality versus traditional pile construction. We welcome these UPRM interns and we look forward to strengthening our good relationship UPRM.

I hope that your summer goes well and that your goats stay cool.

Research Spotlight

Fencing Modification for Goats.

A constraint to grazing of goats in cattle pastures is the different types of fence required for containment of both species. Thus, the objective this experiment was to investigate effects of meat goat breed, gender, experimental period, and preliminary and washout treatments on behavior in pens with electric strand modifications to cattle barb wire fence. Eighty of four types of growing meat goats (Boer wethers and doelings, 53 and 49 lbs.; Spanish wethers and doelings, 37 and 34 lbs., respectively) were assigned to four sets of 20 animals used in 5 × 5 Latin squares. Test pens of 8′ × 12′ had three metal panel sides and one of barb wire strands at 12″, 22″, 32″, 42″, and 52″ from the ground adjacent to a pasture with abundant vegetation. Fence treatments were electric strands at 6″ and 17″ (LH), 6″ and 9″ (LM), 6″ (L), 9″ (M), and 17″ (H) at 6 kilovolts (kV). During a 4-wk adaptation period, animals were sequentially exposed each week to test pens with different fence conditions: no electric strands, one strand at 0 kV, LM, and LH. Two preliminary treatments (barb wire with no electric strands and LH) were applied the week before the first measurement period. After fasting overnight each set of animals was placed in test pens and observed for 1 hour with a video surveillance system. There were no effects of gender. Fence treatment affected the percentage of animals exiting test pens (31, 23, 16, 35, and 30% for LH, LM, L, H, and M, respectively). Breed influenced exit (12 and 43%), exit time (15 and 5 minutes), and animals receiving a shock (10 and 4% for Boer and Spanish, respectively). Exit decreased as period advanced (60, 35, 23, 10, and 8 % for 1, 2, 3, 4, and 5, respectively). In conclusion, meat goat breed needs to be considered in development of a method to evaluate electric fence additions to cattle barb wire fence, and differences in exit among periods indicates that either a Latin square approach is not suitable or would require different preliminary and(or) washout treatments.

Tsukahara, Y., T.A. Gipson, G.D. Detweiler, T. Sahlu, A.L. Goetsch. 2012. Factors affecting behavior of goats in pens with electric strand additions to cattle barb wire fence. Proceedings of the 11th International Conference on Goats. p. 151. International Goat Association.

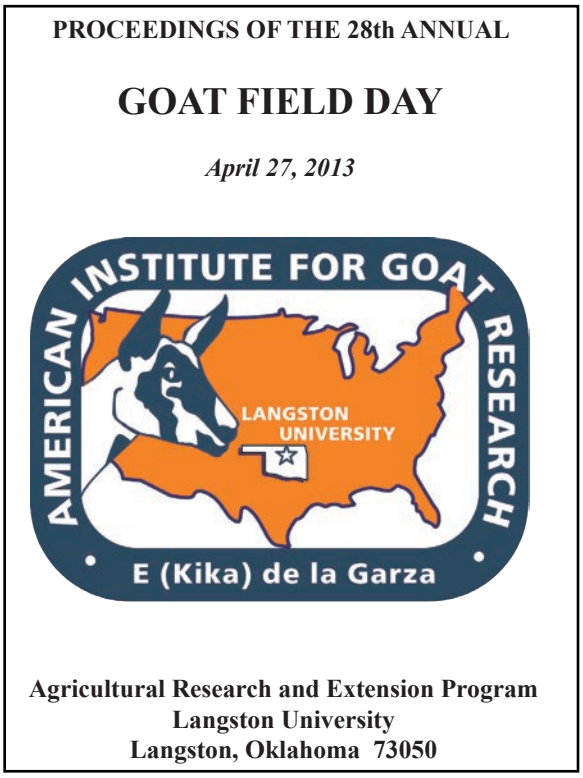
Pasture Access and Milk Production.

