Pay Attention to Udder Health

Udder health is an extremely important aspect of sheep and goat production. “Spoiled” udders are a common cause of culling. Sub-clinical disease can be especially costly, due to the reduction in milk production and weaning weights that it causes, as well as the costs associated with premature culling.

By definition, mastitis is an inflammation of the mammary gland (udder). It is caused by the infection of the gland by a pathogen. The bacteria gain entry through the teat canal. Bacteria commonly cultured from cases of mastitis include Staphylococcus spp., Streptococcus spp., Pasteurella spp. and coliforms. The viruses which cause OPP and CAE may also cause “hard bag” in ewes and does.

There are several types of mastitis. Acute (or clinical) mastitis is easily recognized. One or both halves of the udder are swollen, warm to the touch, and painful. The milk may not look normal. The affected female may be sick. She could be depressed, off-feed, and have a fever. She may not let her babies nurse from the affected side(s). Females with gangrenous mastitis (“bluebag”) are at grave risk of dying.

Copper is an important topic for many reasons. It is being recommended for deworming again; copper (sulfate) has a historical use as an anthelmintic. Some people and publications are recommending that copper be added to the diets of sheep and goats. Copper is always a good topic for sheep producers, since sheep are the species most susceptible to copper toxicity.

Raising sheep and goats together is problematic from the standpoint of copper. This is because sheep and goats differ significantly in their copper requirements, as well as their tolerance for excess copper in their diet.

Copper nutrition is very complicated. Copper absorption is affected by other minerals in the diet, especially molybdenum and sulfur. Both molybdenum and sulfur form insoluble complexes with copper and affect its absorption.

Copper absorption is affected by other factors, including age, breed, genetics, and diet. Copper absorption...
The nomination period for the 2013 Western Maryland Pasture-Based Meat Goat Performance Test is April 1 thru May 15. The test is open to male goats of any breed or breed cross, with or without registration papers or registration eligibility.

Consigners may nominate up to five goats to the test. A minimum of two is recommended. If nominations exceed the carrying capacity of the pasture resource, preference will be given to previous consigners and Maryland residents. The nomination fee is $20 per goat. An additional $80 (per goat) will be due upon delivery to the test site on June 1.

Eligible goats must have been born between December 20, 2012, and March 20, 2013. They must weigh between 35 and 70 lbs. upon delivery to the test site on June 1. They must have been weaned for at least two weeks and have received two inoculations for overeating disease (type C & D) and tetanus. Their hooves must be in proper condition for inspection and foot soaking.

Each consignment of goats must be accompanied by appropriate health papers: intrastate health papers for in-state goats and interstate health papers for out-of-state consignments. Consigners must also fill out a self-certification form, attesting to the health of their animals.

All goats must have official USDA scrapie identification (ear tags).

Documents pertinent to the goat test may be downloaded from the blog at http://mdgoattest.blogspot.com. Nomination packets were mailed to previous consigners in mid-March. Additional nomination packets are available upon request. Contact Pam Thomas at (301) 432-2767 x343 or pthomas@umd.edu to request a nomination packet.

Goats meeting Gold, Silver, and Bronze standards of performance will be eligible to sell for breeding. The top-performing bucks will be sold at the Mid-Atlantic Small Ruminant Extravaganza on Saturday, September 21 in Chatham, Virginia.

Goats not sold for breeding or to a commercial buyer must be picked up from the test site on September 14.

On August 1, there will be a Twilight Goat Meeting at the test location. The meeting will feature a tour of the facilities and a goat roast.
According to the USDA NASS Sheep & Goat Report released on February 1, 2013, U.S. sheep and goat inventories declined again; sheep and lambs by 1 percent and goats and kids by 2 percent.

