

Wild & Woolly



Maryland's Sheep & Goat Producer Newsletter

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Sheep Research @ WMREC

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After hosting the popular Western Maryland Pasture-Based Meat Goat Performance Test for 11 years (2006-2016), the University of Maryland's Western Maryland Research & Education Center (WMREC; in Keedysville) initiated a sheep research program. The first project is a comparison study of ram, wether, and short-scrotum lambs.



So, what's a short-scrotum lamb? A short-scrotum lamb is a cryptorchid. It is made by pushing a ram lamb's testicles into its abdomen and banding the empty scrotum. It is a more humane alternative to making a wether. It is common to castrate ram lambs for management purposes.

Ram lambs grow faster and more efficiently than wether (and ewe) lambs. They produce leaner carcasses. However, they can cause unwanted pregnancies. They also have many undesirable behavior characteristics. Some consumers may be able to detect a "ram taint" in the meat from ram lambs, especially those that have reached sexual maturity.

(Continued on page 8)

Copper, It's Complicated !

By Susan Schoenian

Mention copper (Cu) to a sheep producer and a "red flag" goes up, as it should. Mention Cu to a goat producer and he/she wants to supplement it, thinking that his/her animals are getting short-changed on the mineral, because of their association with sheep.

Some fiber producers want to supplement Cu because they think their fleeces are being affected, as symptoms of a Cu deficiency may include loss of crimp and pigmentation. Some producers blame a Cu deficiency for their production woes, as a marginal Cu deficiency can manifest itself in many ways.



Cu is getting more recent interest as a deworming agent. Copper sulfate is an old-time dewormer that was taken off the market, due to toxicity issues (in sheep). Copper oxide wire particles (COWP) are a newer deworming option, with much less risk of toxicity, due to their poor absorption and slow release.

Sheep and goats have a dietary requirement for Cu. Cu has a role in many important enzyme

(Continued on page 3)

Junior Sheep & Goat Skillathon Winners Announced

Ninety youth competed in the 2018 Junior Sheep & Goat Skillathon, held May 6 at the Maryland Sheep & Wool Festival. Youth competed according to their age as of January 1: junior, 8-10; intermediate, 11-13; and senior, 14-18. Ten stations tested the youth's knowledge of sheep and goats:

1. feed ID
2. breed ID
3. equipment ID
4. fiber id
5. meat ID
6. fleece judging
7. hay judging
8. sheep judging
9. worms
10. written test

As reflected by the scores, breed and meat ID proved to be the most difficult stations. The new fiber ID and worm stations were also challenging to the youth.

Twenty juniors competed. Emily Gale from St. Mary's County was the first place junior. Nathaniel Smith from Cecil County was second. Abigail Willis from Greene County, Pennsylvania, was third. St. Mary's County had the first place junior team. Team members included Ricky Arnold, Emily Gale, and Trent Vallandingham. Cecil County was second. Frederick County was third.

Forty-one intermediates competed. Marie-Claire des Rosiers from Shenandoah County, Virginia, was the first place intermediate. Matthew Simpson from Jefferson County, West Virginia, placed second. Mary Rose from Frederick County was third. The first place intermediate team was Lancaster County, Pennsylvania. Team members included Taylor Flahart, Keri Kunjappu, Jenn Smith, and Eric Zimmerman. The second place team was Adams County, Pennsylvania. Frederick County was third.

Thirty-two seniors competed. Brigid King from Queen Anne's County was the first place senior. Lizzy Miller from Montgomery County was second. Kyle Schulze from Carroll County was third. The first place senior team was Montgomery County. Team members included Caitlyn Gardiner, Lizzy Miller, and Anthony Righter. The second place team was Frederick County. Carroll County was third.

Top scorers in the three wool stations (fleece judging, sheep judging, and fiber ID) were recognized. The top junior was Jordyn Wetzel from Lebanon County, PA. Marie-Claire des Rosiers was the top scoring intermediate. The top senior was Brigid King.

Top scorers in the ID stations (breed ID, feed ID, equipment ID, and meat ID) were recognized. The top scoring junior was Reed Mason from Cecil County. Marie-Claire des Rosiers scored the most points among intermediates. Brigid King was the top senior.

