



# Wild & Woolly

Maryland's Sheep & Goat Producer Newsletter

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## Maryland 4-H/FFA Meat Goat Show



(From left to right: Casey Bounds, Macenzie Ridgley, Claire Bennett and Frank Craddock)

Fifty-one market goats competed in the 2008 4-H/FFA Meat Goat Show at the Maryland State Fair. The Grand Champion Market Goat was an 87-lb. wether exhibited by Cooper Bounds from Carroll County. The Reserve Champion Market

Goat was a 90 lb. wether exhibited by Claire Bennett from Carroll County. Claire's Reserve Champion Market Goat was also selected as the Best Bred and Owned Market Goat.

The market goats ranged in weight from 44 to 125 lbs. and averaged 75.8 lbs. The goat with the highest average daily gain (ADG) was a 97-lb. wether exhibited by Konnar Miller from Washington County.

Average daily gain for the 51 goats ranged from 0.03 to 0.58 lbs. per day and averaged 0.342 lbs. per day. Ryan Hevner from Carroll County had the goat with the second highest rate of gain. Ryan's 94-lb. goat gained 0.57 lbs. per day. Three additional 4-H exhibitors had market goats that

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## Performance-Tested Buck and Invitational Doe Sale and Field Day

The 1st Western Maryland Performance-Tested Buck and Invitational Doe Sale and Field Day will be held on Saturday, October 4, 2008, at the Washington County Agricultural Education Center near Boonsboro, Maryland.

The 20 top-performing bucks from the Western Maryland Pasture-Based Meat Goat Performance Test will be auctioned off, along with doelings that are half-sibs to the bucks on test. Sale animals will include full-blood and percentage Kikos and Kiko x Boer crossbreds.

The 20 top-performing bucks will be chosen on the basis on growth performance, parasite resistance and resilience, carcass merit, and minimum standards for structural correctness and reproductive soundness. While on test, the goats consume a pasture-only diet, with no supplemental feed.

The Field Day will start at 10 a.m. It will feature Dr. Dan Waldron, Professor of Animal Science from Texas A&M University. Dr. Waldron is an expert on the performance testing of small ruminants.

Lunch (chevonburgers) will be available for purchase. The sale will begin at 2 p.m.

Superior Semen Works will be on hand on Friday and Saturday, October 3 and 4 to collect semen from the bucks on test or bucks brought to the facility. For more information, contact Jeanne Dietz-Band at (301) 432-7296 or [jdietzba@umd.edu](mailto:jdietzba@umd.edu).



## 4-H/FFA Meat Goat Show at Maryland State Fair

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gained more than a half pound (227 g) per day: Cooper Bounds (0.52 and 0.53), Nikita Miller (0.53), and Austin Stoner (0.52).

Blue awards are given to market goats that gain more than 0.3 lbs. per day. Red awards are given to goats that gain between 0.2 and 0.3 lbs. per day. White awards are given to goats that gain less than 0.2 lbs. per day.

### County Groups

A county group consists of four market goats exhibited by at least three 4-H/FFA members from the same county. Carroll County had the top county group of market goats. Frederick County was second and Cecil County was third. Ten market goats, including the Grand and Reserve Champion, were auctioned off during the 4-H/FFA Livestock Sale.

### Fitting and Showing

The Junior Champion Meat Goat Showman was Dean Bennett from Carroll County. The Intermediate Champion was Ryan Hevner. Margaret Buckmeier from Frederick County was the Champion Senior. Margaret also won the Dean's Showmanship Challenge Trophy in a competition where winners from previous years compete with the current year's winner.

### Breeding Show

The breeding goat classes are split into two divisions: Commercial (non-registered) and Registered (percentage, purebred, and fullblood). Claire Bennett exhibited the Champion Commercial Meat Goat Doe. Cooper Bounds exhibited the Reserve Champion Commercial Doe.



(From left to right, Frank Craddock, Dean Bennette, Ryan Hevner and Margaret Buckmeier)

Margaret Buckmeier had the Champion Registered Doe. Grace Garst from Frederick County had the Reserve Champion Registered Doe. Margaret's Champion Registered Doe was named Best Doe in Show.

Margaret also had the Champion Buck in the show. Cooper Bounds had the Reserve Champion Buck. The Best Bred and Owned Meat Goat was a registered yearling doe exhibited by Grace Garst.

For the second year in a row, Dr. Frank Craddock from Texas A&M University served as the judge for the 4-H/FFA Meat Goat Show at the Maryland State Fair.

