

Wild & Woolly



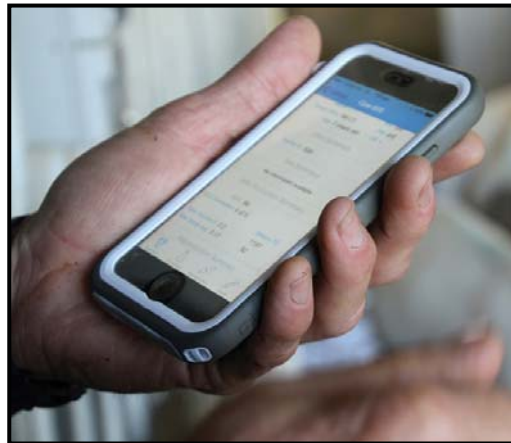
Maryland's Sheep & Goat Producer Newsletter

There's An App For That !

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By Susan Schoenian

An app is software used on a mobile device such as a smart phone or tablet computer. There are millions of apps available for download for iOS, android, and other platforms.

As with other industries, there are many apps that are useful for farmers, including sheep and goat producers. Some are free. Some are available for purchase. Some have annual fees associated with their use. Some paid apps have free or trial versions.

Compared to desktop software, apps tend to be significantly less expensive, although that's not always the case. Some desktop programs have companion mobile apps. Flock-Filer (flockfiler.com), one of the better record keeping programs (for sheep), has a mobile add-on for iOS devices.

Many apps are very simplistic in the information they provide. For example, University of Minnesota Extension has an app called HayCalc that converts the per bale price of hay to a per ton price, allowing users to compare and choose the most economical hay for their animals.

There are several simple apps for doing Pearson Square calculations. The Pearson Square is used to balance simple feed rations containing two ingredients. There are also several apps for calculating due dates for livestock and tracking body condition scores.

One of the most useful apps for sheep producers is ASI Market News (sheepusa.org), which provides national and auction market reports from across the United States. New Holland (PA) is one of the reports included in the app. The app also includes a breakeven calculator.

Many apps serve as references. VetGRAM is an app of the Food Animal Residue Avoidance Database (FARAD). It provides withdrawal times for drugs, especially extra label. There are several databases of animal drugs. The Merck Veterinary Manual is available as a paid app. Oklahoma State University has an app that provides information about toxic plants.

New Mexico State University has an app that 4-Hers can use to keep records on their livestock projects (<http://apps.nmsu.edu/4h-livestock-record.html>). Livestock Weights (livestockweights.com) is an app written by a Maryland 4-H volunteer. It helps to monitor the weights of 4-H market animals. There are several apps that calculate scores for judging contests.

(Continued on page 9)

Know Your Dewormers

By Susan Schoenian

Anthelmintic is the fancy term for dewormer or antiparasitic drug. An anthelmintic kills or expels worms. Worms have developed varying degrees of resistance to all dewormers and dewormer “chemical” classes.

While there are many dewormers commercially available to sheep and goat producers, all fall into three classes: 1) benzimidazoles; 2) macrocyclic lactones; and 3) nicotinic agonists. Drugs in the same class have similar chemistries and modes of action. When resistance develops to one drug in the class, there is cross-resistance to the others.

The benzimidazole (BZ) class includes fenbendazole (SafeGuard®), albendazole (Valbazen®), and oxfendazole (Synanthic®). Benzimidazoles have a broad spectrum of activity, being effective against adult and immature worms (L4s), as well as hypobiotic larvae (and lungworms). They are the only class with efficacy against tapeworms, though Valbazen® is the only drug labeled for this use in small ruminants.

Valbazen® also kills adult liver flukes. SafeGuard® is the drug of choice for the meningeal (deer, brain) worm. The benzimidazoles have a wide margin of safety, but Valbazen® should not be given during the first 30 days of pregnancy. Resistance tends to be highest in the BZ group, with 100% of farms tested in last year’s Let’s Grow project having BZ resistance.