The Maryland Sheep Breeders Association provided ribbons and premiums to the top 10 individuals in each age category. Festival t-shirts were awarded to members of the top three teams in each age category. Additional awards were provided by University of Maryland Extension: plaques and Farm-to-Feet wool socks.

Congratulations to all the youth who competed and to those who won awards. Appreciation is expressed to all the extension educators, 4-H leaders, and parents who helped with this year's contest.

The first Junior Sheep & Wool Skillathon was held in 2006. In 2014, it was changed to the Junior Sheep & Goat Skillathon. The Skillathon is always held the Sunday of the Maryland Sheep & Wool Festival. The Festival is always held the first full weekend of May.

To learn more about the Junior Sheep & Goat Skillathon at the Maryland Sheep & Wool Festival, go to <https://www.sheepandgoat.com/skillathon>.



Junior Skillathon Winners



Intermediate Skillathon Winners



Senior Skillathon Winners

Copper, It's Complicated (continued from page 1)

systems. It is particularly important to immune function. But more copper is not better. Cu consumed in excess of dietary requirements accumulates in the liver. If the liver's storage capacity is exceeded (1000 mg/kg DM), toxicity results, often causing death to the animal.

Sheep are the species most susceptible to Cu toxicity, because of the narrow range between requirements and toxic levels. Goats are susceptible to Cu toxicity, too, but much less so, as they need and can tolerate more Cu in their diets. Breed differences exist for both species, with Texels being one of the most susceptible sheep breeds. Meat goats seem to tolerate higher levels of Cu than dairy goats.



Cu occurs naturally in most feeds and forages. The absorption of copper is more important than its concentration in the diet. In addition to age (absorption is much higher in younger animals), the presence of antagonists (other minerals) affects the absorption of Cu: molybdenum (Mo), sulfur (S), iron, and to a lesser extent calcium and zinc. In particular, Mo and S form insoluble complexes with Cu, rendering the copper unavailable. Soil pH can also affect Cu and Mo availability.

The latest nutritional requirements for sheep (NRC, 2007) use an equation to determine Cu requirements. The maximum tolerable level of Cu in the diet of sheep is 15 mg/kg (PPM), when their diets contain normal Mo (1-2 mg/kg) and S (0.15-0.25%) concentrations. General recommendations for sheep are to not add supplemental copper to the diet and to maintain a Cu: Mo ratio of 8:1 or lower. A ratio above 4:1 will help to prevent copper deficiency. Similar data is not available for goats; thus, requirements have been set at 15, 20, and 25 mg/kg for lactating, mature, and growing goats, respectively. A toxic level has not been established for goats, so the cattle level is currently used (40 mg/kg).

Producers who suspect their livestock are at risk for Cu toxicity or being deficient in Cu should have diagnostic testing done. The livers (and kidneys) from animals that die or are harvested for meat can be submitted to a veterinarian or animal diagnostic lab for testing; request a mineral panel. The results from soil, feed, and forage tests can be used to determine proper feeding management.

Cu is a very important mineral, but a complicated one. No form of Cu should be administered to a sheep or goat or added to their diet without careful consideration.

This article was originally published in the Delmarva Farmer and Lancaster Farming.

DrenchRite® Test Currently Unavailable

By Sue Howell
University of Georgia

The laboratory of Dr. Ray Kaplan at University of Georgia regrets to inform clients with small ruminants and exotic animals that we are currently on back order for the DrenchRite© resistance testing assay plates. Our producer in Australia is unable to make additional assay plates at this time. We hope to resolve this problem in the coming months, however, at this time we are unable to perform this resistant testing assay. We regret any inconveniences this may cause.

The DrenchRite® Assay is a test performed to detect drug resistance in *Haemonchus contortus* parasites of small ruminants, camelids, and some exotic animals. Identifying the species of parasites infecting the animals is another key part of the test.

Learn more about the DrenchRite® test at <https://www.wormx.info/drenchriteassay>

Subscribe to the Worminfo Newsletter

WORMinfo is a monthly newsletter about worms. It is sent via email to subscribers to the WORMINFO listserv. The WORMINFO listserv lets subscribers know when something new has been posted to WORMX, the web site of the American Consortium for Small Ruminant Parasite Control (ACSRPC). To subscribe to the WORMINFO listserv, send an email to listserv@listserv.umd.edu. In the body of the message, write subscribe WORMINFO.