Thirty-two Alpine does (124 lb initial bodyweight [BW], 4.6 lb initial milk production, and second parity) were used to evaluate effects of different pasture access regimes on milk production and composition. The experiment began at 26 days in milk and lasted 24 wk. Treatments were access to grass and (or) legume pasture from 8:00 a.m. after the morning milking at 7:00 a.m. to 4:00 p.m. (SET), continuously (CG), the time of no dew (i.e., leaf surface moisture below a threshold level) until milking at 4:00 p.m. (ND-M), and the time of no dew until sunset (ND-D). When not on pasture does were housed in confinement in treatment groups. The SET, CG, and ND-M does were supplemented with 1.5% BW (DM) of concentrate (17% CP and 86% TDN) immediately after the 4:00 p.m. milking, whereas does on ND-D were supplemented at sunset. The ND-M and ND-D does were fed alfalfa hay when length of pasture access was less than 6 hours, with the level based on length of pasture access. Milk yield was recorded daily and milk samples were collected every 2 weeks. Milk yield and concentrations of protein, fat, lactose, total solids, and solids-non-fat were similar among treatments. Treatment did not affect milk concentrations of lauric (C12:0; 3.8 %), myristic (C14:0; 10.5%), palmitoleic (C16:1; 1.2%), linoleic (C18:2; 1.9%), or linolenic acids (C18:3; 0.2%). However, there were differences in levels of butyric (C4:0) (2.7, 2.5, 2.9, and 2.6%), caprylic (C8:0) (2.7, 2.4, 2.9, and 2.7%), capric (C10:0) (8.7, 7.6, 9.5, and 8,8%), and palmitic acids (C16:0) (29.6, 29.3, 32.2, and 29.2%), with a low value for CG in many instances. There were differences in concentrations of stearic (C18:0) (15.3, 17.0, 14.0, and 15.3%) and oleic acids (C18:1) (23.0, 24.0, 20.3, and 23.4% for SET, CG, ND-M, and ND-D, respectively) as well, with generally high levels for CG. In conclusion, the different pasture access regimes did not affect milk yield or composition but did influence proportions of many fatty acids in milk.

Keli A., A.L. Goetsch, T.A. Gipson, R. Puchala, S. Zeng, G.D. Detweiler, K. Tefsai, T. Sahlu. 2012. Effects of pasture access regime on yield and composition of milk produced by Alpine goats. Proceedings of the 11th International Conference on Goats. p. 334. International Goat Association.

2013 Goat Field Day
Enhancing Goat Products

The 2013 Goat Field Day was a resounding success with more than 225 participants attending. This year, featured speakers were Mr. Patrick Anglade and Drs. Ken McMillin, Jeffery Gillespie, and Frank Pinkerton. Mr. Patrick Anglade is the owner/operator of Consultant of Formation en Fromagerie based in Pyrenees, France. Patrick is the author of the reference book "La fromagerie à la ferme" [farmstead cheesemaking] and has conducted training sessions and/or consultations in on-farm dairy processing for organizations in France, Canada, Ireland, Italy, Spain, and the United States. Dr. Jeffrey Gillespie is the Martin D. Woodin Endowed Professor in the Louisiana State University Agricultural Center Department of Agricultural Economics and Agribusiness. Jeff conducts research on livestock and aquaculture production economics and farm management, including estimation of costs of production, adoption of technology, and farm efficiency. He teaches an undergraduate introduction to agricultural economics course and graduate courses on production economics and operations research. Dr. Ken McMillin is the Mr. and Mrs. Herman E. McFatter Professor of Animal Science in the Louisiana State University Agricultural Center School of Animal Sciences and Department of Food Science. Ken conducts research in meat processing, packaging, food safety, and goat meat and instructs courses in meats, meat processing, contemporary issues in the animal sciences, and growth and development of meat animals. Dr. Frank Pinkerton, aka The Goat Man, retired from Langston University in 1993 to raise meat goats in east TX and does consulting work in goat management and marketing. Since March of 2005, Frank has written a monthly question-and-answer column for The Goat Rancher and also to share occasional articles on various facets of the industry.