The macrocyclic lactone (ML) group includes two sub-groups: 1) avermectins; and 2) milbimycins. The avermectins include ivermectin (Ivomec®), doramectin

(Dectomax®), and eprinomectin (Eprinex®). Moxidectin (Cydectin®) is the only milbimycin.

Similar to the benzimidazoles, the MLs have a broad spectrum of activity and wide margin of safety. They have two notable distinctions. They have efficacy against external parasites. Ivomec® is specifically labeled for the control of nasal bots (bot flies). They have persistent activity, maintaining some efficacy after administration.

Resistance tends to be high among the avermectins, with 100% of farms tested in last year’s Let’s Grow project having ivermectin resistance. Cydectin® is still effective on many farms. Cydectin® will initially kill ivermectin-resistant worms, but resistance to Cydectin® will develop quickly (if overused) due to its similarity to ivermectin.

The avermectins have greater efficacy against external parasites, whereas the milbimycins have greater efficacy against internal parasites.

The nicotinic agonist group includes two sub-groups: imidazothiazoles and tetrahydropyrimidines. Levamisole (Prohibit®, Leva-Med®) is the only drug in the first group. The latter group includes morantel tartrate (Rumatel®) and pyrantel (Strongid®). Rumatel is a feed pellet. Its unique distinction is its zero withdrawal period for milk.

Levamisole has limited efficacy against larvae, including hypobiotic larvae. Levamisole also has the narrowest margin of safety, at 3x the labeled dose (for sheep). However, levamisole is usually the most effective anthelmintic.

1	2		3	
Benzimidazoles	Macrocyclic lactones		Nicotinic agonists	
	Avermectins	Milbimycins	Imidazothiazoles	Tetrahydropyrimidines
Fenbendazole SafeGuard®	Ivermectin Ivomec®	Moxidectin Cydectin® Quest®	Levamisole Prohibit® Leva-Med®	Mortantel Rumatel®
Albendazole Valbazen®	Doramectin Dectomax®			Pyrantel Strongid®
Oxfendazole Synanthic®	Eprinomectin Eprinex®			

(Continued on page 3)

Know Your Dewormers (continued from page 2)

The drench formulations of Valbazen®, Ivomec®, Cydectin®, and levamisole are all FDA-approved for sheep. SafeGuard® (drench) and rumatel (feed) are FDA-approved for goats. Valbazen® is approved for control of liver flukes in goats. Dewormers given to sheep are often given to goats. This is permissible when it is done in accordance with the extra label drug law (veterinary involvement required).

The American Consortium for Small Ruminant Parasite Control (wormx.info) recommends goats receive 1.5 (levamisole) to 2x (others) the labeled sheep dose because goats metabolize dewormers more rapidly. The consortium is also now recommending that combination treatments be given to treat clinically-parasitized animals. A combination treatment is when you administer a dewormer from each dewormer class at the same time at full dose, resulting in fewer worms surviving treatment.



Using Composite Fecal Samples For Resistance Testing



Anthelmintic (dewormer) resistance is a worldwide problem and growing, not just in sheep and goats, but also cattle. The fecal egg count reduction test (FECRT) is currently the only method for determining anthelmintic resistance at the farm level. With a FECRT, fecal samples are compared before and after treatment (current protocol) or the fecal samples from treated animals are compared to untreated (control) animals (old protocol).

Because of the cost and labor associated with fecal egg counting (FEC), it is rarely performed on farms, unless it is for research purposes. One approach to reducing the cost of the FECRT is the use of pooled composite samples for performing fecal egg counts, rather than conducting FEC on 15-20 individual animals.

Researchers at the University of Georgia conducted a study with 14 groups of cattle to compare the results of composite sampling versus individual sampling. Results of their study were published in the June issue of *Veterinary Parasitology*. The article also describes methods for conducting composite sampling.

