



Winter 2022 Newsletter



Letter from the President

Hello,

It's almost time for the holidays, which means lambing is right around the corner. This newsletter is full of great information on late gestation management that you can implement right away to help you have more success with your 2023 lamb crop. I hope you can enjoy some downtime during the busy holiday to read the articles in this newsletter as well as the great content being consistently posted on the EAPK blog.

It's time to start thinking about running for our Board of Director's elections. This is the first year we will be holding board of director elections at the annual meeting. We will have two director positions up for election. I would like to thank Tom Hodgman and Lee Wright for all their hard work in the founding steering committee through the first two years of the organization. Their efforts have been instrumental in the association's success. If you are interested in leadership, please find more information on the next page of this newsletter and further information on the website.

Our bylaws currently state that we need to vote in person at the annual meeting during our **EAPK symposium on July 8th, 2023 in Morehead, Kentucky**. We will be voting on two new directors, as well as any proposed changes to the bylaws. Upcoming information on any proposed changes will be dispersed in future communications. We are so thankful to have Morehead State hosting us this year, and are hopeful that some of you are a bit closer to this location and can comfortably travel and join us for this event. Mark your Calendars!

Happy Holidays,
Brad Carothers



New on the EAPK Website

[How Does Selection for Parasite Resistance in Katahdin Sheep Affect Other Important Traits? – Joan Burke, et al](#)

[Alternative Feeds: Is Variety the Spice of Life – EAPK Communications Committee](#)

[Sheep GEMS Update – Dr. Ron Lewis](#)

Upcoming Board of Directors Elections

We are asking at this time for **any interested eligible members to consider running for the board.**

Submissions and introductory bios should be submitted to Brad Carothers by June 8, 2023. Full eligibility criteria can be found in the bylaws on the website, but the **primary criteria are being a full voting member for the two previous years (2021 and 2022), and a member of NSIP submitting data for the previous three years.** Please reach out if you have any questions,
oldslatefarm@gmail.com

Late Gestation Management Considerations

Dr. Andrew Weaver, NCSU Small Ruminant Specialist

Ewes are bred, the holidays are just around the corner, and for all of us with winter lambing flocks, lambing season is almost here. Over the last year, we have invested in high quality genetics to move our flocks forward and now it's important that we make sure our next generation of lambs gets off to the right start. This begins with good late gestation management.

I have summarized nutritional requirements in Table 1 (think of this as nutrient demand by the animal). Requirements for energy (as indicated by total digestible nutrients) and protein increase substantially for late gestation and lactation compared to maintenance. Two-thirds of fetal development take place during late gestation. Additionally, ewes should be gaining body condition to prepare for lactation with a goal of BCS 3.5-4 at the time of lambing. Therefore, nutrients demands are high.

150 lb. ewe raising twins	Dry Matter Intake (lb./d)	Total Digestible Nutrients (lb./d)	Crude Protein (lb./d)
Maintenance	2.6	1.4	0.2
Late Gestation	4.0	2.7	0.4
Lactation	4.4	2.9	0.7

If these demands are not met, several disease challenges could arise. Pregnancy Toxemia results from insufficient nutrient intake and negative energy balance during gestation or lactation. Young ewes carrying multiples are most susceptible. Milk fever is less common but can occur when ewes are feed restricted, have insufficient calcium intake, transported long distances, or have excessive movement in late gestation. Both Pregnancy Toxemia and Milk Fever result in down ewes and eventual death if not treated.

If ewes do not have sufficient energy stores at the start of lactation, they may become extremely thin by the end of lactation or milk production could be compromised. Further, undernutrition during late gestation may result in low birthweight lambs. Low birthweight lambs are more susceptible to developing Starvation/Hypothermia Complex, a leading cause of death in lambs under a week of age. Survival of lambs born at less than 5 lb. may be less than 50% (Maund et al.).

On a strictly grass hay diet, expected energy and protein intake have been calculated in Table 2 (think of this as nutrient supply for the animal). These values should be compared to the requirements (demand) in Table 1. When supply is less than demand, supplemental nutrition is needed. Forage quality is going to vary greatly so get your hay tested, know the nutritive value of pasture forages, and adjust supplemental feeding accordingly.