## Update on 4-H Tail Docking Policy

The 2008 Maryland 4-H Tail Docking Policy, which sought voluntary compliance (i.e. tails were not officially measured), was largely a failure. Based on observations of lambs at various fairs, the majority of 4-H market lamb and breeding sheep exhibitors failed to comply with the policy. In other words, tail docks of many 4-H lambs were shorter than the 0.7 inch requirement.



Despite shorter tail docks, only a few lambs were disqualified from showing due to having rectal prolapses. The purpose of the 4-H tail docking policy is to minimize the occurrence of rectal prolapses in lambs. According to research published in the *Journal of Animal Science*, a short tail dock results in a 9-fold increase in the incidence of rectal prolapses, if lambs are fed concentrate diets, as is common with 4-H market lambs. Other factors which contribute to the incidence of rectal prolapses include sex, diet, genetics, exercise, coughing, and straining.

Exhibitors and breeders who complied with 2008 Maryland 4-H Tail Docking Policy are to be commended for maintaining high ethical standards. There is no reason to dock lambs shorter than what the policy requires. In fact, lambs, especially ewe lambs that will be sold or kept for breeding, should be docked longer than the policy requires.

The 4-H tail docking policy will be re-evaluated at the end of 2008 by the Maryland Cooperative Extension 4-H Animal Science Curriculum Committee.

## Soremouth (orf) In Sheep and Goats

Soremouth is the most common skin disease affecting sheep and goats. It is a highly contagious disease caused by a virus in the "pox" family. Soremouth goes by many names including contagious ecthyma, (contagious) pustular dermatitis, and orf. In Australia, it is commonly called "scabby mouth."

The distribution of soremouth is worldwide. The disease is widespread in the U.S. sheep and goat population. In a 2001 National Animal Health survey, 40 percent of U.S. sheep operations reported having soremouth in their flocks during the previous three years.

Soremouth affects all breeds of sheep and goats. The disease tends to be more severe in goats than sheep. Anecdotal evidence suggests that some breeds may be more susceptible than others (e.g. Boer).

Soremouth is a zoonotic disease meaning animals can transmit it to humans. As many physicians may be unfamiliar with the disease, be sure to tell your doctor if you've been exposed to infected or recently vaccinated sheep or goats.

### Transmission

In flocks that have never had soremouth, nearly all animals exposed will develop the disease. The virus is transmitted to susceptible animals via direct contact. The virus penetrates through small abrasions in the skin. Even very minor damage to the skin may allow the virus to enter. Abrasions caused by forage are usually adequate for infection to occur. Carrier or chronically-infected animals may also serve as reservoirs for infection.

Soremouth can be spread via infected equipment, fences, feed, and bedding. Serious outbreaks can occur in artificially-reared lambs and kids, as they share the same nipples. Showing and exhibition increases the risk of acquiring soremouth, as livestock frequently have nose-to-nose contact and judges may spread the virus as they examine the teeth and mouths of animals in a class. Vaccinating a virus-free herd will introduce the disease to the herd and premises.

Because they have not likely been exposed to the virus and their immune systems are still developing, young animals are the most susceptible to soremouth. Older naive animals can also be affected. Animals that have recovered from natural infection have some resistant to re-infection. However, there are different strains of sore-

mouth, and it is possible for previously- infected animals to become infected with soremouth more than once in their lifetimes. Infections usually occur several years apart and repeat infections tend to be less severe.

### Clinical signs

Once in the skin, the virus begins to multiply. About two to three days after exposure to the virus, vesicles, pustules, and finally scabs appear. Soremouth lesions occur primarily on the lips and nostrils of affected animals, but may also develop on other parts of the body: e.g. ears,



eyes, feet, limbs, udder, and genital areas. Soremouth affects mostly non-woolly areas. While it can grow in the upper digestive tract of the animal, it cannot spread through the body.

During the course of the disease (1 to 4 weeks) the scabs drop off and the tissues heal without scarring. Sometimes, the scabs harbor secondary bacteria (such as *staphylococci*) or invite blowfly infestation (screwworms, maggots).

Nursing lambs and kids can spread the disease to the teats or udders of their dams (or other females that they nurse). Teat lesions which develop secondary bacteria can lead to serious mastitis, potentially resulting in loss of the affected udder half and premature culling of the infected female.

### Diagnosis

Diagnosis is usually based on clinical signs, along with the contagious nature of the disease. Diagnosis can be confirmed in the laboratory by identifying the antigen in tissue or blood samples.

