



# Helping sheep cope with summer heat

Our always humid and increasingly hotter summers may require extra attention to maintain flock health.

A Washington State University Extension fact sheet (search online for “Livestock Heat Stress: Recognition, Response and Prevention”) provides a comprehensive review of research and practical information on how to ensure flock health and maximize growth for livestock contending with high temperatures.

Enhancing animals' natural coping mechanisms is the key to reducing heat stress (see table).

Wool is an excellent insulator and protects sheep from extreme hot and cold temperatures. Although shearing is not absolutely essential for sheep to be comfortable during hot weather, animals will have less work to do if they do not have to carry 10 or more extra pounds of fleece around. Sheep are able to regulate their temperature somewhat by sweating, but primarily by increasing respiratory rate to increase evaporative heat loss through water vapor.

Signs of heat stress can include (in the order of progressive severity): crowding around water tanks or shade, lethargy, poor appetite, increased respiratory rate, elevated rectal

temperature, elevated heart rate, immobility or aimless wandering, staggering, drooling or slobbering, open-mouth breathing, collapse, non-responsiveness, seizures, death.

In a heat stress emergency:

1. Provide shade immediately.
2. Soak the animal's body with lukewarm to cool water (legs in the case of unshorn sheep).
3. Increase airflow around the animal (fans, etc.).
4. Provide cool drinking water.
5. Minimize handling, transportation, and stress.
6. Call veterinarian for consultation.

Other management tips for keeping sheep comfortable:

- Make sure water is fresh and cool. Shade outdoor water tanks (especially black ones) to keep water cooler, so animals drink plenty.
- Feed earlier in the morning and later in the evening, when animal appetites will be better.
- Ensure that adequate mineral and plain salt are readily available.
- Limit handling to coolest parts of the day.

Newsletter of the  
**MARYLAND**  
**SHEEP BREEDERS**  
**ASSOCIATION**  
 SUMMER 2019

*Blue-faced Leicester sheep on summer pasture. [Image courtesy Nancy Cox Starkey]*

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### Enhancing natural coping mechanisms

Natural coping mechanism	How to enhance it
<b>Radiation.</b> Animals gain heat from radiant energy from sunlight, or lose heat if the ambient temperature is lower than body temperature.	Provide enough shade so that sheep do not have to crowd together to gather under it. That can come from trees and shelters permanent or temporary.
<b>Convection.</b> Animals lose or gain heat from air movement (lower or higher than their body temperature) across their bodies.	Fans in a barn or a breeze under trees helps sheep deal with heat.
<b>Conduction.</b> Lying on warmer or cooler ground transfers or removes heat from animals.	The bottom level of a bank barn, a barn with a dirt floor, or dense shade under trees will provide cooling from conduction.
<b>Evaporation.</b> Exhaled breath and sweating are the two mechanisms. In hot environments, cooling via evaporation is the most effective means of heat loss, but it is much less effective in high humidity.	Cooler drier air provides the most effective evaporative benefits.

*Renewable energy, renewable fiber: Sheep find shade under wind turbines.*





MARYLAND  
SHEEP & WOOL  
FESTIVAL

News

Some 46th  
Festival  
highlights

The 46th annual Maryland Sheep & Wool Festival drew (from our estimates) between 15,300-18,500 people to West Friendship, Maryland, May 4 and 5. Attendance on Saturday was almost exactly the same as last year. The rain on Sunday (including a flash flood watch) definitely kept some folks home.

There were 631 sheep entered in the sheep shows with 55 more sheep in the Breed Display barn. The Supreme Champion was a Corriedale owned by Marian and Ralph Lovell of Linden, Pennsylvania. Supreme Champion Ewe went to a Black Lincoln from Wind Valley Farm, Oakham, Massachusetts. The Supreme Fleece was proudly worn by a Natural Colored Leicester Longwool owned by David Berryhill of the Berryhill Farm in Rochester, Minnesota.

In the Fleece Show & Sale, 911 fleeces were entered by 173 exhibitors from 17 states, representing 36 different breeds of sheep. About 47,000 pounds of wool changed hands in the sale, with 343 buyers from 31 states and Canada taking home fleeces.

The Skein & Garment Competition had 278 entries in the form of yarn and finished articles from 106 different exhibitors. Almost 800 students participated in our fiber arts workshops.

Festival results will soon be posted at [sheepandwool.org](http://sheepandwool.org). —Kris Thorne



Seventy-five youth from four states competed in the 2019 Junior Sheep & Goat Skillathon held May 5 at the Maryland Sheep & Wool Festival: 16 juniors (8-10), 34 intermediates (11-13), and 25 seniors (14-18). Youth from both Maryland's and Virginia's Frederick Counties dominated the winner's circle.

Junior Sheep &  
Goat Skillathon  
results

Susan Schoenian

is coordinator of the Skillathon and a Maryland Extension Sheep & Goat Specialist at the Western Maryland Research and Education Center.

Emily Vincent from Frederick County, Virginia, was the first place junior. She had a score of 242/300 points or 81% correct answers. The average junior score was 178 points or 59% correct. The first place junior team was Frederick County, Maryland. Team members included Trennen Latham, Preston Clark, Josie Martin, and Ryan Martin.

For the second year in a row, Marie-Claire Des Rosier from Frederick County, Virginia, was the first-place intermediate. She had a score of 343/400 points or 86% correct answers. The average intermediate score was 232 points or 58% correct. The first-place intermediate team was Frederick County, Virginia. Team members included Eddyn Molden, Kennah Kerns, Jackson Kelly, and Marie-Claire Des Rosier.

Addison Herbert from Frederick County, Maryland, was the top-placing senior. She had a score of 426/500 points or 85% correct answers. The average senior score was 333 points or 67% correct. The first-place senior team was Frederick County, Maryland. Team members included Addison Herbert, Jaclyn Bryan, Jessica Martin, and Grace Ellis.

This year's stations included hay judging, meat identification, breed identification, feedstuff identification, equipment identification, wool judging and questions, predation (intermediates and seniors only), and reproduction (seniors only). Sheep judging was canceled because of the rainy weather. Youth achieved the highest scores for equipment (80-90%), while meat ID (37-48%) and hay judging (38-65%) proved to be the most challenging stations, especially for juniors and intermediates.

Last year, the team from Maryland won the national 4-H livestock skillathon in Louisville, Kentucky.



Thirty-eight sheep were sold in the Banner All Breeds Show and Sale during the Maryland Sheep & Wool Festival, for an average price of nearly \$600. This year's sale coincided with the National Lincoln Show & Sale, with white and colored Lincoln stock making up the majority of entries.

All Breeds  
Show & Sale  
results

The top seller at the Saturday, May 4, sale was the Reserve Champion Yearling Ewe, a white Lincoln from Kruse Farms (Effingham, Illinois), which sold for \$2,000 to Millianne Mullinix of Union Bridge, followed by a \$1,800 sale of a yearling colored Lincoln ewe from Kruse Farms to Friesz Livestock/Prairie Winds Livestock of New Salem, North Dakota.

Buyers from 11 states, from North Dakota to New Hampshire and Michigan to North Carolina and Ontario, left the fairgrounds with their new acquisitions. Complete results of the sale are available at <http://www.banner-sheepmagazine.com/saleaverages/2019/MDSWF19%20Official%20Sale%20Report.pdf>.

Footrot in sheep costs producers time and money and it costs even more time and money to eradicate it. Because sheep are a “minor species” in the United States, the most effective drugs and vaccines to fight it are impossible to get, difficult to get, or not labeled for sheep.

This we know.