Table 2. Expected Nutrient Intake (Supply) at Different Stages of Production

150 lb. ewe raising twins	Dry Matter Intake (lb./d)	Total Digestible Nutrients (lb./d)	Crude Protein (lb./d)
Maintenance	2.6	1.4	0.3
Late Gestation	4.0	2.2	0.4
Lactation	4.4	2.4	0.5

Assumes grass hay is 88% DM, 54% TDN, and 11% CP

To avoid disease challenges, mark a date 30-45 days prior to the start of lambing. On that date, vaccinate your ewes for Clostridium perfringens types C&D and tetanus, trim feet if necessary, check FAMACHA and body condition score, and adjust rations to ensure late gestation nutrient requirements are met. This may require adding in some supplemental concentrate feeds to the diet. Then, let your ewes relax and avoid handling to minimize stress until they lamb.

Hope everyone has a great holiday season and a successful start to lambing.

Timely Topic: DDG's

Given the high price of feed costs this winter, dried distillers grains (DDGs) can be an inexpensive source of protein and energy when fed to growing lambs, resulting in good weight gain and improved carcass traits. Feeding DDGs to lactating ewes can increase milk fat and result in better body condition scores. There are some drawbacks to be aware of, however. DDGs often contain high levels of sulfur and phosphorus. High sulfur levels can increase the risk of polio, especially when combined with other sources of dietary sulfur such as well water, fish meal and/or sulfur

based coccidiostats. High levels of phosphorus can significantly increase the risk of urinary calculi in male sheep, although adding calcium to the ration can help. A low calcium to phosphorus ratio (<2:1) in the feed can exacerbate subclinical hypocalcemia in ewes, especially during late pregnancy and parturition,



potentially increasing a ewe's risk for milk fever, dystocia, retained placenta and prolapses. Mycotoxins are almost always present in corn (and other grains) and become even more concentrated in DDGs. The most concerning of these are the fusarium fungi, aflatoxin and zearalenone. Zearalenone is a potent estrogen-like hormone that can reduce fertility in ewes and rams. In ewes, zearalenone causes decreased ovulation and conception rates. In rams, zearalenone can cause permanent changes to the testes and decreased sperm production, a serious concern for any breeding program.

For more information on DDGs and other feeds, see the EAPK blog [Alternative Feeds: Is Variety the Spice of Life?](#)

Small Farm Hay

For those that rely on hay in winter and beyond

By Allison Rudd, EAPK member

For a small producer, identifying a hay farmer that suits your needs each and every year can be an invaluable asset to your farm. Building and nurturing that relationship may mean you have access to hay during unforeseen events, such as drought or shortage. Creating that relationship gives you an understanding of what you are buying. It allows you to become actively involved in the production of your animal's diet for a good portion of the year. The benefit to your hay farmer is simply knowing that you are coming back every year. It's easier to produce a product for a customer if you know your customer!



There are many considerations when deciding how much hay to put up for the season. For planning purposes, a general estimate is 3% of each animal's body weight consumed per day (weigh your animals to get an accurate estimate). Waste must be considered and may add 10% or more depending on how the hay is fed. Also plan a decent amount of 'leftover' hay as an insurance policy for drought, additional animal purchases, spoilage etc.

Consider the different stages of production for your sheep when purchasing your hay. Recognize that your lambs will also be eating hay. The type, quality and cut are also extremely important factors in determining how much to buy. Ask your farmer if they test their hay or even their soils. If not, have the hay tested yourself so you know the quality you're working with and make necessary adjustments. Consult with your local county extension office for specific nutrition information and how to test hay and interpret results.

Smart feeding to minimize waste should be a priority. Good hay is expensive. Bale feeders can reduce waste and keep hay clean and accessible, as can hanging hay baskets or homemade feeders made with wire panels. Covered feeders on skids make moving the feeders practical on pasture. Make sure the feeders you select are appropriate for sheep to prevent accidents, injury or death.

Store your hay properly to limit losses to spoilage caused by water or animal intrusion. Dry barn lofts, dry barn floor (on pallets), or a dry shed are ideal options for storage. If you don't have a barn, carports, tent shelters or even heavy-duty tarps in a known dry site can protect your hay reserves. If your hay farmer has the room (and you have a good relationship), buying hay as you need it may be possible.

Plan how you will organize your stockpile, feeding older hay first. Match ease of access with the stage of production, i.e., alfalfa for late gestation and lactating ewes, soft hay for lambs, first cut for dry ewes, etc. Moving the hay may not be an option once it is stored.

EAPK 2022 Recap

Some photos of our in-person events this year: we hosted two informal field days, at North Carolina State and Big Tom's Con-o-Creek farm in Fombell, Pennsylvania. Our Annual Symposium and Sale was hosted in Blountville, Tennessee.