Researchers found little difference between the approaches with 98% agreement in mean fecal egg count found between the methods. There was greater than 95% agreement in drug efficacy between the composite and individual samples.

The data demonstrated that pooling fecal samples (from a group of cattle) and then performing repeated FEC on that composite sample yields very similar results compared to performing individual FEC on those same animals.

Composite sampling can substantially reduce the cost of performing a FECRT, which may result in more producers testing for resistance. It is recommended that sheep and goat producers test for anthelmintic resistance every 2-3 years.

Source : <http://www.sciencedirect.com/science/article/pii/S0304401717301863>

Anthelmintic Resistance On Sheep Farms In The Southeastern US

Last year, the American Sheep Industry Association's Let's Grow Program funded a project to determine anthelmintic (dewormer) resistance on thirty commercial sheep farms in Maryland, Virginia, and Georgia.

The DrenchRite® test was used to determine resistance. It is a labor-intensive laboratory test that determines resistance to all dewormers and dewormer "classes" simultaneously from a single pooled fecal sample. The University of Georgia is the only place where the test is performed (in the US).

In 2016, samples were submitted from 26 farms. Four more farms will be sampled this summer. The project cost-shared the test for farmers interested in testing for resistance. The test costs \$450. The project paid half.

While a fecal egg count reduction test quantifies the eggs in a sample and compares it to a pre-treatment or control fecal egg count, the DrenchRite test lets the eggs in the sample hatch into larvae. The worm species can be determined from the larvae. Larvae is put in wells on a special plate. The wells contain doubling concentrations of the drugs. Critical well values which correlate to fecal egg count reductions are used to determine resistance.

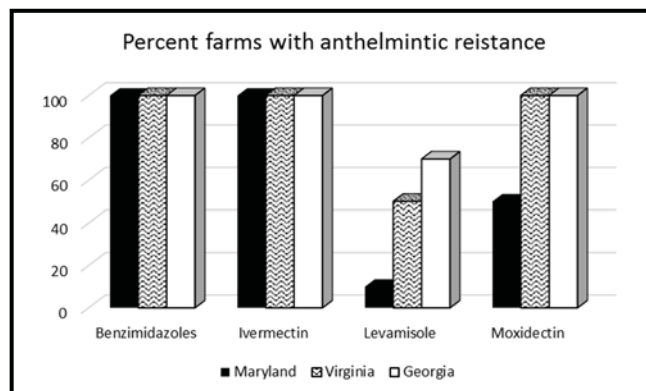
Resistance is present if the percentage reduction in fecal egg count is less than 95 percent. As the percentage decreases, the dewormer becomes less and less effective. At <50%, it is no longer effective as the sole treatment.

The worm larvae most commonly identified in the twenty-six samples was *Haemonchus contortus*, better known as the barber pole worm. On average, the samples contain $82.1 \pm 3.8\%$ *Haemonchus*. All but two farms had more than 50% *Haemonchus*.

The percentage of farms with resistance to benzimidazoles (SafeGuard®, Valbazen®), avermectins (Ivomec®, Dectomax®, Eprinex®), moxidectin (Cydectin®), and levamisole (Prohibit®, Leva-Med®) was determined to be 100, 92.3, 84.6, and 42.3 percent respectively.

Resistance to moxidectin and levamisole was lower on Maryland farms, compared to farms in Virginia and Georgia. Resistance to avermectins was similar. All farms had resistance to benzimidazoles. All farms had resistance to one or more anthelmintics, but there were differences between farms and states.

For effective control programs, farmers need to test for anthelmintic resistance and implement treatment protocols which maximize fecal egg count reduction.



New Blog About Worms

A blog has been added to the web site of the American Consortium for Small Ruminant Parasite Control (ACSRPC). The purpose of the blog is to provide producers with the most up-to-date information on internal parasite control in small ruminants. <http://www.wormx.info/blog>

WORMINFO: A New Listserv

WORMINFO is the name of a new listserv. A listserv is an electronic mailing list.