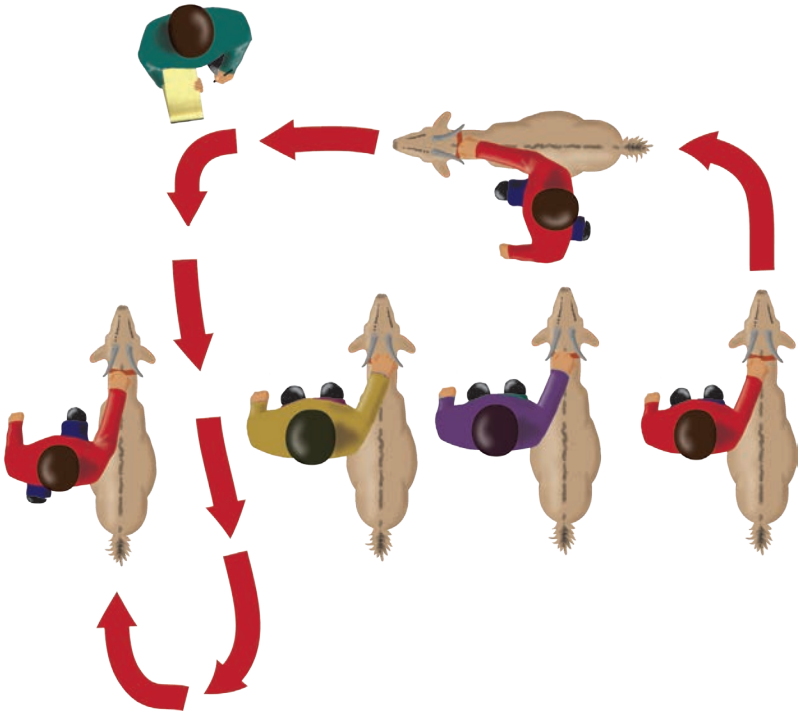


The afternoon break-out workshops included:

- *French Goat Cheeses* - an overview of French cheesemaking.
- *Meat Goat Industry Status Report and Observations for Profitability* - what every producer should know about the meat goat industry.
- *Internal Parasite Control* - sustainable internal parasite control program.
- *Basic Herd Health* - herd health program including vaccinations, injection sites, and approved drugs.
- *The Art of Drawing and Illustrating* - basics of how to draw any type of goat.
- *Nutrition for Health and Production* - calculations of feed intake and of energy and protein requirements.
- *Goat Reproduction* - basics of goat reproduction and techniques and equipment for artificial insemination in goats.
- *DHI Training* - supervisor/tester training for dairy goat producers including scale certification.
- *Body Condition Scoring* - practical application of body condition scoring and its use in herd management.
- *USDA Government Programs* - overview of USDA Natural Resource Conservation Service's work with goats and its cost-sharing program.
- *Mortality Composting* - basic composting techniques and equipment for disposing of goat mortalities.
- *Fitting and Showing for Youth and Adults* - tips and pointers on fitting and show ring etiquette.

The Fitting and Showing workshop handout has been updated to include a section on Show Ring Eti-

Field Day cont.



quette. Showing livestock has been a pastime for rural youth for many generations and showing goats is one of the fastest-growing youth livestock activities. Goat shows provide an opportunity for youth to exhibit the superior animals that they have raised or taken care of. In the show ring, having a top-quality animal is important but just as important is the youth's ability to handle and highlight that animal. In addition to the satisfaction that a youth has in exhibiting a top-quality animal, there are added benefits of the goat show. Prize money can help with the feed bill and other expenses. Networking with other youth and adult goat producers can yield invaluable tips on goat management and caregiving. Lastly but not least, the relationship that develops between the youth and his/her goat will last a lifetime. The figure to the above right, which shows the proper way to move an animal in a line-up, is indicative of the quality of the illustrations in this section

If you could not attend the 2013 Goat Field Day but would like a copy of the proceedings, please email Dr. Terry Gipson at tgipson@langston.edu with your mailing address and he will send you a free copy. Please hurry because copies are limited. Or you can access the complete proceedings at http://www2.luresext.edu/goats/library/field/fd13.htm.

Artificial Insemination Workshops

The Goat Extension Program will be conducting two artificial insemination workshops in the fall of 2013. The schedule will be:

- ✯ **Langston University**
  - **September 7, 2013**
  - **October 12, 2013**
  - **Both dates are Saturdays.**
- ✯ **Both workshops will be hands-on and will follow the same format.**

Practice with live animals.

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. Registration forms are available online at: http://www2.luresext.edu/goats/extension/workshops_field_day.htm.