Sheep GEMS Update

Dr. Ron Lewis, University of Nebraska, Lincoln

A key element of Sheep GEMS is collecting performance records in NSIP-member flocks that reflect the production efficiency, robustness, and climatic resilience of their sheep. These include udder health, lamb survival, ewe longevity, and parasite resistance. Based on the outcome of a pilot study underway, we also are developing a measure of coat shedding in Katahdins that we plan to introduce in the upcoming year.

Genotypes on about 5,000 animals were used as the foundation to develop and release genomically-enhanced estimated breeding values, or GEBV, in Katahdin sheep in October 2021. Since then, partly supported by Sheep GEMS, over 3,000 additional genotypes have been collected by Katahdin breeders improving the accuracy of GEBV even more.

Although perhaps less widely advertised, those same genotypes have been used to develop protocols to reliably determine genotypes for five genetic conditions:

- Scrapie susceptibility, based on codons 136 and 171.
- Ovine Progressive Pneumonia (OPP) susceptibility, based on ten genetic markers in the associated TMEM154 gene.
- Myostatin, known as 'double muscling.'
- Callipyge, which also dramatically affects muscle development but with detrimental consequences on meat eating quality.
- Booroola fecundity gene, which substantially increases ovulation rate and litter size.

The results on these five genetic conditions in Katahdin sheep were tabulated. Starting with scrapie susceptibility, and using the combined information from both codons, 60.2% were completely resistant, 33.3% were rarely susceptible, 1.0% were somewhat susceptible, and 5.5% were susceptible. For OPP susceptibility, 40.9% were less susceptible, 58.8% were highly susceptible, and 0.3% had uncertain susceptibility. Importantly, even the most desirable test result infers low susceptibility to OPP rather than complete resistance. In terms of Myostatin, 2.7% were carriers (one copy of the gene) and 0.2% were homozygous (two copies of the gene). Neither the Callipyge nor Booroola variant was found in any of the animals genotyped.

What is next? With the help of Rusty Burgett, we are compiling a list of the producers that submitted the DNA sample on each animal. Once complete, these producers will be sent the genotypes for these five genetic conditions on their animals. An information sheet interpreting these results also will be provided. Read more on the [EAPK Blog](#).

Time to Renew your Membership!

[Renew now](#) to continue supporting our educational content, engaging in-person events and promotion of sheep with production data enrolled in NSIP



Timely Tip: Lambing Checklist

Lambing is just around the corner. Are you prepared with the basics?

- Vaccinate ewes with CDT in the last month of pregnancy
- Organize and order supplies:
 - Propylene glycol, molasses or karo syrup: Quick treatment for pregnancy toxemia
 - Prolapse harness: Most prolapses occur in the last 2 weeks of pregnancy
 - OB gloves and lube: For use with dystocia or assisted deliveries
 - 7% Iodine Spray: Spray or dip newborn lambs' naval area to prevent infection
 - Colostrum: Purchase or freeze colostrum for orphaned or weak lambs (first 24 hours)
 - Tube feeder: Provides quick delivery of nutrition for weak lambs
 - Penicillin/Oxytetracycline antibiotics: Have on hand for ewes after assisted deliveries or for treatment of naval ill, baby pneumonia or mastitis
- Order lamb tags: Preprinted tags may take a few weeks for delivery
- Organize barn: set up jugs, check that heat lamps and cameras are working, spread bedding
- Have barn records ready
- Have your veterinarian's phone number available



Virginia Tech Southwest AREC Forage-Based Ram Test 2022 Test & Sale Update

By Lee Wright - SWAREC Superintendent

The VA Tech Southwest AREC Forage-Based Ram Test in Glade Spring, VA had another exceptional year in 2022. One hundred twenty-four (124) rams were delivered to the testing facility May 31, from 31 flocks, representing 10 states (VA-TN-NC-GA-MO-KY-PA-WV-OH-FL). Rams participating were evaluated for the 70-day test period from June thru August. Additional information, and specifics on how the test is run can be found at the website:

<https://www.apsc.vt.edu/extensionandoutreach/Sheep-Extension/sheep-programs/swarec-ram-test.html>

The test and sale have proven to be a successful tool for consignors and buyers alike, to identify rams with the genetic capability to effectively manage parasite burdens, and maintain acceptable, or increased post-weaning growth. Test performance is measured at 14-day intervals, with data collected for fecal egg counts (FEC), average daily gain (ADG), and FAMACHA scores. At the completion of the test period, all data are analyzed, and top performers in the test are either offered for public auction or can be retained by consignors for use within their own breeding program.