There are several other diseases (some serious and reportable) whose symptoms may resemble soremouth: foot-

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## Recap of 2008 Wool Pool

The 2008 Maryland Wool Pool was held on Thursday, June 18. Sixty-eight (68) consigners brought 27,704 lbs. of wool to the Maryland State Fairgrounds, the lowest amount ever. Last year's pool handled 35,000 lbs from 71 consigners.

The breakdown of the wool clip was 911 lbs. of choice white-face wool, 12,893 lbs. of medium white-face wool, 814 lbs. of coarse white-face wool, 5,490 lbs. of non-white face wool, and 7,596 lbs. of short wool. 9,920 lbs. of wool came to the pool already baled. This wool received a 5 cent bonus.



Many reasons can be cited for the decline in the Maryland Wool Pool:

- Low wool prices, though this year's prices were higher than last year's.
- A wet spring. Many sheep were not sheared prior to the pool.
- High fuel costs. Transportation costs are high, especially for small growers.
- An increase in direct marketing of wool and wool products
- More hair sheep being raised. Hair sheep do not produce wool or require shearing.

The Maryland Wool Pool is held every June. For information about the pool, contact manager Rich Barczewski at [rbarczewski@desu.edu](mailto:rbarczewski@desu.edu).

## Moxidectin (Cydectin®) Treatment In Goats

It is recommended that the cattle injectable formulation of moxidectin (recently approved by FDA) be used in goats because moxidectin has a superior pharmacokinetic profile in goats when administered by subcutaneous injection as compared to when administered orally.

This means that a much greater proportion of the drug administered remains in the body at high therapeutic levels, but is no more persistent over time. Therefore, worm resistance to moxidectin will develop more slowly if given by injection to goats. Because the drug reaches high therapeutic levels when injected, there is no need to double the dose.

So when administering moxidectin by subcutaneous injection, use the cattle dose which is on the label (0.09 mg/lb; 0.2 mg/kg; 21 day meat withdrawal ) This is the one exception with goats where a dewormer should be administered orally and where the regular label dose (not 2 times the dose) should be used.

However, it is still OK to administer moxidectin orally to goats (just not preferred). But if an individual has a personal preference to administer moxidectin orally to goats, then the sheep oral drench at a 2X dose (0.18 mg/lb; 0.4 mg/kg) should be given.

The oral sheep drench should be given to sheep.

Source: Southern Consortium for Small Ruminant Parasite Control (SCSRPC) - [wormx.org](http://wormx.org)



**DID YOU KNOW ... Chevon is the French word for goat meat.**

## Katahdin Hair Sheep International Expo & Sale

Katahdin Hair Sheep International (KHSI) will hold its annual Expo & Sale on Saturday and Sunday, September 26-27 at the Washington County Agricultural Education Center near Boonsboro, Maryland.

Each year, the KHSI Expo is held in a different part of the country.

The educational program will be held on Friday, September 26. The program will feature presentations on marketing, pasture production of lambs, and genetic improvement of Katahdins. An elite sale of breeding stock will be held on Saturday, September 27. The sale will get underway at 12 noon.

For more information about the Expo or Sale, visit the KHSI web site at <http://www.khsi.org/> (click on the Events page) or contact the KHSI operations office at [khsint@earthlink.com](mailto:khsint@earthlink.com) or (479) 444-8441. A schedule of events and registration packet can be downloaded from the web site.



## Regional NSIP Workshop

There will be a Regional NSIP Workshop on Thursday, September 25 from 10 a.m. to 4 p.m. at the University of Maryland's Western Maryland Research & Education Center in Keedysville, MD.

NSIP is the National Sheep Improvement Program. It calculates EPD's (expected progeny differences) for different breeds of sheep and goats. The workshop is for sheep and goat breeders of all skill levels.

Workshop speakers will include Dr. David Notter, Virginia Tech and NSIP Genetic Evaluation Center; Dr. Charles Parker, Professor Emeritus Chair, Ohio State University & Director of the U.S. Sheep Experiment Station; Dr. Steve Kappes, Deputy Administrator of Animal Production and Protection, USDA-ARS; and Dr. James Morgan, National Sheep Improvement Program.

For a registration form, information, or hotel information, contact James Morgan at (479) 444-6075 or [jlmm@earthlink.net](mailto:jlmm@earthlink.net).