## Footrot: An old enemy and some new tactics against it

In a June webinar, Perdue University Extension small ruminant specialist Dr. Mike Neary walked producers through the landscape of the disease, highlighting some

new research on treatment and drugs that have proved most effective in eradication. The webinar, hosted by Jay Parsons, was presented by the Let's Grow Committee of the American Sheep Industry Association.

Neary began by introducing producers to footrot's looming presence over the sheep industry. It is the chief reason that producers leave the business. It's one of the most economically significant diseases in small ruminants, and lack of prompt treatment also poses humane management issues. But, he said, it's also preventable, and can be eradicated in your flock.

### The bacteria and how they work

Two bacteria join forces to produce footrot outbreaks in sheep flocks. *Fusobacterium necrophorum* is normally present on a farm in mud and manure. *Dichelobacter nodosus* joins *F. necrophorum* to initiate footrot in sheep. There are at least 20 strains of the latter bacteria. They differ in virility (ability to create active cases)—they may be benign, intermediate, or severe.

(A consortium of U.S. producers is engaged in a research project to nail down which strains are prominent in U.S. flocks so that a vaccine can be formulated to target them. See the article in the spring issue of *Maryland Sheep News* by Jeff White, who attended last January's ASI convention.)

Benign footrot, states Neary, is commonly referred to as foot scald. It can be caused by only *F. necrophorum*, or by less virulent strains of *D. nodosus*. It may be self-limiting—or it may be the early stages of virulent footrot. It is evident in inflamed, whitish tissue between the toes—with lame sheep obviously in pain.

Virulent *D. nodosus* secretes protease enzymes that digest the connective tissue at the horn area



Image by Barbara Klein, of Nancy Cox Starkey's Kep

of the hoof. It underruns the hoof horn, and the bacteria digest the hoof keratin. It stinks.

### Transmission

How do producers introduce footrot onto the farm? They generally buy it. Maybe they purchased sheep from afar (which might have been absolutely footrot-free) that trailered with a bunch of random sheep from who knows where. Maybe their sheep trod on the same ground at a show or festival as those sheep. Maybe they bought asymptomatic sheep that nevertheless harbored the bacteria and carried them to the farm. The bacteria can live in sheep and goat feet for extended periods, without the animals showing symptoms. It can live in mud for about 14 days.

Skipping/skimping on the standard isolation and treatment protocol for new arrivals seals the deal.

### Genes

As with resistance to parasites, some sheep are more and some less susceptible to footrot, some respond to treatment better than others, Neary said. So keeping records of infections, and culling animals that cope poorly with bacterial challenge—despite good management—is important. Heritability of resistance is low to moderate (10-30%). Broadly, there are breed differences too. Merino-derived breeds are said to be more susceptible.

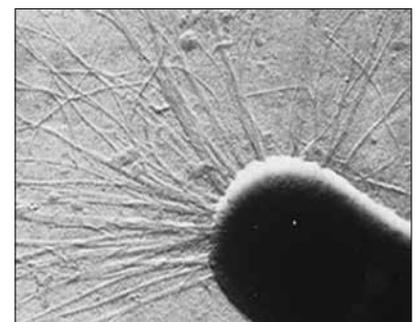
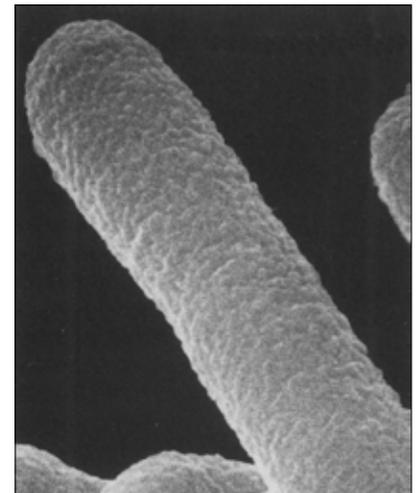
### Traditional treatment

Before the availability and subsequent to the unavailability of the Footvax vaccine for sheep, the standard protocol for eradicating footrot has been:

- foot trimming
- footbaths (either a run through or a soak with zinc sulfate, copper sulfate, or formaldehyde)
- vaccination
- culling
- pasture and facility management
- antibiotics (oxytetracycline—LA 200 or 300—has been the drug of choice).

*Below: One species of Fusobacterium necrophorum. Bottom: one end of Dichlelobacter nodosus, showing the fimbriae, which are appendages that attach to the victim's cells*

[Image credits: below, Garcia, M. M. et al. "Ultrastructure and Molecular Characterization of *Fusobacterium necrophorum*," *Can. J. Vet. Res.* 1992; 56: 318-325. Bottom, Courtesy J. Glenn Songer, <https://veteriankey.com/the-genus-dichelobacter/>]



**Management** ▶ Oxytetracycline has been very useful, Neary states; in Britain there is an oxytetracycline spray to treat the interdigital area of the hoof (after which treatment the hoof must be kept dry).

### Foot trimming

Neary reports that while it used to be recommended in cases of footrot to pare hooves aggressively (trimming the horn high up on the hoof where separation has occurred due to infection), more recently, animal health experts recommend against aggressive trimming because doing so can:

- spread footrot,
- damage integrity of hoof (hereby increasing complications), and
- delay healing from antibiotic treatment and footbathing.

### Treatment: newer research

Progress in the eradication of footrot has come with use of the antibiotic gamithromycin (brand name Zactran). It is approved in this country for use in cattle with respiratory disease; it requires a prescription from a veterinarian for use in sheep. And it's not cheap. A veterinary supply website offers a 100-mL bottle for about \$200.

Research in Germany compared the use of Zactran to LA-200 in 10 flocks of sheep. Researchers scored sheep on a 5-point scale.

- 0 = normal, dry in interdigital area
- 1 = hoof temp elevated, inflammation, hair loss
- 2 = necrosis of interdigital skin, smell
- 3 = underrunning of hoof or sole
- 4 = underrunning of sole to outer hoof edge
- 5 = necrosis to hoof tip, hoof separation

On day 1 the sheep were inspected, scored, and random groups were treated either with LA-200 or Zactran. On days 21 and 42 their feet were re-inspected. On day 21, there was a 79% cure rate for LA-200 and a 93% cure rate for Zactran. Sheep with persistent infection were

re-treated. On day 42 Zactran achieved a 99% cure rate.

A follow-on field study in Germany used Zactran on a whole-flock basis. It scored 184 sheep with a high prevalence of footrot. On day 1, 117 of the sheep scored 1 or higher; 98 were 3 or higher. All were treated with Zactran. On day 23 just 8 sheep were still lame; they were re-treated with the antibiotic. On day 45 no sheep were lame, and remained symptom free for at least 18 months.

Another large field study in Denmark (9,000 sheep with an average footrot prevalence of 32%) reported a whole-flock treatment with Zactran. The sheep were re-inspected at 1 and 4 months. The data show that 44 of the 48 flocks remained free of footrot for more than a year later, and again 2 years later. The authors of the paper concluded that gamithromycin could be used to eradicate footrot.

### Bottom line

So here's how the scales balance: Zactran is a very effective tool to eradicate footrot. But it's expensive and may be hard to obtain. Use it as an eradication tool (in a carefully planned program on your farm), not as a routine treatment. Time its use to eradicate at a point in the production cycle when sheep numbers are at their lowest. And always with the advisory that we sheep producers need to be mindful to limit the use of antibiotics for resistance and human health significance.

If you can't obtain Zactran or the economics don't work for your operation, the traditional use of footbaths can be effective: Make up a solution of a drying agent: zinc sulfate, copper sulfate, or formaldehyde. Use some type of soap or detergent (such as dishwashing liquid) to help keep it in suspension. This is most effective in early stages of the disease. It's less effective in severe cases, because the chemical can't penetrate deeply into hoof tissue.

