WELCOME

We deeply appreciate your attendance at this 15th Annual Goat Field Day of the E (Kika) de la Garza Institute for Goat Research of Langston University. The Field Day is one of the most important things we do each year. The primary purpose of the Field Day is for education and extension in areas of greatest interest to clientele of the Institute. Thus, please share your thoughts with us on today's activities and suggestions for the Field Day next year. In addition to extension and education, the Field Day provides an excellent opportunity for the staff of the Institute to meet other people that work with goats. Such interaction helps make our program the most appropriate it can be for the people it serves.

The proceedings of the Field Day is a very useful tool for the Institute beyond impact realized from the program today. First, there are reports on Field Day presentations. After this information, there are highlights of research and extension activities of the Institute in the past year. This section is an aid to assess our recent progress, display current activities, and contemplate future directions to be followed. We hope you will take time later to look through this information.

As noted above, an exciting day is planned. This year's Field Day theme is:

"GOATS IN THE TWENTY-FIRST CENTURY"

The morning program consists of:

- **Outline of USDA activities** — *George Cooper*
- **Industry Overviews and Outlooks**
  - **The Stages of Dairy Goat Farming** — *Vincent Maefsky*
  - **Meat Goats** — *Marvin Shurley*
  - **The Cashmere/Meat Goat** — *Don Huss*

Some people suggested that in past Field Days there have been too many workshops from which to choose. Hence, this year we have selected a lesser number of key areas for workshops:

- **Marketing Roundtable** — *Vincent Maefsky, Marvin Shurley, Don Huss*
- **Scrapie and the Voluntary Scrapie Flock Certification Program** — *Nancy Roberts*
- **National Sheep Industry Improvement Center** — *Robert York*
- **Oklahoma Incentives and Assistance to Agricultural Producers** — *Gary Bledsoe*
- **Sustainable Brush Control** — *Steve Hart*
- **Goat Management Tips for Beginners** — *Lionel Dawson*
- **Effective Fencing for Goats**

Please let us know your wishes for the 2001 field day, and we will do our best to again provide a quality program with requested and timely topics. On behalf of the staff of E (Kika) de la Garza Institute for Goat Research, we thank you for your continuing interest and support.

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

THE STAGES OF DAIRY GOAT FARMING

Vincent Maefsky

Poplar Hill Dairy Goat Farm
Scandia, Minnesota

Introduction

The various stages of dairy goat farming will be examined. We will follow one family's adventures in dairy goat raising from their decision to purchase their first goat, through thirty-one years of expansion, to their expected herd size this summer of 1000.

This family began as two young people, both born in Brooklyn, New York, meeting at the University of Oklahoma, one majoring in political science the other in philosophy. During their first year of marriage one taught elementary school in Oklahoma City; the other had a teaching assistant ship at OU. Near the end of that year they made the decision to become part of the "back to the land movement" of the late 1960's. It was during their second year of marriage that they began homesteading and purchased their first dairy goat. The couple this presentation will follow is Christine and Vincent Maefsky. This couple was chosen for two reasons: first, I'm very familiar with them and second, I happen to have recorded their odyssey in pictures which will hopefully make for an entertaining presentation.

I know that it is the wont of proceedings compilers to have a script of the presentation for future review by participants, or for the edification of those not attending. Due to the personal nature of this presentation, including the integral, though sometimes feeble, attempts at humor by the presenter, a written account of the presentation won't cut it. For those reading these proceedings in hope of gleaning significant information that was presented at this conference, you may now turn the page and look to the proceedings of other presenters to better fulfill your quest.

Considerations in the Planning and Construction of a Dairy Goat Barn

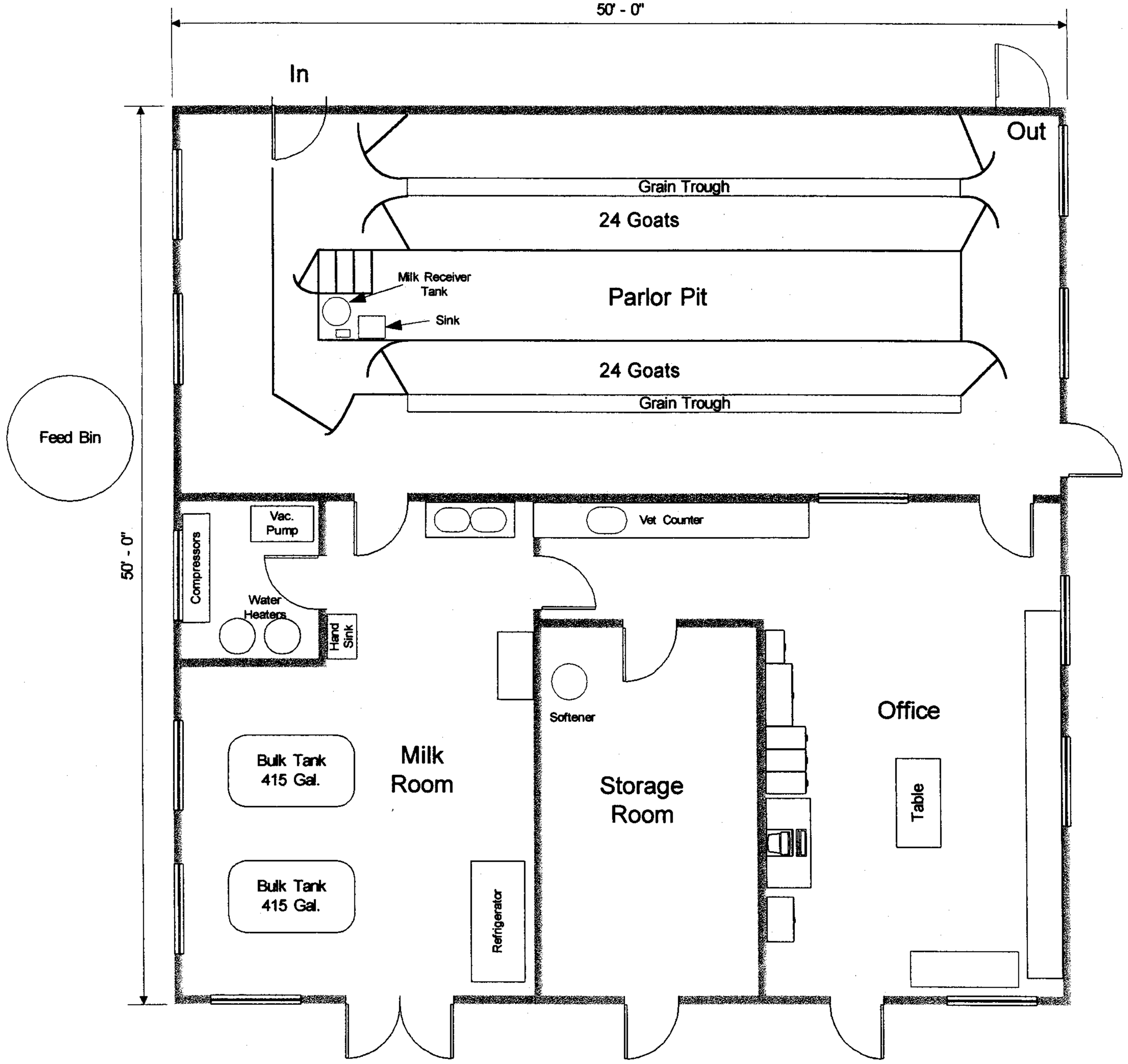
Not many years after acquiring our first dairy goat, mental ruminations began to plague me with the dreams of one day expanding to a commercial dairy goat farm. Having only a few goats in these early years, there was time to dream of my very own goat palace. Through the years, I sketched plans of "the big barn", and as often as I put pencil to paper, I put eraser to lines. The dream underwent constant changes and modifications.

In the late 1980's, with the expansion of our milk market and herd, serious consideration was given to brining the dream to fruition. Ad deliberate undertaking was made to visit and research various goat and cow dairy operations to extrapolate from them the best of their ideas, and to combine them with those of my own visions. In the summer of 1991 we began construction of DOMUS CAPORUM (the house of goats).

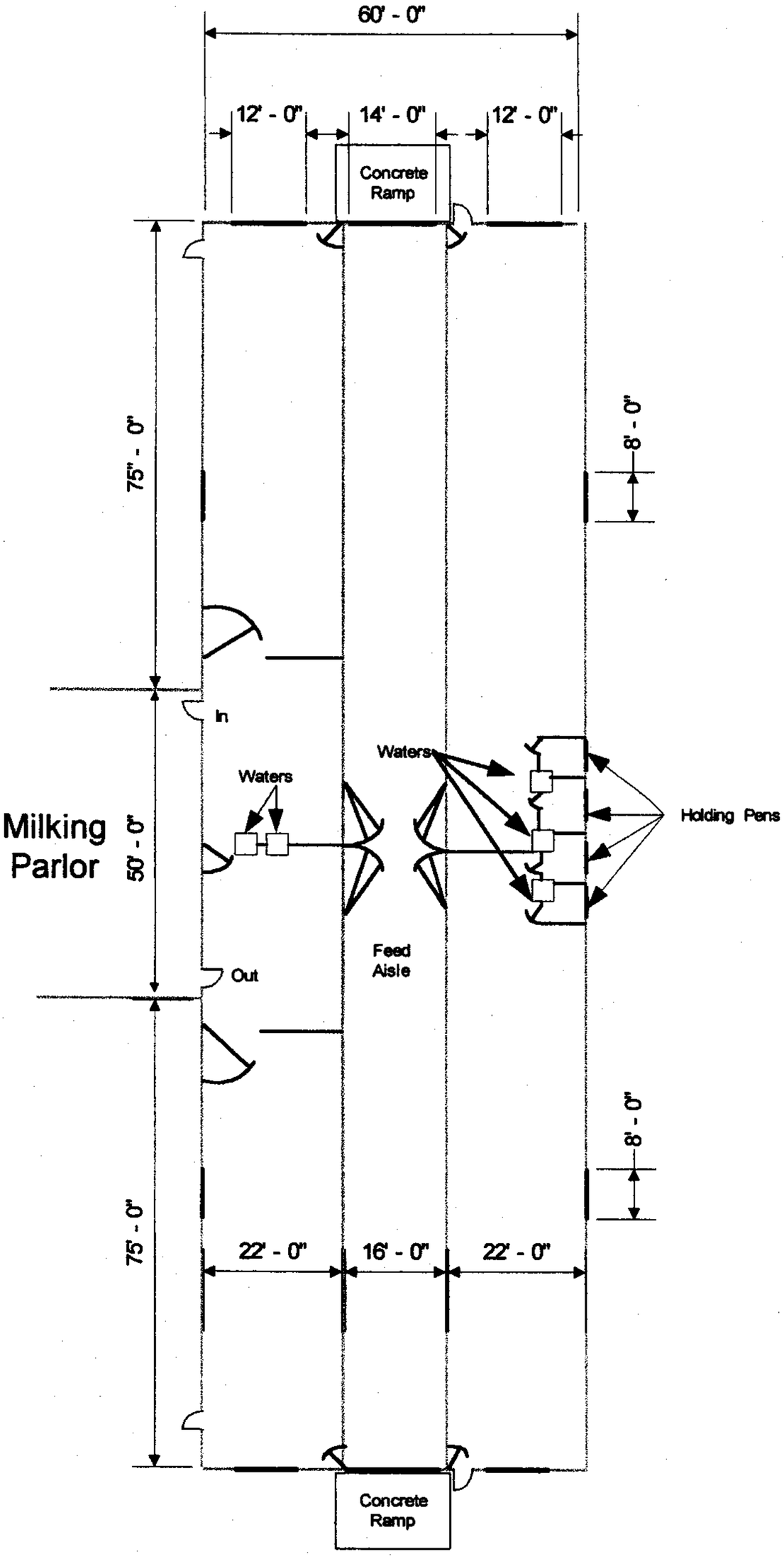
This presentation examines the considerations that went into the planning and construction of the dairy barn. Of utmost importance in the construction of the barn was the efficiency of management, feeding, and milking of its occupants. Constant concern was given to the concept of simplicity and macro vs. micro management of the herd.

