

Small ruminant symposium set for February in Frederick

The first-ever Maryland Small Ruminant Expo will be held Saturday, February 28, 2015, at the Frederick County 4-H Camp & Activities Center in Frederick, Maryland.

The all-day event will feature separate educational programs for adults and youth. The adult program will be divided into four educational tracks:

Morning concurrent sessions:

- **Pasture.** *Alternative forages and forage identification* – Jeff Semler and David Gordon; *Finishing lambs and kids on pasture* - producer panel
- **Health and production.** *Working with your veterinarian* - Dr. Lindsay Lane; *Hoof health* – Susan Schoenian
- **Youth.** *Dairy* - April Barczewski; *Fiber* - Dr. Mary Beth Bennett

Afternoon concurrent sessions:

- **Marketing.** *Marketing options for small ruminant producers: wholesale*

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vs. retail
 - Ginger Myers and Susan Schoenian;
Producer marketing experiences – producer panel

- **Alternative enterprises.** *Wool production and marketing* – producer panel; *Small ruminant dairying* – producer panel

- **Youth.** *Meat* – Chris Anderson; *Science* – Dr. Lindsay Lane

The youth program will include sessions related to fiber, dairy, meat, and science (wet lab). Activities will be mostly hands-on. Lunch will be a taco bar, with a choice of lamb and/or goat meat and sheep and/or goat milk cheese. Meats and cheeses will be sourced locally.

Speakers will include extension experts, as well as producers. One of the featured speakers will be Dr. Lindsay Lane. Before attending veterinary school, Dr. Lane was the farm manager for the University of Maryland College Park. She managed the campus farm, which includes a flock of mostly Katahdin sheep. Currently, Dr. Lane works at the Rocky Gorge Animal Hospital in Laurel.

Event sponsors include University of Maryland's Small Ruminant Extension Program, the MPWV Meat Goat Producers Association and the U-MD Beginning Farmer Program.



Vet Lindsay Lane and friends.

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Image by Barbara Klein, of Nancy Cox Starkey's *Keep*

Management

The Other Down Under: Growing Healthy Soil

Joshua Dukart (*"What is Soil Health,"* at right) is a field representative for the North Dakota Grazing Lands Coalition. He spoke at the 2014 Virginia Forage and Grassland Council's Winter Forage Conferences.

So. It's brutally cold, and so windy that when you carried hay out to the feeders, at least \$10.39 of it blew away instantly.

"Keep your heads down and eat fast," you grimly advised the ewes, before you fought your way back to add to the water-bucket-shaped ice structures as large as an iceberg outside the barn.

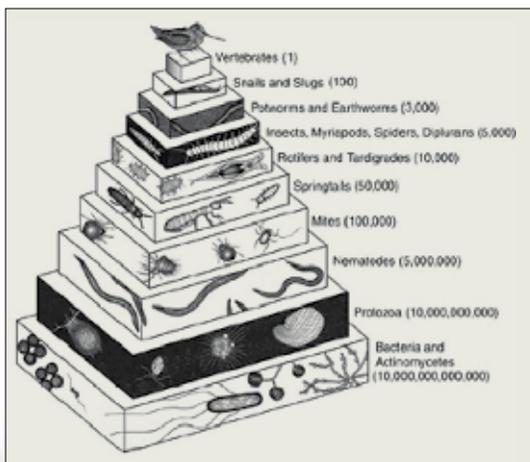
So let's pretend it's spring and talk about soil.

Consider this: An average acre of healthy pasture (with a 10-inch growth of cool-season grass and clover) has about 2,500 pounds worth of forage (dry matter). Add to that 6 ewes at 167 pounds each, and you've got about one and three-quarter tons of live stuff above ground.

But that's nothing compared to what's below the surface on that healthy acre. In the soil, here's what's alive:

- 2,500 pounds of plant roots
- 2,052 pounds of bacteria

- 2,052 pounds of actinomycetes (a special type of bacteria)
- 6,244 pounds of fungi
- 219 pounds of algae
- 80 pounds of protozoa
- 62 pounds of nematodes
- 65 pounds of mites
- 65 pounds of collembola (springtails)
- 624 pounds of earthworms
- 40 pounds of other fauna.



This drawing illustrates the estimated number of soil organisms that exist for every vertebrate animal, such as the bird at the top of the pyramid. [Drawing by Dr. James B. Nardi, University of Illinois at Urbana-Champaign.]

Seven more tons of life, forming a well-balanced food web. Are you taking good care of it?

For the past several years at forage conferences across the nation, Soil Health has been the theme. It is the Next Big Thing—comparable, speakers said, to the huge impact that no-till farming had on productivity decades ago. USDA even has released public service announcements to reinforce its importance (see page 1).

Here is a collection of articles on elements of soil health and how to achieve it.

Soil health is the capacity of soil to function, within natural or managed ecosystems, to sustain productivity, enhance water and air quality, and support the plant, animal, and human health complex and their habitation.

What is Soil Health?

Soil health is the condition of the soil and its potential to sustain biological functions, maintain and improve environmental quality, and promote whole ecosystem health with limited or no outside artificial inputs.

Focusing on soil health promotes an agriculture that is an effective biological process to share nutrient-dense food, rather than an efficient industrial process to sell a commodity.

How you get there:

- Maintain soil protection at all times;
- Encourage increasing levels of diversity in the soil-plant-animal-insect communities;
- Allow living plant root to be present in the soil every day possible for energy transfer;
- Create appropriate disturbance regimes to encourage stimulation and movement of living cycles;
- Provide adequate recovery time for ecosystems to strengthen; and
- Take your reward—in an environmentally, economically, and socially responsible way.

Following these basic principles will provide the most beneficial food and habitat for above- and below-ground organisms and the relationships that exist between them—they will eliminate soil erosion, cause reduced soil disturbance and compaction, and enhance inherent soil fertility.

Why? Farming in sync with nature can balance both ecological integrity and the ability to produce a profit. We do one to create and enhance the other—creating higher levels of soil health produces more profit, biologically and financially.

Most importantly, the soil health approach promotes an agriculture that is an effective biological process to share nutrient-rich food [Ed. note: *and fiber!*], rather than an industrial process to sell a commodity. It is possible to have the best of both worlds: to produce high-quality, healthy food today and leave the factory (the soil) that produces that food intact and improving for the future.

Good pasture management creates a good ecosystem, which creates more productive pastures, which creates more value per acre.

The soil is the most overlooked part of the pasture. Most of our day-to-day efforts are spent with the livestock, managing the above-ground portion of the pasture ecosystem to ensure that the livestock are properly fed.