Subscribers to WORMINFO will receive an email when new information has been posted to the web site (wormx.info or acsrpc.org) of the American Consortium for Small Ruminant Parasite Control (ACSRPC). The list may also be used to distribute general information about internal parasite control in small ruminants

To subscribe to the WORMINFO listserv, send an email message to listserv@listserv.umd.edu. In the body of the message, write subscribe WORMINFO.

Skillathon Winners Announced

About sixty youth competed in the 2017 Junior Sheep & Goat Skillathon, held May 8 at the Maryland Sheep & Wool Festival. Youth and teams competed according to their ages as of January 1: Junior, 8-10; Intermediate, 11-13; and Senior, 14-19.

The 1st place junior was Matthew Simpson from West Virginia. Eddyn Molden from Frederick County, Virginia, placed 2nd. Brooke Crandell from Pennsylvania was 3rd. The 1st place junior team was the team from Frederick County, Virginia. Howard County (Maryland) had the 2nd place junior team. Montgomery County was 3rd.

In the intermediate division, Lizzy Miller from Montgomery County was 1st. Ana Clemmer from Howard County was 2nd and Jordan Kelly from Frederick County (Virginia) was 3rd. The 1st place intermediate team was the team from Frederick County (Virginia). Frederick County, Maryland, was 2nd.

In the senior division, Brietta Latham from Howard County placed 1st. Two Charles County 4-Hers placed 2nd and 3rd, respectively: Hayley Tanner and Taylor Burch. Howard County had the 1st place senior team, followed by Frederick County, Virginia, and Frederick County Maryland.

The Maryland Sheep Breeders Association provided ribbons and premiums to the top 10 individuals in each age division and Festival t-shirts to the top-3 teams.

Special thanks to Chris Anderson, 4-H Youth Animal Science Specialist with University of Maryland Extension, for running this year's skillathon, while Susan Schoenian, Sheep & Goat Specialist, was on sabbatical. Thanks to everyone who helped with this year's skillathon.

The skillathon is always held the first weekend of May (Sunday) at the Maryland Sheep & Wool Festival. Competition is open to individuals and teams of youth (age 8-18) from any state or province.

Images by Chris Anderson

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



Junior Skillathon Winners



Intermediate Skillathon Winners



Senior Skillathon Winners

More Information On Sheep & Goats Can Be Accessed At:

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

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

<http://mdsheepgoat.blogspot.com>

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

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

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

<http://mdgoatquest.blogspot.com>

<http://issuu.com/mdsheepgoat>

Disposing of Farm Medical Waste

by Dan Grooms, Michigan State University and Sandy (Amass) San Miguel, Purdue University

Livestock producers can potentially generate medical waste on a daily basis. These wastes include sharps (needles, syringes, and scalpels) and drug containers (empty drug or vaccine vials) and outdated drugs.

As stewards of the environment, livestock producers should take precautions to assure that medical wastes do not become hazards to themselves, their families, their operations or the community.

Sharps

Sharps commonly used on farms include needles, syringes and scalpels. If not disposed of properly they can injure livestock, injure family members, injure waste handlers, increase the risk of infection, and pollute the environment.

Sharps should be collected on the farm in a rigid puncture resistant container that has a screw-on or tightly secured lid. Containers specifically designed for this purpose can be purchased from health suppliers including your local veterinarian.

Other potential “sharps” containers, while not as satisfactory as special purpose ones, include an empty, thick-walled detergent bottle or an empty 5-gallon drum. Glass bottles, thin walled jugs, such as milk jugs, coffee cans, pop cans or plastic bags are not acceptable for disposing of sharps.

When on the road (livestock shows), make sure to bring small “sharps” disposal containers as well as bags to carry other medical wastes back to the farm. Containers should be visibly labeled identifying it as a biohazard waste container. To avoid accidental recycling, clearly label the container as nonrecyclable. When the container is full, it should be sealed and the lid firmly secured.