DOMUS CAPORUM*
MCMXCI

Main Barn:	60' X 200' 4 main pens 6 small pens 5 Mira Fount (energy free waterers) 16' X 200' drive-through feed aisle Insulated Natural ventilation
Milking Parlor:	22' X 50" pit 5'X 35" 48 Humane Stanchions (double (24) Clean in Place 2 ½" low line pipeline NuPulse milking equipment 12 claws with self-contained pneumatic pulsators
Milk House:	two 415 gallon Sunset bulk tanks Automatic leaning equipment



Domus Caporum (House of Goats)
Milking Parlor
Poplar Hill Dairy Goat Farm
Scandia , MN
Scale: 1/8 = 1'



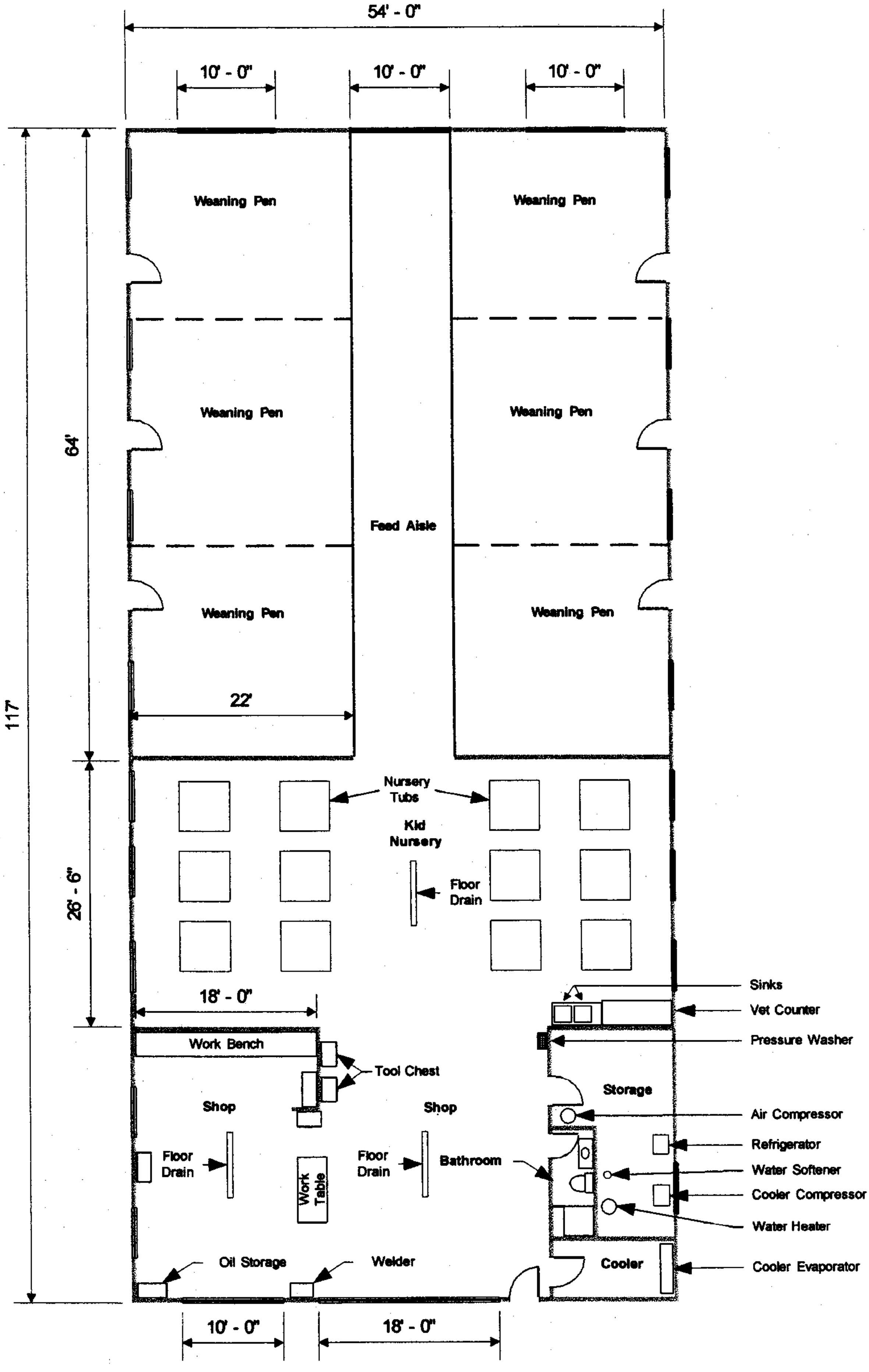
Domus Caporum (House of Goats)
Main Housing Barn
Poplar Hill Dairy Goat Farm
Scandia, MN
Scale: 1/32=1'

Considerations in the Planning and Construction of a Kid Barn

With the size of our herd having expanded to fill the complete DOMUS CAPORUM (the house of goats), it became apparent that adequate provisions had to be made to accommodate the subsequent growth in the number of young stock. What began as an idea for a 20' by 30' kid nursery, grew to be a 54' by 117' combined kid nursery, young stock barn, and farm shop. This facility addressed a number of our needs of our growing farm operation. Primary consideration was given to the comfort of the building inhabitants, both caprine and human.

Building:

Overall:	54' x 117' Insulated and heated Ventilation: natural & fans Numerous floor drains
Shop/Storage:	54' X 27' Equipment maintenance area Materials storage room Utility room Bathroom/Shower 10' X 7' walk-in cooler 10' X 10' overhead door 18' X 10' overhead door
Nursery:	54' x 26' 12 “Litter Saver” plastic nursery tubs with individual floor drains Storage cabinets and work counter Double stainless steel sink Pressure washer
Young Stock Barn:	54' X 64' 10' wide elevated drive-through aisle Two 22' X 64' loafing pens Each pen has 3 doors leading to 3 outside pens



Kid Barn
Poplar Hill Dairy Goat Farm
Scandia, MN
Scale: 1/16 = 1'

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Maefsky, V. 2000. The Stages of Dairy Goat Farming. Pages 1-6 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

INDUSTRY OVERVIEW AND OUTLOOK: MEAT GOATS

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American Meat Goat Association

Los Cuernos Ranch
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I would like to welcome all of you here to Langston University and thank you for your interest in the meat goat industry. One question often asked is "what is a meat goat"? My common reply to that query is "any goat that doesn't die on a farm or ranch eventually ends up on someone's plate". Thusly any and all breeds of goats represent a meat goat as muscle or meat is their main structural component.

For those of you new in the business with little or no experience with goats, don't worry because goats have had a lot of experience with mankind. As a matter of fact, when it comes to length of time since their domestication, they are second only to dogs. Since dogs aren't generally considered food animals, this makes goats which were domesticated approximately 12,000 years ago, our oldest food producing domestic livestock. The goats not only provided a source of readily available protein in the form of meat, but also in milk and clothing in the form of fiber and pelts for our forebearers; much as they are still doing today 120 centuries later. One other thing that probably peaked early interest in goats and is still prevalent is their respectively short reproductive cycle and subsequent ease of breed development. High reproductive rates also help in this regard as multiple offspring aren't uncommon in any breed of goat.

The durability and hardiness of these animals can be attested to when you look at the Spanish goats' history; one of several meat breeds here in the U.S. The Spanish goat is a very hardy animal which developed largely on it's own, without human intervention; at least in Texas. Spanish explorers who entered in the early 1500's had brought their portable cows, i.e. goats with them on the boat and their escape or intentional release led to small herds of wild goats in Texas, thus the name Spanish goats was given to these animals.

Early Texas settlers, recognizing this valuable resource, captured and re-domesticated them; much as was done with the longhorn cattle breed which also originated with these early Spanish explorers.

There was for many, many years though the lack of a structured breeding and marketing plan, largely due to lack of a demand for goat meat. One of the main reasons being our European ancestry. While goat has been and still is the most widely consumed meat world wide, (approximately 63% of the red meat consumed world wide is goat meat) our European ancestors (early American settlers) were and still are traditionally beef eaters. This limited the market

demand for goat domestically and so there was no real economic incentive for breed development, such as there was early on in the cattle business. Goat meat consumption here in the U.S. for a great many years was limited mainly to the more Southern and Western states where the animals were marketed and consumed locally. I guess you could say goat cookery was one of the best kept secrets of the West and today we pay the price in lack of product recognition.

The U.S.A. though has long been called the great melting pot due to its policy of allowing immigration from any country in the world. This has led to an influx of persons in whose cultures and countries chevon was and is regularly consumed. While these immigrants for the most part have Americanized their diet, on occasion they long for a taste of home cooking. Often this means they want to put some goat on the table, most notably on certain cultural and religious holidays traditionally celebrated in their home countries. These new Americans are currently the main driving force in the developing meat goat industry here in the U.S.A. It is difficult to pinpoint exactly when demand started increasing to the point of creating market awareness, but I'd hazard a guess that it was as recent as the late 1950's - early 1960's here in this country. There were however very few producers who concentrated on raising meat goats. While there was a market developing, not very many ranchers and farmers recognized the growing opportunities and therefore meat goats continued to be raised and marketed in a really haphazard fashion. Could you imagine having to go out and buy a steer on the hoof, slaughter and process it yourself each time you wanted to eat beef? I feel the beef industry would never have developed into the agricultural giant it is today had this been the case. This is however, the limbo that the meat goat industry existed in for many, many years.

Now we'll fast forward to more recent times. In 1992 the American Meat Goat Association was formed due to the foresight of a few West Texas Ranchers; namely Mr. & Mrs. Tom Carter and Mr. & Mrs. Stan Keene. The purposes of this producer oriented organization were designated as follows:

OBJECTIVE: "The purpose of this Association shall be to promote meat goats as a viable source of long-term, stable income in agricultural operations; to establish group breeding plans for the improvement of meat goats; and to enhance consumer demand at the retail level."

GOALS:

1. Educate the general public about the role and uses of meat goats in American agriculture.
2. Promote environmentally responsible uses of grazing land.
3. Explore long-term markets at home and abroad.
4. Encourage and help facilitate direct marketing strategies by the producer.
5. Promote goat meat in the supermarket by helping to facilitate the development of high quality, lean, value-added products.
6. Promote goat meat as an acceptable meat product from both a cuisine and health aspect in restaurants and hotels.
7. Promote and encourage meat goats as a recognized class in 4-H and F.F.A. livestock shows.
8. Establish uniformity in meat goat judging by providing a list of available

AMGA certified meat goat judges.

9. Provide educational information on the principles of selection for increased reproduction and weight gain.
10. Offer opportunities for the purchase of high quality breeding stock through Association sanctioned sales.

While we here at the AMGA have certainly met and achieved some of these goals, we're still working on those we haven't yet accomplished. Please bear with us because even though we've made great strides to date there's still a lot of work left to do and we're staying on top of it.

One year after the formation of the AMGA the meat goat industry here in the U.S. received its biggest single boost to date. This was the importation in 1993 of the South African developed breed of goat known as the Boer goat; the name being derived from the Afrikaans word "Boer" which means farmer. The Boer is a strictly defined meat producing breed of goat bred and is renowned world wide for its large size, heavy muscling, and the fast weight gains of its purebred and cross bred offspring. These importations not only jump started our industry but quite probably saved us from ourselves. Never before this time had concerted efforts been made, except by a few select breeders, to improve our native animals.

With Boer goats selling in late 1993 and early 1994 in the 10's of thousands of dollars, owning goats overnight became fashionable and most importantly respectable. After 450 years here in the U.S. ownership of goats, an important meat producing animal around the planet, has become socially acceptable here in our home country. Suddenly a whole new class of goat farmers emerged on the agricultural scene; persons who in the past wouldn't have owned a "damn tin can eating goat" prior to the introduction of Boers here in this country.

The two greatest things the Boer has done for the industry is first, saves us about 40 years of breeding which would have been necessary to develop our own "Farmers Goat", and secondly on this list but not necessarily in importance is all the goat related research this new interest spawned. Not only do we have people who were never before interest going goats we have the attention of the Academia across the U.S. with Universities such as Langston University in Oklahoma, Fort Valley State University in Georgia, Southern Louisiana University in Louisiana, Virginia State University in Virginia, and Texas A & M University in Texas the more active ones that I'm aware of; and others I'm sure I've missed, currently engaged in all phases of goat research. Which has been of great benefit to all of us up to today and will continue to benefit us for many years to come.