You can also subscribe to the newsletter via Smore, the platform that is used to make the newsletters. Previous issues of the WORMinfo newsletter are available at <https://www.wormx.info/worminfo>.

Deer Worm Resources @ Cornell University

Cornell University has developed a web page on Deer Worm Treatment Protocols, including a comparison of two treatments for goats and sheep showing signs of deer worm infection. They have also published a fact sheet that explains how sheep and goats become infected with deer worm and signs of infection. The fact sheet summarizes for farmers and veterinarians the results of the study comparing the effectiveness of the two deer worm treatments.

The deer worm (meningeal worm, *P. tenuis*) is a natural parasite of white tail deer. Sheep, goats, and camelids are abnormal hosts. Snails and slugs serve as intermediate hosts. Affected animals may exhibit various neurological symptoms.

<http://blogs.cornell.edu/smallruminantparasites/chemical-treatment-protocols/>

FREE Fecal Egg Count Analysis

Free fecal egg count analysis is available to:

- ◆ New or current National Sheep Improvement Program (NSIP) members either in or marketing to the Northeast who want to generate Estimated Breeding Values (EBVs) for parasite resistance.
- ◆ Non-NSIP members living in New England, New York, New Jersey, Pennsylvania, West Virginia, Maryland, or Delaware.

Samples will be accepted for analysis for the summer months (peak worm season) 2018. For more information, contact Holly Burdett or Katherine Peterson at the University of Rhode Island at urisheepandgoat@etal.uri.edu.

Hold The Dates

December 8 – All Worms All Day

The 2017 Delmarva Small Ruminant Conferences All Worms All Day will be repeated in Maryland and Virginia. In 2018, it will be held Saturday, December 8 at the Western Maryland Research & Education Center in Keedysville, Maryland. The speakers and topics will be similar to the 2017 event at Delaware State University. The whole day will be devoted to internal parasites and all speakers will be members of the American Consortium for Small Ruminant Parasite Control.

January 19, 2019 – Lambing & Kidding School

After a few years break, the Biennial Lambing & Kidding School will be brought back. It will be held Saturday, January 19, 2019, at the Howard County Fairgrounds in West Friendship, Maryland. The featured speaker will be Dr. Kevin Pelzer from the Virginia-Maryland College of Veterinary Medicine. The school will include a youth program.

*Registration information for both events will be in the next newsletter (October)



Zero Grazing: An option for raising small ruminants

By Susan Schoenian



There are different ways to raise sheep and goats. There is a misconception that you have to raise them on pasture. When, in fact, sheep and goats can be raised successfully in “zero grazing” situations and/or in systems which combine pasture with confinement.

Raising sheep and goats in confinement (or dry lot) is an especially viable option when land is a limiting resource and/or where the cost of land is high. With a confinement system, you also avoid the costly investment in fencing. It is common to raise commercial dairy goats in confinement and for commercial-scale sheep producers to use confinement for the lamb finishing side of their business.

Like most production systems, there are various pros and cons to raising sheep and goats in confinement. In confinement, it is much easier to control the variables of production. You don't have to worry about inclement weather negatively affecting lambing or kidding or stalling summer gains of lambs/kids. Productivity is usually higher. Confinement lends itself well to the year-round production of lambs/kids.

Internal parasites, the “plague” of small ruminants, are more easily controlled with zero grazing. In fact, you can practically eliminate worm infection because there is much less source of infection or re-infection in confinement, as grazing is the primary means by which sheep/goats get parasitized. Worm parasites, alone, are a reason to consider confinement for at least part of the small ruminant production cycle.

Coccidia can still be a risk in confinement, as animals become infected when they consume feces from a contaminated environment: udders, pens, feeders, and waterers. Coccidia can be controlled easily enough with good management and sanitation, combined with strategic use of coccidiostats.

Another thorn in the side of sheep and goat production is predators. The risk of predation, even the human kind, is eliminated in confinement rearing systems. There is no need for livestock guardians or other predator control options. You can sleep better at night knowing that your animals are safe from predators of all types.

While the hooves of sheep and goats may grow more rapidly in confinement, it is generally easier to control hoof diseases, such as foot rot or scald.