Duct or packaging tape works well to secure the lids. Disposal of sharps may be regulated by your state. Contact the agency in your state that is in charge of overseeing the disposal of medical wastes. A list of these agencies can be found at the following EPA Web site: <https://www.epa.gov/home/health-and-environmental-agencies-us-states-and-territories>.

Alternatively, you may be able to identify a veterinarian, hospital, pharmacy, physician or dentist office that will accept farm or household generated medical wastes. Some states have registered “sharps” collection stations.



Sharps Container

Used drug containers

Empty or partially empty drug containers should be properly disposed of to reduce the risk of environmental contamination with chemicals or infectious agents. These include, among others: injectable medications (antibiotics, vitamins and minerals, and mastitis tubes), oral medications (dewormers, antibiotics, and vitamins and minerals), and topical medications (sprays, dewormers, and ointments).

Vaccines

Always carefully read the manufacturers’ label recommendations for disposing of empty or partially empty drug containers. Most can be burned or disposed of in a sanitary landfill. Unused products should not be dumped down a drain or on the ground. Disinfectant should be added to unused portions of live or modified-live vaccines to reduce the accidental exposure to unintended populations. Broken glass vials should be placed in a rigid cardboard box and clearly labeled as “Broken Glass.”

Unused drugs or vaccines that have become outdated should be disposed of properly. They can often be returned to the manufacturer or to the place of purchase for proper disposal.

Miscellaneous Medical Waste

Other medical waste that may be generated on livestock farms include bandages and medical gloves. These items should be placed in securely fastened leak proof bags before putting them in with the rest of your trash.

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Differences Among Meat Goat Breeds for Health and Reproduction

For many years, Tennessee State University, under the direction of Dr. Richard Browning, has conducted studies comparing differences among meat goat breeds. The most recently published study compared four meat goat breeds for doe fitness traits. It is one of the few studies in which the Myotonic has been included. The Myotonic is a heritage breed, also known as a fainting goat.

Does (115 Kiko, 73 Boer, 114 Spanish, and 80 Myotonic) were compared for traits associated with health and reproduction. The herd was semi-intensively managed for six years on humid, sub-tropical pastures. The study included 838 doe-year matings and over 2,000 records for body weights (BW), fecal egg counts (FECs), and packed cell volumes (PCVs).



Myotonic buck kids

Boer and Kiko does were heavier than Spanish does, which were heavier than Myotonic does. Myotonic does had the lowest FECs. Boer does had the highest. Kiko and Spanish does were intermediate. Kiko, Spanish, and Myotonic does had higher PVCs than Boer does. Doe age and physiological state also affected BW, FEC, and PCV.

Annual kidding rates, weaning rates, doe retention rates, and kid crop weaned were greater for Kiko and Spanish does than Boer does. Myotonic does were intermediate. Results of the study indicate that Kiko and Spanish does should be favored over Boer and Myotonic does for commercial meat goat production; however, Myotonic does warrant further evaluation due to their lower FECs.

Source: Journal of Animal Science, April 2017

Delaware Has A New Small Ruminant Specialist

Dr. Kwame Matthews joined Delaware State University (DSU) as an Assistant Professor and Small Ruminant Extension Specialist with a split appointment in Extension, Research and Teaching. His Master's work included using natural dewormers and breed resistance to control internal parasite loads in small ruminants while his Ph.D. work included identification of chemical compounds that can inhibit the essential phospholipid biosynthetic enzymes in *H. contortus*.

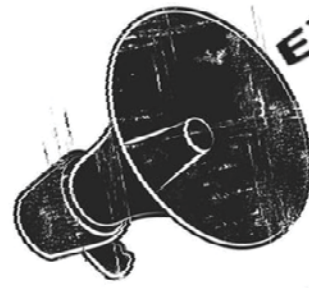
Dr. Matthews plans to use basic and applied research to identify novel means of parasite control which will be applicable for producers. Also, he is interested in low-input small ruminant production and assisting producers with best management practices to control parasites.