Goats have also spread across the U.S. to many areas where they were never before raised as their numbers have increased and so has U.S.D.A. interest in the meat goat industry; and so another link is added to the chain. The U.S. goat population is certainly more widespread than in the past while total numbers here have increased in recent years the percentage of this population which is located in Texas has decreased from 90% in the 1980's to 65%-70% as of today; this is really great for us as a whole. While it might have been easy to ignore a small, basically one state industry in the past, it is becoming very hard for the powers that be to ignore this new and

growing nationwide meat goat industry. The most recent development that will certainly have a great impact is the U.S.D.A./A.M.S. development and release of IMPS or Institutional Meat Purchasing Specification draft for public comment in relation to goat meat. This document not only defines the classes and grades, but also the primal cuts to be sold with distinct and exact wording. This very important document was officially released for a sixty day public comment period on March 15, 2000 and finally gives us a universal description for our product. To put it in perspective, could you imagine telling someone to "buy me a car" with no further instructions issued? What kind of car would you soon be the proud owner of, new or five years old, what size, what make, etc., the possibilities are endless. Thankfully as soon as the final IMPS plan is approved, we in the meat goat industry will no longer be in that position. In the near future when a buyer wants to buy goat meat her or she can be assured of exactly what they're ordering, thanks to all who worked on IMPS development. I'm not naming individuals to avoid inadvertent deletion of some of these important and dedicated people but they do command our gratitude because of their hard work on our behalf.

This industry shows no signs of weakening in years to come and that is really great. In recent months while other phases of agriculture have experienced low crop prices, we meat goat producers have experienced record high prices for our commodity. We all need to make an effort to protect our newly discovered and I dare say infant meat goat industry. Don't think for a moment that the other giant agricultural nations around the world aren't aware of the growing market for goat meat here in the good old U.S.A. Imports from Australia and New Zealand currently account for approximately 60% of the goat meat sold here in the United States. While these imports are not currently having a negative impact on our domestic market, let us not be disillusioned into thinking they can't hurt us by lowering the price we as producers receive at the farm gate. We stand poised and ready at the gateway to a whole new industry and we really don't need unfettered competition damaging us by driving domestic prices down.

Last year in July I was fortunate enough to be able to represent our industry at the World Trade Organization hearing which was held in preparation for the upcoming WTO talks in Seattle, Washington this past November (1999). The fact that the U.S.D.A. and U.S.T.R. offices thought the A.M.G.A. important enough to issue an invitation to testify at this class of hearing certainly filled me with no small measure of pride. Just to think that meat goat producers through the A.M.G.A. were allowed the same venue to get our point out in regard to international trade as were the true giants of American agricultural interest such as cotton, corn, dairy, peanuts, along with all the rest of them that we know and recognize. The fact we were included assures me our government officials know we're here to stay and they are supporting us by their admissions of our current contributions to the U.S. agriculture industry.

While up until now things have all been upbeat, we in the meat goat industry aren't without our faults. In regards to the Boer goats here in the U.S., many of us are guilty of the sin of making them into more or less pets. We've taken animals bred to survive and reproduce in poor to marginal range conditions, put them in pens and turned them into fat, lazy goats unable to compete in a natural environment. This being the case we have done neither the goats or ourselves any favors. I'll admonish all of you raising Boers to give them a chance to be goats. You might be surprised at their adaptability and hardiness. Not to mention you'll have less

personal time tied up in them, as well as less feed and other related costs, thus increasing your bottom line. And while I'm sure there are probably some hobby farmers out there to whom profits aren't important, they are important to me and I'm fairly sure that very few of you would express an aversion to a few extra dollars in your pocket. I'm not telling you to neglect your livestock as that would be unwise, only to let them be real goats. Take care of them to a reasonable point and they'll reward you with many enjoyable memories and lots of baby goats; and quite probably some money in the form of profits.

Before I go any further, I'm going to admit quilt on my part to spoiling my first Boer goats particularly when I started raising them in 1993; after all what kind of idiot turns out to pasture such valuable animals as these.

The second greatest mistake and one to which I can plead innocence is that lack of support meat goat producers as a whole give to those of us working toward industry development. This is highly evident when you look at the fact that only about .6%, and no it's not a misprint - it reads 6/10 of 1%, of goat producers are AMGA members. People you have the AMGA who is willing to go to bat for you but we need more producer support. The last U.S.D.A. Ag. Census figures released showed right at 60,000 farm and ranches across the U.S. involved in production of goats other than "Angora or Milk"; their wording. For those of you who ask "What will the AMGA do for me?" I'll turn it around and paraphrase JFK and ask "What will you do for the AMGA?". We are here and will continue to strive for the betterment and advancement of the U.S. meat goat industry. Will you give us your support? If nothing else at least join your home states meat goat producers organization. Here it's called the Oklahoma Meat Goat Association; easy name to remember and I'm sure they'll be glad to have your membership. None of us and I'm speaking of all goat producer organizations can function without your help, support, and membership. The fact that large numbers of producers involvement is missing in this industry is no secret to our bureaucrats. U.S.D.A. funding for any large scale goat related projects is notably absent this year, 2000. In a letter I received from an insider it was stated and I quote "this is due I suspect to lack of self help by the goat industry". In other words, if we won't help ourselves they're not going to help us either. Right now we've got momentum, recognition, respectability, and profitability in our chosen industry and we can't afford to lose any of these positives. This is no time to adopt a wait and see or apathetic attitude towards the goat industry. If we continue our present growth rate in the meat goat industry I can only imagine the size of this thing eight years from now. It will be truly astounding!!

The proper citation for this article is:

Shurley, M. F. 2000. Industry Overview and Outlook: Meat Goats. Pages 7-11 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

THE CASHMERE/MEAT GOAT

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Consultant

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A single-purpose animal is one that has been developed to give high yields in a specific product. Goats have the genetic potential to produce meat, milk and fiber and single-purpose breeds have been developed regarding each of these products. Various breeds of dairy goats producing from 700 to 900 kg of milk per year have been developed. The Angora is considered the world's most efficient producer of animal fiber and the Kashmir (Cashmere in the U.S.) Produces one of the finest and softest natural fibers known to man. The Boer weighing up to 80 to 90kg for males and 50 to 60 kg for females is considered to have received the most development for meat production.

Generally speaking, these single-purpose breeds require a favorable climatic, adequate nutrition and intense management to do what they have been designed to do. Unfortunately, most of the goats in Texas are not raised under favorable climatic conditions and natural forage and browse available to them are often below nutritional requirements and intense management is not practical. Owners must base their operations on goats that are adapted to such conditions and they must strive to obtain as much produce as possible from them.

Since goats have the genetic potential to produce meat, milk and fiber, the development of a multi-purpose goat which will produce more than one product is proposed. It is felt that total production and income per animal will be greater with such an animal than with single-purpose goats. This does not mean that attempts to improve production of a single product should not be made. To the contrary, efforts should be made to improve production of all of the products and animal can produce.

Several goat breeds in the Far East have secondary hair follicles which produce a fine fiber. This fiber has been defined in such terms as wooly underhair of goats, fine downy wool at the roots of the hair on goats, wool and down. We know it as cashmere, which is probably an Anglicized version of the Kashmir province in India, where it was likely discovered by the western world. It is call pash or Pashmina in the Far East.

Cashmere is one of the most luxurious and finest fibers known to man. The diameter of cashmere must not exceed 19 microns and must have desirable characters such as crimp, softness and low luster. The growth is photoperiod. It starts growth in July, when days start to become shorter and it is shed in late winter when the days start becoming longer. The existence of secondary hair follicles is hereditary and can be selected for which makes the development of cashmere bearing goats possible. The primary hair follicles produce a coarse fiber called guard hairs which have little if any value.

It was discovered in the 1970's that some of the feral goats in Australia and New Zealand

were cashmere bearing and these countries set out to develop a cashmere industry. In the early 1970's, researchers in Texas also determined that many Spanish goats produce cashmere, but it was not until the mid-1980's that herds of cashmere, bearing Spanish goats began to develop across the State. While some individuals have imported animals at great cost, it was envisioned that the foundation of a sound cashmere industry at affordable cost within the reach of ordinary landowners will be based on cashmere bearing Spanish goats. The development of a cashmere/meat goat was underway. The Boer and fainting goats breeds can also contribute to the achievement of this goal in that it was discovered that many of them are also cashmere bearing.

After observing a fraudulent auction of so-called cashmere goats, these pioneer producers formed the Texas Cashmere Association in 1980 to establish credibility and to foster and advance its objectives. One objective is to develop a dual purpose goat that has the ability to provide a good carcass return at an early age and an adult that will provide a return from cashmere. In other words, a cashmere/meat goat breed in which meat is the primary product and fiber is secondary. The cashmere is a bonus if harvested. The Association has established some high meat and fiber standards and conducts an animal show and sale to stimulate upgrading towards meeting these standards. The show judge is requested to put 50% emphasis on meat characters and 50% on cashmere characters. Some outstanding herds have evolved. Another objective of the show and sale is to promote that the cashmere/meat goat which could lead to diversification and a new U.S. industry.

In the Far East the cashmere and guard hairs are separated by hand during the shedding season. This method of harvesting is not conducive to commercial development in the U.S. because of the lack of labor and high cost. Therefore, the goats are sheared during late winter or early spring and the fibers are separated by a machine. This process is called "*dehairing*" which in its self is costly. Since this procedure is beyond the reach of individual producers, a marketing cooperative known as Cashmere American has been formed to assist the producers in the preparation and sale of their cashmere.

The cashmere meat goats have attributes that make them good meat producers. Reproductive and growth rates are two factors that contribute significantly to meat production. From fertility and fecundity points of view, the Spanish goats in Texas are meat producing machines. Kid crops of 150 percent or more are the rule rather than the exception. And these attributes have not been lost in the development of cashmere. To the contrary, they have been improved with upgrading and selection. Growth rates are also improved with selected breeding. The Boer will also play a role in growth rate upgrading.

Several meat goat producers have noted that cashmere bearing animals are more winter hardy than non-bearing ones. They are more robust and thrive better which is logical because they are wearing sweaters. They are not interested in harvesting the cashmere and let it shed in the spring.

Meat goat shows are very popular. Some meat goat judges state that cashmere bearing animals feel better than non-bearing ones and consequently place higher. A test was made during a Junior Livestock Show at Menard and the first place animals in all classes had cashmere. This could be due to the secondary hair follicles or to the soft feel of the hair. After all, women say that cashmere garments feel good.

A Look at the Future

The future for goat meat looks bright and the demand and consumption should increase in the future. Since this is the subject of another presentation, it will not be elaborated upon here.

The future for cashmere is not bright. I have learned from experience that it is very difficult to get people to accept changes and do new things even if it would improve their livelihood. For example, there are millions of small farm members in Central America and Caribbean who have meatless diets because they do not have the resources to raise large animals but they can raise a few rabbits. It was demonstrated that five females and one male under moderate management could produce around 150 pounds of meat per year. Yet our intensive program advocating backyard rabbit rearing was successful in only those countries with a history of eating rabbit meat such as Jamaica. Farmers in most of the countries were not willing to try something new even if it could result in better nutrition for their families.

This appears to also be the case regarding the production of cashmere. While a few outstanding Cashmere Meat goat herds have been developed, the total production is not adequate to sustain a viable commercial industry and it appears that it will not get any better merely because large g oat owners will not try something new. The cost of shearing, classification and dehairing which amounts to half or more of the value of the fleece is also a major constraint.

It is felt that current production will probably remain the same to meet the needs of the hobbyist, spinners and cottage industries. Herds will be available for breeding stock for these purposes and for those wanting to breed for better winter heartiness and show goats

Contact the following for more information:

Texas Cashmere Association
1077 Cardinal Dr.
Bartonville, TX 76826

Cashmere America Cooperative, Inc.
210 South West College Street
P. O. Box 588
Sonora, TX 77690

Cashmere Producers of America
P. O. Box 674
Laramie, Wyoming 82070

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SCRAPIE AND THE VOLUNTARY SCRAPIE FLOCK CERTIFICATION PROGRAM

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What is Scrapie?