## Dr. Niki Whitley Accepts New Position In North Carolina



After eight and half years at UMES, I am heading south to Greensboro, NC. I recently accepted a position with North Carolina Agricultural and Technical University ([www.ncat.edu](http://www.ncat.edu)). Accepting this position will allow me to be a little closer to my home and farm in southern Georgia, saving me eight hours on a round trip visit.

In my new position, I will be doing Extension work, research and have the opportunity to do some teaching. My area of focus will be sustainable/pasture livestock production systems. Small ruminants will be included, but I will also be focusing on pasture pork production.

I am planning to continue my involvement with the Southern Consortium for Small Ruminant Parasite Control ([www.wormx.org](http://www.wormx.org)) and the SSC-81 Small Ruminant research group. I hope that everyone will still consider me a resource of information and collaborator with small ruminant research. You can still reach me at my cell phone number or you can reach me at NCA&T Cooperative Extension, 336-334-7956..

*Good Luck Niki. We will miss you!*

## A New Abattoir For Harvesting Sheep And Goats

LambCo LLC is the name of a new abattoir in New Windsor, Maryland. The facility opened in July and is being used to harvest sheep, lambs, and goats.

LambCo is also a live market, which means customers may choose their own sheep or goat(s) for harvest. After an animal is chosen, the customer may perform the slaughter himself or have the animal custom processed in the facility. Currently, carcasses can be cut into as many as nine pieces at the time of harvest.



LambCo is catering to the region's growing Muslim community, as well as other ethnic groups which have a preference for sheep and/or goat meat in their diets. People from various ethnic groups often prefer to do their own slaughter so they may follow their religious beliefs and customs.

LambCo is a modern, state-of-the-art facility for the housing and humane harvesting of sheep and goats. It is a USDA-inspected facility that meets the requirements for custom slaughter. The facility expects to have USDA meat certification by the end of the year. They are already Halal certified.

While USDA provides an exemption for on-farm slaughter, there are growing concerns about the environmental impacts of on-farm slaughter, especially if it is carried out on a "large" scale without proper disposal of waste water and offal.

At LambCo, waste water and slaughter wastes are being handled in an environmentally-safe manner. A lagoon is being used for the waste water and the slaughter wastes are composted.

For more information about LambCo LLC, contact its owner/operator Joe Kavanagh at (410) 775-0546 or lambcomd@yahoo.com. Visit LambCo's web site at www.lambcomd.com.

LambCo received an "Enterprise Carroll" agricultural development grant towards construction of the facility.

### Commentary by the editor

LambCo LLC has the potential to benefit everyone connected to the small ruminant industry in Maryland and surrounding states. For sheep and goat producers, it provides an additional market outlet for market sheep and goats.

When you sell livestock to a live market and/or slaughterhouse, you are eliminating one or more middlemen, which gives you the potential to earn more of the consumer's dollar. You are able to negotiate a price(s) ahead of time, as well as reduce your selling fees. You may be able to get feedback related to the quality and suitability of your sheep and goats for the market.

LambCo and similar facilities offer sheep and goat producers the means to sell to the ethnic market(s) without having to allow slaughter on their own farms or deal with the disposal of waste products.

Ethnic customers will be able to harvest sheep and goats in a sanitary, USDA-inspected facility. Their religious practices will be respected. As with similar facilities, sheep and goats will be available on a year-round basis and special efforts will be made to acquire a large supply of sheep and goats prior to the major Muslim and Judio-Christian holidays.

Although we don't always give much consideration to the welfare of livestock when we place them into marketing channels, sheep and goats that are slaughtered at LambCo and similar facilities tend to experience less stress. They are transported directly to the point of slaughter and do not have to experience the rigors of multiple sales transactions or transports. They are closer to being "farm fresh."

At LambCo, the facility where the animals are housed is clean and airy and allows for easy movement of sheep and goats to the kill floor.



There is a separate (off-site) area for sick animals.

**An abattoir is a slaughterhouse. The word comes from the French verb abattre, which means "to strike down."**

**Disease In-Depth: Soremouth** (Continued from page 3)

and-mouth disease (FMD), sheep and goat pox, and bluetongue. Veterinary assistance should be sought when a differential diagnosis is needed and a more serious disease is suspected.

**Treatment**

Treatment of soremouth is usually unrewarding. Because it is a virus, soremouth does not respond to antibiotics. Nor is it usually necessary to treat the lesions unless secondary bacterial infection or maggot infestation occurs. Treatment does not speed the course of lesion regression, which is usually about one month. Affected animals may recover only slightly quicker if the lesions are treated.