Effectiveness is increased if sheep have to walk through the bath daily—say, this time of year, into and out of a shady refuge or where water and mineral are located, or in a setup where sheep will stand at least 10 minutes per soak, voluntarily or not. (Hoof boots are available from suppliers if only a few sheep are affected.) After the soak, penning in a dry area improves efficacy.

### Eradication

A comprehensive approach to eradicating footrot (until a producer is ready to launch a Zactran-based planned eradication effort) remains the same-old, same-old, but pretty-effective-when-done-well effort.

*Below, hoof underrun with severe hoofrot infection; bottom, well trimmed hoof. [Images courtesy Mike Neary]*



If your flock or herd is small, consider depopulating, waiting 2 to 3 weeks and restocking with clean stock. If that's not feasible, here are the steps to get rid of footrot.

1. Check each foot in the herd.
2. Separate any animal with footrot or scald.
3. Run the "clean" animals through footbath and segregate to a pasture that has been empty for 14 days.
4. Any "clean" animal that starts to show symptoms should be moved to the infected group.
5. Treat the infected group with antibiotics, keep their feet trimmed, and soak hooves.
6. Soak in zinc sulfate 2 to 3 times per week for 10-20 minutes.
7. As animals in the infected group become asymptomatic, remove them to a third location that has been vacant for 14 days.
8. Often, there will be a few that don't respond to treatment. Cull them.

Whew. A lot of work, a lot of expense. If you've never had footrot or scald in your flock, count yourself lucky, vigilant, or both. Prevention protocols are still best path.

For those less fortunate, when Zactran becomes available again (contact your veterinarian for a prescription and dosage/withdrawal period instructions), here are the eradication steps. Planning your eradication schedule at the time of year when numbers are lowest (lambs off to market) will be most economical.

1. Treat the whole flock with Zactran.
2. Inspect all sheep.
3. Segregate sheep: if they look clean, run them through a footbath; if they show symptoms, soak their feet.
4. Move to clean pasture.
5. Re-inspect sheep 21 days later.
6. Re-treat any active cases
7. Re-inspect at day 42.
8. Cull any still-affected (keep withdrawal times in mind before marketing).
9. After treating try to put on a clean pasture or area to prevent reinfection due to premise contamination.
10. Prevent reintroduction of *D. nodosus*.

—Martha Polkey



It's summer, and that means it's time to be  
**OUT STANDING IN YOUR FIELD.**

There you will gain good information for present and future management of the pastures that feed your flock.

Here are some selected posts adapted from the blog **On Pasture**, in which author **Kathy Voht** provides some good resources to make the most of what you see on your farm.



*Broomsedge.*

Can weeds tell you about soil health issues? Well, yes and no.

I've got a lot of experience with weeds since I've spent the last 15 years teaching cattle, sheep, goats and bison to eat them under all kinds of soil conditions in and all kinds of landscapes. My observation is that spotted knapweed does well in all kinds

**Got weeds?**

of soils. So does Canada thistle. In fact, most of the weeds I've worked with grow in a wide variety of locations and soil types.

Mostly, weeds are indications of past management, as the chart on the next page indicates. Areas that have been overgrazed have more weeds due to soil compaction and lack of competition. Some plants grow well in low fertility soils—like pastures and hay fields that haven't been fertilized or limed in some time. Those species do tell you about the soil—namely, that the pH is low, making nutrients less available to desired pasture species.

Some weed species prefer hydric (water-holding) soils—those in swampy or flooded areas. That does tell you that you should seed wet-foot-tolerating pasture species for those spots.

The chart also shows what plants look like when they're suffering from nutrient deficiencies—which can result from imbalances that



**SUMMER PASTURES**

*[Image courtesy Arlette Sieb, Dog Tale Ranch, Saskatchewan, Canada]*

**Management** ▶ amendments should address, or recent weather (such as excessive rains that have leached nutrients away from plant roots).

**What's there and what to do**

Survey your fields. Sheep will actively graze some weeds. In other areas where the soil is "sweet,"

they will selectively graze the desirable species closely, allowing those less desirable (less palatable or toxic) species to gain a foothold. And that includes Kentucky 31 fescue, which your sheep may avoid now because it is full of ergot alkaloids from the endophyte fungus within the leaves and stems.

COMPACTED SOIL	OVER GRAZED LAND	WET OR FLOODED SOIL	LOW FERTILITY SOIL	DEFICIENCY
<p><b>Low Oxygen soils:</b> Platy layers in soil, high bulk density (poor infiltration, increased runoff)</p>	<p><b>Lack of cover:</b> effects similar to compacted land – High weed population</p>	<p><b>Low Oxygen soils:</b> Pore spaces become saturated or not present negatively affecting soil structure, decomposition, and chemical and biological processes</p>	<p><b>Unbalanced Fertility:</b> pH below 5.1 (frequent) or above 7.3 (high pH is uncommon in TN). Often Phosphorous is limiting factor. Potassium is typically limiting on hay land</p>	<p><b>Severe deficiency of a nutrient or pH is low and infrequently too high in TN</b></p>
<p><b>Prostrate knotweed:</b> <i>Polygonum arenastrum</i> or <i>aviculare</i></p>	<p><b>Horsenettle:</b> <i>Solanum carolinense</i></p>	<p><b>Sedges:</b> <i>Carex</i> spp. Sedges have edges, triangular stem</p>	<p><b>Rabbit tobacco:</b> <i>Pseudognaphalium obtusifolium</i></p>	<p><b>Nitrogen</b></p>
<p><b>Rushes:</b> <i>Juncus</i> spp.</p>	<p><b>Bitter sneezeweed:</b> <i>Helenium amarum</i></p>	<p><b>Rushes:</b> <i>Juncus</i> spp. Segmented hollow stem</p>	<p><b>Red sorrel:</b> <i>Rumex acetosella</i></p>	
<p><b>Goosegrass:</b> <i>Eleusine indica</i></p>	<p><b>Spiny amaranth:</b> <i>Amaranthus spinosus</i></p>	<p><b>Spikerush:</b> <i>Eleocharis</i> spp.</p>	<p><b>Poor Joe:</b> <i>Diadia virginiana</i></p>	<p><b>Phosphorus</b></p>
<p><b>Bitter sneezeweed:</b> <i>Helenium amarum</i></p>	<p><b>Bermudagrass:</b> <i>Cynodon dactylon</i></p>	<p><b>Flatsedge:</b> <i>Cyperus</i> spp.</p>	<p><b>Broomsedge:</b> <i>Andropogon virginicus</i></p>	<p><b>Potassium</b></p>
<p><b>Dog fennel:</b> <i>Eupatorium capillifolium</i></p>	<p><b>Annual bluegrass:</b> <i>Poa annua</i></p>	<p><b>Bulrush:</b> <i>Scirpus</i> spp.</p>	<p><b>Sweet vernalgrass:</b> <i>Anthoxanthum odoratum</i></p>	<p><b>Calcium</b></p>
<p><b>Buttercup:</b> <i>Ranunculus</i></p>	<p><b>Kentucky bluegrass:</b> <i>Poa pratensis</i></p>	<p><b>Virginia buttonweed:</b> <i>Diadia Virginiaiana</i></p>	<p><b>Oxeye Daisy:</b> <i>Leucanthemum vulgare</i></p>	<p><b>Magnesium</b></p>
<p><b>Curly dock:</b> <i>Rumex crispus</i></p>	<p><b>Crabgrass:</b> <i>Digitaria ischaemum</i></p>	<p><b>Smartweed:</b> <i>Persicaria</i> spp.</p>	<p><b>Panicums:</b> <i>Panicum</i> spp.</p>	<p><b>Iron</b></p>
<p><b>Chicory:</b> <i>Cicharium</i> spp.</p>	<p><b>Ironweed:</b> <i>Vernonia gigantea</i></p>	<p><b>Reed canarygrass:</b> <i>Phalaris arundinacea</i></p>	<p><b>Yarrow:</b> <i>Achillea millefolium</i></p>	<p><b>Zinc</b></p>

If you have weeds that indicate compacted soils, you need more roots, both fibrous and tap roots. Start by maintaining living roots in your soil year-round by allowing plants to recover longer between grazing and mowing so that roots can recover as well.