There is a misconception that sheep and goats in confinement must be fed concentrate diets. Any diet can be fed to animals in confinement. Strictly forage diets can be fed. In New Zealand, dairy goats are fed green chop or silage. It is common to feed total mixed rations (TMRs) in confined rearing systems. Confinement lends itself well to automated feeding systems.

Another misconception is that animal welfare is reduced when animals are kept in confinement. The reverse is often true, as animals live in a more controlled climate and don't suffer the ill effects of worms or inconsistent nutrition. Animals can be given enough space so that they can express their natural behavior. Environmental enrichment can be added.

As compared to traditional pasture-based systems, confinement systems usually have more overhead, as there is more investment in buildings and equipment. Feed costs are usually higher because you are feeding your livestock 24-7. In fact, for confinement rearing to be profitable, it is essential to have economical feed sources. While animals tend to be healthier, diseases can spread more rapidly in confinement, as animals are in closer proximity to one another.

For many producers, confinement may not be the preferred production system, but for others, especially those more commercially-minded, it might be the ideal production system or at least one worth investigating.

This article was originally published in the Delmarva Farmer and Lancaster Farming.

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Now!

Another Successful Twilight Tour & Tasting

The 4th Twilight Tour & Tasting was held Thursday, June 13, 4 to 8 p.m. at the Washington County Agricultural Education Center (in Boonsboro), with tours to the adjacent Western Maryland Research & Education Center (in Keedysville).

Arik Mills, chef and co-owner of Rik's Cafe (in Hagerstown) was the featured chef. He prepared African Goat Meat over Jasmine rice, Roasted Lamb Rocket Salad, Lamb Sliders, Lamb Tacos, and Roasted Red Pepper (goat) Cheese Dip. All of the dishes were delicious. All of the meat and cheese that was used in the recipes was locally-sourced.

Exhibitors include Caprikon Farms, a goat dairy in Gapland, Maryland; Shepherds Manor Creamery, a sheep dairy in New Windsor, Maryland; Browsing Green Goats from Sunderland, Maryland, a farm that does goat yoga and leases goats for grazing; and Budding Creek Farm from Frederick, whose shepherdess teaches and hosts classes pertaining to fiber.

Joe Fiola, Viticulture Specialist from the University of Maryland was on hand to dispense wine samples and teach participants to match wine with food. 4-H educa-



tors, Ashley Travis and Chris Anderson introduced the new 4-H animal science research academy, whereby older 4-H youth will take an active role in university research, specifically this year's lamb project.

The tour part of the event included wagon tours of the Western Maryland Research & Education Center (WMREC), including a stop at the sheep research

site, where the study is underway to compare ram, wether, and short-scrotum rams. The wagons were full and the lambs seemed to "enjoy" the limelight. The tours were led by Jeff Semler, Washington County Agricultural Extension Agent.

The Twilight Tour & Tasting was funded in part by the American Lamb Board. It was the 4th year of the event. Plans are to repeat it next year. Attendance is always capped at 100. The event is attended by a unique mixture of sheep and goat producers, university employees, and the general public.

Editor's note: Rik's Cafe frequently features lamb on its menu and sometimes goat. Goat cheese is also used in recipes. Follow Rik's Cafe on Facebook.

Recipe: African Goat Meat Over Jasmine Rice

As prepared by Arik Mills at the Twilight Tour & Tasting

Ingredients

2 medium onions, chopped, 2 cloves garlic, chopped, 2 large carrots, diced, 3 stalks celery, chopped, 2 pounds boneless goat meat, cubed, salt and freshly ground black pepper, 1/2 cup canola oil, 1 6-ounce can tomato paste, 2 cups vegetable stock, 1 cup Coconut Milk, 3 TB Curry Powder

1. Marinate the meat and vegetables. Combine the carrots, celery, onions and pepper in a bowl with the goat meat. Season the mixture with a teaspoon of salt and 1/2 teaspoon of pepper. Cover the bowl and allow the mixture to sit in the refrigerator overnight. If you don't have enough time to refrigerate it overnight, do so for at least two hours.
2. Brown the meat and vegetables. Heat the oil in a saucepan over medium high heat. Add the marinated meat and vegetables and spread them out in an even layer. Cook on one side until browned, then turn the meat to brown on the other side.