But there is more biomass and biological activity below ground than above. It is this subterranean community that maintains the soil structure and water infiltration when it rains, cycles nutrients from organic and mineral sources for use by the plants and ultimately the animals and us.

Each plant, animal, bacteria, protozoa, and fungus has its niche in its ecosystem. Each has an optimum physical and chemical environment and habitat—providing food and cover and allowing the species to maintain itself and reproduce. If any one of the needed resources is below a threshold (low soil fertility) or above a threshold (excessive soil temperature) it will become a limiting factor to organism's health and productivity.

That seven tons of life per acre beneath the soil

surface enables us to achieve our production goals. Our above-ground management enables the soil community to be healthy and vigorous.

Too often we think of the ecosystem as something apart from us as humans. But we are the managers of our pasture ecosystem, and through intentional or unintentional control of the animals, fertility, and renovation practices, we determine the ecological balance in that ecosystem, above and below ground.

And as managers, we need to develop a pasture system that provides for the plants that feed the above and below-ground livestock. By optimizing the health of the soil community, we optimize the health of the above-ground community, which feeds our livestock, which feeds the soil with manure, urine, and tilled plant parts, and provides us with fiber, meat, and milk.

The box below gives a short introduction to the citizens of the pasture soil community.

Life Underground: An Introduction

Ed Rayburn is a forage Extension specialist at West Virginia University. He spoke at the 2014 Virginia Forage and Grassland Council's Winter Forage Conferences. A portion of his talk, "Introduction to Pasture Ecology," is presented here.

Citizens of the Soil Community

Plant roots gather water and nutrients for the plant and provide a major source of live and dead organic matter for food to soil organisms. Legumes within this group, with their symbiotic rhizobia bacteria, fix nitrogen from the air and provide it to the rest of the pasture community. If you've got lots of roots, you have the foundation for a healthy soil. (see article on grazing and root growth).

Algae and moss are other primary producers that provide organic matter to the community. Some algae fix nitrogen from the atmosphere for making protein similar to the bacteria in legumes.

Earthworms eat dead plant material (detritus). They are opportunistic predators when they consume soil containing bacteria, protozoa, nematodes (including those that are sheep parasites), and fungus. They provide the ecological service of shredding large pieces of organic matter, making it more accessible to bacteria and fungus. They aerate and invert the soil, improving soil drainage, water infiltration, and aggregation of soil particles. And they are food for birds, moles, skunks, and carnivorous slugs and nematodes.

Slugs and snails consume live plant material, also shredding organic matter into smaller pieces. Carnivorous species consume earthworms and other slugs. They also are food for birds, mice, beetles, and firefly larvae.

Nematodes consume plant roots and algae, predators of bacteria, protozoa, fungus, and other nematodes, and are parasites of insect larva, slugs, and earthworms. They perform an important function in the nitrogen cycle by eating bacteria and releasing nitrogen back into the soil for plants and other organisms. And they're eaten in turn by other nematodes, fungus, and mites.

Woodlice eat dead plant material, and shred organic matter. They are eaten by birds and spiders.

Spiders are predators. Mites consume algae and predators of nematodes, springtails, fungi, insect larva and eggs, and nematodes. Some species are detritus feeders while others are insect parasites.

Centipedes eat insects, slugs, and worms. Millipedes mostly eat detritus and fungi but sometimes consume live plants and seeds.

Springtails consume dead organic matter and fungi. Some eat plant seedlings, small nematodes, and dung of other soil animals. Ants eat them.

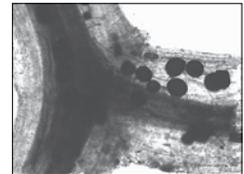
Some **beetles** are predators of insects, earthworms, and snails. Some, such as the clover root curculio, eat live plants. Carrion and dung beetles feed on detritus, and provide the ecological service of soil inversion, improved soil aeration, and water infiltration.

Ants eat live plants and "farm" aphids for their honeydew. They also consume fungi and are predators of other soil organisms. They provide the ecological service of soil inversion, improved soil aeration, and water infiltration.

Termites consume dead plant material and are shredders of coarse organic matter. They digest cellulose using gut bacteria similar to a cow and provide soil aeration and soil inversion.

Bacteria are central participants in the nitrogen cycle. As symbiotic partners in root nodules they use sugar provided by the plant as energy to fix nitrogen from the air into ammonia which the plant uses for making protein. Other bacteria are detritus feeders and break proteins down into ammonia, while other bacterial convert ammonia to nitrates. Bacteria are food for protozoa and nematodes.

Some **fungus** species trap and consume nematodes (including larvae of sheep parasites). Others such as Mycorrhizae fungi help plant take up soil nutrients and even help transfer nitrogen from legumes to grasses.



Some soil citizens, from top to bottom: actinomycetes bacteria on plant matter, a springtail, a dung beetle, mycorrhizal fungus in a plant root, and nematode parasitic bacteria attached to a plant-parasitic nematode.

Management ▶

Soil Health Management for the Pasture

Information in this article came from several sources. Nathan Haile is an agronomist with USDA's Natural Resources Conservation Service in Weatherford, Texas. This article is from outontheland.com.

Doug Peterson is a Missouri forage and livestock producer and NRCS state soil health conservationist.

Without vegetative cover in the heat of summer (as might happen in a pasture grazed too closely), soil and all its inhabitants face a grim scenario.

A soil health management system is a collection of primary and supporting conservation practices focused on improving soil quality and productivity. Its purpose is to provide agricultural producers ecological and economic alternatives to increase soil health and productivity. A well-executed system will:

- mimic natural ecological systems (promoting plant diversity and soil-plant relationships),
- increase biological activity,
- increase organic matter,
- decrease runoff and erosion,
- increase available water holding capacity and infiltration, and
- increase nutrient cycling and suppress weeds.

Choosing specific practices for your farm depends on farm objectives, types of soils, climate, and topography. The current and historical management of the soil's physical, biological, and chemical properties should be reviewed in developing a plan. The five principles include the following:

Armor the soil

Adding new organic matter (crop and forage residues, manure) every year is the most important way to improve and maintain soil health. Ground cover protects soil and provides habitats for soil organisms, such as insects and earthworms, which help build soil structure and increase porosity.

Soil organisms are like us—they do their best work at around 70 °F. Most are considered subaquatic, meaning they live and swim around

in the very thin film of water on the face of the soil particles and around plant roots.

Earthworms can move to wetter areas in the soil, but most other organisms can't move rapidly through soil. If the soil quickly gets hot and dries out, they either go dormant or die. In either case, they won't be breaking down organic matter and making minerals available to our forage plants. Keeping a taller canopy as much of the summer as possible is critical to help keep the soil cooler and more biologically active. A mulch layer on the soil surface helps keep the soil cool and reduces moisture loss as well as providing a food source for the soil organisms.