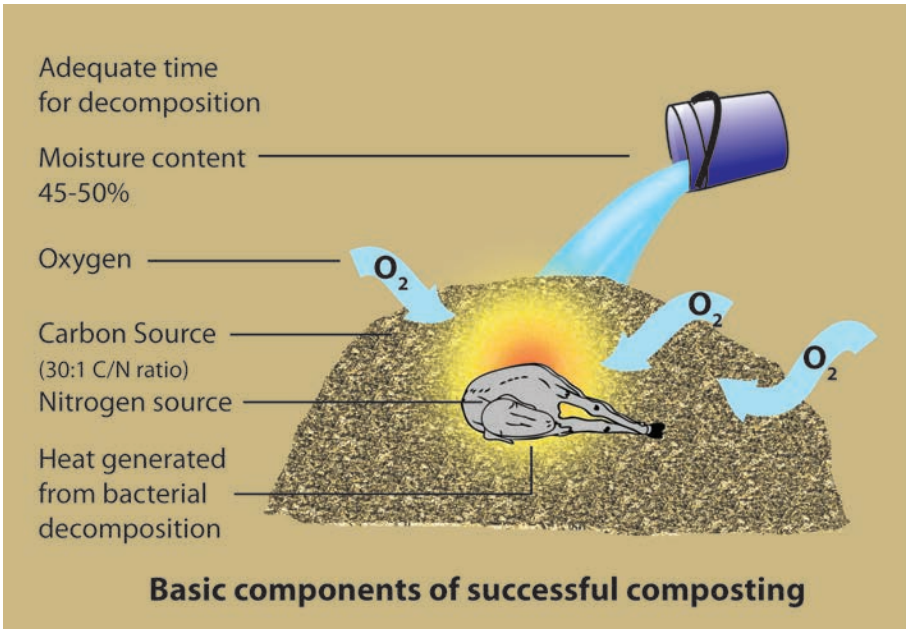
Scan this QR code with your smartphone to send Terry an email about the workshop.

Composting Goat Mortality

In 2010, Langston University, along with collaborating institutions Virginia State University and Florida A&M University, was awarded a grant by the USDA to train people in mortality composting. As all livestock producers know, if you raise livestock at some point you will have dead stock. The question for most producers is what to do with their livestock mortality. In Oklahoma it is illegal to allow carcasses to lie on the ground and decompose naturally or to be fed upon by scavengers such as coyotes. There are five lawful means of carcass disposal: rendering, incineration, burial, use of landfills, and composting. Of those options, carcass composting is a low-cost, environmentally friendly disposal method. The resulting compost can be used as a soil amendment and spread on pastures.

On April 26, as part of grant activities, Dr. Roger Merkel held a one-day workshop at Langston University on mortality composting for university and extension personnel and other people who work with farmers. A total of 15 participants attended and represented university faculty, county extension personnel, farm managers, and USDA/NRCS personnel from the states of Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Virginia. A faculty member from the University of Puerto Rico – Mayagüez also attended. Presentations were made by Drs. Roger Merkel of Langston University and Adnan Yousef of Virginia State University, a grant collaborator. Mr. Cody Linker, OSU Extension Educator from Lincoln County in Oklahoma, presented information on composting large stock such as cattle and horses. After lunch, attendees visited the mortality composting demonstration site at the American Institute for Goat Research farm and viewed working compost piles and examples of different composting bin construction. Dr. Merkel also presented mortality composting during Langston University's Annual Goat Field Day on April 27.

On May 18, Dr. Merkel made a presentation on mortality composting to 23 producers attending the Master Goat Producer Program of Florida A&M University in Quincy, FL. Ms. Angela McKenzie-Jakes of FAMU leads the program and is also a grant collaborator. Following the presentation, Dr. Merkel conducted a demonstration of composting a goat carcass for attendees. This mortality composting training session was part of a larger program in livestock production training.