Treatment of individual animals usually consists of applying salves or antibiotic creams to the lesions. Systemic antibiotics can be used if secondary bacterial infections are severe. It is recommended that the crusts not be removed, as this may delay healing, promote scarring, and increase the handler's chance of acquiring the disease.

Ewes and does whose udders become infected should receive special care. An udder salve will help to keep the scabs on the teats pliable. In worst cases, the lambs and kids should be removed for artificially feeding. They should not be cross-fostered onto other females as they may infect the udders of clean females. Intramammary antibiotics can be used to prevent mastitis.

Soremouth is rarely fatal, though it can cause significant economic loss. Soremouth lesions are painful to the affected animals, especially young stock.

While most adult animals with lesions on their lips continue to eat and produce milk, it may be too painful for young lambs and kids to suckle or eat dry feed. Left unattended, these lambs and kids will become undernourished and more susceptible to secondary diseases. It may be necessary to artificially feed such lambs and kids.

**Prevention**

Soremouth is best prevented by maintaining a closed and virus-free herd. New animals should be quarantined until soremouth can be ruled out. Unfortunately, some

animals can serve as carriers and slip into a flock without detection. Never knowingly purchase affected (or apparently unaffected) animals from a known infected flock.



After a herd is infected, it is difficult to eliminate the disease

because the virus can remain stable in the crusts.

Scabs that fall from the animals have long been incriminated as the source infection to other animals months or even years later.

The soremouth virus can survive for months, possibly years, away from the sheep. Scabs on pasture are not likely to survive the winter, but may survive in barns, pens, and on troughs, feeders, gates, and walls. The virus contained in dried scabs can be infectious for years if maintained in a cool, dry environment.

The vaccine may be used in outbreaks. Affected animals can be isolated, while unaffected animals can be vaccinated to reduce the severity of new cases and shorten the course of infection. If the disease is already well-established, this strategy may not be successful.

**Vaccination**

Commercial vaccines labeled for sheep and goats are available and may be advised on farms where soremouth is endemic. According to a 2001 National Animal Health survey, 5 percent of U.S. sheep producers vaccinate their replacement ewes for soremouth and 14 percent vaccinate nursing lambs.

The vaccine is made from live virus isolated from ground-up scabs of "modified" soremouth infections. The virus is treated in a way so that it will not cause serious disease, but will produce a mild form of soremouth. Unfortunately, the vaccine does not produce a strong or long-lasting immunity. Vaccination may not always prevent animals from becoming infected, but it may reduce the severity or duration of the disease.

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**Disease In-Depth: Soremouth** (Continued from page 7)

The live virus is infectious to humans. Protective gloves should be worn when handling the vaccine or recently-vaccinated animals. The vaccine should not be used on farms where soremouth has never been known to occur, as it will introduce the disease to the premises and necessitate annual re-vaccination. Recently-vaccinated animals should not be co-mingled with other sheep and goats, as this will spread the virus.

Pregnant females can be vaccinated two months prior to lambing or kidding to prevent natural soremouth from occurring during the nursing period. Vaccinated ewes and does should be moved to a fresh area for lambing and kidding.

The occurrence of colostral immunity in vaccinated animals is disputed. If the vaccine does impart immunity, it is most likely very short-lived. Work with sheep has suggested that vaccinating at the time of drying off may be preferable to vaccinating late in pregnancy. Newborn lambs and kids can be vaccinated if the risk of disease is high.

In herds where buying or showing of animals occurs regularly, vaccination helps to prevent occurrence of a soremouth outbreak during the show season. Animals should be vaccinated at least six weeks (preferably two months) before the start of the show season, so that the vaccine scars will be gone before the first show. Flocks with soremouth are excluded from exhibition until the lesions have cleared up. Health papers will not be issued to farms with active soremouth infection.

Vaccination is usually done on the inside of the thigh of young animals and behind the elbow in adult animals. A woolless area is sought. In goats, the underside of the tail is frequently used. The area is scratched to make a raw (not bleeding) area. The vaccine is applied to the raw area. A raised reddened area should result in a few days.

When using the soremouth vaccine, the manufacturer's directions should be closely followed. Fresh vaccine, which has been stored properly, should be used. The vaccine has a short life, only 10 days.

**In people**

People can get infected with the soremouth virus when they come into contact with infected or recently-vaccinated animals. Handling the live vaccine can also result in infection. People handling infected animals or vaccinating sheep and goats should wear protective gloves at all times. Hands

should be washed immediately after handling affected animals.