How do you keep a mulch layer on the soil? Hayfields will seldom have any kind of a mulch layer. Continuously grazed fields will seldom ever have a mulch layer either. Grazing and trampling down fairly mature lignified material is about the only consistent way of achieving a good mulch layer.

Bare soil is susceptible to wind and water erosion, evapo-transpiration, extreme surface temperatures, and crusting. In addition, bare soils often have soil surface temperatures of 145 °F (20 to 30 degrees higher than the ambient air temperature). At about 113 °F, soil microorganisms start to shut down activity.

Minimize disturbance

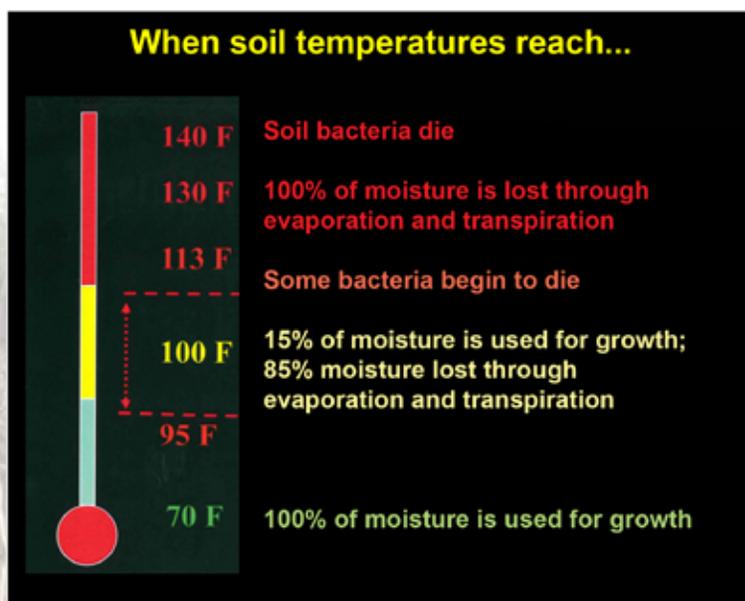
Disturbances to the soil ecology can be physical, chemical, or biological. Major disturbances are tillage, inorganic salt fertilizers, pesticides and herbicides, and livestock (as well as wildlife).

Tillage (physical disturbance) and overgrazing (biological disturbance) destroy soil structure, speed the decomposition of organic matter, increase erosion, disrupt the habitat of soil organisms, and cause compaction. Conversely, eliminating tillage and severe grazing events provide organic material for the soil biology, helping to increase structure, porosity, and nutrient cycling.

Pesticides, herbicides, and fertilizer can be used beneficially, but both can also upset the nutrient cycle, which in turn can upset the balance of organisms in the soil. When applying them, we need to understand how they impact the soil organisms.

Diversify plant types

Pasture plants can be lumped into basically four forage types: cool-season grass, warm-season grass, cool-season broadleaves and warm-season broadleaves.



Some of these plants will have deep taproots, some shallow fibrous roots, some that thrive in wet years, and some will like dry growing conditions. You will have plants that provide a higher protein source for your livestock and some that provide a better energy source for them.

You might have plants that do not get eaten at all by your livestock. But does that mean they don't have a role in your field? What if that ugly plant you call a "weed" has an incredibly deep taproot that pulls a particular mineral from way down in the soil profile that your higher volume forages but shorter-rooted plants, like the grasses, need? They may not produce one pound of forage your livestock eat, but they may be the most important plant in the field.

With these diverse mixtures of plants come stability and resiliency. You will have a pasture that produces something year after year regardless of the growing conditions. A pasture with many species in it makes for a healthy and diverse underground community as well. Different plant species have specific characteristics that help enhance organic matter, fix nitrogen, increase water and nutrient availability, and attract beneficial insects.

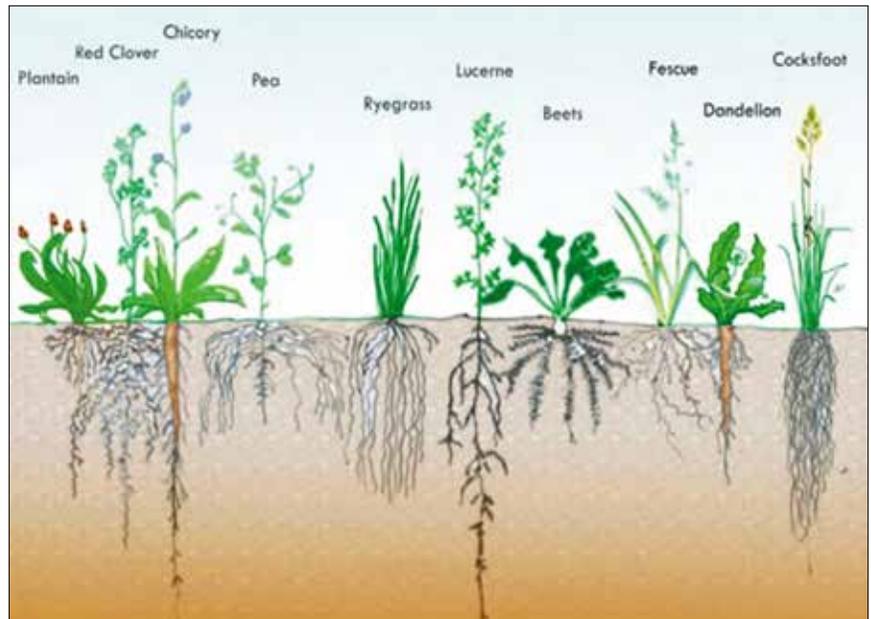
- Crop and plant diversity contribute unique root structures to promote porosity and nutrient cycling, high and low C:N ratio residues, and diverse plant exudates (organic acids) that attract diverse soil biology.
- A diversity of soil organisms can help control pest and reduce disease pressures.
- Nature thrives on diversity and is much more stable with highly diverse systems.
- Diversity across the landscape attracts beneficial insects, increases soil microorganisms, provides wildlife habitat, and helps manage economic risks.

Keep a living root all year

One of the primary food sources for organisms in the soil is the sugary exudates the plants give off. The plants are in control. The plants actually determine the population of organisms by how much exudate they give off.

Some plants actually give up 60 percent of their photosynthetic energy in the form of exudates to attract soil organisms, which in turn bring them nutrients and minerals the plant otherwise couldn't get. Those microorganisms that in turn attract larger soil organisms that prey on the smaller ones.