All plants help reduce issues with soil compaction but the following plants are especially known for decreasing it.

- cool season annuals: forage radish and cereal rye (the latter can be broadcast in August in our area, in existing pastures)
- cool season perennials: alfalfa, chicory, red clover and sweet clover

- warm season annuals: sorghums
- warm season perennials: native warm season grasses like big bluestem, little bluestem, indiagrass, switchgrass and eastern gammagrass. Bermudagrass is tolerant of overgrazing and rather drought tolerant but doesn't have as deep a root system as natives and needs nutrients for production.

If your pastures have been overgrazed, provide more rest. Set up a "sacrifice" paddock, where you can feed hay. It's money up front, but the long-term benefit to pasture health will be measurable. That rest will remove stress on the grass, the soil, the livestock, and you. Here are some other practices that can help:

- fertilizing,
- feeding over winter,

- rotating more often through more paddocks,
- leaving minimum heights of grass for soil protection, improved infiltration, lower soil temperature and improved water management.

Can you identify all the grass species in your pastures? Distinguish between tall fescue, meadow fescue, timothy, orchardgrass, bentgrass, ryegrasses, broomsedge, foxtail species (even when they're not in bloom)?

## ◀ Management

### Got grasses?

Below: A selection from the forage ID chart. Download the whole chart at [https://www.onpasture.com/wp-content/uploads/2016/04/Forage\\_Grass\\_ID\\_Characteristics\\_ID\\_NE\\_2014.pdf](https://www.onpasture.com/wp-content/uploads/2016/04/Forage_Grass_ID_Characteristics_ID_NE_2014.pdf)

A chart developed by Sid Bosworth, Extension Forage Agronomist at the University of Vermont Extension, shared in On Pasture, provides a guide to plant identification.

Species	Growth Habit	Seedhead	Leaf Characteristics	Other Characteristics
<b>Tall fescue</b> <i>Schedonorus arundinaceus</i> Tall growing bunchgrass although it can produce short rhizomes; Leaves are coarse and medium-to-wide; Less palatable than other cool season grasses	 Coarse textured bunchgrass	 Open panicle seed head	 Short auricle usually with hairs; Short, truncate ligule; rolled bud shoot	 Dark green leaves with "corduroy" like deep parallel grooves
<b>Meadow fescue</b> <i>Schedonorus pratensis</i> Tall growing bunchgrass similar to tall fescue but slightly shorter; Leaves are coarse and medium-to-wide; More palatable than tall fescue	 Bunchgrass	 Open panicle seed head	 Short auricle without hairs (smooth); Short, truncate ligule; rolled bud shoot	 Medium green leaves with "corduroy" like deep parallel grooves

You can now find out what's under your feet while standing in the field with your phone. A new app released by USDA's Natural Resources Conservation Service (NRCS) and the University of California at Davis Soil Resource Laboratory in June provides you with this powerful tool. (See screenshots taken from one pasture at right.)

The iOS- and Android-compatible SoilWeb app, (V. 2.0) has a clean interface, with GPS-location-based links to access detailed digital soil survey data (SSURGO) published by the NRCS for most of the United States. The smartphone application is available as a free download from Google Play and the Apple App Store.

From the June NRCS press release: "The SoilWeb app provides users with information relating to soil types that are associated with their location. The images are then linked to information about the different types of soil profiles, soil taxonomy, land classification, hydraulic and erosion ratings and soil suitability ratings."

Anthony O'Geen, University of California–Davis Professor and Cooperative Extension Specialist, developed SoilWeb with NRCS Soil Scientist Dylan Beaudette, in 2010 when Beaudette was a Ph.D. student at UC Davis. The app was a popular download, but by 2017 was no longer in compliance with requirements set by Apple and Google. Frequent users of SoilWeb had to rely on

the web-based version from 2017 to June 2019. Users with the older version on their phone can update to access the newest version.

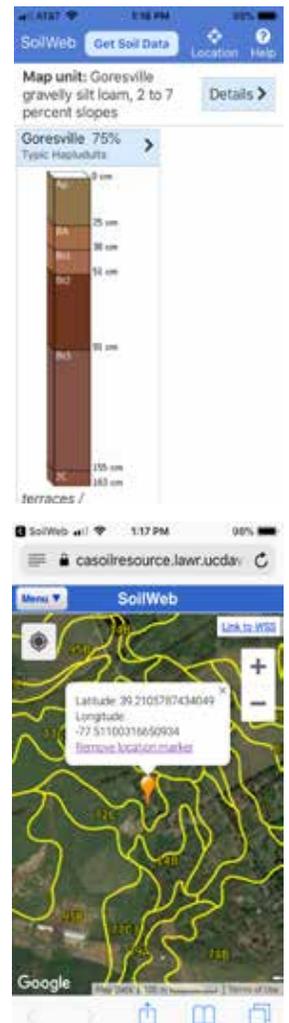
You can access that information and more using the NRCS's Web Soil Survey online tool (<https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>), which supplements that soil data with information on potential deficiencies and estimations of how much forage can be grown.

### Got soil info?

Mapping tools allow you to select parcel boundaries and then download a report on the soils information for that site.

That data is useful when you fill out the forms to send off with soil samples, and to share with any custom service operator you may hire for pasture renovation. On Pasture has a useful article on proper soil sampling (<https://onpasture.com/2019/07/08/the-thrill-of-soil-sampling/>). A shovel and a bucket are the basic tools—but some Extension offices have soil probes you can borrow for more precise technique.

Basic soil testing of farm soils (providing N,P,K recommendations and pH) is done at no cost to Virginians; Maryland directs producers to private labs (see this Maryland Extension page for resources and information <https://extension.umd.edu/learn/2-soil-sampling-and-testing>).



## Management ▶

# Flock management software: HerdBoss

Ken Farrell  
is an MSBA Board member.

When we first started our flock, record keeping amounted to filing the registration papers in a folder and using a little book given out by Sheepman's Supply.

I am an engineer by education and by training so it wasn't long before I created an Excel spreadsheet which grew to be quite complex and colorful.

While I've not totally abandoned these tools, I now rely most heavily on the HerdBoss app I discovered one day while surfing the Apple App store. I have used it now for more than three years and have found it most useful and extremely easy to navigate. You can read about the app and the folks that created it at Herdboss.com.

Here's a quick overview of this app from one shepherd's perspective.

I installed the app on my iPad. I've not synced data to other devices, nor have I taken the iPad to the barn. (The software is set up so that reports can be shared with others on the farm team, where recordkeeping is a shared task.) When it comes to working with the sheep, I'm a paper-only guy. The HerdBoss app allows me to print a paper report or listing that suits me just fine. I mark up the paper while working with the sheep and then update the app in the evening.