As with animals, soremouth can cause painful lesions in people. The lesions are usually on the hands. Fortunately, people cannot transmit soremouth to other people. The sores may last for two months and usually heal without scarring. In rare cases, soremouth causes serious illness in people.



Image from Centers for Disease Control

Orf is self-limiting in hosts with normal immune systems. However, skin lesions can resemble more serious infections, such as cutaneous anthrax. A laboratory test for soremouth is available at the Centers for Disease Control

## Goat Artificial Insemination Clinic

Delaware State University will be hosting a Goat Artificial Insemination (AI) Clinic on Friday and Saturday, November 28-29, 2008. The clinic will be conducted by Bio-Genetics Lab.

The first day of the clinic will be held at Delaware State University Cooperative Extension Building (Ulysses Washington Building) located on the campus of Delaware State University. The second day of the clinic will be held at the Hickory Hill Farm in Dover, DE. On both days, light refreshments and lunch will be served.



Image from Bio-Genetics Labs

Space is limited. The first 11 people that register will be accepted for the clinic. The cost is \$50 per person. The registration deadline is September 30

For more information and/or to register, please contact Dr. Dahlia Jackson-O'Brien at (302) 857-6490 or [djackson@desu.edu](mailto:djackson@desu.edu) or Jodi Lynn Eierman at (302) 382-2804 or [jeierman05@students.desu.edu](mailto:jeierman05@students.desu.edu)

Visit: [www.biogenicltd.com/clinics.html](http://www.biogenicltd.com/clinics.html)

## DSU Update from: Dr. Dahlia Jackson

This summer has been very busy with the start of two sheep and goat research projects at Delaware State University. Much of this research would not have been completed without the addition of two graduate students, Jodi Lynn Eierman (DSU graduate) and Elizabeth Crook (Berry College, GA graduate) to the Small Ruminant Program in May, 2008 and also undergraduate student Kwame Matthews.

Our major project this summer is a USDA funded grant looking at anthelmintic (dewormer) resistance of internal parasites in small ruminants in the Mid-Atlantic U.S. The graduate student working on this project is Elizabeth Crook. As part of this study, DSU and collaborators at the University of Maryland Eastern Shore (Niki Whitley) were contacted by producers who were interested in finding out the status of resistance on their farms. We would then travel to that particular farm and take fecal samples (contain parasite eggs) to determine dewormer resistance.

Two tests were conducted on most farms to determine resistance. At DSU, we used the fecal egg count reduction test (FECRT) which simply determines the effectiveness of a dewormer by comparing fecal parasite egg counts of animals before and 7 – 14 days after dewormer treatment.

This test is suitable for field surveys, however very time-consuming. Therefore, we also submitted a pooled fecal sample from each farm to the University of Georgia to quantify resistance by a test called the Larval Development Assay (DrenchRite®, LDA). This test offers a diagnostic alternative to the laborious task of performing the FECRT mentioned above. Results from both tests will be compared to see how well the results correlate with each other.

This research will be conducted for the next two years; therefore sheep and goat producers interested in participating can contact me at anytime to be added to the list of participants. We are currently finishing up on-going farms and should have preliminary results out by the next newsletter issue. The results will be used to help producers implement a chemical deworming strategy that is most effective in their production system.



Left to right: Graduate students Jodi Lynn Eierman and Elizabeth Crook at a producer's farm in MD

The second study is a Northeast Sustainable Agriculture Research and Education (NESARE) grant that aims to determine the effectiveness of natural dewormers (including garlic, pumpkin seeds, papaya, and ginger) in controlling internal parasites in sheep and goats. Plant or plant products have been used to treat cases of parasitism in animals in many developing countries, however results reported have been in the form of observations rather than from controlled studies. Therefore, research being conducted this summer was designed to evaluate the usefulness of both garlic and pumpkin seeds in controlling internal parasites in sheep and goats.

A preliminary study conducted last year at DSU indicated that one dose of pumpkin seeds was effective in preventing an increase in fecal egg counts (FEC) in goats (goats not treated had FEC increase by 56% while goats treated had a 13% decrease in FEC). Therefore, this year's studies are designed to determine if multiple doses over a period of time will be effective in reducing parasite loads in sheep and goats. At the end of these experiments, animals will be slaughtered to assess the influence of these plant products on meat quality (mainly taste). Subsequently, technical bulletins/research briefs will be released this fall with results from all experiments. Ginger and papaya seeds will be tested as part of next years studies.