In a perennial pasture, we should have living roots there all year long. But we do need to



A diversity of pasture species brings with it a diversity of root types and structures. (Translations from the New Zealandese: Cocksfoot is orchardgrass; lucerne is alfalfa.) [Image from <http://integritysoils.co.nz>]

make sure we keep that feed trough for those soil organisms as big as possible. How do we do that? Most of us have always been taught the root systems of a plant are a reflection of the above-ground biomass.

To keep the root system big, and the biological feed trough full, we need to manage for actively growing taller plants that have had adequate recovery periods during the growing season. We all plan on how much pasture and hay we need for livestock for the year or winter. The bottom line is: Do you put thought and specific action into feeding and managing your soil livestock?

Integrate livestock

Those who raise livestock regard pasture as a tool to provide feed for their flocks or herds. To a soil agronomist, livestock serve as an economic tool to offset the cost or profit from the soil health management system. They are used to harvest, process, and distribute nutrients consumed from the forage and transfer biology across the farm.

Properly managed, livestock can provide hoof action that incorporates residues into the soil surface with minimum soil physical damage, helping the soil microbes to easily decompose the residues.

In addition, livestock have diverse biology in their urine, feces, saliva, hair, and milk that can help increase diversity and develop a predator/prey relationship (balance) among the "herd below your feet."

Management Calendar

March 13-14

Appalachian Grazing Conference, Morgantown, WV, www.grazeappalachia.org

March 15

Deadline for consignments to the Pennsylvania Ram Lamb Performance Test, Furnace, PA, livestockevaluationcenter.com/Documents/RamRules.pdf

April 17-18

MSBA Shearing School, Westminster (see page 13)

May 1

Integrated Pest Management/FAMACHA workshop, West Friendship, sheepandwool.org/2015-festival/shepherd-workshops.

May 30

West Virginia Fall-born Ram Lamb Performance Test Sale, Petersburg, WV, sheepandgoats.wvu.edu/r/download/203016

Management ►

So far you've had an overview of soil health, the principles and practices to get it on your farm, and the organisms beneath the surface that make the ecosystem work. But if you don't have the roots, you won't have healthy soil.

Grazing affects root growth

Jim Johnson is Soils & Crops Consultant with the Samuel Roberts Noble Foundation. This article is at noble.org/ag/pasture/plant-root-growth.

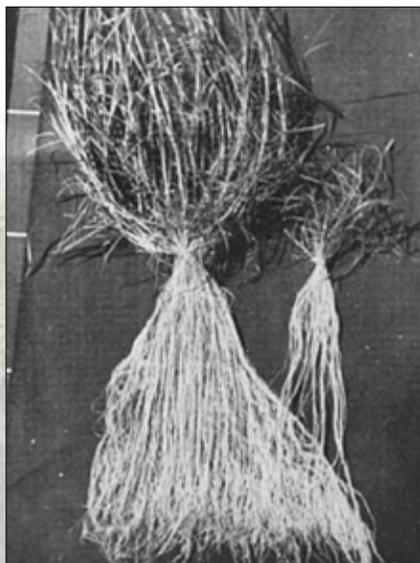
Over the years I have seen many grazing operations in many parts of the country. I have seen places that never seem to grow as much grass as they should, and I have seen places that always seem to have lots of grass. Likewise, I have seen places that have been hurt by the extreme weather of the past several years, and I have seen places that have tolerated the extreme weather quite well.

The places that have lots of grass and are doing well don't necessarily have better soil or get more precipitation, and they may not be stocked lighter or rested more days per year. So what is the difference? Roots and the effects that management has on the roots.

I've always kind of known that grazing management affects roots, but it was made crystal clear to me this past summer when I was introduced to some work published by Franklin J. Crider in 1955. Through several experiments using various perennial grasses, he showed the effects that forage removal has on root growth.

In one experiment, Crider showed that when more than half of the forage is removed from a plant, root growth stops within the first day or two afterward and stays stopped from six to 18 days, with an average of 11 days. In the real world, this means if cattle have the opportunity to graze more than half of the top growth of a grass, at an interval less than 11 days, the roots never get to recover. If the roots don't recover, then eventually neither will the top.

In another experiment, Crider showed the effect that a single removal of top growth, in 10 percent increments, has on root growth. When 40 percent or less of the forage is removed, 0 percent of the roots stop growing. When 50 percent or more of the forage is removed, an increasing percentage of the roots stop growing. When 90 percent of the forage is removed, 100 percent



From Crider's research: Smooth bromegrass at the time of a third clipping, 46 days after the second. The plant on the left remained unclipped.

Percent root growth stoppage three days after forage removal

% Forage removal	Test 1	Test 2	Test 3	Test 4
90	100	100	100	100
80	100	100	91	81
70	78	97	77	76
60	50	80	54	36
50	2	8	38	13
40	0	0	0	0
30	0	0	0	0
20	0	0	0	0
10	0	0	0	0
0	0	0	0	0

This represents four tests with three different grass species. Note that somewhere between 40 and 50 percent of the forage can be removed without stopping root growth.

roots keep growing, so should the forage.

Not only did higher percentages of forage removed result in greater percentages of roots that stopped growing, the higher removal percentages also resulted in greater lengths of time before the roots resumed growth. Thirty-three days after top growth removal, plants with 80 and 90 percent of their forage removed still had a portion of their roots that had not resumed growth.

In a companion experiment, Crider showed how repeated removal of forage affects root growth. Like the previous experiment, removal of a percentage of top growth, in 10 percent increments, was done. However, in this experiment, forage was repeatedly removed to the height of the initial removal three times per week for five weeks. This time, 33 days after initial top growth removal, plants where 50 percent or more of their forage was removed still had a portion of their roots that had not resumed growth, and none of the roots had resumed growth on the plants with 70 percent or more of their forage removed.

So removing half or more of the forage at a time stops root growth whether cattle graze rotationally or continuously. However, leaving half or more of the forage allows root growth to continue uninterrupted. If the roots grow more, the forage grows more; in the long run, more forage will come from the half that is grazed.

The entire article by Crider can be found by looking up Root-Growth Stoppage Resulting From Defoliation of Grass by Franklin J. Crider, Technical Bulletin No. 1102, United States Department of Agriculture, February 1955. (It's available free as an e-book.)

A small farm livestock owner recently asked me about the benefit of pasture aeration and the application of fertilizer and lime. That started me thinking about soil quality, pasture condition and the effect that pasture management might have on soil quality.

A question about mechanical pasture aeration suggests concern about soil compaction. It's generally most associated with horses or cattle on pasture, heavy equipment on wet soils, and heavily trafficked areas for all species.

A number of pasture studies have addressed the effects of mechanical aeration versus fertilization. The hypothesis was mechanical aeration would reduce pasture compaction, leading to increased pasture production similar to a fertilization response.