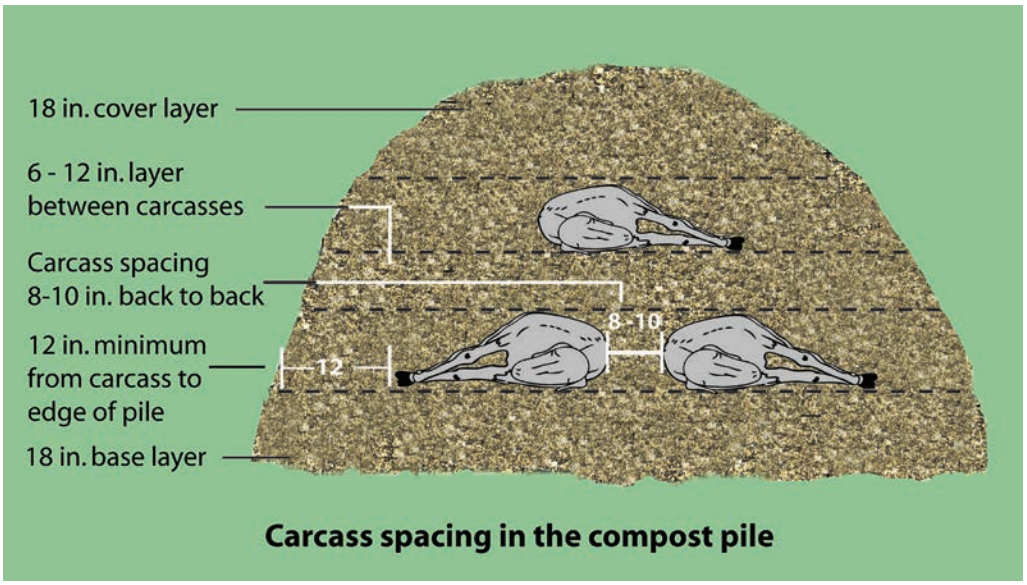


Basic components of successful composting

Composting goat mortality is an easy process and one that should be considered by all goat producers. The important aspects of the compost pile are the same as those for vegetative composting, proper C:N ratio, correct moisture content, and adequate oxygen to allow for aerobic decomposition of the carcass. The proper C:N ratio can easily be achieved by using composting materials high in carbon, such as straw, sawdust, finished compost, and the like. The correct moisture content is 50%, or the feel of a damp sponge holding no excess water. Breakdown by aerobic bacteria (those requiring oxygen) results in high heat that can inactivate most pathogens. The high heat also facilitates faster breakdown and results in no odor.

The basic procedure for composting begins with building a base layer of carbon source 18 to 24 inches thick. A carcass is laid in the middle of the pile a minimum of 12 inches from the edge. The rumen or stomach is lanced to prevent gas buildup and water is poured around and on the carcass. The carcass is then covered

by another 18 inches of carbon source. Bacteria will quickly begin working and the core temperature of the pile will rise to above 130°F within a few days. The temperature will remain high for some time and begin to decrease. The pile can be turned when the temperature drops or at about 75 days. The compost will heat again and after another 75 days will be ready to cure and use. Some large bones may not fully breakdown during this initial composting. Should such bones be seen, they should be put in the middle of a new pile for further breakdown.



