Goat Newsletter

Cooperative Extension Program
Langston University

The Newsletter of the E (Kika) de la Garza American Institute for Goat Research *Fall 2018*

From the Director's Desk

This fall has been a time for visitors and travel at the Institute.

Our visitors included faculty members from the University of Southern Mindanao (USM), Kabacan, Cotabato, Philippines. Dr. **Francisco Garcia**, President of USM; Dr. **Emma Sales**, Director of the Higher Education Regional Research Center of the Commission on Higher Education at USM; and Dr. **Josephine Migalbin**, Dean, College of Agriculture and leader of the USM Goat Project visited the Institute in October and were given an overview of Institute activities, toured the laboratory and farm facilities, and spoke with faculty. USM is interested in partnering with the Institute on goat research and information exchange.

Also visiting the Institute were Dr. **Beth Miller** and Mr. **Christian De Vries** of the International Goat Association (IGA). I am proud to say that Langston University is a strong supporter of IGA and we invited Dr. **Miller** and Mr. **De Vries** to tour our research facilities and to discuss future collaboration with our scientists. The IGA sponsors the International Conference on Goats (ICG), which is a wonderful venue to exchange scientific ideas on goat production worldwide. Langston University scientists are always a staple at the ICGs and they always learn more about goats with every exposure. The 13th ICG will be held in September 2020 in Eger, Hungary. I hope that some of you will be able to attend.

At the same time as Dr. **Miller** and Mr. **De Vries** were visiting, Mr. **Wilson Karemi** of Egerton University also was here. Langston University has a long friendship with Egerton University in Kenya and we have partnered on many projects including the current project on simplified artificial insemination in dairy goats.

Joining us for a sabbatical is Dr. **Wei Wang** from the Shenyang Agricultural University of China. Dr. **Wang** will work primarily with dairy goats. His first experiment is entitled "Effects of dietary level of lespedeza condensed tannins on ruminal methane emission, feed intake, feeding behavior, digestion, energy metabolism, and growth performance by growing Alpine doelings and Katahdin ewe lambs" and will work closely with Dr. **Arthur Goetsch**.

This fall, travellers included Drs. **Roger Merkel** and **Arthur Goetsch**. Dr. **Merkel** traveled to Indonesia and you can read more about his trip project on page 4. Dr. **Goetsch** traveled to Vietnam and we will report on his trip in the next newsletter.

Recently, Dr. **Qunhui Yang** completed her sabbatical research on nutritional manipulation of immunology in parasite-infected goats and returned to the Shenyang Agricultural University of China.

What a busy but enjoyable fall!

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. Department of Agriculture.

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Drones for Mapping

Recently the Institute purchased a Sentera PHX Pro RTK drone to assist with the mapping of redcedar trees under the research project entitled "Comparison of biological control of red cedar with goats to conventional methods of control." The PHX is a fixed-wing drone that has the capability to record images and data on more than 700 acres in a single flight and is used widely by agronomists, crop consultants, etc to scout fields. The RTK model can produce more accurate and detailed aerial photos than the standard Pro model.

As with any new technology, proper training is needed to safely and efficiently operate the new equipment. Without proper training, the PHX drone could be damaged, or operators/bystanders injured. Therefore, Drs. Terry Gipson, Steve Hart, and Raquel Vasconcelos Lourencon traveled to the Sentera office in Minnesota and received PHX drone training on October 2018.

Drs. Steve Hart, Raquel Vasconcelos Lourencon, and Terry Gipson with the Sentera PHX fixed-wing drone at the Sentera field training site.

On April 22, 1890, Edward McCabe founded the town of Langston, Oklahoma, which is in Logan County. McCabe resettled into Oklahoma from Kansas, although he was born in New York and immigrated west when he was a young man. McCabe named the town after John Mercer Langston, who was an abolitionist, attorney, and educator. Langston was the first dean of the law school at Howard University and the first president of Virginia State University.

In 1897, the Oklahoma Colored Agricultural and Normal University was founded in Langston and in 1941 changed its name to Langston University. Langston University was a result of the second Morrill Act of 1890, which granted land-grant status to 19 Historically Black Colleges or Universities.