Most results haven't shown any increase in pasture productivity attributed to mechanical aeration but always showed a pasture production response to fertilization.

Pasture aeration study

For example, a multiyear study done in Minnesota on four different farms with aeration treatments repeated for three years on permanent pastures provided some useful results. Soils varied from sandy to heavy clay.

While there was no clear benefit to pasture quantity or quality provided by a treatment of mechanical aeration, there was a soil pH change response to lime application when combined with an aeration treatment on heavy clay soils.

There was a quicker increase in soil pH on aerated and limed pastures as compared to pastures that had lime applied without aeration. This response did not occur on sandy soils, only on the heavy clay soils.

The Minnesota study also demonstrated a quicker response to manure fertilization is measured by increased dry matter production when combined with mechanical aeration as compared to a manure application with no aeration. Again, this effect was observed on heavy clay soils and not on the sandy soils.

So mechanical aeration may have a place in pasture management—not to relieve compaction, but to help incorporate lime and manure into the soil profile. This could result in quicker soil pH change and plant response to nutrients.

Cautions

Of course there are some cautions. First, this was only one study and the positive effect was only demonstrated on heavy clay soils. Second,

does the expense of mechanical aeration justify a quicker response to lime and manure application?

Possibly a more relevant question for graziers is what can I do with grazing management to build soil quality? Soil quality, in terms of pasture productivity is determined to a great degree by soil structure.

Healthy soil

A healthy soil structure combines soil aggregates and soil macropores in a way that favors root growth, soil life, nutrient cycling and storage as well as air and water exchange.

The macro or large pore space in soil is very important because it provides a habitat for soil organisms and provides the openings that plant roots grow into and through. These are the soils that are loosely packed, and crumbly, usually with good organic matter content.

Poor soil structure is exemplified by compacted soils and many of our clay soils. These soils are tightly packed, dense, hard to break apart and often with a very low organic matter content.

There are certain biological process and conditions that lead to the development of desirable large soil aggregates and macropores. Examples include:

- The presence and work of earthworms as they burrow in the soil ingesting soil particles and producing casts.
- The growth of roots and the fungal hyphae associated with roots that develop a sticky network in soil.
- The physical presence of roots, pushing through soil openings and then leaving channels throughout the soil when they die.
- The production of organic glues by soil fungi and soil bacteria.

Organic matter content is another factor that is important in the formation of soil aggregates.

So the bottom line is: Focusing on pasture management to improve the quality of the soil is going to be more productive in the long term than looking at an input such as mechanical soil aeration to fix a compaction problem.

Following good grazing management principles that focus on maintaining plant residue (take half/leave half), and providing plant rest, will help to build soil organic matter, promote a favorable environment for earthworms and provide a vigorous plant root system.

This is a combination that will create a good soil aggregate and macropore structure.

Compacted soils: the remedy

Rory Lewandowski is an Ohio State University Extension educator at Wayne County Extension. His article is posted at farmanddairy.com/columns/soil-quality-and-pasture-management/13409

"In the past I've used the word 'sustainability,' but now I prefer the concept of regeneration. I don't believe that conservation is enough. Part of **grazing with purpose** is identifying aspects of the land that need regeneration and determining how to use the tools of grazing and animal impact to create positive change."

—Joshua Dukart, North Dakota Grazing Lands Coalition

Okay. We'll take half and leave half.



Management ▶

Winter webinars: Pasture management



What's a webinar?

It's a seminar or short course conducted over the world wide web. Interaction is via a chat box. Webinars will be conducted via Adobe Connect. Anyone (anywhere) with an Internet connection may participate. A high-speed connection is recommended.

A five-part winter webinar series from Maryland Cooperative Extension on pasture management is underway, on Wednesday evening, with two sessions left. All webinars start at 7 p.m. EST and last for one hour. Each webinar is followed by a question-and-answer period. The instructors will be Jeff Semler and Susan Schoenian.

Topics are: Planning a pasture system; pasture plants, including alternative forages; pasture and grazing management; pasture nutrition, and pasture health problems.

The webinars are open to the first 100 people who log in. When logging on, users are asked to give their name and location (e.g., John Smith Delaware).

While preregistration is not required, interested people are asked to subscribe to the University of Maryland's small ruminant webinar listserv. To subscribe, send an e-mail message to listserv@listserv.umd.edu. In the body of the message, type subscribe sheepgoatwebinars. The listserv is used to communicate with webinar participants and to notify subscribers of upcoming webinars. You can always unsubscribe to the webinar listserv by sending an email message to the same address; in the body of the message, type unsubscribe sheepgoatwebinars.

The webinars are recorded, so you can catch any you've missed at sheepandgoat.com/recordings. PowerPoint presentations are available for viewing and downloading at SlideShare.

These and all previous webinar recordings are being converted to YouTube videos. Visit the Maryland Extension Small Ruminant YouTube Channel to listen to any previously recorded webinar.

Previous webinar series have covered ewe and doe management, feeding and nutrition, breeding and genetics, health and diseases, ethnic marketing, foot health, internal parasites (worms), and the National Sheep Improvement Program (NSIP).

For more information contact Susan Schoenian at 301-432-2767 x343 or sschoen@umd.edu or go to sheepandgoat.com/programs/2015webinars.



The Appalachian Grazing Conference, themed "Dollars & Sense of Grazing," takes place March 13-14 in Morgantown, West Virginia, provides producers with a range of information as they prepare for the upcoming grazing season.

Conference fee is \$100; the early bird registration deadline is March 5. For more information contact Jim Foster at 304-349-4985, jefoster63@hotmail.com. www.grazeappalachia.org.

Grazing conference: Here's how

This winter's long stretches of frigid temperatures and low windchills might make us mid-Atlantic shepherds more apt to prick up our ears at cold weather management tips from folks up north.

Cold sheep

The February issue of *Sheep Industry News* carries an article from North Dakota State University sheep specialist Reid Redden on helping sheep deal with frigid temperatures.

"Well-adapted sheep are quite tolerant to cold weather, if a few management factors are adequately addressed," he says. The lower critical temperature (defined as the the lowest environmental temperature that will support normal body function) for fully-fleeced sheep is below zero—but the lower critical temperature of a freshly shorn sheep is near room temperature. See the below table for a range based on condition.

Sheep managed below their lower critical temperature will begin to use additional feed resources or bodily tissues to maintain body heat. A general rule of thumb is to add a quarter pound of total digestible nutrients to the animal's diet for every 10 degrees below the lower critical temperature, Redden says.

For example, when temperatures fall to 5 °F (roughly 20 degrees below the lower critical temperature), sheep should be given a half pound of corn a day to avoid a loss of body condition.