Scrapie is a fatal, degenerative disease classified as a transmissible spongiform encephalopathy (TSE) affecting the central nervous system of sheep and goats. The agent responsible for scrapie is thought to spread most commonly from ewes/does to offspring and to other lambs/kids through contact with the placenta and placental fluids. Signs of scrapie vary widely between individual animals and develop very slowly. Early signs include subtle changes in behavior or temperament, these changes may be followed by scratching and rubbing against fixed objects such as fence posts; apparently to relieve itching. Other signs are incoordination, weight loss despite having a normal appetite, biting of feet and legs, lip smacking, head tremors, gait abnormalities, including high-stepping of the front legs, hopping like a rabbit, and swaying of the back end. Signs or effects of the disease usually do not appear until 2 to 5 years after the animal is infected. Animals may live 1 to 6 months or longer after the onset of clinical signs, but death is inevitable. It was first recognized as a disease of sheep in Great Britain and other countries of Western Europe more than 250 years ago, and has since been reported throughout the world. Only two countries are recognized by the United States as being free of scrapie: Australia and New Zealand.

On the farm, veterinarians diagnose scrapie based on the appearance of signs combined with knowledge of the animal's history. There is no officially recognized test for scrapie in live animals, although research is progressing in this area. At this time, scrapie can only be confirmed by microscopic examinations of brain tissue and by procedures that detect the presence of the scrapie agent. Scrapie has had a significant impact on the sheep industry and has caused financial losses to sheep producers across the country. In the United states, scrapie primarily has been reported in the black-faced breeds, but other breeds and crossbreeds are affected. Through August 1999, seven cases of scrapie have been reported in goats in the United States.

The first case of scrapie in the United states was diagnosed in 1947 in a Michigan sheep flock. The flock owner had imported sheep of British origin through Canada for several years. From this first case through August 1999, scrapie has been diagnosed in more than 950 flocks in the U.S.

Since 1952, the U.S. Department of Agriculture (USDA) and the sheep and goat industries have made numerous attempts to eradicate scrapie through various programs. The purpose of all previous USDA programs was to identify scrapie and eradicate it. That approach changed with the implementation of the Voluntary Scrapie Flock Certification Program (VSFCP) on October 1, 1992.

This program is a voluntary, cooperative effort among producers, allied industry representatives, accredited veterinarians, State animal health officials, and USDA's Animal and Plant Health Inspection Service (APHIS), and consists of two categories for enrolled producers - complete monitored category and selective monitored category. In the complete monitored category, flocks/herds have either enrolled or certified status. The program provides participating sheep and goat producers with the opportunity to protect their animals from scrapie and to enhance their marketability through certifying their origin in scrapie-free flocks/herds. In addition, APHIS regulations restrict the interstate movement of animals from scrapie-infected and source flocks/herds.

The program was modified in July 1999 to make it more practical for producers. The following is information which describes the new Voluntary Scrapie Flock Certification Program.

Program Changes

Changes have been made to make the program more producer-friendly and simplified. One of these changes involved going from a system based on four classes to a system based on the amount of time a flock/herd is in compliance with the standards. After 5 years of continuous compliance with the program, a flock or herd is certified free of scrapie.

Another change in the program standards allows enrolled producers to obtain rams/bucks from nonparticipating or lower status flocks/herds without losing their status in the program. Certified flocks/herds purchasing rams/bucks from a non participant will only lose one year of status.

In addition to these changes, producers can now use a tamper-resistant ear tag instead of a tattoo or electronic implant for identification. Producers have found the tags to be easier to use.

How Can the Program Benefit You?

The intent of the program is to monitor flocks/herds over a period of 5 years or more to identify flocks/herds that are free of scrapie. Because there is not yet a validated live-animal test for this disease and scrapie has a long incubation period, a flock/herd is considered free of the disease if no sheep/goats have been diagnosed with scrapie and there is no clinical evidence of it over a period of time. The longer a flock/herd is enrolled and following the requirements of the program, the more likely the animals are free of scrapie.

The economic value of animals in enrolled flocks/herds increases the longer they are in the program, especially once they are certified. Animals from certified flocks/herds are a valuable source for replacement of breeding animals in other flocks/herds. Additionally, international trade requirements may demand that animals be in a disease certification program before they are accepted into certain countries; currently Mexico will only accept sheep if they are from a flock enrolled in the VSFCP for at least a year.

The program receives producer input at the national and state levels through the National

Oversight Committee and the State Certification Board. These groups include producers, accredited veterinarians, allied industry representatives, State animal health officials, and APHIS officials.

How to Enroll

All flock/herd owners may apply to enter the Voluntary Scrapie Flock Certification Program by contacting the Oklahoma APHIS Veterinary Services (VS) office. An information package will be provided which includes an order form for tamper-resistant eartags. If the owner chooses eartags as their form of identification, he/she completes the order form, mails it to the VS office with payment, and gets their record keeping in order. When the owner receives their eartags, they schedule an initial inspection with the VS office. A Federal or State Veterinary Medical Officer will come out to the farm and personally inspect each animal, and may assist in applying eartags. During the initial inspection, a complete inventory of the flock/herd is made. The State Certification Board reviews all applications and approves or disapproves admission to the program based on compliance or noncompliance with program standards. The completed application package for enrollment includes:

- A list of animals in the flock/herd, including breed, gender, and official program identification (flank or ear tattoo, microchip, or APHIS-approved, tamper-resistant ear tag);
- A statement by the flock or herd's accredited veterinarian declaring the flock/herd free of scrapie;
- An inspection report authorized by a State or Federal regulatory official verifying official identification and other application information.

Program Requirements

When participating in the program, flock/herd owners must:

- Agree to immediately report scrapie-suspect animals to the proper animal health official.
- Officially identify all animals within a flock/herd that are 1 year of age or older. Animals less than 1 year old must be identified whenever a change of ownership occurs, except for those in slaughter channels.
- Maintain required records as specified by the program. Owners must account for all additions, departures, births, and deaths. Records must be retained for a minimum of 5 years after an animal dies or is removed from the flock/herd.
- Allow breed associations and registries, livestock markets, and packers to disclose records to APHIS and/or State animal health officials and State Scrapie Certification Board members.

- Provide necessary facilities and personnel to assist in inspections, including:
  - checking animals for official identification and signs of scrapie
  - checking records for completeness and accuracy.

- Submit to an official laboratory tissues from scrapie-suspect animals and from animals suspected of having other neurologic or chronic, debilitating illnesses.

- Report to the State Certification Board additions of animals from flocks/herds with lower status or from flocks/herds not participating in the program.

Program Categories

Complete Monitored Category

This category means that a flock/herd is approved to participate in the program. Flocks/herds in this category have either enrolled or certified status.

Complete Monitored Enrolled Flock. When a flock/herd enters the program, it is assigned enrolled status, becoming a "complete monitored enrolled flock/herd." These flocks/herds are assigned an enrollment date (the date the State Certification Board approves admission to the program) and a status date. The status date is the best risk indicator for scrapie in an enrolled flock/herd. Initially, the status date is the same as the enrollment date and will be maintained if a flock/herd continues to meet program requirements. However, if a flock/herd obtains animals or commingles with animals that do not meet the program standards, the status date changes to reflect the date of this occurrence. The older the date, the longer the flock/herd has been meeting program standards.

Rams/bucks may be acquired from any flock/herd (other than source or infected flocks/herds), including those not enrolled in the program. Presently, there is no scientific evidence that supports rams/bucks as a risk for spreading scrapie. However, producers increase the risk that scrapie will be diagnosed in their flock/herd when purchasing males from nonenrolled flocks/herds.

Ewes/does have been found to spread the disease. Therefore, to maintain scrapie-free status, flock/herd owners may obtain females only from other enrollees with an equal or older status date. Owners acquiring females from flocks/herds not participating in the program or from flocks/herds of lower scrapie status will have their status date adjusted to reflect the addition of the lowest category animal.

Complete Monitored Certified Flock. When an enrolled flock/herd has met program standards for 5 consecutive years, it advances to certified status. Sheep/goats from these flocks/herds are unlikely to be infected with scrapie. Flocks/herds in this status may be increased with males from other certified or enrolled flocks/herds. However, APHIS recommends that producers consider the risk of scrapie infection when purchasing males from lesser status flocks/herds. Females may be

purchased only from other certified flocks/herds.

Both enrolled and certified flocks/herds are inspected annually by State or Federal regulatory personnel. Flocks/herds of both statuses also may loan out rams/bucks for breeding without jeopardizing their status date. The ram/buck must reside in the program flock/herd other than for breeding purposes and cannot be with ewes/does 30 days prior to and 60 days following lambing.

Selective Monitored Category. Selective Monitored Category is open to any flock and was designed for slaughter lamb producers to allow for scrapie surveillance in large production flocks. Only male animals over 1 year of age must be officially identified. Producers agree to submit for scrapie diagnosis animals that are culled from the flock or that die. (The number of animals to submit per year depends on the flock size.) Additionally, an accredited veterinarian must inspect all cull ewes for clinical signs of scrapie prior to slaughter. Selective status is maintained indefinitely, as long as the flock meets the category requirements.

Epidemiologic Investigations

If scrapie is diagnosed in a flock/herd in any program category, animal health officials will conduct an epidemiologic investigation. The investigation will identify and trace back the source of the disease and identify exposed animals. These officials will work with the flock/herd owner to develop and implement a flock/herd plan. This plan will include depopulation of high-risk animals, reduction of risk associated with spread of infection, and facility cleanup and disinfection.

Exhibition and Transportation Guidelines

The program standards also give guidelines for reducing the risk of scrapie exposure when sheep/goats are at shows or are being transported. Guidelines include separating enrolled sheep/goats from nonenrolled animals by a vacant pen, barn alley, or solid barrier sufficient to prevent physical contact. Limited contact in show rings minimizes the risk of disease transmission. Enrolled sheep/goats should not commingle with lambing or kidding animals at exhibits or sales.

Further Information

For more information about the Voluntary Scrapie Flock Certification Program, you may contact:

USDA, APHIS, Veterinary Services
4020 N. Lincoln Boulevard
Suite 101
Oklahoma City, OK 73105

or by telephone (405) 427-9413 or Fax (405) 427-9451.

Additionally, current information on enrolled, certified, source, and infected flocks is available 24 hours a day every day through a toll-free automated telephone voice response service at (800) 545–USDA (8732). To reach APHIS' scrapie information on the World Wide Web, point your Web browser to http://www.aphis.usda.gov and type the word "scrapie" (minus the quotation marks) in the search engine.

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National Livestock Credit Corporation
2501 Exchange Ave. Room 103
Oklahoma City, OK 73108
1-800-310-0220

Robert York - President / CEO
email: robertyork@nationallivestock.com

National Livestock Credit Corporation

- Founded in 1932
- Serving livestock producers in Oklahoma, Texas, Kansas
- Located at the Oklahoma National Stockyards
- Member Credit Corporation of National Livestock Producers Assoc.
- CEO serving as member of Sheep and Goat Fund Committee

At National Livestock Credit Corporation, we hope to serve as facilitator for producers wishing to obtain financing from the newly developed Sheep and Goat Fund. Depending on the geographic locations of producers, NLCC may also serve as a servicing agent for recipients of loan funds.

National Livestock Producers Association

Following passage of the Packer and Stockyards Act of 1921, the National Livestock Producers Association (NLPA) was founded in direct response to diminishing markets and excessive supplies of livestock. The realization that producers needed to work together to battle marketing problems led to the development of livestock cooperatives nationwide.

When the Federal Farm Board was established in the early 1930's the National Livestock Producers Association took on a new role as a capitalization vehicle for several livestock credit corporations across the country. The credit corporations were formed to make needed credit available to the producers through organizations that would specialize in working with livestock lending. Many of those original credit corporations are still in existence today.

Helping Regional Cooperatives

National Livestock Producers Association services are designed to help member marketing agencies and credit corporations become more effective and efficient for their producer-patrons. Through member interaction, many innovative services and programs are formed and alliances cemented which are designed to provide the livestock producer many opportunities to improve the producer's bottom line.

In addition, joint ventures and cooperation among the members lead to national exposure of producers' livestock through electronic marketing systems and networks of buyers and sellers.

Speaking out on behalf of the livestock producer

In the multibillion dollar business of livestock marketing and credit, a strong voice is crucial to protect business rights and a competitive environment. National Livestock Producers Association serves as Just such a voice, speaking out on behalf of members and their patrons.

Strong alliances with other livestock and credit organizations aid in providing a clear voice on regional and national issues. In addition, absolute credibility earned over more than 75 years emphasizes the positions taken by the National Livestock Producers Association on behalf of its members.