Sale structure in 2022 was modified from previous years. This year, only the top 50% of rams were eligible for the sale based solely on test performance. Within this top tier of rams, sale order was set based on statistical analysis for weight gain, and fecal egg count evaluation for parasite resistance (50:50 credit for each attribute). Within this group, rams also had to pass a breeding soundness exam, and be acceptable for soundness and structure in order to advance to the sale held on September 23.

Animal performance data from this test has proven to be an asset in many flocks making sire selections from tested rams. Test data, coupled with estimated breeding values (EBV's) from rams enrolled in NSIP, have also proven to be in high demand at the annual sale. Utilizing these two data sets have helped both seedstock and commercial producers and seems to be a key to success in many flocks identifying their next flock sire. This strategy helps buyers find rams that offer exceptional post-weaning gains, and a higher likelihood of parasite resistance to their future progeny.

Many rams identified through this testing program, and later enrolled in NSIP flocks as breeding sires, have shown to have progeny that either meet or exceed potential performance based on the test results shown within the data of the ram test at SWAREC. The chart below summarizes 2022 sale data for rams with data to back performance.

<u>Breakdown of Sale Categories:</u>	<u># Rams Sold</u>	<u>Average Selling Price</u>
Total Rams in Sale	57	\$1,482
Sale Rams from NSIP enrolled flocks	34	\$1,659
Sale Rams from Non-NSIP flocks	23	\$1,222

Timely Topic: Minerals

Sheep should always have access to loose minerals. Forages and hay reflect the natural deficiencies and/or excesses of nutrients that are present in the soil from which they're grown. A deficiency or imbalance in minerals can result in production losses including a decrease in lamb growth and a compromised immune system with greater susceptibility to parasites and diseases. Mineral deficiencies can negatively impact reproduction through delayed estrus; embryonic death; decreased conception; delayed puberty; increased incidence of dystocia, retained placentas, and/or weak lambs. The productivity of sheep will be negatively affected before clinical symptoms are apparent.

The most important nutrient is the one that is missing or deficient.

Mineral requirements change with the animal's stage of production, environmental situations that affect feed intake, and stress, including weather (i.e., heat, humidity, mud, wind, cold). Mineral antagonisms exist and may result in imbalances or deficiencies.



It pays to buy a good quality mineral. Minerals in the oxide form found in many cheaper mineral mixes are only 10-20% as absorbable by the animal as the sulfate, chloride or chelated forms. The advantage of more available forms of minerals are especially important in times of stress.

EAPK Members in the News

EAPK member Lee Holcomb was recently awarded a Southern Sustainable Agriculture Research and Education (SARE) farmer/rancher grant: Establishing and Grazing Native Warm Season Grass: How Average Daily Gain and Internal Parasite Burden are Affected in Weaned Lambs. Lee will be sharing the progress and results of his research with us over the course of the grant through a series of EAPK blogs.



Timely Tips

Prenatal Fitness

Exercise isn't just good for you. In addition to a balanced diet, sheep benefit from regular exercise. Pregnant ewes who receive moderate exercise during gestation are less likely to have dystocia, have less gestational weight gain and may have enhanced colostrum quality. Spacing out hay feeders, waterers, minerals and shelter will encourage ewes to walk. Watch heavily pregnant ewes during bad weather though, as having easy access to feed, shelter and water may help to avoid pregnancy toxemia.



Vaccinations

It's standard practice to vaccinate sheep and lambs against clostridial diseases using either CD-T (3 way) or a 7- or 8-way vaccine. However, vaccines are also available for a variety of other conditions, such as abortion diseases, pneumonia, mastitis, footrot, caseous lymphadenitis (CL) and soremouth. Most injectable vaccines require an initial series of two doses followed by an annual booster. Some of these vaccines are considered off-label use for sheep and may or may not be necessary or even advised for every flock. Work with your veterinarian to develop a flock health plan based on the susceptibility of your flock to these individual diseases.





Upcoming Events

**July 8th, 2023 - EAPK Annual
Symposium and Sale,
Morehead, KY**

The 3rd Monday of each month
at 7PM EST - Open Forum
Discussion via zoom

<https://us02web.zoom.us/j/81720266013>

Board of Directors

Brad Carothers - President

Tom Hodgman - Vice President

Kathy Bielek - Secretary

Roxanne Newton - Treasurer

Robert Walker

Lisa Weeks

Lee Weight