Left to right: Undergraduate student Kwame Matthews and graduate student Elizabeth Crook working on removing pump-

With the summer coming to an end, we are looking towards our reproductive studies starting in a few weeks with our breeding herd. The graduate student working on reproduction in meat goats is Jodi Lynn Eierman. The project will involve evaluating various synchronization protocols in conjunction with artificial insemination in the goat.

If you would like more information on these parasite and reproductive studies being conducted at DSU, please do not hesitate to contact me at (302) 857 – 6490 or [djackson@desu.edu](mailto:djackson@desu.edu). In addition, please contact me if you'd like to give your opinion about the type of research and programs that you would like to see conducted at Delaware State University.

## Tips For Controlling Internal Parasites (worms)

2008 has been a difficult year for internal parasites (stomach worms) in small ruminants. Many producers have experienced substantial losses.

Temperatures and rainfall have been favorable to the development of worm parasites, especially the barber pole worm (*Haemonchus Contortus*).

Unfortunately, internal parasitism is a complex problem in sheep and goats, and there is no simple way to control parasites. Each year, farm, and animal is different.

Here are some tips to consider when formulated a plan to control worms on your farm:

### Good management and common sense

- Sanitary conditions for livestock.
- Do not feed on the ground.
- Feed hay, grain, and minerals in feeders that cannot easily be contaminated with feces.
- Pick up, hang up, and put feeders away (after feeding) to keep them clean.
- Keep water receptacles clean.
- Change water frequently.
- Do not overstock pens and pastures.
- Do not rely on unproven natural products to control parasitism.
- Evaluate ewes and does prior to lambing and kidding to determine their need for deworming.
- Keep sheep and goats in dry lot to keep them from becoming infected with parasites or to prevent re-infection.

### Proper anthelmintic use (manage drug resistance)

- Use the FAMACHA© eye anemia system to determine which animals should be dewormed (and which should not) for barber pole worm infection.
- Deworm all sheep and goats with bottle jaw, regardless of their FAMACHA© scores.
- Administer all anthelmintics orally using a syringe with a long metal nozzle (Exception: use moxidectin injectable in goats).
- Do not inject or pour anthelmintics on a sheep or goat's back.

- Weigh animals to determine proper dosage of anthelmintics. Do not underdose.
- Give goats higher dosages of anthelmintics (typically 2x the sheep or cattle dose; exception: 1.5x dose of levamisole and cattle dose of Cydectin)
- Fast sheep and goats prior to administration of benzimidazole drugs and ivermectin.
- Do not move sheep and goats that have all been dewormed to a clean pasture.
- Don't overuse (or misuse) moxidectin or levamisole as these anthelmintics tend to be the most effective on most farms.
- Quarantine and deworm new sheep and goats with anthelmintics from two different chemical classes to prevent the introduction of anthelmintic-resistant worms
- Seek veterinary approval and advice for extra-label use of anthelmintics.
- Observe proper meat and milk withdrawals on drugs.

### Fecal testing

- Use the fecal egg count reduction test (FECRT) or larval development assay (LDA, DrenchRite®) to determine drug efficacy.
- Learn to do your own fecal egg counts. You can buy a green-lined McMaster slide from [www.vetslides.com](http://www.vetslides.com).
- Use fecal egg counts to monitor pasture contamination.
- Use fecal egg counts to determine genetic differences in your livestock.
- Do not use fecal testing (alone) to determine the need to deworm an animal.
- Use the fecal egg count reduction test to determine the efficacy of alternative treatments.

### Tips For Controlling Internal Parasites (Continued from page 10)



(Continued on page 11)

## Nutrition

- Maintain sheep and goats on a moderate to high plane of nutrition.
- Provide supplemental nutrition when pasture conditions are poor due to a seasonal pasture slump or drought conditions, especially to those animals with the highest nutritional needs: growing lambs and kids and lactating females.
- Consider providing supplemental protein to pasture-reared lambs and kids to reduce egg counts.
- Increased protein in the ration during late gestation to reduce the periparturient rise in worm eggs.
- Incorporate tannin-rich forages (e.g. sericea lespedeza) into the grazing program.
- Use body condition scoring (on a regular basis) to evaluate your nutritional program and determine the need for changes

## Genetics

- Favor resistant breeds of sheep and goats in your breeding program.
- Cull sheep and goats that require frequent deworming or have consistently high worm egg counts.
- Select rams and bucks with low fecal egg counts.