Wind also is a factor that affects cold stress in sheep. Wind speeds above 5 miles per hour can increase the risk of hypothermia drastically in newborn lambs and cold stress in all classes of sheep. Strategic placement of round bales, wind fences, hedgerows and other shelter belts provides sheep with relief from strong winter winds.

As shown in the table at right, a sheep that is eating more (at a higher production phase) will have a decreased lower critical temperature, and a sheep that has longer fleece will have a decreased lower critical temperature.

Some lower critical temperatures for sheep

Condition	Temperature (°F)
5-mm fleece (fixed):	
Fasting	88
Maintenance	77
Full fed	64
Maintenance:	
1-mm fleece	82.4
10-mm fleece	72
50-mm fleece	48
100-mm fleece	27

Source: ag.ansc.purdue.edu/sheep/ansc442/Semprojs/2007/thermoreg/thermoreg.htm

Though winter winds still blow, it's officially spring to all the sheep shearers out there. Most of them are already scheduling spring dates. And so it's time to start planning your shearing day. Think about all of the time and effort you've put into growing that fleece during the year. Plan well, and your "harvest" will be the best it can be.

As a sheep shearer I frequently hear negative opinions about others in my profession. The shearer's late or doesn't show up, she grumbles over conditions, he complains about the sheep.

Here let me twist some of the negative into positives by offering up some suggestions to get the most out of your relationship with your shearer and to ensure that everyone—including the sheep—have a good shearing experience.

Keep your sheep comfortable and dry by keeping them off pasture. Lock up your sheep the night before shearing—preferably in a barn. Why? Sheep will be dew damp in the morning if you leave them on pasture. And with new spring grass coming up, sheep have a tendency to gorge themselves like kids in a candy store. Fresh spring grass, full of moisture, already has a tendency to overwhelm a sheep's stomach, making feces loose and wet (not great to have in the fleece or on the shearing floor). Even better: Give them one or two days of hay ahead of shearing in a dry lot, and make shearing day a whole lot cleaner.

If you have concerns about keeping your sheep in a barn overnight because of wool contamination from bedding, don't use "sticky" bedding like wood chips—and don't clean the barn out and put fresh bedding down ahead of time. Fresh clean bedding sticks to wool like Velcro. Allow the bedding to get slightly used and it will stay down.

Have all your sheep in one spot. This means less work and saved time for the shearer—he or she will appreciate your consideration for their time and limited energy resources. It is often the rams that need to be moved closer. Options:

- Halter and walk them over to the main area and just tie them up in a safe area and have them shorn first.
- Set up a temporary pen nearby and run them into the pen before the shearer arrives. (Simple Sydell or Premier panels are great for this, and have many other uses on a farm.)
- Run the smaller group into your livestock trailer and just park it nearby.

Be ready to go when the shearer drives in your lane. In a shearer's world time is money, literally—we only get paid when we are shearing



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sheep. When I schedule my shearing days I take into consideration driving time, setup, number of sheep I can shear per hour, meals, etc. I plan my day using a rough formula of 10 sheep per hour.

Pen your sheep next to where they'll be shorn—*before* the shearer arrives. Strange smells, strange sounds, strange gear, strange people—your sheep will know something's up, and certainly won't be eager to be confined. Do this at least 10 minutes ahead of your shearer's arrival time, so he or she can come in, set up, and get to work.

Pen the sheep closely. Chasing sheep around a pen is not good for them or for you. Closely penned sheep will be calmer and safer. Once again, those portable panels work wonders.

Have enough helpers. Have one person for each job that needs doing on shearing day. If you are particular about your wool, this is especially important. If your sheep wear covers you will need one person to remove the covers, one person to sweep the floor, one person to pick up wool and skirt, and one extra person (to help move sheep, bag wool, help clean).

This isn't only an issue of the shearer's time: Shearing combs work best when they are warm and stay warm—they dull faster when they cool.

And a shearer can concentrate, get into a rhythm, and do his or her best work when able to retain that focus. If you have one person per job then your wool clip will be better.

Hoof trimming. If you are planning to trim feet on shearing day, have someone on hand dedicated to that task, and make sure you have discussed this ahead of time with your shearer.

The shearer's perspective: Getting ready

Emily Chamelin is a full-time sheep shearer working primarily in the mid-Atlantic region. In 2012, Chamelin represented the U.S. as blade shearers at the World Shearing Championships in New Zealand, placing 12th.

This article is the first in a series on improving your shearing day. Emily welcomes questions for future articles. Email her your questions at aeriedairy@yahoo.com.

Below, Emily hand shears a ewe. [Image by Andrew Jenner, Modern Farmer, April 2013]



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Marketing Calendar

Mondays

Hay Auction, 10 a.m., Westminster Livestock Auction, 1117 Old New Windsor Pike, Westminster.

Tuesdays

Livestock Auction, 5 p.m., Westminster Livestock Auction, 1117 Old New Windsor Pike, Westminster.

May 1

Ewe Show and Sale. Maryland Sheep & Wool Festival, Howard County Fairgrounds. Show 2 p.m., sale 7 p.m. Registration deadline March 10.

Shearing day layout: some thoughts

Emily Chamelin

Well-penned sheep: not a new idea.



It takes longer to trim feet than it does to shear the animal—so consider that fact when mapping out the day's logistics. Some shearers will trim hooves for you; others not. (Nothing ruins the good feeling of doing a great shearing job—then trimming a toe short and having the owners panic over the blood.) Consider whether it might be better to trim before or after shearing day.

Same goes for vaccinating or deworming.

These procedures are less time consuming, but again, have one person delegated to this task, ready to jab and drench as soon as the shearer finishes. No shearer wants to have to hang on to a

One of the best parts of being a sheep shearer is being able to visit so many farms and seeing how people manage their sheep. Every farm is different—different barns, different handling systems, different breeds of sheep, and different management techniques.

For 364 days of the year, you are totally in charge of your flock's management...but on shearing day, you cede a little of that control to the shearer. They may tell you how long to keep your sheep off feed, where to put them, how dry they need to be, and maybe even how they want the animals grouped. If you trust the shearer's experience and instincts, you probably will be pleasantly surprised at how much easier a typically difficult job becomes.

This takes us to the topic of handling systems. It is a BIG part of shearing day logistics, and a good setup makes everyone's day go better. Here are some of the facilities I've seen.

Stalls

This is an oldie but a goodie...the horse stall. It's the most common setup I see. Run your sheep into it, and the shearer can do the job right in the stall, or just outside the stall door. The space is small (and dry!), the sheep are caught easily, and don't have to be moved far to meet the shearer.