NLPA benefits for livestock producers

National Livestock Producers Association serves its members in several areas:

- as a *Catalyst* in creating interaction among the members to further exchange ideas and information.
- as a *Representative* on behalf of the members to other industry organizations, federal agencies and Congress.
- as a *Resource* for insurance and employee benefits programs for the members.
- as an *Asset* to provide assistance in employee training through annual conferences and specialized training as needed.
- as a *Source* of expertise to assist members in business planning and operations.
- as a *Means* for members to obtain price risk management services, through National Producers Service Company.
- as a *Resource* for financial assistance and capitalization, through National Feeder and Finance Corporation.

A diversity of service and expertise

Innovation, specialization and sophistication are but a few of the descriptions used when referring to the members of the

National Livestock Producers Association. In order to fully serve their patrons and customers, the members have worked together to create new financing, marketing and feeding programs to meet the challenges facing the livestock producer. Some of the services include:

- Expert auction marketing
- Internet livestock marketing
- Country sales and order buying
- Forward contracting
- Livestock feeding and grazing programs
- Commodity trading and hedging
- Certified calf programs
- Credit and loan assistance
- Animal health and breeding supplies
- Genetic advising and carcass feedback

National Producers Service Company

National Producers Service Company, a subsidiary and affiliate of the National Livestock Producers Association, was created in the 1960's when livestock futures began trading on the Chicago Mercantile Exchange. NPSC specializes in the assistance of livestock producers in developing risk management programs using futures, options and forward contracting. A member of the Chicago Mercantile Exchange, NPSC is represented on the CME Advisory Committees so that the Exchange is able to get advice on contract changes from time to time. National Producers Service Company maintains five offices to serve livestock producers nationwide:

Colorado Springs, CO	**Baraboo, WI**	**Syracuse, NY**
Home Office	Branch Office	Branch Office
(800) 237-7193	(800) 362-3989	(877) 603-2170
Greeley, CO	**Sioux City, IA**	
Branch Office	Branch Office	
(800) 525-3602	(800) 831-5937	

National Livestock Producers Association Industry Affiliations

American Farm Bureau Federation
American Sheep Industry Association
Animal Industry Foundation
Animal Welfare Council
Farm Animal Welfare Coalition
Farm Credit Council, Inc.
Livestock Conservation Institute
Livestock Marketing Association
National Cattlemen's Beef Association
National Council of Farmer Cooperatives
National Institute for Animal Agriculture
National Milk Producers Federation
National Pork Producers Council
National Sheep Industry Improvement Center

What is the National Livestock Producers Association Sheep and Goat Fund?

The NLPA Sheep and Goat Fund is a revolving fund established within NLPA to assist the U.S. sheep and goat industries by strengthening and enhancing the production and marketing of sheep and goats and their products in the United States.

The Fund is the result of a Joint effort of the National Sheep Industry Improvement Center (NSIIC) and the National Livestock Producers Association (NLPA). The NSIIC made funds available to NLPA, which serves as an Intermediary and established the Sheep and Goat Fund. NLPA has the ability to service and administer this important program and was selected for their ability to provide:

- expertise with livestock production, processing and marketing-related lending;
- nationwide capability in urban and rural areas; and
- the ability to process and service loans from all segments of the sheep and goat industries; from production through the packer/processor/retail level.

What are the goals of the NLPA Sheep and Goat Fund?

NLPA has established the following goals with NSIIC for the Sheep and Goat Fund:

- Make capital available for increasing production or improving production efficiency.
- Improve marketing efficiency or product quality.

How are funds made available to the industry?

Financial assistance from the NLPA Sheep and Goat Fund can be delivered through either direct loans or loan guarantees. Since this is a revolving fund and is considered seed money to help the sheep and goat industries into the future, a loan repayment plan is therefore required from applicants.

Who is an eligible borrower?

An individual is not considered an eligible entity. Applicants may be public, private, or a cooperative organization; an association, including a corporation not operated for profit; a partnership; a limited liability company; a federally recognized Indian Tribe; a public or quasi-public agency; or any other recognized business organization.

What ways can the funds be used?

The Sheep and Goat Fund is administered by the Sheep and Goat Fund Committee. Members of the Committee have experience in either the sheep or goat industry or in livestock financing. The Committee has flexibility, within the guidelines of the agreement with NSIIC, to use the funds for the benefit of the sheep and goat industries. Following are some examples of areas where the NLPA Sheep and Goat Fund may be used.

- Improve marketing efficiency or product quality.
- To increase production or improve production efficiency. Investment in development and use of new equipment and methods to process sheep and goat products.
- Investment in the development, production and commercialization of new sheep or goat products.
- Purchase of equipment, leasehold improvements, machinery, supplies, or inventory for sheep or goat production.

- Business conversion, construction, enlargement, repair, modernization or development in processing facilities for sheep, goats or their products.

- Facilitate infrastructure and business development in the sheep and goat industries.

- Purchase and development of land, easements, rights-of-way, buildings, or facilities for the purpose of sheep or goat production or processing.

- Investment in efforts to manufacture and market new products for sheep or goat disease prevention and control; predator control; genetic and reproductive performance.

- Commercialization of sheep or goat products that have been developed by public or private institutions.

How are the applications processed?

Applications will be reviewed by the NLPA Sheep & Goat Committee every quarter. Therefore, applications must be postmarked by June 30 to be considered in the next review.

The Sheep and Goat Committee will review the applications and determine who will receive funds and the amount to be loaned. Once this is decided, the interest rate and terms of the loan will be determined by the regional organization that will service the loan.

How can I get an application?

Visit the NLPA Web site at www.npla.com, where a downloadable version of the application is available. Or, call, write, or email your application request to:

National Livestock Producers Association
660 Southpointe Court, Suite 314
Colorado Springs, Colorado 80906
Phone: (719) 538-8843
Fax: (719) 538-8847
Email: NLPA@worldnet.att.net

About the National Sheep Industry Improvement Center....

The Sheep Center (NSIIC) was established by Congress as a revolving fund in the 1996 Farm Bill to aid the nation's ailing sheep and goat industries.

Legislation was passed in 1993 that began the phase out of the National Wool Act, which took place between 1993 and 1995. The Wool Act had provided a direct payment program to producers of wool and mohair from 1954 to 1995 and served as an income stabilization mechanism. Between the beginning of the phase out in 1993 and January 2000, the number of sheep in the United States declined by 3.171 million animals (31 percent) and the number of operations with sheep has decreased by 25,810 (27 percent). The decline in the Angora goat numbers has been even more dramatic, with a 72 percent decrease during the same period.

The mission of the NSIIC is to assist the U.S. sheep and goat industries by strengthening and enhancing the production and marketing of sheep, goats, and their products in the Unite States.

National Sheep Industry Improvement Center
Denver Federal Center
Building 20, Room A131
PO Box 281028
Lakewood, Colorado 80228
Phone: (303) 236-2858
Fax: (303) 236-7683

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OKLAHOMA INCENTIVES AND ASSISTANCE TO AGRICULTURAL PRODUCERS

Gary Bledsoe

Assistant Director

Market Development Division
Oklahoma Department of Agriculture

Agricultural Enhancement Diversification

The Oklahoma State Legislature and Governor Keating approved legislation F.Y. 2000 to establish the Agricultural Enhancement and Diversification Advisory Board. $150,000 was initially allocated to fund the program. The purpose of the funding and the advisory board is to provide zero interest loans and grants to encourage agricultural business ventures and alternative agricultural enterprises.

Funds may be used for startup cost of new and expanding agricultural business ventures. Appropriate cost would include product and packaging development, feasibility studies, business plans, legal expenses, consultants, advertising and other marketing cost. Farm Diversified Grants may be used to experiment and demonstrate alternative agricultural crop and livestock practices.

Applications are received on a quarterly basis which are evaluated on the likelihood of success and adherence to program guidelines.

Agricultural Producers Tax Credit

Oklahoma agricultural producers may claim an income tax credit for their direct investment in an Oklahoma producer owned agricultural processing entity which is designed to develop and enhance the production, processing, handling, and marketing of Oklahoma agricultural commodities. The types of entities in which direct investments can be made shall be limited to Oklahoma producer-owned agricultural processing cooperatives, Oklahoma producer-owned agricultural processing ventures, and Oklahoma producer-owned agricultural processing marketing associations. Further description of these entities can be found at 68 O.S. 2357.25(G).

Effective for direct investments made on or after January 1, 1997 but before December 31, 1998, the credit shall be thirty percent (30%) of the direct investment made in a qualified entity. Effective for direct investments made on or after January 1, 1999, if the total credit allowed for direct investment in Oklahoma producer-owned agricultural processing entities results in the reduction of total Oklahoma income tax of more than one million dollars (1,000,000) in any previous calendar year, the Oklahoma Tax Commission shall adjust the percentage of the credit for direct investment using the following formula.

- Thirty percent times one million dollars divided by the credits claimed in the preceding calendar years.

    - In no event will the credit percentage exceed thirty percent (30%).

This credit will be available for the tax year in which the direct investment is made. In the event the credit exceeds the amount of income tax due, any unused credit may be carried forward against any subsequent income tax liability for a period not to exceed six (6) years. In the event of credits being carried forward, the amount of credit, once established, shall not be reduced in the event of credit percentage reduction in subsequent years.

AGLINK Deposit Loan Program

An agricultural producer may work with a commercial lender (banker) and the Oklahoma State Treasurer's office to reduce interest rates on existing or new farm loans. The AgLink Deposit loan is a two-year program but may be renewed up to five times.

This is a two-part program. At risk farmers may be eligible for reduced interest (approximately 3% discount) on loans up to $350,000. These farmers are experiencing a debt to asset ratio of at least 55%. The link deposit loan for an at-risk farm or ranch business must be used for the purpose of operating the business or refinancing loans made to operate the business.

Farmers planning to diversify with an alternative agricultural enterprise may also apply and receive a reduced interest rate on a loan up to $1,000,000. The loan will be used to expand or start the production, processing or marketing of an alternative agricultural product. The following list identifies those alternative agricultural enterprises that qualify for an AgLink Deposit Loan:

Aquaculture Products
Bait Farming
Canola
Certified Organic Products
Christmas Trees
Cut Flowers for fresh and dried markets
Deer Farming
Flax
Fruits, small
Fruits, tree
Goats
Greenhouse: Vegetables
Greenhouse: Ornamentals
Hardwood Processing
Herbs
Mungbeans
Mushrooms
Nursery Stock
Pecans
Popcorn
Recreational Farm Enterprises
Safflower
Seed Production: native and improved grasses
Seed Production: Alfalfa, Barley, Rye, Oats, and Triticale
Sesame
Sheep
Shooting Preserves
Sod Production
Spices
Sunflowers
Vegetables
Wildflower Seed
Wildlife Leases (including hunting and fishing)

Beginning Farmer Loan Program

If you are interested in starting a career in agriculture, the Oklahoma Beginning Farmer Loan Program may offer the financial help you need. The program is administered by the Oklahoma Development Finance Authority and provides low cost financing. Loans are provided by participating lending institutions and are financed by the sale of federally tax exempt bonds. Beginning Farmer Loans typically incur interest rates below conventional rates.

Qualified borrowers may seek up to $250,000 for the purchase of land, farm buildings, machinery, equipment and livestock. Eligible farmers must never have held a direct or indirect ownership interest in substantial farmland (30% of the median farm size in the county). They must have a net worth of less than $200,000 and have access to adequate working capital.

Further Information

FOR FURTHER INFORMATION ON ANY OF THE ABOVE PROGRAMS PLEASE CONTACT "GARY BLEDSOE" AT THE OKLAHOMA DEPARTMENT OF AGRICULTURE. PHONE NUMBER: 1-405-522-5515.

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SUSTAINABLE BRUSH CONTROL

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The major options that a producer has for brush control includes chemical, fire, mowing and goats. Sustainable Agriculture is a management system of farming which reduces costs of purchased inputs, minimizes the impact of the farming system on the immediate and off-farm environment, and provides a sustained level of production and profit from farming (Francis et al., 1987). Therefore, sustainable brush management requires a minimum of purchased inputs, minimal environmental pollution, and yet achieves the objectives of brush management in a cost-effective manner. Goats, if managed right, are the most sustainable option that we have for brush control. They require the least inputs-investment in animals, result in little pollution, control most brush species and actually turn a profit while converting brush to a saleable product.