## Pasture and grazing management

- Implement rotational grazing practices to prevent sheep and goats from grazing severely infected pastures.
- Rest pastures to reduce parasite infection level and give plants time to regrow.
- Create clean pastures by removing a hay crop from the pasture field.
- Do not allow livestock to graze forage below 2 inches; ideally four inches.
- Graze taller forages.
- Allow livestock, especially goats, to browse.
- Co-graze sheep and/or goats with cattle and/or horses to reduce the parasite load on the pastures and ingestion of infective larvae.
- Reduce the ingestion of infective worm larvae by delaying grazing until after the dew is lifted.

Source: Conflicting Information About Parasite Control at [www.sheepandgoat.com/articles/conflictinginfowormcontrol.html](http://www.sheepandgoat.com/articles/conflictinginfowormcontrol.html)

## Increasing Colostrum Production

Twin or single-bearing ewes may produce insufficient colostrum for their lambs even when grazing lush green pastures. Consequently, a supplement of grain in late pregnancy provides the ewe with a more concentrated diet and can overcome the limitations imposed by rough-ages alone.



Scientists from Uruguay and Australia tested the hypothesis that short-term feeding of barley just before lambing would be as effective as corn in stimulating early production of colostrum. They believe that it is the starch supplied by both grains that is the key to stimulating the production of colostrum.

Fourteen days before the expected time of lambing, 35 Corriedale ewes bearing single fetuses and 25 ewes bearing twin fetuses [from a synchronized mating] were allocated to three treatments and fed (1) a basal diet of alfalfa hay to meet their nutrient requirements; (2) the basal diet plus a supplement of whole barley; and (3) the basal diet plus a supplement of cracked corn.

Following injections of oxytocin, milk samples were collected from one teat of each ewe at 0, 1, 3, 6, and 10 hours after lambing. The colostrum was weighed and classified. A 20 ml sample was analyzed for its components. Lambs were allowed to suckle from the other uncovered teat.

Supplementation of the ewes prior to lambing did not affect the birth weight of their lambs. Supplementing ewes before lambing either with whole barley or cracked corn increased the quantity of colostrum accumulated at birth and its subsequent secretion during the following hours.

Supplemented ewes produced between 1.9 to 2.8 times more colostrum at birth than unsupplemented ewes, despite the unsupplemented ewes being fed to meet their estimated metabolizable energy requirements. Supplemented ewes not only produced more colostrum than unsupplemented ewes, but the colostrum they produced was less viscous, thus easier for the lambs to ingest.

In the single-bearing ewes, barley was less effective than corn in increasing the amount of colostrum produced, but it was just as effective in twin-bearing ewes.

Source: Animal. 2007.

## Calendar of Events

**September 26-27**

**Targeted Grazing Workshop**

PA Livestock Evaluation Center. PA Furnace, PA  
Info: targetgraze@pmt.org or (208) 547-0777.

**September 26-27**

**Katahdin Hair Sheep International Expo & Sale**

Washington Co. Agricultural Education Center, Boonsboro, MD  
Info: Susan Schoenian at (301) 432-2767 x343 or sschoen@umd.edu or  
<http://www.khsi.org>

**October 3-4**

**Semen Collection by Superior Semen Works**

Washington Co. Agricultural Education Ctr., Boonsboro, MD  
Info: Jeanne Dietz-Band at jdietzba@umd.edu or (301) 432-7296

**October 4**

**Western Maryland Performance-Tested Buck and  
Invitational Doe Sale & Field Day**

Washington Co. Agricultural Education Ctr., Boonsboro, MD  
Info: Susan Schoenian at (301) 432-2767 x343 or sschoen@umd.edu

**November 28-29**

**Goat Artificial Insemination Clinic**

Delaware State University, Dover DE  
Info: Dr. Dahlia Jackson (302)-857-6490

**January 21-24**

**American Sheep Industry Association Annual Convention**

Marriott San Diego Mission Valley, San Diego, CA  
Info: info@sheepusa.org or (303) 771-3500



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Comments and suggestions regarding the newsletter are always welcome. References to commercial products or trade names are made with the understanding that no discrimination is intended and no endorsement by Maryland Cooperative Extension is implied.

More information on sheep, goats and upcoming events can be accessed at:

<http://mdsheepgoat.blogspot.com>

<http://www.sheepgoatmarketing.info>.

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