On January 1, 2013, the U.S. sheep and lamb inventory totaled 5.34 million head, down 1 percent from 2012. The breeding sheep inventory decreased to 3.98 million head, down 1 percent from 4 million head on January 1, 2012. The 2012 lamb crop was 3.46 million head, down 2 percent from 2011. The national average lambing rate was 109 lambs per 100 ewes, unchanged from 2011.

Shorn wool production was 28.5 million pounds, down 3 percent from 2011. In 2012, 3.93 million sheep and lambs were shorn, 2 percent fewer than in 2011. The average weight per fleece was 7.3 pounds, unchanged from 2011. The average price paid for wool was $1.53 per pound for a total value of $43.6 million, down 11 percent from 2011.

On January 1, 2013, the U.S. goat inventory totaled 2.81 million head, down 2 percent from 2012. The breeding goat inventory was 2.32 million head, down 2 percent from 2012. The 2012 kid crop totaled 1.79 million head, down 5 percent from 2011.

Meat and all other goats totaled 2.32 million head on January 1, 2013, down 2 percent from 2012. The milk goat inventory totaled 360,000 head, unchanged from 2012. In 2012, the United States produced 770,000 pounds of mohair from 136,000 head of Angora goats. The average weight per clip was 5.7 pounds. The mohair price was $3.89 per pound for a total value of 2.99 million dollars.

In Maryland
Maryland’s dairy goat inventory declined from 2,300 to 2000 head, a 13 percent decrease. The inventory of meat and all other goats increased from 10,600 to 11,000 head, a 4 percent increase.

Several years ago, USDA NASS stopped reporting individual numbers for sheep in Maryland. Maryland is now lumped together with “Other (unpublished) States” whose inventory remained unchanged at 145,000 head.


It is getting increasingly expensive to feed sheep, goats, and other livestock. Even if you grow your own feed, there can be significant costs, including opportunity costs (selling the feed vs. feeding it). All producers should know how to compare feed costs and balance least-cost rations for their animals.

Feedstuffs are priced according to different units of measure: bushels, tons, pounds, or bales (of different sizes and weights). Thus, the first step in comparing feed costs is converting prices to an equivalent unit, usually pounds.

Feed rations are balanced on an “as-fed” basis and feedstuffs are priced “as-is,” meaning that a portion of the weight of the feed is moisture (water). Because the dry matter content of feedstuffs varies tremendously, prices must be converted to a dry matter (DM) basis.

Feedstuffs also vary in the amount of protein, energy, and other nutrients that they contain. For this reason, the cost of providing a certain nutrient is the basis on which feedstuffs are compared. To determine the cost of a nutrient, you divide the dry matter feed cost by the percent nutrient in the feed.

You can use this Excel spreadsheet to compare the nutrient costs of different feedstuffs: http://www.sheepandgoat.com/spreadsheets/CompareNutrientCosts.xlsx.

Read full article at http://www.sheepandgoat.com/articles/comparefeedcosts.html.
The Maryland Grain Producers Utilization Board (MGPUB) approved a funding request for a proposal entitled, "Using Grain to Improve Goat Carcass Quality and Value." They funded a similar study in 2012.

The MGPUB funding will allow a repeat of the 2012 pen vs. pasture study. For the 2013 study, 15 goats will be fed a hay and grain diet in a pen, and 15 goats will graze alongside the bucks in the 2013 Western Maryland Pasture-Based Meat Goat Performance Test.

The purpose of the pen vs. pasture study is to evaluate the effects of pen-feeding on the performance, health, carcass, and value of meat goat bucklings. All of the goats in the study will be harvested to collect carcass data and meat samples will be analyzed for nutritive value (e.g. fatty acid composition).

2011 In 2011, a preliminary study was conducted with 10 goats in each treatment group. In addition to ad libitum hay, the pen-fed goats were hand-fed once daily a commercial pellet (ADM Goat Power). Over the duration of the study, grain consumption averaged 1 lb. per head per day. The pen-fed goats grew faster and produced superior carcasses (a 5% higher lean meat yield) as compared to the pasture-fed goats. Meat quality was similar, though the longissimus dorsi from the pen-fed goats contained more oleic acid (a desirable PUFA).