Dr. Matthews is filling the position left by Dr. Dahlia O'Brien, who is now at Virginia State University. For information regarding the small ruminant program at DSU, feel free to contact Dr. Kwame Matthews via email (kmatthews@desu.edu) or phone (302-857-1020) and be sure to visit DSU's small ruminant program Facebook page. (<https://www.facebook.com/DSUSmallRuminantProgram>).



From left to right, Jasmine Harris, Dr. Kwame Matthews and Frances Blake.

- Scientists successfully grew baby sheep in an artificial womb. The artificial womb (called a biobag) looks like an oversized ziplock bag strewn with tubes of blood and fluid. Six lambs spent four weeks in the external womb and seemed to develop normally. The artificial womb may offer hope for premature babies.
- A pet goat saved an Arkansas family from a devastating house fire. The goat alerted the family to the smoke. The family's garage had caught fire and the flames were quickly spreading to the rest of the house.
- A cargo ship that was carrying sheep from Romania to Jordan smashed into a Russian military vessel and sunk it. The cargo ship, including its 8,800 sheep, suffered no apparent damage. The 16 sailors on the Russian ship were rescued. Fog was blamed for the collision.
- Parents in Zimbabwe who cannot afford to send their kids to school can now offer livestock such as sheep and goat for payment. People can also use their livestock to back bank loans. Zimbabwe is a land-locked country in Southern Africa.
- In Uganda, parents are being given goats on the condition that they keep their daughters in school, instead of marrying them off (for goats). Uganda borders Kenya.
- Two students from Oklahoma State University have turned their award-winning class project into a business. Billy Goat Ice Cream markets ice cream made from goat milk.
- In Morocco, goats devote 74% of their foraging time to "tree-top" grazing, climbing the endemic argan tree. In fact, herders assist kid goats in learning to climb and even occasionally prune the trees to facilitate grazing. Scientists are studying how these "tree-climbing" goats spread seeds by spitting and postulate that goats could be a potential dispersing mechanism for large seeds.
- Goat yoga is the newest craze in exercise. Goat yoga is not yoga for goats, but rather, yoga in a pasture or barn with the goats wandering right through your poses. Classes are selling out across the country.



**EXTRA!
EXTRA!**

READ ALL ABOUT IT!!!

Thanks to Farm-to-Feet

Thanks to Farm-to-Feet (<https://www.farmtofeet.com/>) for donating a box of assorted socks to the University of Maryland Small Ruminant Extension Program. The socks will be given away as door prizes at upcoming programs. The socks (68% Merino wool) are 100% American: US materials, US manufacturing, and US workers.



Scrapie Submissions Needed



The good news for American sheep (and goat) producers is that the industry has scrapie on the run. The bad news is that the current status makes carriers of the fatal disease more difficult to find.

“The incidence rate is now very low and finding the few remaining cases becomes more difficult using traditional surveillance

methods,” said Wyoming State Veterinarian Jim Logan, DVM. “The best and most appropriate method now is within flock surveillance. It is in the best interest of the industry that we sample as many adult dead sheep and goats that we can find and get them tested.”

The only diagnostic tests currently available to determine if a sheep has scrapie require brain or lymphoid tissue. Scrapie is typically diagnosed by finding abnormal prion protein accumulation in the brain and/or lymphoid tissue of infected sheep. A positive test must be confirmed by the National Veterinary Services Laboratories. While no new cases of classical scrapie have been reported in the United States since April 2016, there’s still a need to be vigilant.

“If producers take this on in a serious manner and get heads to the laboratory, it will help the U.S. Department of Agriculture prove to the international community that the United States is free of scrapie, and we will finally be able to wrap up this national eradication program,” Logan said.

The best way for producers to assist in completely eradicating scrapie from American borders is to participate in APHIS’ sample submission program. The program is provided at no cost to the producer, and asks that producers submit samples from adult sheep or goats.