In 1984, the E (Kika) de la Garza American Institute for Goat Research, previously known as the American Institute for Goat Research, was founded at Langston University. During the early period of the Institute's history, the foundation animals were acquired, with 70 Alpine kids arriving in 1985 and 60 Angora goats in 1986. These goats were used in the initial research conducted at the Institute in support of dairy goat and mohair industries.

Since its founding, no records from the Institute have indicated that it had ever participated in the Logan County Fair; however, that changed this year. At the initiative of several Langston University agriculture students, the Institute entered four Alpine doe kids and four Alpine yearlings in the goat show at the Logan County Fair. Seven Langston University students were instructed by Ms. Amanda Manley, research farm animal care technician and breeder of Nubian goats, in the clipping and grooming of the Alpine goats for the show ring. The students enthusiastically exhibited the goats and were excited to win ribbons. In addition to the students, Mr. Tyapa Toivo of the Cheetah Conservation Funds in Namibia was able to participate. Mr. Toivo was undergoing training in artificial insemination of goats while at Langston University and participated in a county fair for the very first time.

Ginger Wall, Audia Jones, Tyapa Toivo, Gabrielle Herbison, Isaac Leggins, Santori Dean, Jasmine Barchus, and Monica Mascarenas (left to right) display their ribbons from the dairy goat show at the Logan County Fair in September 2018.

Travel to Indonesia

From October 13 to 22, 2018, Dr. Roger Merkel traveled to Indonesia to present a paper entitled "Smallholder Livestock Production and Commercialization" at the International Seminar on Livestock Production and Veterinary Technology, held in Medan, North Sumatra and sponsored by the Indonesian Center for Animal Research and Development of the Indonesian Ministry of Agriculture. Attending the conference were scientists from the US, England, New Zealand, Indonesia, and two scientists from the International Center for Tropical Agriculture working in Vietnam. The workshop consisted of oral and poster sessions. Many of the papers will be published in an upcoming issue of Wartazoa, the Indonesian Bulletin of Animal and Veterinary Sciences.

Goats grazing in a field of immature oil palm trees at the Sei Putih meat goat research center.

Following the workshop, Dr. Merkel toured a meat goat research center about one hour from Medan set in the midst of rubber and oil palm plantations. Research is conducted on nutrition, management, production systems, and other areas. In the region, goats are grazed under rubber and oil palm trees. The center initially conducted research on sheep under rubber, fearing that goats could disrupt the collection of latex from the trees, but studies showed that goats do not have any negative effect on rubber production or collection and, over time, the switch was made from sheep to meat goats.

Following that visit, Dr. Merkel traveled to Parapat, North Sumatra to participate in a workshop entitled "Participatory and Community Based

A Garut ram at the research farm of the Indonesian Center for Animal Research and Development.

Breeding, Nutrition and Socio-Economic Management to Support a New Strategy for Small Ruminant Industry in Indonesia." Participants of this workshop were research scientists who had worked in the Small Ruminant Collaborative Research Support Program that operated in Indonesia. The outputs and impact of that program were discussed as were ways to continue and expand the impact of the project's results that included a composite hair sheep breed, numerous research studies on all aspects of sheep production and economics, Indonesian staff members receiving graduate training, and a positive community impact. The large numbers of the composite sheep breed that are raised by farmers in the area as well as continued use of training materials are two examples of the lasting impact of the project.

Finally, Dr. Merkel traveled to Bogor, West Java just south of the capital Jakarta to meet scientists from the Indonesian Center for Animal Research and Development and tour their research facilities and animal barns. The Center conducts research on all aspects of livestock production and is working to develop composite breeds of sheep and goats that are extended to village producers. During his visit, Dr. Merkel spoke with the Center Director who stated that two of their scientists are interested in coming to the American Institute for Goat Research for post-doctoral studies.

Ewes and lambs at the research farm of the Indonesian Center for Animal Research and Development.