2012 In 2012, the study was repeated with 15 goats in each treatment group. The pen-fed goats were fed hay, along with a grain ration composed of 4 parts whole barley to 1 part protein pellet (16%). In contrast with 2011, the pasture-fed goats had a higher rate-of-gain than those in the pen, though there were no differences in the carcass yield between the two groups. On the other hand, the pasture-fed goats had higher fecal egg counts and were administered 11 deworming treatments. None of the pen-fed goats required deworming, and their egg counts were significantly lower than the pastured goats.

2013 In 2013, the pen-fed goats will be fed free choice hay. The hay will be a good quality grass-legume mix. This differs from previous years, when the hay was a relatively poor quality first cutting grass hay. The pen-fed goats will be hand-fed a ration of whole barley once per day. Free choice minerals will be available to the goats in the pen, as well as those on pasture.

For this year's study, we need 30 bucklings, of similar size and genetics. We need the bucklings to weigh approximately 40 lbs. on June 1. They should receive two vaccinations for CD-T. We are able to pay $100 each for 40-lb. buckling. Contact Susan Schoenian at (301) 432-2767 x343 or sschoen@umd.edu if you are interested in providing bucks for the study.

USDA APHIS VS Office Merge

The USDA APHIS VS Maryland, Delaware, and Washington DC Area Office has closed and merged with the Virginia Area Office.

For residents of Virginia, Maryland, Delaware, and Washington DC, inquiries regarding the mandatory and voluntary scrapie programs should be directed to the Virginia Office at (804) 343-2560. Call (804) 343-2569 to request a premise ID and/or order scrapie ear tags.

Residents of any state can call 1-866-USDA-TAG (1-866-873-2424) to be connected with their local USDA APHIS Veterinary Services Area Office.
The 2013 Junior Sheep & Wool Skillathon will be held Sunday, May 5 at the Maryland Sheep & Wool Festival. The festival is always held the first full weekend in May at the Howard County Fairgrounds in West Friendship, Maryland. Registration will start at 8 a.m. The contest will begin at 9 a.m. Awards will be presented at approximately 2 p.m.

The Junior Sheep and Wool Skillathon is open to any youth between the ages of 8 and 18. Individuals and teams (of 3 or 4) from any county, state, or province may compete. Youth compete according to their age as of January 1st of the current year. Youth ages 8 to 10 compete as juniors; youth ages 11 to 13 compete as intermediates; and youth 14 to 18 compete as seniors.

The Maryland Sheep & Wool Festival provides ribbons and premiums to the top ten individuals in each age division and Festival t-shirts to the members of the top three teams in each age division.

The Maryland Sheep & Wool Festival is a committee of the Maryland Sheep Breeders Association. Additional awards are provided by the University of Maryland Extension Small Ruminant Program.

For this year’s skillathon, pre-registration of individuals and teams is requested by April 29. Teams must be pre-registered. Pre-register by sending names, ages, and team affiliations via e-mail to Susan Schoenian at sschoen@umd.edu (or via fax at (301) 432-4089). Online registration is available at www.sheepandwool.org.
Recent Research Findings From Around The World

- Researchers in the southeastern United States determined Sericea lespedeza (a warm season legume) to be effective at controlling and treating coccidiosis in naturally- and artificially-infected lambs (1).

- Flushing increased lamb survival in range ewes from 78 to 90 percent. In a companion small-scale pen study, supplementation increased lambing rate by 37 percent (2).

- In Dorper sheep, South African researchers found mostly positive genetic correlations between subjectively-assessed and objectively-measured traits, but concluded that more emphasis should be placed on using objectively-measured traits for breed improvement (3).

- In Scotland, targeted selective treatments (based on actual vs. expected weight gain) halved the number of anthelmintic treatments required by grazing lambs, while maintaining lamb weights and efficacy of the anthelmintic (3).