“Most producers don’t see scrapie as an issue in their flock,” said Diane Sutton, USDA/APHIS Veterinary Services Sheep and Goat Health Team Leader. “We’re so close to being free of scrapie, but we need to be able to demonstrate that to the world. Slaughter surveillance alone won’t get the job done.”

The process for submitting samples is fairly simple. Shipping boxes with packing supplies and shipping are provided at no cost by APHIS. For more information, visit :

http://Sheepusa.org/IssuesPrograms_AnimalHealth_Scrapie.

Source: High Plains Journal, April 30, 2017

There’s An App For That (continued from page 1)

My primary interest is in apps that can be used for record keeping: breeding, birthing, treatments, sales, etc. There are many to choose from. Several allow you to synchronize data across devices. Some accept electronic ID (RFID). HerdBoss (herdboss.com; iOS only) is a nifty app with an easy-to-use interface.

Goat Book (goatbook.net) and Sheep Book (sheepbook.net) are relatively new apps that deserve a look. Livestocked (livestocked.com) is an app for multiple species of livestock. It seems to have the most potential for those interested in using an app for performance record keeping. I have been providing input to its developer.

A list of apps of interest to sheep and goat producers can be found on the Maryland Small Ruminant Page at www.sheepandgoat.com/apps.

Delmarva Small Ruminant Conference - All Worms All Day

The Delmarva Small Ruminant Conference will be held Saturday December 9, 2017, at Delaware State University in Dover, Delaware. The all-day conference will focus 100 percent on gastrointestinal parasites (worms). The program will include general and breakout sessions, along with a separate program for youth, ages 8-18.



Speakers for the conference will include members of the American Consortium for Small Ruminant Parasite Control: Dr. Kwame Matthews, Delaware State University; Dr. Nelson Escobar, University of Maryland Eastern Shore; Dr. Dahlia O’Brien, Virginia State University; Susan Schoenian, University of Maryland Extension; and Dr. Niki Whitley, Fort Valley State University. The youth program is being organized by Susan Garey and Dan Severson from the University of Delaware and Ashley Travis from the University of Maryland-Washington County.

Registration information will be in the next newsletter. For more information, contact Dr. Kwame Mathews at (302-857-1020 or kmatthews@desu.edu or Susan Schoenian at 301-432-2767 ext. 343 or sschoen@umd.edu

Upcoming Events

July 27-29

Katahdin Hair Sheep International Expo & Sale
Hancock County Fairgrounds, Greenfield, Indiana
Info: www.katahdins.org

August 5

Pennsylvania Performance Test Ram & Buck Sale
PA Livestock Evaluation Center, PA Furnace, PA
Info: <http://www.livestockevaluationcenter.com/>

August 13

Integrated Parasite Management (FAMACHA© Workshop
Zekiah Farms, Waldorf, Maryland
Info: <https://famacha2.eventbrite.com>

August 19

WVU Production Sale
WVU Animal Science Farm Pavilion, Morgantown, WV
Info: Scott Bowdridge at (304) 293-2003 or
Scott.Bowdridge@mail.wvu.edu

August 26

Virginia Performance Tested Ram Lamb Sale
Shenandoah Valley Research & Education Center, Steele's
Tavern, VA
Info: <http://www.apsc.vt.edu/extension/sheep/va-ram-program/>

September 1-2

Bluegrass Performance Invitational
Premier Buck & Doe Sale
Lakeview Park, Frankfurt, KY
Info: <http://www.bluegrassperformanceinvitational.com>

September 22

Southwest AREC Ram Test Sale & Field Day
Southwest Agricultural Research & Education Center,
Glade Spring, VA
Info: <http://www.apsc.vt.edu/extension/sheep/swarec-ram-program/>

December 9

Delmarva Small Ruminant Conference:
All Worms All Day
Delaware State University
Info: Kwame Matthews at kmatthews@desu.edu

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