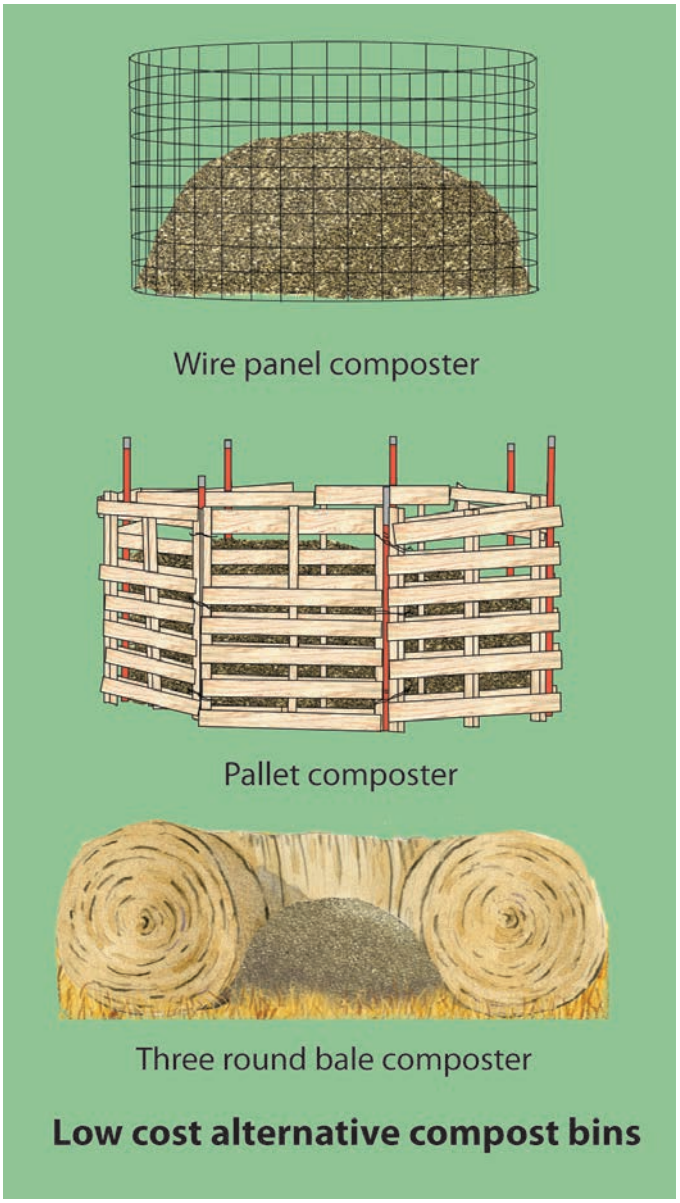
Carcass spacing in the compost pile

Mortality compost piles can be built without a surrounding enclosure but a composting bin made of fence wire, cattle panels, pallets, or hay bales will help constrain the pile and prevent curious animals from inspecting it.

More information on mortality composting, the composting process, and how to troubleshoot problems can be found on the American Institute for Goat Research website. On the mortality composing page one can find a link to an extension bulletin and videos of the process.

The mortality composting workshop, bulletin, and other training activities are supported by a USDA NIFA 1890 Capacity Building Grant "Training Farmer Educators On Goat Mortality And Butcher Waste Composting, A Regional Approach" Project Number OKLXMERKEL2010.

For information regarding mortality composting, contact Dr. Roger Merkel at 405-466-6134 or rmerkel@langston.edu or visit the mortality composting webpage at http://www2.luresext.edu/goats/library/fact_sheets/mortality_composting.html to view the videos or download the complete factsheet.



Noteworthy News

►In February, Drs. **Terry Gipson**, **Roger Merkel**, and **Tilahun Sahlu** visited the University of Puerto Rico at Mayagüez to discuss project results with collaborators.

►In March, Dr. **Steve Hart** conducted a parasite workshop and FAMACHA training in Nowata, OK.

►In March, Dr. **Roger Merkel** conducted a tanning goat hides workshop at Langston University.

►In March, Dr. **Terry Gipson** traveled to Ethiopia to work with scientists in the Southern Agricultural Research Institute.

►In April, Drs. **Terry Gipson**, **Art Goetsch**, **Steve Hart**, **Roger Merkel**, **Yoko Tsukahara**, **Zaisen Wang**, and **Steve Zeng** presented research findings at the Association of Research Directors' meeting in Jacksonville, FL.

►In April, Dr. **Steve Hart** conducted a parasite workshop and FAMACHA training in Claremore, OK.

►In April, Dr. **Roger Merkel** conducted a full-day training workshop on mortality composting at Langston University.

►In May, Drs. **Art Goetsch**, **Steve Hart**, **Yoko Tsukahara**, and **Zaisen Wang** attended the American Consortium for Small Ruminant Parasite Control 10th Anniversary Conference at Fort Valley State University in Georgia.

►In May, Dr. **Roger Merkel** conducted a tanning goat hides workshop at Fort Valley State University in Georgia.

►In May, Dr. **Tilahun Sahlu** traveled to Ethiopia to formalize a working agreement between Langston University and the Southern Agricultural Research Institute.

►In May, Dr. **Roger Merkel** conducted a mortality composting workshop at Florida A&M University.

►In May, Dr. **Steve Hart** conducted a parasite workshop and FAMACHA training in Sallisaw, OK.

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