- Belgian researchers concluded that the occurrence of congenital entropion (inverted eyelid) was affected by litter size (favoring triplets) and breed (favoring crossbreds), but that the condition did not affect growth and resolved spontaneously in 2-42 days (median 7 days) (3).

- Greek researchers found no difference in the risk of mammary infection or development of mastitis in ewes progressively dried off (over a 22-day period) versus those abruptly dried off (3).

- In Finland, lambs fed barley diets grew faster and produced heavier, fatter carcasses than lambs fed oat diets. On oats, the lambs experienced energy and protein deficiencies. Grain processing had no beneficial effect, as utilization of whole grain was more efficient than that of processed (crushed or ground) grain (3).

- Brazilian researchers proved that it is possible for CAE (caprine arthritis-encephalitis) to be transmitted through artificial insemination, if infected semen is used (3).

- Spanish researchers determined ultrasound to be a useful tool for predicting loin measurements in light lambs (29-35 lb. carcass weights), but less predictive for backfat measurements (4).

- After analyzing twenty years of production records from six pure breeds of dairy goats, researchers determined that genetic selection within breed is possible for dairy goat production traits. According to their research, the heritability of milk, fat, and protein yield is 0.35, 0.35, and 0.37, respectively. Fat and protein percentage (of milk) are both more than 50% heritable (5).

Sources: (1) Veterinary Parasitology; (2) Journal of National Association of County Agricultural Agents; (3) Small Ruminant Research; (4) Journal of Animal Science; and (5) Journal of Dairy Science.

Breeding Better Sheep & Goats: Webinar Recordings

This winter, a five part webinar series entitled “Breeding Better Sheep & Goats” was conducted by the University of Maryland Small Ruminant Program. Each webinar was recorded, minimally edited, and made public for viewing.

Links to the webinar recordings, along with links to the accompanying PowerPoint presentations, are available at http://www.sheepandgoat.com/recordings.html. This page also includes links to other previous webinar series.

To learn about future webinars, subscribe to the webinar listserv by sending an e-mail to listserv@listserv.umd.edu. In the body of the message, write subscribe sheepgoatwebinars.
**Pay Attention to Udder Health (continued from page 1)**

Chronic (or sub-clinical) mastitis is not readily detected, but adversely affects production. It is probably the most costly form of mastitis. Mild cases of clinical mastitis usually respond well to treatment and it is possible to “save” the udder or half.

Mastitis is usually treated with systemic and intramammary antibiotics. Fortunately, most of the bacteria causing mastitis are sensitive to several antibiotics, as there is not always sufficient time to have the milk cultured to determine antibiotic sensitivity of the causative pathogen. An anti-inflammatory drug and oxytocin may also be prescribed. Almost all of the drugs used to treat mastitis in small ruminants require extra-label drug use and can only be administered under the advice of a veterinarian.

There are many predisposing factors to mastitis, with the most obvious ones being poor sanitation and management. Females nursing multiple offspring and/or producing more milk are more prone to udder infections. There is a higher incidence among older ewes and does. Females with poor udder conformation are much more likely to get mastitis. Injuries or damage to the udder, teats, or skin of the udder are other risk factors. Poor weaning management may predispose ewes and does to mastitis. In a dairy operation, milking procedures can have a big impact on udder health and somatic cell counts.

There is also a genetic component to mastitis. Researchers have determined the heritability of resistance to mastitis to be 0.13. High somatic cell counts are indicative of mastitis and are 15 percent heritable. Udder conformation is also a heritable trait.

Ewes and does with clinical mastitis should be culled, even if they respond to treatment. Females with poor udder conformation should be removed from the flock or herd.


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**Looking back at history: Do you remember Dolly?**

Dolly (the sheep) died ten years ago (on February 14, 2003, to be precise). Dolly was the first cloned animal in history, the first to be cloned from an adult cell, rather than an embryo.