On the other hand, a barn-full of stalls with three or four sheep in each 12-by-12 stall is not a winning strategy. Here we've lost the advantage of having sheep as close to the shearing floor, and the animals have plenty of room to race around to avoid getting caught, stressing (or endangering) themselves and those trying to catch them.

You can easily put 10 sheep in a horse stall; if the close quarters worry you, put them together in

potentially disgruntled sheep for any longer than necessary. Do talk about this ahead of time with the shearer.

People frequently complain about shearers being late or not showing up to jobs. Remember: *You* can make sure the shearer is not late to the next job if you do your best to make your farm's shearing day efficient.

Bottom line: Please think of your shearer and be considerate of his or her time when planning your shearing day. Most shearers will bend over backwards to accommodate; let's work together and it will be a wonderful day!

the stall shortly before the shearer arrives. They are much more likely to be safe packed a bit closely than having room to bounce off the walls to avoid capture.

Chutes

A common piece of shearing day equipment I see is the sheep chute. People who have them are often proud of owning a sheep handling system. But they are very expensive and—in my opinion—completely useless to the East Coast farmer. For sheep to move in a chute properly, they need to be accustomed to running through it on a regular basis. If sheep only see their chute once a year at shearing time, they are going to put on the brakes and flatly refuse to pass through the contraption. You will end up manually pushing each and every sheep through the chute.

And if you can get them in it, then there's the getting them out of it part. Many of the chutes have a door that closes too slowly, or a bar the sheep must walk under. Sheep do not want to come out of the chute if a stranger is waiting for them on the other side. This means you need two people to extract each and every sheep from the chute—one to push and one to pull. What fun!

Or, the sheep flies out of the chute like Secretariat, plowing over whomever's in the way (and if your sheep have any weight to them, woe to that guy). I have never worked from a chute system where I didn't get hurt or just worn out pulling sheep out of them all day. Have I made it clear that I think chutes are a pain?

Run-in sheds

Another common venue for shearing is the run-in shed. They are fabulous throughout the year at providing adequate shelter for sheep at low cost. And run in sheds are great to shear out of...IF. The biggest problem I have with them is that

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they are typically situated in the middle of a field, and no self-respecting sheep is going to allow herself to be penned in them without a fight. Strategy required.



Excuse me, but have you called the shearer yet?

Not infrequently they lack gates or even a panel set up to keep the sheep in. You'd be surprised what I've encountered by way of barriers to keep the sheep in: discarded appliances, leftover fencing, old pool ladders, downed tree limbs, old tires, etc. Sheesh! There are many times when you need to confine your sheep. Do yourself a huge favor and get a proper gate or some panels for your run-in shed.

And once you have them, remember that sheep are wary of novelty in their environment.

Acclimate the sheep to being closed in the shed (for example, if you put feed inside and close the gate as they're eating, they'll have pleasant associations with the experience).

The other issue with those sheds out in the middle of the field is the lack of electricity. Running four extension cords together is an option but not the best option. And a potentially dangerous option if it rains or is wet. A generator is one solution; running electricity to the shed a really good one.

The D&S double-gated pen.



A final word on equipment

If you are thinking about purchasing sheep handling equipment to help at shearing time, here is what I would recommend. (Full disclosure: my shearer husband designed it; I'm not getting paid to promote it and have not been asked to; I just think it works well.)

D & S Livestock makes a "shearing station" (you can see it at dslivestock.biz/workstations.html—



A wool classing student with Dr. Ronald Pope at the 2013 Wool Pool.



It's time to start recruiting for the Maryland Wool Pool! It is held mid-June at the Maryland State Fairgrounds in Timonium. This pool is only made possible through the volunteer help of Maryland Sheep Breeders Association members.

And they are a dedicated and hardworking crew of mostly volunteers put in a long day at the pool—please join them.

We need folks to help operate our Lyco wool presses and bale the wool into 350- to 400-pound square bales. The association is considering offering training to anyone interested in learning to run this equipment. If interested,

scroll down to the bottom of the page). We use one daily to shear large flocks of sheep in Iowa and surrounding states year round. It stands up to substantial abuse, and because it's galvanized it will last a long time without rusting out. And it is very useful for any sheep handling task (deworming, hoof trimming, treating sick sheep).

One of the features I like best is the gate—it has a spring-loaded hinge and swings closed on its own. It's tall enough to hang a large shearing motor off of, and safely confines your sheep in close quarters. They are then easy to catch and move to your shearing board. This pen also has side panels with fully enclosed lower half which makes the pen safe for feet and legs.

It holds seven to eight sheep at a time (depending on how big your sheep are and how tight you pack them in) and has a gate panel at the back that can be tied into an existing chute to push sheep into the pen. The floor is grating, so feces and urine fall through, helping to keep the fleece and shearing floor clean.

The nicest thing about this pen is that it's flexible. It can be your entire sheep handling system, if you have a very small flock, or you can tie it into an existing working station to make it easier to catch and maneuver the sheep. You could also use it as a lambing jug or quarantine pen for sick animals.

You can set up this pen with the gate on any side, and breaks down easily into sections to move or store when not in use.

If you're not up to the expense of such a purchase, take a look at it anyway. You can design your own setup with its features in mind. And make shearing day a good one for all.

please contact the wool pool coordinator, (Emily Chamelin, aeriedairy@yahoo.com, 443-244-2702) for more information.

Volunteering at the pool is an excellent way to further your knowledge of wool handling and classing—you'll be working alongside of professionals, as the wool is graded, weighed, packed in bales, weighed again, and loaded onto trucks to be shipped off. You can learn much about how to maximize your clip's value.

Volunteer at the pool

We also offer service volunteer hours for any high school students interested in helping out on that day. All are welcome on wool pool day. Just show up and we can put you to work—Stay tuned to future newsletters for specific dates and times of the Maryland Wool Pool.

The 2015 Maryland Sheep Breeders Association (MSBA) Sheep Shearing School will be on April 17-18 (Friday and Saturday), 9:30 a.m. to 3:30 p.m. at Ridgely Thompson's farm at 1942 Uniontown Road, Westminster, Maryland, 21157.

The school is open to anyone in Maryland, Delaware, and surrounding states who wants to learn to shear sheep. The New Zealand method of shearing will be taught. Shearing machines will be provided. Blade shearing will not be taught. Instructors are Aaron Geiman and Emily Chamelin-Hickman. Aaron is an Agriscience teacher at North Carroll High School. Emily is a professional shearer.

Spring shearing school

The registration fee is \$80 per person and includes a copy of ASI's Sheep Shearing Notebook and an instructional DVD. Pre-registration is required. No registrations will be accepted after April 5. Participation is limited to 20 people. The minimum age is 16.