So let's dive into the app. After signing in you come to the main screen, which lists all

Lamb Number	Lamb Name	Lamb Registration	Lamb Sex	Lamb Date	Lamb Breed	Lamb Disposition	Lamb Age	Lamb Birth	Lamb Purchase	Lamb Price	Lamb Weight	Lamb Tag Number	Lamb Registration	Lamb Sex	Lamb Breed	Lamb Disposition	Lamb Age	Lamb Birth	Lamb Purchase	Lamb Price	Lamb Weight	Lamb Tag Number
401	401	401	♀	4/12/2014	1.8	Female	1.8	4/12/2014	401	401	401	401	401	♀	1.8	Female	1.8	4/12/2014	401	401	401	401
402	402	402	♂	4/12/2014	1.8	Male	1.8	4/12/2014	402	402	402	402	402	♂	1.8	Male	1.8	4/12/2014	402	402	402	402
403	403	403	♀	4/12/2014	1.8	Female	1.8	4/12/2014	403	403	403	403	403	♀	1.8	Female	1.8	4/12/2014	403	403	403	403
404	404	404	♂	4/12/2014	1.8	Male	1.8	4/12/2014	404	404	404	404	404	♂	1.8	Male	1.8	4/12/2014	404	404	404	404

of your sheep alphabetically on the right-hand side. The main menu is on the left-hand side (this is how it looks on a phone).

Let's start with settings. Clicking on that brings you to the page that allows you to input all of your breeds, medicines, and breeders and buyers. (See top image, next page.) If you sell breeding stock, it is useful to have buyers' and their purchases in one place, if for example they return to buy a new ram and you want to assure them that the new animal is not too closely related to their current stock.

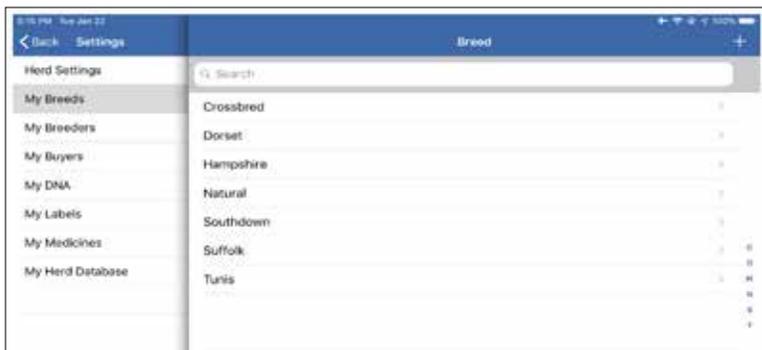


## An introduction

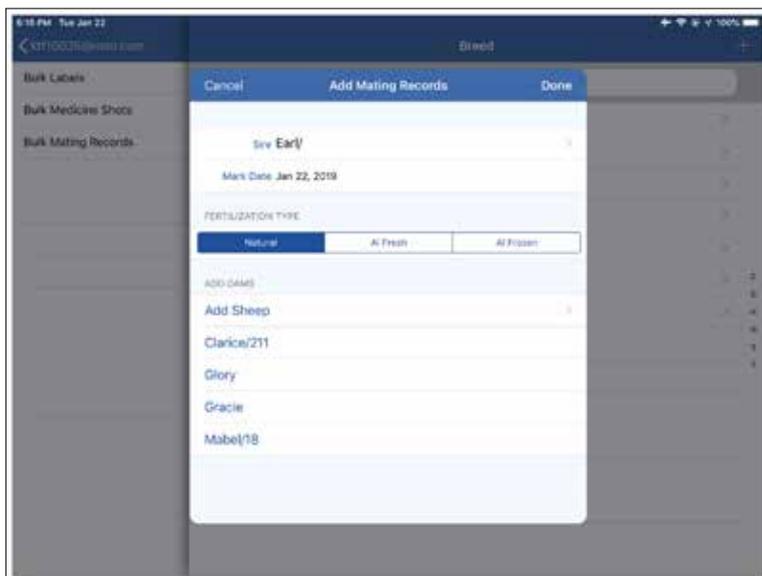
As one of the newest board members to the Maryland Sheep Breeders Association, I'd like to tell you a bit about myself. My wife Janette and I moved to Frederick County more than 10 years ago. We found a beautiful property located in New Midway and began to renovate the original farmhouse. This project took many months more than anticipated but in the end we were very pleased with the result. We rented the pastures out to a neighbor for a few years before we decided to become shepherds.

We attended our first Maryland Sheep and Wool Festival in 2010, where we saw Tunis sheep. We loved what we saw. We found a breeder in Virginia and bought four ewes. The following year we bought four more ewes.

Now, six years later, we have a flock of more than 40 Tunis sheep. We joined the Maryland Sheep Breeders Association and the Frederick County Sheep Breeders Association during our first year. We have learned many things about shepherding from our own experiences on the farm and from fellow shepherds.

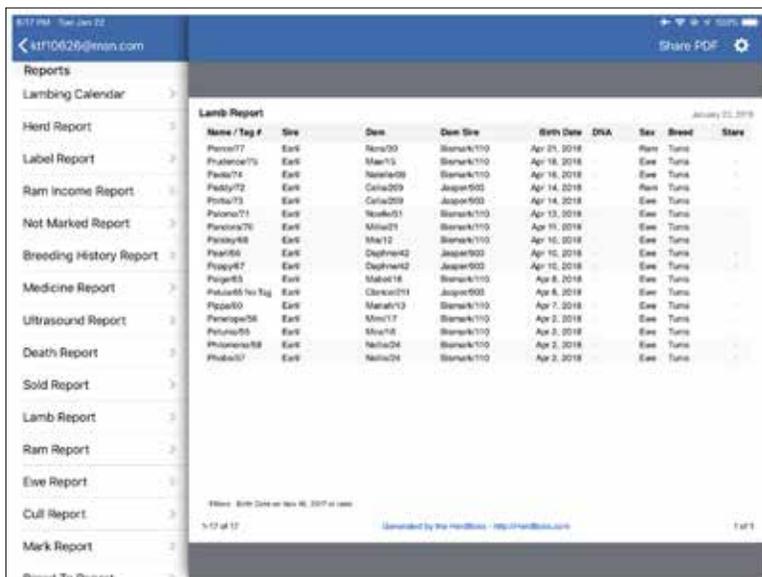


Providing information in settings allows you to use bulk actions and dropdown lists when inputting data, which is quite handy and eliminates typos. There is some standard information in settings, but in all cases you can edit or add your own data.



You can keep track of information on groups of sheep using the Bulk Actions menu option, which allows you to drop the same information into a group of animals at the same time, speeding up data input and allowing certain reports to show common information. (See second image at left.)

The reports section (third image at left) is full of existing report designs that can be changed by adding or deleting filters in addition to changing the way the report is sorted. My favorite report is the lamb report, just because I love lambs.



You can enter about 30 types of information on each sheep record, including scrapie number, breed, birthdate, sex, number of lambs, and more. You can also indicate if the sheep should be culled from the flock. This of course allows you to print a cull report once you decide to take action.

The graphic at bottom left from the HerdBoss website summarizes the features of the app. At this time there is no fee for the app, but the site says it will soon transition to a \$5/month fee after a free

**All your records. One Place.**  
Never lose a record again.

- ✓ DNA
- ✓ Marking Dates
- ✓ Birth Date
- ✓ Breeder
- ✓ Pedigree
- ✓ Scrapie Tag #
- ✓ Medicines
- ✓ Flushes
- ✓ Weights
- ✓ Ultrasounds
- ✓ Sales
- ✓ Acquisition Date
- ✓ Registration #
- ✓ Purchase Price

and 20+ other data points

30-day trial. You can download HerdBoss at the Apple App Store and at Google Play.