To produce Dolly, scientist used the nucleus of an udder cell from a six year old Finn x Dorset ewe. After “re-programming” it, they injected the cell into an unfertilized egg which had had its nucleus removed. The unfertilized egg came from a Scottish Blackface ewe.

After fusing the nucleus with the egg and “culturing” it, they implanted the resulting embryo into another Scottish Blackface ewe, Dolly’s surrogate mother. Dolly was born on February 23, 1997, at the Roslin Institute in Scotland.

Dolly lived a pampered existence. Over her lifetime, she produced six lambs. She was euthanized when she was six and a half years old, suffering from arthritis and a lung disease. Some scientists speculate that Dolly suffered from premature aging. Dolly’s remains are on display at the National Museum of Scotland. While Dolly is long gone, she ushered in a new era in biology.
Copper Excesses and Deficiencies (continued from page 1)

in mature ruminants is very low, less than 10 percent, whereas it can exceed 90 percent in immature ruminants. Ionophores (Bovatec® and Rumensin®) increase copper absorption.

Copper is absorbed in the small intestines. Absorbed copper in excess of dietary requirements is stored in the liver. If insufficient copper is consumed, copper stored in the liver is mobilized. If the concentration of copper in the liver exceeds a critical level (usually > 1000 ppm DM), there can be a sudden release of copper into the blood stream, with potentially deadly consequences.

Copper requirements vary by species, age, and production status. The National Research Council (NRC) does not give specific copper requirements for sheep. Instead, equations are used to calculate requirements. The equations use different absorption coefficients, variable levels of absorption antagonists, and metabolic interactions to calculate copper requirements for specific sheep. The maximum tolerable level of copper in the diet of sheep is 15 mg/kg (ppm), assuming the diet contains normal levels of molybdenum (1-2 mg/kg) and sulfur (0.15-0.25%).

Less is known about goats, so equations cannot be used. Instead the copper requirements for goats have been set at 15, 20, and 25 mg/kg (ppm) for lactating goats, mature goats and bucks, and growing kids, respectively. No maximum tolerable level of copper has been determined for goats, so it is suggested the maximum tolerable level for cattle be used (40 ppm).

While sheep and goats can experience both toxicity and deficiency of copper, sheep are more likely to experience copper toxicity and goats are more likely to experience copper deficiency. The primary symptoms of copper toxicity are anemia, jaundice and blood, red urine. Common symptoms of a copper deficiency are ataxia (swayback), depigmentation of skin, hair, or wool, and steely wool (loss of crimp). A copper deficiency can also cause more generalized symptoms, such as poor growth, bone problems, connective tissue disorders, and poor disease resistance.

There are many steps to take if you suspect either a copper toxicity or deficiency in your flock or herd. Laboratory tests which determine copper levels in the blood (serum and plasma), liver, and kidneys can be done. A necropsy can confirm a diagnosis, especially for copper toxicity. One of the most important things you need to do is determine the concentration of copper and other minerals in the diet. Never add copper to the diet of goats and especially sheep without first determining the levels of other minerals in the diet.

View PowerPoint presentation at http://www.slideshare.net/schoenian/copper-16391507.
Recipe - Gyro Burger with Yogurt Sauce

**Ingredients Burger**
- 1 pound ground American Lamb
- 1 teaspoon dried oregano, crushed
- 1/2 teaspoon garlic powder
- 1/2 teaspoon pepper
- 1/4 teaspoon onion powder
- 1/4 teaspoon ground cumin
- 1/4 teaspoon salt
- 2 pita bread rounds (6-inch), halved crosswise
- 1 cup chopped fresh spinach or lettuce

**Ingredients Yogurt Sauce**
- 3/4 cup plain low-fat yogurt
- 1/2 medium cucumber, peeled and chopped (about 2/3 cup)
- 2 green onions, thinly sliced
- 1 tablespoon chopped fresh mint or
- 1 teaspoon dried mint, crushed
- 1/4 teaspoon granulated sugar
- 1/4 teaspoon garlic powder
- Salt, optional

**Directions**
In large bowl, combine oregano, garlic powder, pepper, onion powder, cumin and salt. Add lamb; mix well. Form into 4 patties, about 3/4-inch thick. Grill over medium coals or broil about 5 minutes on each side or to desired degree of doneness.