Checks should be made payable to the Maryland Sheep Breeders Association, Inc. and mailed to Aaron Geiman, Aaron Geiman, adgeiman75@gmail.com, at 429 Hook Road, Westminster, Maryland 21157.



MSBA invites you to reach deep into your well of graphic design talent to create a logo for the association.

The logo can be in black or in color (but if color, submit a grayscale version as well). Submissions can be hard copy or electronic (jpeg or eps), and should be suitable for use on printed matter and in electronic communications.

The logo graphic should include the words "Maryland Sheep Breeders Association." Submit your entries by September 1, 2015. The winner will be announced at the 2015 MBSA annual meeting in October, and will receive a free 2015 MSWF t-shirt.

Send your entries to Dawn Richardson, 2710 A Monument Road, Myersville, MD 21773; grindstoneridgefarm@yahoo.com.

Contest for MSBA Logo announced



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News

Festival website live

sheepandwool.org

Shane retires; new Fleece Show chairs



Linda teaching wool grading at the Maryland Wool Pool. [Image by Lee Langstaff]

The new Maryland Sheep & Wool Festival website is alive—and elegant and beautiful! Classes, events, advertisers, sponsors—it's all there!

You can sign up for classes, visit the websites of your favorite vendors (who are advertizers), enter animals in the sheep shows, and in general prepare to savor the 2015 edition of Sheep Mecca.



For the past fourteen years, Linda Shane has chaired the highly celebrated Fleece Show & Sale at the Maryland Sheep & Wool Festival. This past fall, Linda announced her retirement from this role. The 2015 Festival is dedicated to Linda, in honor and appreciation.

The Fleece Show & Sale has been one of the key pillars of the Festival from the very beginning – indeed one of the original driving forces for establishing the Festival. Linda steadfastly guided the Fleece Show & Sale in pursuit of the dual goals of providing an accessible sales outlet for producers of quality handspinning fleeces, and offering a consistent source of desirable wool fiber for spinners, felters, and practitioners of wool crafts of all kinds and levels of experience.

The Fleece Show & Sale will now be co-chaired by Lee Langstaff, Judy Leece, and Jill Arnold.



The Ewe Show and Sale returns to the Festival this year on Friday, May 1, with yearling, fall- and spring-born lamb classes. Consignors do not need to be exhibiting sheep at the Festival—but buyers may exhibit the animals they purchase at the auction at 7 p.m. that evening.

The consignment fee is \$30 per animal, and the sales commission is 10 percent.

For entry information, visit the Banner Sale Management website (banner-sheepmagazine.com/saleentry.html). The entry deadline is March 10. A complete sale catalog will be available at www.bannersheepmagazine.com as well as in the April issue of *Banner Sheep Magazine*.

Festival ewe sale returns

The Home Arts Building (a venue for sheep producers to sell or promote their locally raised lamb products) at the Festival has space available for anyone wishing the opportunity. For information about booth size and fee contact Nancy Greene at 410-329-6241 or email greelamb@gmail.com.

Sell your Lamb

Volunteer with the Maryland Sheep & Wool Festival T-Shirt Committee! We are seeking volunteers for Saturday and Sunday sales--and especially cleanup and pack up on Sunday. If you have three hours to donate, we have a free t-shirt for you!

T-shirt sales for you? Volunteer!

Contact the T-Shirt Committee at cat-brig19@aol.com with your available times, your phone number and your t-shirt size.

Prefer another task? Email volunteer@sheepandwool.org. We have the perfect place for you.



Maryland Sheep News is published four times a year by the Maryland Sheep Breeders Association, Inc., and is sent to MSBA members. See back page for membership application.

Ad Rates

Size	Specs (inches)	Price
Full page	7.5 x 9.5	\$95, \$320/year
Half vert.	3.3 x 9.5	\$60, \$200/year
Half horiz.	7.5 x 4.25	
Third	7.5 x 3	\$45, \$150/year
Quarter	3.3 x 4.25	\$30, \$100/year
Biz card	3.3 x 2	\$15, \$50/year
Classified	230 characters	\$10

Acceptable formats are PDFs, Word docs or jpegs.

Issue deadlines for ads and copy:

Winter Dec. 15 Summer June 25
Spring March 25 Fall Sept. 15

Send copy to :

Martha Polkey, Editor
sheep@budiansky.com

Send payment to:

Treasurer, MSBA
1126 Slingluff Lane
New Windsor, MD
21776

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Maryland Sheep Breeders Association
1126 Slinghuff Lane
New Windsor, MD 21776

Maryland Sheep Breeders Association:
marylandsheepbreeders.org

Maryland Sheep & Wool Festival:
sheepandwool.org

The Maryland Sheep Breeders Association meets every other month on the second Monday. Meetings are open to members. For minutes of meetings and meeting times, contact the MSBA Secretary, Lee Langstaff, lmangstaff@gmail.com.

Membership application MARYLAND SHEEP BREEDERS ASSOCIATION

Name: _____

Farm Name: _____

Address: _____

City, State, Zip: _____

Phone: _____

Email: _____

Please include me in the MSBA Breeders Directory.

Web URL: _____

Breed(s): _____ No. Ewes: _____

What do you offer?

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- 4-H club lambs
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Send form and \$25 check made payable to MSBA care of Colleen Histon, MSBA, 1126 Slinghuff Lane, New Windsor, MD 21776

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...and become part of an active organization that sponsors the Maryland Sheep & Wool Festival—the premier event of its kind in the nation—the Maryland Wool Pool, Sheep Shearing School, various youth activities, and a variety of educational functions.

Here are sponsored events and activities for 2015:

- April 17 & 18: Beginning Shearing School
- May 2-3: MD Sheep & Wool Festival (Check out the free Shepherd Seminars and Shepherd & Fiber Arts Workshops)
- Date TBD: Maryland Wool Pool (Timonium, State Fairgrounds)
- Date TBD Annual Meeting & Dinner (Howard County Fairgrounds)

As a member you will:

- join an active and friendly community of shepherds.
- receive the quarterly *Maryland Sheep News* and keep up on events, get educational articles, and have a local, place to advertise.
- pay a reduced commission on all fleeces sold at the Maryland Sheep & Wool Festival Fleece Show & Sale.
- receive a copy of the Maryland Sheep & Wool Festival catalog.

Annual membership/subscription fee: \$25. (If you bring wool to the Maryland Wool Pool, membership in MSBA is deducted on wool sales over \$40.) The membership year runs from October through September. Dues for membership received prior to June 1, 2015, will be accepted as paid through September 30, 2015. Dues received on or after June 1 (including dues deducted at the Maryland Wool Pool and the MD Sheep & Wool Festival) will be accepted as paid through September 30, 2016.