Loading data on a large flock can be a little time consuming, but certainly worth the effort. The HerdBoss team has developed data uploading templates to make the beginner's life easier and also offers assistance through customer service agents. Take a look and see if it can help you manage your flock.

## ◀ Management

### Management Calendar

#### Aug. 14

Fall Pasture Planning and Maintenance. 6-8:30 p.m., Western Maryland Agriculture Research Education Center, Keedysville. <https://www.eventbrite.com/e/maryland-pasture-field-day-tickets-65803378677>

#### Aug. 29

On-Farm Strip Grazing and Pasture Rotation Pasture Walk, 7 p.m., Harmony Hill Farm in Shenandoah Junction, W. Va. [emily.wells@mail.wvu.edu](mailto:emily.wells@mail.wvu.edu) or 304-728-7413

#### Sept. 4

Native Warm Season Grasses Demo Day and Site Field Tour at Middleburg Agriculture Research & Extension Center. Middleburg, Va. [snaille@vt.edu](mailto:snaille@vt.edu) 703-777-0370. <https://vaforages.org/event/tr-state-pasture-series-virginia-final-native-grass-pasture-walk/>

#### Oct. 19

Maryland Small Ruminant Pasture, Grazing, & Browsing Conference, Keedysville. [agrev@umd.edu](mailto:agrev@umd.edu) or 301-432-2767 x339. <https://2019grazingconference.eventbrite.com>

#### Dec. 7

Delmarva Small Ruminant Conference: All Worms All Day. Ewing, Va. [dobrien@vsu.edu](mailto:dobrien@vsu.edu), <https://www.ext.vsu.edu/events/2019/12/7/all-worms-all-day-delmarva-small-ruminant-conference>



## Selling Fleeces online: Some Facebook tips and challenges



**Lynn Roberts**

*is an MSBA Board member.*

Even though the Maryland Sheep & Wool Festival's annual Fleece Show & Sale is a wonderful boon to fleece producers, many of us end up with more fleeces than we can sell at that venue.

To be sure, there are many other fiber festivals: more local ones, all held in the fall, include the Frederick Fiber Fest in Maryland, and the Shenandoah Valley Fiber Festival and the Fall Fiber Festival & Montpelier Sheepdog Trials, both in Virginia. Nevertheless, many of us still end up with lovely fleeces suitable for handspinners that are still searching for homes.

For several years I've also been selling fleeces online via Facebook, primarily through Facebook groups such as "Raw Wool for Sale," "Raw Fleece for Sale," and especially "Dirty Fleece, done dirt cheap." Some of these ("Raw Fleece for Sale") are listed as "secret" groups, while others ("Raw Wool for Sale" and "Dirty Fleece, done dirt cheap") are listed as "closed" groups, requiring that you join before you can post. (This is to prevent excessive spam).

Each group has its own rules, and if you join a group, I encourage you to familiarize yourself with the rules so as to avoid getting kicked out. Some groups allow ads for raw fleeces only; others are more open to questions concerning how (for example) to price or skirt or prepare fleeces for shipping. Some lean toward more pristine, coated fleeces, while others are more tolerant of dirtier fleeces—but have a cap on price per pound.

Most groups discourage producers from posting to more than one Facebook group at a time. Selling fleeces online has, in the past, provided a welcome supplement to our farm's revenue stream.

In recent months, quite a few people selling fleeces online via Facebook (myself included) have encountered substantial difficulties, to the point where many of us are at the point of throwing in the towel. One of the

prime obstacles is that Facebook has a policy that forbids selling of live animals. But... surely fleeces shouldn't qualify? They're not live animals, and shearing fleeces benefits the health of the animals. Ah, the devil is in the details. Specifically, Facebook's policy forbids:

- live animals
- pets
- livestock
- any part, pelt or skin from an animal, including fur.

Apparently, "fleece" is being equated with "fur" by Facebook (their rules, not mine). My own appeals to having my posts taken down by Facebook (and not by the administrators of any groups to which I have posted such ads) have been met with a singular lack of success.

In a poll I conducted recently on one Facebook group devoted to selling fleeces, only seven respondents reported that they'd never had an issue, while 31 had figured out "work-arounds" and 24 had virtually given up on selling fleeces on Facebook. Five respondents said they hadn't won any appeals, while 4 had succeeded in their appeals.

Members of some Facebook fleece groups report that after a few such "infractions," they're being barred from Facebook for a short period—with longer bans following repeated transgressions. I do still see fleeces being posted, on a regular basis. I cannot tell whether they are disappearing because the fleece has been sold or that it's been taken down by Facebook, though ads being taken down are clearly not an isolated incident.

Some tips that might help you avoid such problems:

- Post your ads as "Discussions," not as items "For Sale." And don't ever post to Facebook's "Marketplace." (Posting fleeces as "Discussions"



*Good crisp images help market your fleeces on social media sites.*

rather than “For Sale” hasn’t always worked for me).

- Carefully consider your wording. Instead of “Lamb fleece for sale,” consider creative alternatives. “Up for discussion: what’s your favorite type of fiber? Mine is Rambouillet, especially if it possesses a 3-inch staple length as shown in photos in comments,” or “Do-it-yourself sweater kit: some assembly required.” Include information concerning breed of sheep, price per pound, and total price in the comments, not in the main posting. And consider using “wool” instead of “fleece,” as according to some, the latter term is more likely to be confused with “pelts.”

- Never include a photo of any live sheep in your ad, not even in the “comments,” and refrain from using terms such as “lamb,” “ewe,” “sheep” or “ram” in your ads. That’s likely to trigger Facebook’s algorithm banning sales of live animals.

When all else fails:

- Ask your shearer whether they are willing to accept your fleeces for a commission. Sometimes even a few dollars per pound for an unskirted fleece is better than the hassle of dealing with nonsensical Facebook rules.

- Consider starting an Etsy store, and then post the link to new offerings as a “Discussion” on the relevant Facebook groups or (perhaps better) on your farm page. (And make sure you invite previous customers to “like” your farm page!). Your “Discussion” can be as simple as “I’ve been busy lately, but have some gorgeous new fleeces I’ve just finished skirting to show for my efforts” (with a photo and a link to your Etsy store). (Note that not all Facebook groups allow this option).

- Some people suggest posting on Ravelry. I have not pursued this option myself.

- Consider joining alternatives to Facebook, such as MeWe. MeWe is an alternative social media platform to Facebook, similar in appearance and “feel,” but lacking Facebook’s ban on selling “live animals.” It’s easy to join (more so from a computer than from a phone from what I’ve been told). Thirteen of the respondents in my poll say they’ve moved to MeWe. Some MeWe groups to consider joining are “Pristine Fleece Sales Group,” “Dirty Wool Group,” “All Things Animal Fiber,” “Wool & Other Animal Fiber Connection,” and “Raw Wool For Sale.”

Good luck!

Using Google Business to advertise your farm, I have found, is certainly a way to let the world know where you are, and can be a good way to attract customers. The square peg of a working farm does not fit perfectly into the round hole that is the template Google offers businesses, but it does put your information out to customers who may not have found your website or social media presence.

You can pinpoint your location on Google Maps, link it to your website, have a farm “cover image” (see first screenshot below), describe your farm and what it offers (in the second screenshot below see the categories that you can fill in; here “products” are shown), and from sufficiently savvy customers, even get reviews and photos of their experiences (bottom screenshot—note that you can manage the images). My first reviewer kindly noted that it’s not a good idea to bring your dogs to the farm, as the guardian dog does not approve.