In medium bowl, combine yogurt, chopped cucumber, sliced green onion, mint and sugar. Split open each pita half forming a pocket. Place gyro-burger in each pocket; top with chopped spinach and yogurt mixture.

*Will also work well with goat meat*

**Calendar Of Events**

**April 20**
Integrated Parasite Management Workshop @ UMES
University of Maryland Eastern Shore, Princess Anne, MD
Info: www.umes.edu/1890-mce

**May 3**
Integrated Parasite Management Workshop @ Maryland Sheep & Wool Festival
Howard County Fairgrounds, West Friendship, Maryland
Info: www.sheepandwool.org

**May 4-5**
40th Anniversary of the Maryland Sheep & Wool Festival
Howard County Fairgrounds, West Friendship, MD
Info: www.sheepandwool.org

**May 5**
Junior Sheep & Wool Skillathon @
Maryland Sheep & Wool Festival
Howard County Fairgrounds, West Friendship, MD
Info: Susan Schoenian at sschoen@umd.edu

**May 20-22**
10th Anniversary Conference of the American Consortium for Small Ruminant Parasite Control
Fort Valley State University, Fort Valley, Georgia

**June 1**
Buck delivery date
Western MD Pasture-Based Meat Goat Performance Test
Western Maryland Research & Education Center, Keedysville, Maryland
Info: Susan Schoenian at sschoen@umd.edu

**June 18-20**
ASI Wool Classing School
Maryland State Fairgrounds, Timonium, MD
Info: Linda Shane at lshane@carr.org

**June 19**
Maryland-Delaware Wool Pool
Maryland State Fairgrounds, Timonium, MD
Info: Rich Barczewski at (302) 857-6410 or rbarczewski@desu.edu

(Continued on page 12)
**Woolly Events**

**Maryland Wool Pool - June 19**

The Maryland Wool Pool will be held Wednesday, June 19, at the Maryland State Fairgrounds in Timonium, Maryland. Wool should be delivered to the pool between 9 a.m. and 2:30 p.m. There will be three lines to accept wool.

The pool will not accept wet wool, black or gray wool, or wool from hair sheep or hair x wool crosses. Wool delivered in polypropylene bags will be refused and wool delivered in burlap bags will be discounted 3 cents per lb. Anyone bringing wool to the pool in a nylon square pack weighing 250 lbs. or more will receive a 5 cent per lb. bonus payment for their wool. Smaller lots of wool can be delivered in plastic trash bags (clear preferred) or loose in the vehicle.

Payment will be made within several weeks of the pool. Wool pool expenses (usually between 5 and 8 cents per pound) will be deducted from checks. Maryland Sheep Breeders Association membership dues will be deducted on wool sales over $40.

Questions pertaining to the wool pool should be directed to the wool pool manager Rich Barczewski at (302) 857-6410 or rbarczewski@desu.edu.

**ASI Wool Classing School - June 18-20**

There will be a three-day wool classing school on June 18-20, at the Maryland State Fairgrounds in Timonium, Maryland. The second day of the school will be held in conjunction with the Maryland Wool Pool.

**ASI Wool Handling School - September 6-7**

The West Virginia Shepherds Federation, West Virginia University (WVU), and the West Virginia Fiber Festival are sponsoring an ASI Wool Handling School on Friday and Saturday September 6-7, at the West Virginia Fiber Festival at WVU Reedsville Farm Arena in Reedsville, West Virginia.