3. There's no need to cook the meat through. Simply brown it on both sides and cook no longer than one to two minutes. Otherwise, the meat will come out tough.
4. You can transfer the stew to a slow cooker at this point if you'd prefer not to cook it on the stove.
5. Add the stock, coconut milk, curry powder and tomato paste. Stir it well, then cover the pot and reduce the heat to a simmer.
6. Simmer the stew for two hours. Keep it at a low simmer for the duration of the cooking time. Check every fifteen minutes or so to make sure there is enough liquid in the saucepan to keep the meat and vegetables covered. If needed, add water or more stock in small increments to prevent the stew from drying out

Serve the stew when the meat is tender. After about two hours, the meat should be succulent and fall-apart tender when you poke it with a fork. This stew is delicious when served over rice. It tastes even better the next day

Ewebytes

- ◆ A golf resort in Oregon is using goats as caddies. The specially-trained goats wear custom-designed golf packs, follow golfers as they walk the course, and work for peanuts.
- ◆ WOOLCOOL markets packaging material for temperature-sensitive items in the food and pharmaceutical industries. Their innovative packaging is made of 100 percent felted sheep's wool.
- ◆ Goats at Utah State University are producing milk that can be turned into a material just as strong as a spider's web. The goats have a gene that allows them to produce a special protein in their milk.
- ◆ The fast food restaurant Arby's will soon start selling its traditional Greek gyros -- made out of lamb and beef -- year round. The lamb product was previously sold on a limited basis. By the way, it is delicious!
- ◆ A company in Tennessee is marketing wool caskets. The caskets are biodegradable and suitable for cremation.
- ◆ Seaweed has the potential to reduce methane emissions in ruminant livestock. Just a bit of seaweed in the diet of cows has been shown to reduce methane emissions dramatically, up to 99% in an Australian study.
- ◆ Australian sheep producers have been receiving record high prices for their fine Merino wool. In Ireland (and other places and with other types of wool), prices no longer cover the cost of shearing.
- ◆ The University of Kentucky has developed technology to use smart phones for fecal egg counting. They've developed their technology for the equine industry, while Zoetis is developing it for small animals. It should work with ruminant worms, too.
- ◆ A woman in Oregon has generated more than six figures in income by combining goats with yoga. She raises Nigerian Dwarfs. Goat yoga is the latest fitness craze.
- ◆ Researchers from 25 countries in Europe recently met to discuss a coordinated approach to dealing with anthelmintic (dewormer) resistance in ruminants. Anthelmintic resistance is a worldwide problem that is especially problematic with small ruminants.

The Fungus May Soon Be Among Us!

BioWorma is now registered in Australia, New Zealand, and the US. For the US, while the company has EPA approval, they will need to apply to each state before commencing sales.

BioWorma offers natural biological control of worms by capturing and consuming infective worm larvae (including anthelmintic-resistant larvae) within the manure of grazing animals.

BioWorma uses a natural strain of fungus – *Duddingtonia flagrans* – which seeks out and traps the larvae of many parasites that infect grazing animals. When fed to animals, the spores pass through the digestive system into the manure, where they are activated when the parasitic worm larvae become activated.

BioWorma will need to be mixed with feed or supplements and fed to animals daily, possibly every other day (per ACSRPC). It will not affect the worms in the animal. The purpose of BioWorma is to reduce re-infection. It could be used to “clean-up” pastures.

The commercial BioWorma is the result of over 20 years of scientific study. For more information, go to <https://www.duddingtonia.com/>

Invasive Tick Alert

The Asian longhorned tick (*Haemaphysalis longicornis*) is an invasive tick that was recently discovered in the Mid-Atlantic. It was found on a pet sheep in New Jersey.

The longhorned tick is a pest of livestock in its native range of East Asia, where populations grow rapidly under warm, humid conditions. The tick has likely been present in the United States since 2013. The tick can transmit other diseases.

The University of Maryland has prepared a fact sheet to provide information about the tick to livestock producers.

<https://www.slideshare.net/schoenian/invasive-tick-alert>



Sheep Research @ WMREC (continued from page 1)

Because they retain their testicles (albeit in their bellies), short-scrotum ram lambs should gain as fast and efficiently as intact ram lambs and produce similar quality carcasses. Testosterone, the hormone responsible for male characteristics, including behavior, is produced by the testicles.