So far, it’s free.

One issue I’ve noted is that Google wants you to state when you’re open, providing no option in the “hours of operation” section for alternatives. Some visitors assume you are open 9 to 5 and they can just stop by (even if you have noted in your profile that visits are by appointment only). A gate and a sign assist with this. I’ve not yet tried to enlighten Google (after all, it’s free).

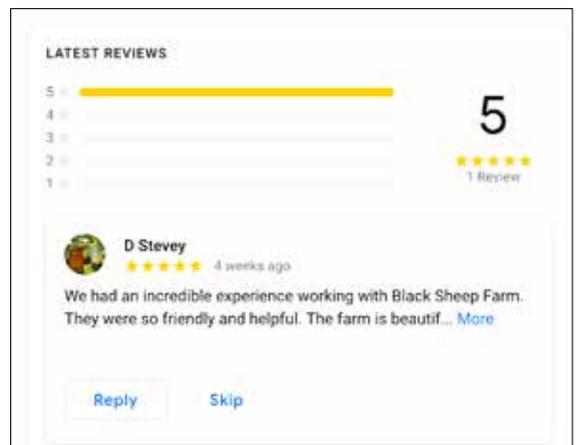
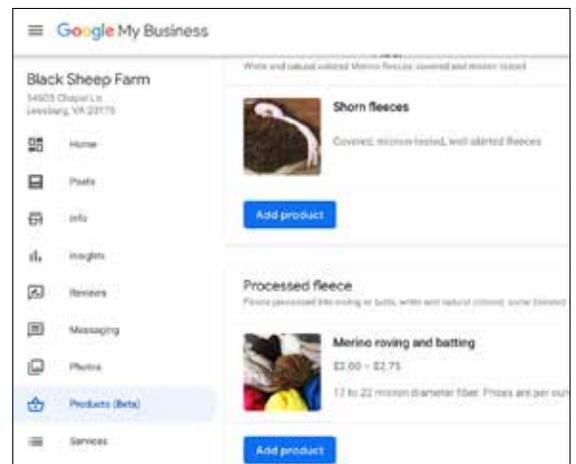
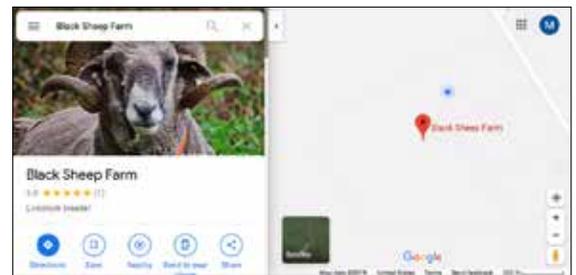
As a result of my farm’s heightened presence, in July I had a huge surge of calls from would-be customers wanting lambs for Eid-al-Adha (which has certainly emptied the farm of available lambs). I received many more requests than I could satisfy. (Note to entrepreneurs: A very underserved market!)

A gmail account is all you need to get started.

## Putting your farm on the map with Google Business

Martha Polkey

is editor of *Maryland Sheep News*.



# The butcher kept your meat?

by Dr. Christopher R. Raines, Assistant Professor  
Department of Dairy & Animal Science  
The Pennsylvania State University

PENNSSTATE



**No, the butcher probably did not keep your meat.** Ever since the first butcher processed a meat animal, the customer has wondered what happened to some of their meat. How could it be that a 1,200 pound steer left you with only 475 pounds of beef? Or that a 250 pound hog generated only 125 pounds of pork? What might seem like a reasonable answer - that the butcher kept your meat - is very unlikely. Take into consideration what happens during the conversion of a market animal into cut and packaged meat, and chances are the math will make more sense. **This brief guide is intended to serve as a general base for meat product return and may not fully account for slight variations that different animals and butcher orders may incur.**

## Step 1: Converting an animal into a carcass

**Dressing percentage (DP)** relates the weight of the carcass to the weight of the live animal and is calculated as:  $(\text{Carcass Weight} \div \text{Live Weight}) \times 100$ . This can be affected by many things, such as gut fill, fatness, mud on the hide, or shorn versus unshorn. Very fat animals have higher dressing percentages than light very lean animals.



**~70%**

The average dressing percentage for hogs is about 70-72%.

**Example:**

Live weight = 245 lbs.  
Actual DP = 72%  
Carcass wt. = **176 lbs.**



**~60%**

The average dressing percentage for cattle is about 60-62%.

**Example:**

Live weight = 1312 lbs.  
Actual DP = 60%  
Carcass wt. = **787 lbs.**



**~50%**

The average dressing percentage for sheep is about 50%.

**Example:**

Live weight = 127 lbs.  
Actual DP = 52%  
Carcass wt. = **66 lbs.**

## Step 2: Making cuts out of a carcass

This is where it starts to get tricky to predict just how much meat the carcass will yield because that depends largely on how you order the meat cut. **Bone-in or boneless?** Opting for boneless cuts will reduce your total pounds of meat returned. **Do you want ground meat with 10% fat or 20% fat?** Lower fat content ground meat will result in more discarded fat, thus reduced total pounds of product received. **Was the animal overly fat to begin with?** If the animal was fat from the start, more fat will need to be trimmed away, thus reducing total pounds of meat returned.

### Pork

For bone-in pork, expect no more than 75-80% of the carcass weight back as meat. For boneless, 65-70%.

**Example:**

Carcass wt. = 176 lbs.  
Boneless pork = **123 lbs.**

### Beef

For bone-in beef, expect no more than 65-70% of the carcass weight back as meat. For boneless, 55-60%.

**Example:**

Carcass wt. = 787 lbs.  
Boneless beef = **472 lbs.**

### Lamb

Most lamb cuts are bone-in. Expect no more than 70-75% of carcass weight back as meat.

**Example:**

Carcass wt. = 66 lbs.  
Lamb cuts = **50 lbs.**

## Step 3: Aging and further processing (optional)



The longer a whole carcass ages (hangs), the more moisture it loses due to evaporation, thus losing weight. Instead of aging an entire carcass for > 2 weeks, ask if your butcher is willing to age just the middle meats, aged.



Ordering bacon? Cured hams? Smoked sausages? Applying a heat process to meat cuts will also reduce the total yield of meat returned from an animal. Different products have different yields.

For more reading, see: D.M. Wulf, (1999). *Did the locker plant steal some of my meat?* <http://ars.sdstate.edu/MeatSci/May99-1.htm>

The Pennsylvania State University is an equal opportunity university.  
Available in alternative media on request.



This summer Liz Cavey and I went to visit Frederick Animal Health Laboratory veterinary pathologist Dr. Ginny Pierce and the staff of the lab, one of two in the state. We went as producers to see

## Visit to the Frederick Animal Health Lab

- what they have to offer
- what problems are they facing in providing these services, and

• what health issues they are seeing in the sheep population in this area.

The lab provides complete necropsy services for sheep producers, including gross necropsy, histopathology (analysis of tissues caused by disease), parasitology, and serology (diagnostic examination of blood serum).

The cost for necropsies (from \$100 to \$280) depends on the size of the animal and whether the producer is in or out of state. This link takes you to the fee schedule: <https://mda.maryland.gov/AnimalHealth/Documents/fee-listing.pdf>. There are additional fees for tests of toxicology or serology samples to identify the cause of death.

A frugal shepherd may regard some of these fees as high—but consider that the cost of sending out a single histopathology sample can be around \$220 in private veterinary practice. The lab also provides fecal parasite screening and other live animal tests.