The two-day school will focus on wool fiber growth and development, fiber characteristics, wool traits, wool value traits, marketing options and wool trends. The instructor will be Ron Cole, Wool Education Consultant with the American Sheep Industry Association.

The cost to participants is $35. Contact Martha McGrath at (304) 358-2239 or Martha@CoopworthSheep.com, if you’re interested in

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**Interesting Fact**

Higher temperatures caused by global warming could help goat populations to thrive, say scientists. As the climate changes – bringing warmer temperatures – feral goats need less food and less time foraging to survive. As the climate warms, goats will be able to live further north.
Sannens are a white or cream-colored breed of dairy goat. They are one of four U.S. dairy goat breeds classified as “Swiss.” The others are Alpine, Toggenburg, and Oberhasli.

Sannens take their name from the Saanen Valley in Switzerland, where they originated. Between 1904 and the 1930’s, approximately 150 Sannens were imported to the United States from Switzerland. Later importations came via England. Today, the breed is spread throughout the United States and is one of the preferred dairy goat breeds.

Sannens are a large and big-boned goat. In fact, they are the largest breed of dairy goat, with does often weighing over 150 lbs. Sannen bucks may tip the scales at over 200 lbs. Sannens have a light covering of hair, preferably white. Because of their light color, Sannens are best-adapted to cooler conditions. They are known for the calm temperaments.

According to American Dairy Goat Association (ADGA), Sannens produce more milk than any other breed of goat. In 2011, the average production of a performance-recorded (DHIR) Sannen doe was 2,635 lbs. (of milk), with 3.7 percent butterfat (275-305 day lactation). On average, Sannen does produce about a gallon of milk per day. Some of the top-producing Sannens (in the U.S.) reside in Maryland at Caprikorn Farms (caprikornfarms.com).

Though recognized as a separate breed, the Sable is a color variation of the Sannen, the result of a recessive expression of color in the breed. It is also a high-producing breed. Its 2011 average production was only slightly less than the Saanen (2609 lbs.), though only 16 does were performance-recorded.

While the Sannen is a dairy goat, it figured prominently in the development of the Kiko (meat breed). The Kiko was developed by crossing feral goats (which did not milk well) with bucks from commercially-managed dairy goat herds. While bucks from different dairy breeds were used in the initial crosses, Sannen was the most important because it had the widest genetic base in New Zealand. Initially, most Kikos retained the white color of the Sannen.

Some meat goat producers have included the Sannen in their crossbreeding programs. In last year’s pen vs. pasture study, two of the best goats in the study were 50 percent Saanen.

References: National Sannen Breeders Association, American Dairy Goat Association

More Information On Sheep & Goats, Can Be Accessed At:

http://www.sheepandgoat.com/
http://www.sheep101.info/
http://mdsheepgoat.blogspot.com
http://www.wormx.org

http://mdgoattest.blogspot.com
https://www.facebook.com/MDSmallRuminant
https://twitter.com/MDSheepGoat
Calendar of Events (continued from page 9)

August 1
Twilight Goat Meeting at WMREC
Western Maryland Research & Education Center,
Keedysville, MD
Info: Susan Schoenian at sschoen@umd.edu

September 6-7
ASI Wool Handling School @ West Virginia Fiber Festival
WVU Reedsville Farm Arena, Reedsville, West Virginia
Info: Martha McGrath at Martha@CoopworthSheep.com
or (304) 358-2239

September 21
Mid-Atlantic Small Ruminant Expo, featuring sale of top-
performing bucks from Western Maryland Pasture-Based Meat
Goat Performance Test. and Elite Buck Sale, Chatham, VA
Info: John Smith at jstrider01@netscape.com

December 7
Biennial Lambing & Kidding School
Clarion Hotel, Hagerstown, Maryland
Info: Susan Schoenian at sschoen@umd.edu

Calendar of events http://www.sheepandgoat.com.calendar.html