Langston University has conducted a number of demonstrations over the years on the use of goats to control weeds and brush. Early work with the Forest Service in Arkansas used goats to control oak species coming up in a pine plantation. Later work, conducted near Hugo, used goats to control the understory and for farm diversification. We conducted studies at the Black Kettle National Grasslands in Cheyenne, OK using goats to control shinnery Oak. A project in Kansas used goats to control sericea lespedeza and brush in the pastures. A study with the Army Corps of Engineers at Lake Oolagah used goats to control brush and other vegetation around the lake. They are particularly interested in goats because of restrictions on using herbicides on government property. This summer, we hope to be conducting a new demonstration project on the use of goats for controlling post and blackjack oaks.

The first consideration in the use of goats for brush control is the species of brush. Ted McCollum at OSU observed that goats grazed most extensively on hackberry, elm, dogwood, redbud, greenbriars and blackberries. They moderately utilized chittim wood and sumac from which they stripped the bark. Grasses were in this second category of utilization. Species that were poorly utilized included blackjack, post oak and buckbrush. Dietary preferences will differ for goats raised in different parts of the country, time of year and other plant species available for consumption. The best way to know what goats will eat is to get some of your own.

The second question is how many goats. This is more complicated than saying how many cattle. Your objective is to basically overgraze the brush to kill it. If you stack enough goats on a pasture, they will strip it until it looks like it was mowed, but productivity will suffer as it does in overstocked cattle. A moderate stocking rate of 2-4 goats per acre of solid brush will control brush. It will take 2-3 years to control most brush at this stocking density. Goats can be sold as the brush disappears, but some goats will have to be maintained (½ to 1 goat per acre) to keep the sprouts down. Goats are very compatible grazers with cattle or horses. Goats need some grass in their diet,

but it is a minor part of their diet.

If the brush is 25 ft tall before goats are turned into the pasture, they will be slow at controlling it. They will put a browse line that is head high on the limbs, but will slowly kill the trees by barking them. Texas scientist recommend chaining or a controlled burn prior to goating to control the tall brush. Texas work has shown that shinnery oak can be eradicated by mowing followed by using goats to control the resprouting.

The three big problems that need to be addressed for the effective use of goats for brush control are fencing, internal parasites and predators. One of the greatest expenses in a goat enterprise is the cost associated with fencing. Without good fencing, goats can become a big management headache. Goats will not stay in a pasture fenced with five strands of barbed wire. However, if one adds one strand of electric fence about 8 inches in front of the fence and 14-16 inches high, goats can be kept in. The three secrets of successful electric fence use with goats are to train them to electric fence before putting them out, put up the fencing right using quality materials and check the voltage on the fence every day and maintain 4500 volts. Goats can be contained with as few as 3 electrified wires, but 4 is more secure. As long as goats have something to eat inside the fence, they don't try to escape very much except for a few individuals destined for barbecue.

Goats may be kept in using sheep and goat wire, a net wire fence that has 10 inches between the wires that run up and down to allow goats to get out of the fence when they get caught by the horns. Standard field net wire fence will catch goats by the horns and hold them there until someone gets their head out or a coyote eats them. Sheep and goat wire costs $75.00/330 ft. roll. It can be fastened to existing fence or regular posts. Some producers put a strand of barbed wire at the top and/or at the bottom of the wire to keep horses from breaking it down and predators from coming under. A five strand barbed wire fence may be modified for goats by addition of 3 strands of barbed wire at the bottom and stays every 5 ft.

Predators can destroy your goat herd in only a few nights. The most reliable method of predator control is the use of good guard dogs. Not all guard dogs are good and some have bad habits such as roaming the country. Spayed females and neutered males work best. Guard dogs are another animal to be managed. In addition to feeding, they need dewormed and vaccinated on a schedule. Sources of dogs are listed under the classified ads. The working life of a guard dog is 2-3 years. The biggest cause of death is being run over by vehicles, usually in the pasture. Two guard dogs are about the minimum and will take care of 2-300 goats.

Donkeys are a low-input guard animal in that they eat grass. Only jennies or geldings should be used. It is best if they are bonded to the goats at an early age, but some mature animals will work well. Use only one donkey per pasture and keep others away or they will buddy up with one another and forget about the goats. Llamas can also be effective guard animals.

Internal parasites, commonly called worms are a problem of goats that is greatly affected by management and weather. Goats grazing brush require less deworming than animals grazing closer to the ground. Hot, dry weather reduces parasite problems. Grazing with cattle also reduces worm problems. Animals can be dewormed with a number of different dewormers when they become

wormy. The best way to determine the need for deworming is to count the number of worm eggs in a fecal sample. Some veterinarians will do this for you. For a sample, take three pellets from each of ten animals. We are conducting several fecal egg counting workshops to teach producers to do their own worm egg counts.

Goats need few vaccinations. Kids should be vaccinated for tetanus and enterotoxemia around weaning and four weeks later. If caseous lymphadenitis (cheesy gland) is a problem, it can be vaccinated against. Some reproductive diseases which cause abortion such as vibrio and chlamydia can be vaccinated against if necessary. Working facilities for sorting, deworming and vaccinating can be simple. Livestock panels wired to T post can be used for a corral. A working chute just a little wider than a man can be made using sheets of plywood. The chute should be no more than 15 ft long because animals will crowd and smother in longer chutes. The chute should be filled with no more than 12 goats and the animals should be worked starting from the rear of the chute.

Goats can be wintered on the same regimens as beef cattle such as baled hay and a protein cube. Some producers prefer pellets to cubes. The best way to feed hay is to roll the bale out on the ground. Goats will climb on round bales and soil them or the hay bale can fall over on them. An elevated hay feeders work well, but tend to be pricey. Some people set a round bale on end and wrap two cattle panels around it. This works well except for animals with big enough horns to get caught. Goats can eat pellets or shelled corn off the ground.

For kidding, goats do not fare well in cold rainy weather. Kidding later towards late spring reduces weather problems. Also, during lactation when goats have the greatest nutrient demand, the brush will be actively growing. If you like to kid early, goats need shelter and kidding animals need to be separated from the herd. Goats will need quite a bit of feed if pasture is not available.

There are goat auctions in Oklahoma located at Antlers, Hennesey, Jones, Muskogee, El Reno, Perry, Purcell, Sayre, Ada, Enid, Bristow, Collinsville, Meeker, Prague and Leech. A potential producer should visit a goat auction, watch a sale and talk to people about seasonality of prices, preferred class of goats and other factors that determine the price received. One can make connections with other goat producers and learn from them.

While any goat will eat brush, the Spanish goat seems to excel in this category. This is the only 'breed' of meat goat available in large quantities. Other breeds include the Tennessee stiff-legged goat (fainter goat) the hill goats from the eastern US, the Boer goat and Kiko goats. Boer crossbreds bring good prices when sold for meat and Boer bucks are readily available. The best way to buy goats is directly from a producer. Visit several producers and buy from the one that manages his animals most like you would. When you buy animals at the auction, you may be buying an animal that someone sold because they had a problem.

Attached is a general budget for a meat goat operation. While goats can be profitable, they are not the way to riches. The secret to making money with goats is to spend a minimum amount of money in producing them. Direct sales of animals can also enhance profitability.

Income

Sell 1.25 kids/doe (1.5 kidding rate -.25 for replacement)	
Price $.80/lb, 50 lb., $40/kid	
Income/doe (1.25 kids*$40.)	$50.00
Income cull does .2 hd * $25	5.00
Weed and brush control (save in spraying)	???
Total income	55.00

Expenses

Pasture	5.00
Fencing	4.00
Health (vaccination and deworming)	4.00
Buck service	3.00
Raising replacement	10.00
Salt and water	2.00
Winter feeding	10.00
Predator control	2.00
Total expenses	40.00

Profit/doe $15.00

Sources of goat information include The E (Kika) de la Garza Institute for Goat Research at Langston University, the Oklahoma Meat Goat Association, American Meat Goat Association, Texas A & M University bulletins, goat web sites. There are several goat magazines such as the Goat Farmer, Meat Goat News, Ranch Magazine, and Goat Rancher.

The proper citation for this article is:

Hart, S. 2000. Sustainable Brush Control. Pages 32-35 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

EXTENSION OVERVIEW

Dr. Terry A. Gipson

Interim Goat Extension Leader

Nineteen-hundred-ninety-nine 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 and national 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 third annual meat buck performance test and various goat workshops on artificial insemination and on internal parasite control.

Goat Field Day

Last April 24, Langston held its fourteenth annual Goat Field Day to inform and educate potential, novice and veteran goat producers. A total of 167 participants pre-registered and at least 186 attended. There were 12 states represented. 57% of the participants were from Oklahoma and 80% of the participants were from Oklahoma and Kansas. Thirty of the 186 participants were youth and were enrolled in the fitting and showing workshop conducted by Dr. Brown-Crowder. A summary of the participant breakdown by state follows:

State	Number of Participants	Percentage of the total
AR	17	9%
AZ	1	1%
CO	2	1%
KS	40	22%
KY	2	1%
LA	1	1%
MN	1	1%
MO	11	6%
NM	2	1%
OK	106	57%
TN	2	1%
TX	1	1%
Total	**186**	**100%**

There was a significant 34% increase in knowledge on the part of the participants. The average score on the 12 multiple choice questions was 51% for the pre-test and 85% for the post-test.

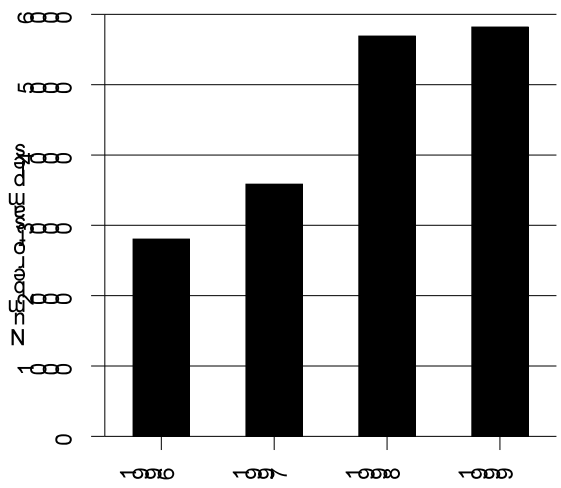

Figure 1. Number of goat milk samples analyzed

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. The Langston DHI program is unique in that it is the only DHI laboratory in the United States that analyzes milk samples with goat milk standards for fat, protein and somatic cell count. All other DHI laboratories use cow milk standards to analyze goat milk. 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.

The Langston DHI program has been very popular with dairy goat producers and has grown significantly since its establishment in 1996. Figures 1 and 2 shows the growth of the DHI lab in terms of number of samples processed. Currently we have 120 herds from 24 states enrolled in the Langston Goat Dairy DHI Program.

For those interested in becoming a Langston goat DHI tester, training is available either in

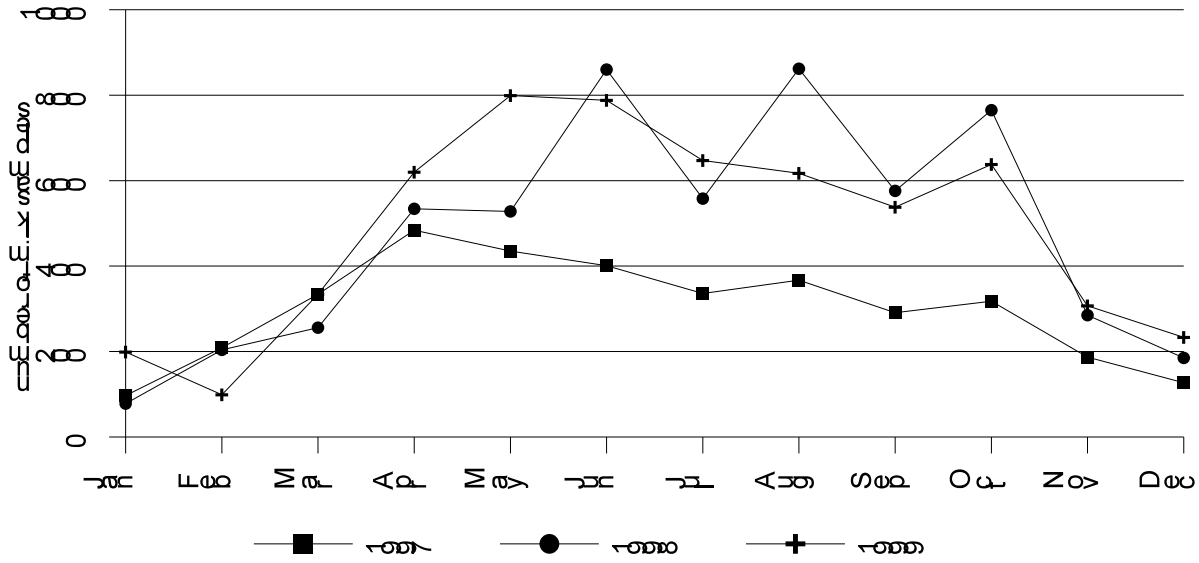

Figure 2. Number of milk samples analyzed in 1997, 1998, and 1999.