The Frederick Animal Health Lab offers scrapie testing, and disposal of sheep over 18 months of age for a small fee, as part of the ongoing U.S. scrapie surveillance program. This is an option for disposal of animals that die on the farm. The last positive scrapie test in Maryland was 7 years ago. That case was the Norway strain, which is not as significant a problem and therefore not part of the eradication program.

In the past 5 years, funding from the state of Maryland to the Frederick lab has been cut by 20%, while costs for diagnostics and employee benefits have increased. The result has been staff cuts.

### Prevalent diseases

Dr. Pierce described to us the diseases and problems she is seeing in the state's sheep population, and emphasized the value of diagnostics, including necropsies, in on-farm management and surveillance.

The leading cause of death she sees is parasite overload. In lambs, coccidia infestation is usually the culprit; in older sheep, *Haemonchus contortus*,



the barberpole worm, is the cause of death. This will come as no surprise to most producers. Overwhelming parasite infections can lead to hypoglycemia, anemia, and digestive tract damage with secondary septicemia.

Learning that an animal brought to the lab died from parasitism may not be a surprise to producers, but it can provide the jolt required to change feeding and parasite control protocols.

Other causes of death that Dr. Pierce has seen include copper toxicity caused by unscrupulous use of topical copper treatments for foot rot, and a few cases of meningeal worm. This parasite, *Parelaphostrongylus tenuis*, is carried by white-tail deer and can infect the central nervous system (including the spinal cord) of an aberrant (unintended) host. It is much more common in llamas, alpacas, and goats.

One cause of abortion in sheep that has been diagnosed at the lab is Q fever. This is caused by the *Coxiella burnettii* bacteria, which is shed in milk, urine, feces, and concentrated in uterine secretions in sheep and other ruminants. This bacteria can also infect humans, and can cause anything from flu-like symptoms to liver damage and death in people with poor immune systems.

Another cause of abortion in sheep that has been diagnosed at the lab is Cache Valley fever. This is caused by a virus transmitted by mosquitos, that has been seen sporadically throughout North America. It can also cause severe birth defects in lambs that prevent normal birthing and require a caesarian. It may have been more prevalent this summer because of all the rain.

All diagnostic tests at the Frederick  
*continued on p. 14, column 2*

### Rosalind Hain

*is an MSBA board member.*

*The Frederick Animal Health Laboratory staff. [Image from Maryland Department of Agriculture]*



Maryland News ▶

Maryland MIWW deadline and contest dates set

The 2019 Maryland Make It with Wool Competition will take place Saturday, October 12, at the Baltimore County Extension Office in Cockeysville. The entry deadline is September 13. No late entries will be accepted.

Maryland residents from age 6 thru adult who enjoy sewing, knitting, crocheting, spinning, and weaving with wool fabrics and yarns are encouraged to participate in this activity, coordinated by a committee of the Maryland Sheep Breeders Association.

Participants must select, construct, and model a garment(s) made from a minimum of 60% wool fiber. Judging criteria include fit and overall appearance; coordination of fabric/yarn with garment style and design; construction quality; creativity, and wool promotion.

The top junior and senior participants will represent Maryland at the National Competition in Scottsdale, Arizona, during the 2020 American Sheep Industry meeting. The preteen winner will receive a sewing machine; the adult winner's garment and his/her DVD modeling the outfit will be sent to the National MIWW adult judging team. Young sewers, ages 6 and 7, discuss their projects and receive comments from the judges, but are not placed.

For more information and entry form, email [mdmiww@aol.com](mailto:mdmiww@aol.com). —Judy Williamson

▶ continued from p. 13

Animal Health Lab are subsidized and offered to Maryland residents at a cheaper price than in commercial labs, as a service to the agricultural industry of the state. The lab can help producers diagnose the cause of disease, stock loss, and poor performance of animals and use that knowledge to improve flock health and management.

The lab also provides surveillance, to identify any emerging, exotic, or contagious diseases that may affect sheep flocks in Maryland (and in a worst-case scenario threaten the entire industry).

These goals can only succeed if producers use the lab as a diagnostic tool—and if the lab continues to receive the funding it needs to function properly.

We as producers may need to approach our lawmakers in Annapolis to encourage further funding for the lab. The 2017 Census of Agriculture results released earlier this year show increases both in the number of Maryland farms raising sheep (from 663 in 2012 to 925 in 2017) and in the number of sheep raised (from 19,265 in 2012 to 23,399 in 2017). These figures may help encourage state lawmakers to consider better funding for the state's sheep industry.

If you are a Virginia resident, visit the Make It With Wool, Virginia! Facebook page or email [mp@budiansky.com](mailto:mp@budiansky.com) for entry information. The entry deadline is August 15; the competition is Sept. 29 at the Shenandoah Valley Fiber Festival in Berryville, VA.

1st Maryland grazing conference in October

The first-ever Maryland Small Ruminant Pasture Grazing and Browsing Conference takes place from 9 a.m. to 4 p.m. Saturday, October 19, at the University of Maryland's Western Maryland Research & Education Center in Keedysville.

Speakers will include Dr. Amanda Grev, Pasture Management Specialist, University of Maryland Extension; Matt Morris, Extension Educator, Frederick County; Erika Crawl, Extension Associate, Baltimore County; Maegan Purdue, Extension Associate, Worcester County; Jeff Semler, Extension Educator, Washington County; and Susan Schoenian, Sheep & Goat Specialist, University of Maryland Extension.

The registration fee is \$35 per person. You can register online using the link at left; to avoid paying credit card fees, mail a check (payable to the University of Maryland) to: 2019 Grazing Conference, Western Maryland Research & Education Center, 18330 Keedysville Road, Keedysville, MD 21756.

Conference sponsors are University of Maryland Extension and Future Harvest CASA.

Register for the grazing conference at: <https://2019grazingconference.eventbrite.com>



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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: PDF, jpeg.

Issue deadlines for ads and copy:

Winter January 10 Summer June 25  
Spring March 25 Fall October 31

Send copy to:

Martha Polkey, Editor  
[sheep@budiansky.com](mailto:sheep@budiansky.com)

Send payment to:

Treasurer, MSBA  
1126 Slingluff Road  
New Windsor, MD 21776

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Maryland Sheep Breeders Association:  
marylandsheepbreeders.org

Maryland Sheep & Wool Festival:  
sheepandwool.org

like us!



The Maryland Sheep Breeders Association Board of Directors meets every other month. Meetings are open to members. For minutes of meetings and meeting dates and times, contact the MSBA Secretary, Emily Chamelin Hickman, aeredairy@yahoo.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: \_\_\_\_\_

Send form and \$25 check made payable to MSBA to Kris Thorne, Membership Chair, 1130 Martin Drive, Westminster, MD 21157. She will contact you for additional information for the breeders directory and online profile.

Join *the*

MARYLAND SHEEP BREEDERS ASSOCIATION

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

You can join and pay online at <http://marylandsheepbreeders.org>, and fill out your member profile page. If you prefer to register by mail, fill out the form at left and mail with your \$25 check.

Here are sponsored events and activities for 2019:

- February 8-9: Beginning Shearing School
- February 23: Shepherds Seminar Day
- May 4-5: Maryland Sheep & Wool Festival
- **November 15: Annual Meeting & Dinner NEW DATE**

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 free admission to the Maryland Sheep & Wool Festival and be mailed a free copy of the catalog.
- Be able to promote your farm or business through a free profile page on the MSBA website.

Annual membership/subscription fee: \$25. The membership year runs from October through September. Dues for membership received prior to June 1, 2019, will be accepted as paid through September 30, 2019. Dues received on or after June 1 will be accepted as paid through September 30, 2020.