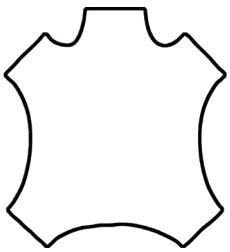
Sei Putih means "white river" in Indonesian and refers to the "river" of white latex that comes from the rubber tree plantations in the region. The latex from rubber trees is similar to the milky, white latex from milkweeds, Indian hemp, and other plants found in North America. However, the latex from the rubber tree is much higher in concentration. To collect the latex, a worker called a rubber tapper pulls dry latex from the previous collection off a tree and then uses a special knife to slice off a thin layer of bark less than 2 millimeters thick. The cut is made diagonally so that the latex runs down a channel and into a cup. The tapper begins his day early in the morning, tapping 400 hundred or more trees. Late morning, the tapper returns to collect the liquid latex from each tree, pouring it into a large pail. The latex is then weighed

continued on next page.

and processed. Rubber trees are not tapped until they are about 7 years old and can be tapped for 25 or more years.

Left: A picture of rubber trees near the gate of the meat goat research center in Sei Putih, Indonesia. Note the cup used to collect latex from the tree.
Right: Cuts are made diagonally for the latex to run down a center channel into the collection cup.

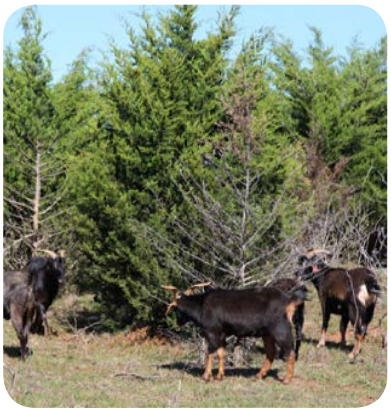
Tanning Goatskins Workshop



On Saturday, April 6, 2019, a tanning goatskins workshop will be held at Langston University from 8:00 a.m. to 12:30 p.m. The focus of the workshop will be tanning hair-on goatskins but the process of unhairing skins and making leather 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 goatskins in several of the different tanning steps. Participants can practice fleshing, will apply tanning chemicals in two different methods, and soften a goatskin 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. The tanning processes learned can be used on goat, sheep, deer, coyote, and other skins. Registration is limited to 10 participants. A registration fee of $20 is charged. Refreshments will be provided. For more information regarding the tanning hides workshop, contact Dr. Roger Merkel at (405) 466-6134 or merkel@langston.edu. A printable registration form is available online at http://goats.langston.edu/Extension-Activities.

Research Spotlight

Redcedar versus Goats.



The objective of this study was to evaluate the degree of redcedar control by goats at sites in Oklahoma and Missouri. There were three research plots in Oklahoma with eight goats each: Langston, Oklahoma City, and Mannford, and one in Neosho, Missouri, with 12 goats, all plots were 2 acres. The redcedar population was inventoried, quantified as to height, width, and GPS coordinates during the summer of 2016. One year later, trees were scored for browsing: 0 being unbrowsed, between 1 and 5 medium browsed and from 5 to 9 was considered severely browsed. Percent of trees dead (0% green) or live according to size (short; ≤ 6 ft or tall; > 6 ft) was analyzed. A subsequent multiple regression analysis was conducted for tree height, tree width, and browsing score. The goats in Neosho killed 18% of the trees, as compared to 1% at other locations. A greater percentage of trees in Neosho were more severely browsed than the average at the three sites in Oklahoma, 60% and 8% respectively. In Mannford, the shorter trees were most scored as medium browsing than the taller trees (1.97% vs 1.68%). In Oklahoma City, the taller trees were more severely browsed than the shorter trees (6.88% vs 4.93%), although more short trees were killed by browsing. This may indicate that shorter trees are more sensitive to browsing. Redcedar trees were more effectively controlled by goats in Neosho, Missouri.

Lourencon, R., S. Hart, T. Gipson. 2018. Goats for Controlling Redcedar in Oklahoma and Missouri. Journal of Animal Science, Volume 96(Suppl 3):463, https://doi.org/10.1093/jas/sky404.1011.

Redcedar versus Herbicide.