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.

Grazing Demonstrations

In 1999, Langston University conducted three demonstrations to show how goats can be used to control unwanted vegetation. This is the fifth year of a project in Kansas using goats to control serecia lespedeza as well as other weeds and brush. Serecia lespedeza has been declared a noxious weed and is spreading explosively in southeastern Kansas. The second project was at Lake Oolagah in Oklahoma. Due to declining budgets, the Army Corps of Engineers must find more cost-effective methods for controlling unwanted vegetation on their watersheds. Herbicides cannot be used for control due to the runoff hazard, which may contaminate the lake. The third project was in Haskell, Oklahoma to use goats for controlling woody species of vegetation. The most common woody species is blackberry as well as significant persimmon, sumac and buckbrush. The goats have made a significant impact on controlling these species.

Artificial Insemination Workshop

On September 3, 1999, an *Artificial Insemination* workshop was held at Langston University. Participants learned how to synchronize and detect estrus and how to artificially inseminate does. They also learned about the collection, processing, care and storage of semen. Seventeen participants enrolled for the workshop. In the morning session, Dr. Terry Gipson gave a presentation on basic reproductive anatomy and physiology. Mr. Mark Mouttet displayed the intact female reproductive tract and the anatomy was re-discussed. Mr. Mouttet also discussed the A.I. equipment, especially the French gun and sheaths. After the morning break, Mr. Les Hutchens of Reproductive Enterprises, Inc. in Stillwater, OK discussed the contents of an A.I. kit. Dr. Lionel Dawson of Oklahoma State University then lectured on estrus detection and synchronization. After a lunch of goat sausage, baked beans, potato salad and goat milk ice cream, the participants were guided through semen handling and liquid nitrogen tank maintenance by Mr. Hutchens. Afterwards, participants were able to inseminate some Alpine does that had been synchronized using Synchromate-B and PG-600. After several hands-on inseminations with the live animals, participants were given the opportunity to ask questions of the presenters.

Controlling Internal Parasites Workshop

On Saturday, July 24, 1999 a workshop on *Controlling Internal Parasites* was held at Langston University. The workshop was limited to 12 participants due the hands-on nature of the workshop. In the morning session, Dr. Lionel Dawson of Oklahoma State University lectured on the parasites that infect goats, their life cycles and various anthelmintics those goat producers can use. After a lunch of goat sausage, baked beans, potato salad and goat milk ice cream, the participants were guided through the collection of fecal samples and their preparation for counting by Dr. Terry Gipson. The participants then collected fecal samples from Angora does and they conducted fecal egg counts. Six microscopes were provided for the participants to use in the fecal egg counts. Included in the registration fee was a McMaster counting chamber which is used to determine fecal egg counts.

HACCP and the Goat Producer Workshops

Langston University, in collaboration with the USDA Natural Resource Conservation Service, scheduled four HACCP and the Goat Producer workshops in Seminole, El Reno, Tahlequah and Fort Cobb. The workshops concentrated on the identification and prevention of hazards at the producer-packing plant interface to ensure a wholesome product at delivery. The workshops achieved this objective via the use of 1) an USDA-provided video on HACCP and 2) a PowerPoint presentation on applying the seven HACCP principles to goat production with the aid of the Food Animal Residue Avoidance Databank. To assess the transfer of knowledge at the workshops, a pre- and post questionnaire consisting of 10 multiple choice questions was developed.

Date	Place	Pre-score	Post-score	% change
11/22/99	Seminole, OK	58%	92%	34%
11/23/99	El Reno, OK	60%	98%	38%
11/29/99	Tahlequah, OK	64%	100%	36%
11/30/99	Fort Cobb, OK	59%	83%	24%

A total of 30 participants attended the four HACCP workshops. A 33% increase in knowledge of HACCP and related subjects was recorded.

Producer Grantwriting Workshop

On December 4, 1999, a *Producer Grantwriting* workshop was held at Langston University. Twelve people, eight participants and four speakers, attended the workshop. Dr. Claud Evans from Okemah, OK was the keynote speaker and spoke on team building and writing to the grant application. Dr. Evans was able to share his experiences as someone who has successfully received a producer grant and as someone that reviews producer grants. Messrs. Alan Ware and David Redhage from the Kerr Center spoke on the Kerr Center's Oklahoma Producer grant program. Dr. Ross Love from OSU spoke on the Southern section SARE producer grant program. Goat ice cream, cheese and stick were served after Dr. Love's presentation while participants could talk one-on-one with speakers about specifics of their individual project ideas.

Goat Husbandry Training

In the summer 1999, Mr. Timothy Gondwe, an instructor in animal breeding and genetic at Bunda College of Agriculture in Malawi, was at Langston University for extended training in US goat husbandry. Mr. Gondwe traveled to the United States on an USAID grant.

Meat Buck Performance Test

The identification of superior sires is essential for genetic progress and a time-tested method of identifying superior sires is the central performance test. A central performance test involves bringing young males from several different farms together to a central location to be evaluated in a common environment. In an effort to identify superior meat bucks, Langston University, in cooperation with the Oklahoma Meat Goat Association (OMGA), recently completed its second annual meat buck performance test.

The test was open to purebred and crossbred bucks born between December 1, 1998 and March 31, 1999. Entry date for the 1999 meat buck performance test was May 22, 1999. All goats were given a thorough examination by a veterinarian at entry. Goats showing signs of any contagious disease (pinkeye, soremouth, ringworm, abscesses, etc.) were refused entry. Also, at entry, general conformation and soundness of all bucks were evaluated by an Admission Committee made up of one extension staff and the veterinarian chosen to be the on call veterinarian. At delivery to the test station, live weight of each buck was at least 30 lbs. Bucks which are eligible for entry are required to have a certificate of vaccination against tetanus, *C. perfringes* C+D (CDT) and caseous lymphadenitis (CL) at least one month before performance test entry date.

For 1999, 47 meat bucks from ranches in Oklahoma and Texas were grouped in pens by weight. Following a 14-day adjustment and training period, all bucks commenced a 70-day performance test. On-test, mid-test and off-test weights were the average of two weights taken on the same day. From these weights average daily gain (ADG) was calculated.

Feed efficiency (FE; lbs. of feed per one lb. of gain) was calculated using Calan feeder gates to measure individual daily feed intakes. This is the first time that efficiency was included in indexing in Oklahoma buck testing. The Calan gates feature an electronic recognition system which allows access to feed to only one particular goat per feeder. Thus, individual daily feed intake can be measured and used to calculate feed efficiency. A performance index was also calculated using the following formula:

Index Score (IS) = 30% FE +30% ADG + 20% depth of the longissimus muscle (loin) at the first lumbar site as measured by real time ultrasound + 20% circumference of the widest part of the hind left leg as measured with a tailor's tape adjusted for the goat's metabolic body weight:

$$\frac{\text{Circumference of hind left leg}}{\text{Body weight}^{0.75}}$$

This body weight adjustment gave lighter goats a fair comparison of muscling to heavier goats.

Statistics for the 47 test bucks are given in Table 1. ADG averaged .52 lb./day and FE averaged 7.37 lb. feed/lb. gain. As can be seen from the table, all traits had a wide range in values. For calculating the Index Score of each individual, the deviation from the average of the parameters was used. Thus, the average of the Index Score was forced to be 100. Following the performance test, an auction sale was held and 30 of the performance-tested bucks were sold.

Extension Personnel News

In the summer of 1999, Dr. Irene Brown-Crowder, Extension Goat Specialist, participated in the USDA/Cooperative States Research, Extension and Education Service Fellows Program in Washington, DC. Working with National Program Leaders, she assisted in the revision and editing of the Goat Industry Extension Handbook. Later in the summer, Dr. Brown-Crowder left Langston University to join the staff at Agway, Incorporated in Syracuse, NY.

Also in the summer of 1999, Dr. Steve Zeng, Food Technologist/Dairy Extension Specialist, left Langston University to join the Staff at Galaxy Foods in Orlando, FL.

For 1999, Dr. E. Nelson Escobar, Goat Extension Leader, was on a one-year leave at the USDA Small Farm Program in Washington, D.C. and has extended his stay until June 2000. The goal of the small farms program is to improve the income levels and economic viability of small farm enterprises in partnership with the land-grant university system, public and private sectors, by encouraging research, extension, and education programs that meet the needs of small farmers and ranchers.

Table 1. Test statistics of 1999 tested bucks.

Rank	breed	Index	Beginning weight (lbs.)	End weight (lbs.)	Gain (lbs.)	ADG (lbs./day)	Feed intake (lbs.)	FE	Loin Eye (in^2)	Rear Leg Circ. (cm)	Sale Price
1	BoerX	101.07	41	87	46	0.68	243.3	5.29	1.37	14.5	$150
2	Boer	101.06	35	77	42	0.67	205.3	4.89	1.19	13.5	$385
3	Boer	100.89	44	88	44	0.65	329.4	7.49	1.61	15.1	$350
4	Boer	100.72	60	96	36	0.55	229.0	6.36	1.67	16.0	$200
5	Boer	100.69	42	79	37	0.53	208.8	5.64	1.31	13.8	$175
6	Boer	100.61	55	95	40	0.66	273.7	6.84	1.55	15.5	Not sold
7	Boer	100.59	47	78	31	0.56	192.8	6.22	1.37	14.0	Not sold
8	Boer	100.56	42	75	33	0.51	202.9	6.15	1.19	13.5	$130
9	Boer	100.52	57	92	35	0.56	210.3	6.01	1.85	15.5	$175
10	BoerX	100.47	48	86	38	0.59	230.9	6.08	1.37	14.4	$100
11	Boer	100.43	62	104	42	0.62	261.3	6.22	1.49	15.2	Not sold
12	Boer	100.39	48	80	32	0.47	200.0	6.25	1.31	14.3	$160
13	Boer	100.38	83	119	36	0.56	306.4	8.51	2.15	19.0	$325
14	Boer	100.27	56	91	35	0.58	260.0	7.43	1.49	14.5	Not sold
15	Boer	100.25	85	109	24	0.38	149.6	6.23	1.85	17.5	Not sold
16	Boer	100.18	60	96	36	0.55	255.3	7.09	1.49	15.8	$250
17	Boer	100.16	79	120	41	0.65	312.6	7.62	1.67	17.0	Not sold
18	Boer	100.13	61	98	37	0.55	272.6	7.37	1.55	15.0	Not sold
19	BoerX	100.09	57	94	37	0.56	219.3	5.93	1.31	13.2	$85
20	Boer	100.08	81	101	20	0.28	104.6	5.23	1.55	16.0	Not sold
21	Boer	100.08	69	108	39	0.63	290.1	7.44	1.49	15.9	$275
22	Boer	99.96	67	99	32	0.51	278.3	8.70	1.67	16.5	$250
23	Boer	99.95	62	98	36	0.55	237.7	6.60	1.31	14.3	Not sold
24	Boer	99.94	77	104	27	0.45	242.0	8.96	1.79	17.8	$250
25	Boer	99.89	77	116	39	0.67	284.9	7.31	1.49	14.8	$225
26	Boer	99.88	72	114	42	0.68	320.6	7.63	1.49	14.8	$300
27	Boer	99.86	87	125	38	0.54	273.3	7.19	1.67	16.3	Not sold