Because they lack the thermoregulation of an intact male (ram), short-scrotum rams should be infertile. The temperature of the testicles must be several degrees lower in order for normal spermatogenesis to occur. Sperm is produced by the testicles. Previous research has shown that short-scrotum lambs have very low fertility.



This year's experiment began on April 26 with the arrival of 60 lambs: 19 ram lambs, 24 wethers, and 17 short-scrotums. The average weight of the lambs was 56.7 lbs. The average age was 78 days. Most of the lambs were born as twins or triplets. They were early weaned from their dams, as part of a dairy sheep management program.

The black and white lambs are a cross between the East Friesian and Lacaune. The East Friesian originated in Germany and Holland and is the world's heaviest milking sheep. The Lacaune is a French breed that has been intensively selected for milk production. The crossbred lambs exhibit moderate growth and muscling.

The sixty lambs are being maintained as a single group on pasture. Three different paddocks are being utilized for rotational grazing: silvopasture (cool season perennials), spring oats, and dwarf pearl millet. At the beginning of the project, the lambs had access to hay, as pastures were not ready for grazing. Throughout the project, the lambs are being supplemented with a balanced grain mixture containing whole barley, soybean meal, and minerals. They are being fed in the amount of 2-3 percent of their body weight.

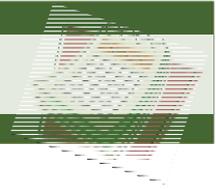
The lambs are being weighed and evaluated every two weeks. Towards the end of the project in mid-August, they will be scanned to determine carcass traits (back fat and rib eye area/depth). They will be evaluated for fertility traits: libido (sexual behavior), semen quality, and testosterone levels. Five lambs from each group will be harvested to collect carcass data and testicles. Blood will be drawn to look at testosterone levels.

Preliminary data

Group	#	Bi-weekly ADG					
		May 10	May 24	June 7	June 21	July 5	Overall
Ram	19	0.575	0.608	0.469	0.533	0.726	0.582
Wether	24	0.645	0.549	0.457	0.423	0.846	0.584
Short scrotum	17	0.601	0.661	0.496	0.466	1.002	0.645
ALL	60	0.610	0.599	0.472	0.470	0.852	0.601

To follow the progress of the research project and learn more about the small ruminant program at WMREC, be sure to follow the blog (Sheep Research @ WMREC) at <https://wmrecresearch.blogspot.com>. To receive blog entries via email, subscribe to the listserv by sending an email to listserv@listserv.umd.edu (in the body of the message, write subscribe wmrecresearch).

Upcoming Events



August 4

Pennsylvania Performance Tested Ram & Buck Sale and Invitational Ewe and Doe Sale, Pennsylvania Livestock Evaluation Center, Furnace, PA
Info: <http://www.livestockevaluationcenter.com/>

August 25

Virginia Performance Tested Ram Lamb Sale and Replacement Ewe Sale
Virginia Tech Shenandoah Valley Research & Education Center, Steele's Tavern, VA
Info: <https://www.apsc.vt.edu/extensionandoutreach/Sheep-Extension/sheep-programs/va-ram-test.html>

September 28

Southwest Virginia AREC Sheep Field Day and Ram Test Sale
Virginia Tech Southwest Agricultural Research and Education Center, Glade Spring, VA
Info: <https://www.apsc.vt.edu/extensionandoutreach/Sheep-Extension/sheep-programs/swarec-ram-test.html>

December 8

Delmarva Small Ruminant Conference:
All Worms All Day 2018
Western Maryland Research & Education Center, Keedysville, MD
Info: Susan Schoenian at sschoen@umd.edu or (301) 432-2767 x343

January 19, 2019

Lambing & Kidding School
Howard County Fairgrounds, West Friendship, MD
Info: Susan Schoenian at sschoen@umd.edu or (301) 432-2767 x343

January 23-26, 2019

American Sheep Industry Association Convention
New Orleans, LA
Info: www.sheepusa.org

More Information On Sheep & Goats Can Be Accessed

<http://www.sheepandgoat.com/>

<http://www.acsrpc.org> or wormx.info

<http://mdgoatquest.blogspot.com>

<http://www.sheep101.info/>

<https://www.facebook.com/MDSmall>

<http://issuu.com/mdsheepgoat>

<http://mdsheepgoat.blogspot.com>

<https://www.youtube.com/c/MarylandExtensionSmallRuminantProgram>

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