In a research study using goats to control redcedar (*Juniperus virgiana*), herbicide was used as a treatment. The objective of the study was to measure the degree of control of redcedar provided by herbicide in the South-Central U.S. There were three research plots in Oklahoma: Langston, Oklahoma City and Mannford, and one in Neosho, Missouri, all 2 acres. The redcedar population was inventoried, quantified as to height, width and GPS coordinates. Trees over 2 ft in height were individually treated in November 2016 with Velpar® herbicide. In accordance with recommendations of the manufacturer, a syringe was used to administer (3 mL per 3 ft of basal diameter) to the base of the tree. Percentage green cover of the cedars was measured 8 months after application. The percentage of dead (0% green) or live trees according to size (short; ≤ 6 ft or tall; > 6 ft) was analyzed. A subsequent multiple regression analysis was conducted for tree height, tree width, and herbicide dose against the percentage of green canopy cover. Trees in Mannford and Oklahoma City had the least percentage green (4 and 8%, respectively), followed by Langston (14%) and Neosho (31%). In all locations, the herbicide was more effective on shorter than taller trees. Herbicide killed 68% of trees shorter than 6 ft, compared with 31% the trees tall-than 6 ft. Shorter trees averaged 10% of green canopy, while the taller trees averaged 18%. For each 1.2 ft of increase in tree height, there was 2% increase in green canopy cover. This may indicate that tall trees need a higher dose of herbicide than used in this study.

Lourencon, R., S. Hart, T. Gipson. 2018. Herbicide Effectiveness for Redcedar Control in Oklahoma and Missouri. Journal of Animal Science, Volume 96(Suppl. 3):463–464, https://doi.org/10.1093/jas/sky404.1012.

Editor's Note: The research for both of these abstracts was made possible from funding from a USDA/NIFA project #OKLUSHART2014 (Accession number 1004376) entitled "Comparison of Biological Control of Red Cedar with Goats to Conventional Methods of Control."

Noteworthy News

►In September, Drs. **Terry Gipson**, **Steve Hart**, and **Roger Merkel** presented at the National Goat Conference in Montgomery, AL. Dr. **Gipson** presented on "Central Performance Testing: Purpose, Benefits, Impacts, and Trends" and "History of the U.S. Goat Industry," Dr. **Hart** on "Grazing Systems," Dr. Merkel on "Mortality Composting," and Drs. **Hart**, **Merkel**, and **Gipson** jointly on "Current Situation and Future Prospects of the Goat Industry in the US."

►In September, Dr. **Steve Hart** presented on Seasonal Grazing Recommendations for Goats at the Spanish Goat Conference in Mt. View, MO.

►In September, Dr. **Steve Hart**, gave a presentation on internal parasite control at the SE Kansas and NE Oklahoma Goat Producers Association in Nowata, OK.

►In September, Dr. **Steve Hart** was Superintendent of the State Fair of Oklahoma Open Boer Goat Show sanctioned by ABGA.

►In October, Dr. **Roger Merkel** travelled to Indonesia to present at the International Seminar on Livestock Production and Veterinary Technology (page 4).

►In October, Dr. **Arthur Goetsch** travelled to Vietnam to present at the 4th International Asian-Australasian Conference on Dairy Goats.

►In October, Drs. **Mauricio Calle**, **Terry Gipson**, and **Erick Loetz**, and Mr. **Miguel Rojas** attended the Meetah Cheetah event at the Oklahoma City Zoo in recognition of the Cheetah Conservation Fund, Namibia and the Kirkpatrick Foundation-funded project entitled "Sustainable Conservation through Community Involvement and Agriculture."

►In October, Drs. **Terry Gipson**, **Steve Hart**, **Raquel Vasconcelos Lourencon** traveled to the Sentera office in Minnesota and received PHX drone training (page 2).

►In November, Dr. **Terry Gipson** traveled to San Antonio, TX to attend the annual meeting of Dairy Records Management Systems (DRMS) of Raleigh, NC. DRMS is a partner in the Langston University DHI Laboratory and is the Dairy Records Processing Center for our dairy goat clients.

►In November, Drs. **Terry Gipson** and **Zaisen Wang** attended the Animal Conference hosted by the Kirkpatrick Foundation in Oklahoma City, OK.

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