Rank	breed	Index	Beginning weight (lbs.)	End weight (lbs.)	Gain (lbs.)	ADG (lbs./day)	Feed intake (lbs.)	FE	Loin Eye (in^2)	Rear Leg Circ. (cm)	Sale Price
28	Boer	99.84	89	114	25	0.46	160.0	6.40	1.67	15.7	Not sold
29	Boer	99.80	40	76	36	0.56	350.8	9.75	1.13	14.0	$200
30	Boer	99.78	75	99	24	0.30	143.7	5.99	1.49	15.5	$185
31	BoerX	99.78	83	125	42	0.66	288.2	6.86	1.43	15.3	Not sold
32	Boer	99.75	43	58	15	0.25	133.7	8.91	1.19	12.8	$175
33	Boer	99.75	77	112	35	0.57	275.1	7.86	1.55	15.6	$225
34	Boer	99.73	78	114	36	0.55	324.2	9.01	1.67	17.5	$260
35	Boer	99.73	66	94	28	0.50	238.0	8.50	1.61	15.2	Not sold
36	Boer	99.66	72	111	39	0.63	298.7	7.66	1.31	14.5	$175
37	Boer	99.65	83	118	35	0.47	263.0	7.52	1.61	16.5	$200
38	Boer	99.63	49	78	29	0.40	263.6	9.09	1.31	14.0	Not sold
39	BoerX	99.56	53	62	9	0.14	76.1	8.45	1.43	13.0	$60
40	Boer	99.49	84	115	31	0.39	249.8	8.06	1.67	16.5	Not sold
41	Boer	99.44	86	119	33	0.55	298.7	9.05	1.73	16.3	$250
42	BoerX	99.44	72	96	24	0.37	217.8	9.08	1.55	16.0	$70
43	Boer	99.33	73	104	31	0.52	278.4	8.98	1.43	15.3	$300
44	Boer	99.30	69	100	31	0.48	237.5	7.66	1.25	13.5	$250
45	Boer	99.29	62	92	30	0.45	222.7	7.42	1.07	13.5	Not sold
46	Boer	99.03	73	108	35	0.57	309.0	8.83	1.25	13.5	$285
47	Boer	98.94	64	94	30	0.48	261.2	8.71	1.13	13.5	Not sold
AVERAGE		100	65	98	33	0.52	244.4	7.37	1.48	15.14	$214

The proper citation for this article is:

Gipson, T. 2000. Extension Overview. Pages 37-44 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

RESEARCH OVERVIEW

A general overview of recent research activities can be derived by viewing of the following sections on USDA/CSREES PROJECTS, INTERNATIONAL PROJECTS, ABSTRACTS, ARTICLE SUMMARIES, and EXPERIMENTS. Regarding the first section, current CSREES projects are nearing end dates, and a draft of one new project description has recently been constructed.

Most international projects outlined are composed of intertwined, interrelated, and complementary research, extension, and education activities. In addition to the ongoing projects with two Ethiopian institutions, a large multinational project in the Middle East will soon commence. In this 5-year project, the Institute will provide technical expertise and overall project management and coordination. A number of proposals for research or research and extension projects have been developed and submitted to agencies such as the USDA for funding consideration. Titles of some of the recent proposals developed are "Meat Goat Sire Central Performance Testing - Current Efficacy and Future Enhancement," "Energy for the Productive Caprine," Diet Selection and Performance by Sheep and Goats Grazing Mixed Pastures," "Relationships Between Skin Follicle and Fleece Traits in Angora Goats," and "Effect of ß-hydroxy-ß-methylbutyrate on Productivity of Goats." Hopefully one or more of these proposals will be successful so that new projects can be implemented in the next year. Obtaining outside funds for research and extension projects allows both a more indepth and broader scoped program than would be possible otherwise.

The article summaries presented include both papers now in print and ones accepted for publication but not yet published. Abstracts pertain to research presentations given at a number of meetings have been attended this year (e.g., Southern section and national American Society of Animal Science meetings, Research Day for Regional Universities, IX International Symposium on Ruminant Physiology, USDA Project Directors Conference, Association of Research Directors Conference). Likewise, in May of 2000 there will be presentations on other research findings given at the International Conference on Goats in France.

As is noted on the title page for the section on experiments, the studies listed are in progress or planned for the upcoming year. Although, there may also be other trials conducted that have not yet been thought of or outlined. Besides these experiments, there are some from last year with samples currently undergoing laboratory analyses and others for which articles are undergoing review for publication in various scientific journals.

Standard Abbreviations Used

BW = body weight
cm = centimeters
CP = crude protein
d = day
dL = decaliter
DM = dry matter
DMI = dry matter intake
g = gram
kg = kilogram
L = liter
M = mole
mL = milliliter
mm = millimeters
mo = month
ng = nanogram
NDF = neutral detergent fiber
OM = organic matter
P = probability
SE = standard error
TDN = total digestible nutrients
wt = weight
vol = volume
vs = versus
μ = micro

The proper citation for this article is:

Goetsch, A. 2000. Research Overview. Pages 45-46 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

USDA/CSREES PROJECTS

Title: ***Betaine and Choline Supplementation to Enhance Mohair Production***

Objectives:

- Measure responses to an increased dietary supply of betaine and choline in Angora goats on fiber growth rate, composition, and quality
- Measure responses to an increased supply of betaine and choline in dairy goats on milk production and composition

Title: ***Seasonal Manipulations to Improve Cashmere and Meat Returns in Goats***

Objectives:

- Quantify the natural seasonal cycle of cashmere growth. This is essential to permit the extension of existing technology from other countries to the U.S. Practical recommendations on harvest dates for cashmere will be provided and the window of opportunity for chemical defleecing treatments will be defined.

- To quantify the response in fiber growth and breeding cycles of two methods of melatonin treatment applied in April in the U.S. This represents an attempt to improve both meat and cashmere returns from U.S. goats following a single spring melatonin treatment.

- To determine whether shedding, following the cessation of a spring melatonin treatment, can be prevented by the suppression of plasma prolactin concentration. This objective seeks to greatly enhance the magnitude of cashmere response to melatonin treatment, without compromising meat production.

- To determine the effect of chemical defleecing agents on fiber growth and quality in cashmere goats. This technology seeks to harvest cashmere with minimal guard hair contamination while retaining the guard hair fleece on the goat for protection from cold.

Title: ***Environmental and Physiological Control of the Growth and Properties of Mohair***

Objective:

- Investigate effects of and interactions between environmental and physiological controls of mohair growth and quality

Title: ***Exogenous Hormone and Nutritional Manipulation to Increase Fiber Production***

Objectives:

- Investigate the interactions among growth hormone, insulin-like growth factor I, insulin, and thyroid hormones for mohair growth and skin metabolism
- Define the role of growth hormone in skin metabolism and mohair growth and determine whether growth hormone has the potential to improve mohair production and quality

Title: ***The Evaluation of Various Feedstuffs for Milk Production by Lactating Dairy Goats***

Objectives:

- Study interactions between levels of ruminally undegraded protein and digestible energy in lactating dairy goat diets
- Determine influences of differences in dietary ingredient composition to vary the time of maternal tissue replenishment on milk production by dairy goats

Title: ***Enhancing Browse Utilization by Goats***

Objectives:

- Investigate the chemical composition and potential nutritive value of browse with emphasis on the tannin content, type, and limitation to digestion
- Explore relationships among supplemental polyethylene glycol, tannin content in forage, and forage utilization by ruminants in order to increase intake of tannin-containing forages
- Determine if once-daily supplementation with polyethylene glycol will enhance goat control of noxious brush and weeds

Title: ***Postruminal Nitrogen Supply for Fast Growing Meat Goats***

Objectives:

- Determine the level of dietary crude protein required for goat kids of different growth potential
- Determine the influence of both level and source of supplemental protein on ruminal fermentation, postruminal nitrogen supply, and performance of rapidly growing goat kids
- Determine the influence of dietary level of ruminally undegraded protein on ruminal fermentation and postruminal nitrogen supply as well as performance of kids with different growth potential
- Determine the complementary nature of different sources of ruminally undegraded protein on postruminal amino acid supply as well as performance of kids with different growth potential

Title: ***Nutrient Requirements of Goats: An Update and Reevaluation***

Objective:

- Compile and review literature experiments conducted since publication of NRC (1981) concerning nutritional requirements of goats in order to update and reevaluate exisiting requirement recommendations and(or) develop more appropriate and accurate alternate systems

Title: ***Metabolic Changes Affecting Utilization of Poor Quality Diets by Goats***

Objective:

- Determine influences of supplementation of poor-quality forage diets with rumen-protected betaine on energy and nitrogen metabolism in goats

Title: A Calorimetry System for Study of Small Ruminant Pastoral Energetics

Objectives:

- Install a four-animal calorimetry system, indirect, open-circuit calorimetry system
- Use a calorimetry system in conjunction with other techniques to determine energy expenditure by goats with different grazing/browsing conditions

Title: ***Sustainable Dairy Goat Milk Production from Forages***

Objectives:

- Study milk production, composition, animal health, and inputs for a grass-based dairy system as compared with a conventional confinement dairy.
- Determine the response in milk production of grass-based dairy goats to different levels of concentrate supplementation.
- Model the effect of pasture intake and concentrate supplementation on milk production and changes in body weight.

Title: ***Quality Characteristics and Yield Predictive Models of Goat Cheeses***

Objectives:

- Determine the effects of milk composition and somatic cell counts on the quality and yield of goat cheese and develop yield predictive models for goat cheeses (French soft, Colby, and Mozzarella).
- Characterize Colby or Mozzarella cheeses in terms of composition, microstructure, rheological properties, protein profiles, and sensory characteristics as affected by seasonal variations of milk composition and property changes during cheese storage.

Title: ***HACCP Training for Very Small Establishments in Oklahoma***

Objectives:

- Conduct HACCP training targeted at very small establishments in the state of Oklahoma.
    - Encourage practices that will educate processors how to determine the suitability of animals for slaughter to reduce potential hazards.
    - Develop working HACCP plans for very small processors that are willing to demonstrate to other processors how HACCP systems can work.
    - HACCP consultants will provide technical guidance and materials about HACCP concepts and regulatory requirements through informal meetings.
    - Provide one-on-one consultation with participants to develop HACCP plans in the most efficient and cost-effective ways.

The proper citation for this article is:

Goetsch, A. 2000. USDA/CSREES Research Projects. Pages 47-52 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.

INTERNATIONAL PROJECTS

An Institutional Partnership to Enhance Food Security and Income Generating Potential of Families in Southern Ethiopia Through Improved Goat Production and Extension

Supporting Agency ALO-USAID, Partnering with Higher Education for International Development

Collaboraor Awassa College of Agriculture (ACA) in southern Ethiopia

Objectives

- Establish ties between Langston University U and ACA
- Increase the research and extension capabilities of ACA staff
- Establish women's groups for goat production
- Enhance the internationalization, culture diversity, and gender relevance at ACA and Langston University

Enhancing Institutional Research and Extension Capabilities for Increased Food Security Through Improved Goat Production

Supporting Agency USAID-UNCF International Development Partnership Activity

Collaborator Alemaya University of Agriculture (AUA) in eastern Ethiopia

Objectives

- Improve the research, teaching, and extension capabilities of AUA staff, allowing it to better serve the developmental needs of the surrounding region
- Establish a development project to enhance household food production, income and health status through targeting increased goat productivity and women in development by providing goats and appropriate technology to women's groups for goat production
- Increase Langston University's international involvement and development impact
- Internationalization of Langston University staff to increase awareness of foreign countries, cultures, gender relevance, and development issues

Anthelmintic Plants for Internal Parasite Control in Goats

Supporting Agency USDA Scientific Cooperation Program

Collaborator Awassa College of Agriculture in southern Ethiopia

Objectives

- Evaluate efficacy of anthelmintic plants and plant extracts to control internal parasites in goats
- Determine effects of these medicinal plants on feed intake and carbohydrate and nitrogen metabolism

Multinational Approaches to Enhance Goat Production in the Middle East

Status Conditional approval

Collaborators

Egypt	Desert Research Center Animal Production Research Institute Ain Shams University
Israel	Volcani Center
Palestinian National Authority	Agriculture Extension Department
Jordan	Jordan University of Science and Technology

Objectives

Overall: Revitalize and develop the Middle East goat industry via cooperative research and technology transfer to increase income and improve the standard of living of the indigenous people

Specific:

1) Characterize goat production systems of the Middle east region and distribute improved goat genotypes

2) Increase knowledge of goat milk properties and develop new technologies for production of goat milk products in the Middle East

3) Transfer appropriate available and developed technologies for goats to Middle Eastern farms/households, in particular proper milk hygiene and processing

The proper citation for this article is:

Merkel, R. 2000. International Projects. Pages 53-54 in Proc. 15th Ann. Goat Field Day, Langston University, Langston, OK.