SINCE STATE COOPERATE 1929

SMALL RUMINANT EDITOR January 2023



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HOW'S YOUR FORAGE QUALITY THIS YEAR?

PRODUCERS SHOULD TEST FORAGES IN ORDER TO CORRECTLY BALANCE RATIONS TO MEET SHEEP NUTRITIONAL REQUIREMENTS.

Many years can be quite challenging for sheep producers to manage forage quality in pastures and hay. Annual rainfall and temperatures can vary greatly from one year to the next. This can really impact forage quality both on pasture and in hay and makes the year's hay especially important to analyze in order to balance rations.

In some cases, forage fiber content limits the ability of animals to eat enough to meet their nutrient requirements. We refer to this as dry matter intake, the completely dry portion of a feed that animals consume. On the other hand, some years may have a spring that is exceptionally wet. So, instead of fiber limiting dry matter intake, we now see water content in pasture forages limiting intake. This can also result in a general trend for lower than normal energy and protein levels. Therefore, sheep producers need to consider forage analysis reports when balancing rations for the winter.

Most pasture forages contain 75 to 90% moisture, while dry hays usually have less than 15% moisture. We measure moisture content so that we can compare nutrient contents from different feeds on an equal basis. Let's look at an example that compares nutrient contents of grass pasture and grass hay on an as fed basis versus a dry matter basis. The pasture and hay contain the same levels of protein, but we would not be able to determine this without comparing the forages on a dry matter basis.

Whenever we compare the forages on an as fed basis, or in other words as the forage is fed to animals, we see that dry matter is 20% for pasture and 90% for hay. Looking at the protein content of the forages, pasture is 2.2% protein and the hay 9.9% protein as fed. However, these forages actually contain the same percent of protein, 11%, when you remove the water content and consider the forage on a dry matter basis.

The next columns in the table discuss fiber contents expressed as NDF or neutral detergent fiber and ADF or acid detergent fiber. Neutral detergent fiber measures all

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Nutrient Density Basis	% DM	% Protein	Content NDF	Content ADF
Grass Pasture	As Fed	20	2.2	11.0
	Dry Matter	100	11.0	55.0
Grass Hay	As Fed	90	9.9	49.5
	Dry Matter	100	11.0	55.0

the fiber components in a forage. These components make up the plant cell walls and include hemicellulose, cellulose, and lignin. As the NDF measurement increases, this tells us that the fiber content increases also. This causes dry matter intake to decrease and the animals chew their cud for longer periods of time. Acid Detergent fiber measures the highly indigestible fibers and as this number increases, digestibility decreases.

To put this into perspective, a legume forage would be considered good quality if the NDF is below 40%. Anything above 50% would be considered poor quality. On the other hand, high quality grass forages should have an NDF below 50%. Low quality grass forages have NDF levels higher than 60%.

The only way to correctly evaluate forages is to have them analyzed. This allows sheep producers to correctly balance rations in order to boost feeding efficiency and profitability. Under feeding nutrients results in slower growth rates, decreased milk production and could even impact lambing percentages. Over feeding nutrients could result in wasted money through feeding more nutrients than the sheep require.

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The first step to analyzing forages starts with collecting a representative sample. Forage test results must represent what the animals eat. Samples should be collected from each field and each cutting. Test results vary greatly throughout the year! Use a bale core sampler and insert the sampler to its full depth into the end of each bale you are sampling. Collect at least 20 samples from each field and cutting. Mix samples from each group separately in a clean bucket and place in an airtight plastic bag. Label each bag before sending to your local forage testing laboratory.



Once you receive the forage test results you can then balance rations to make sure sheep receive adequate nutrients throughout different production stages.

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CAREFULLY APPROACH SPRING MANURE APPLICATIONS

PATIENCE AND TIMING WILL HELP YOU MAXIMIZE THE VALUE OF MANURE APPLIED THIS SPRING.

At this time of year you may be looking at a full manure storage and desire to get an early jump on application for the coming growing season. Patience can pay off in the form of manure nutrient conservation. After all, the goal of manure application is to place valuable nutrients on the soil where they are needed and to keep them in place until they can be taken up by the crop. A large part of this equation is timing. The closer the nutrient is applied to actual crop need the better.

The goal of manure application is to place valuable nutrients on the soil where they are needed and to keep them there. Application of nutrients during times of snow-cover, frozen soil, or saturated conditions increases risk of nutrient loss. Once a nutrient passes the field edge it is lost to the environment - and lost from crop uptake. A fraction of both nitrogen and phosphorus in manure will be present in soluble forms. If the liquid solution of manure can infiltrate the soil then soluble nutrients will infiltrate with the liquid to a location that is safe from overland runoff. The ammonium nitrogen fraction will also be safe from volatilization after it is beneath the soil surface. Frozen, snow-covered, and saturated soil conditions hinder

infiltration. Spring rain events can carry both the soluble and solid portions of manure from the field.

If you must apply manure before conditions are ideal, you should go to fields specifically listed in your nutrient or manure management plan to receive manure during the current season. Some things that limit risk of manure nutrient loss include fields with shallow slopes, fields with a perennial crop such as hay, fields with a cover crop, fields with lots of crop residue, and fields that are more distant to water. You should prioritize the order of manure application according to risk and go to the least risky fields first.

Because infiltration can be limited at this time of year, extreme runoff events can occur. For instance, snow melt or rain on frozen or snow-covered ground can cause runoff to occur from lands that rarely lose water. For this reason, it is wise to skip manure application in subtle swales in these fields where water can gather and flow. Nutrients placed here certainly won't stick around. These shallow depressions can be covered with manure later in the spring when risk is lower. Pay attention to the weather forecast, and avoid situations where you expect upcoming weather may undo the nutrient placement work you have done.

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WEANING PRACTICES LIMIT STRESS TO EWES AND LAMBS

A FEW SIMPLE STEPS PREPARING FOR WEANING CAN MINIMIZE THE STRESS TO BOTH EWES AND LAMBS IN YOUR FLOCK.

Ewes baaing, lambs crying, and shepherds wishing for quiet: will the noise never cease! These are all signs that weaning is commencing. However, some of that baaing and crying can be minimized if shepherds take a few simple steps to prepare for weaning. And, this can limit the stress to both ewes and lambs in the flock.

Weaning practices should start at least two weeks prior to the actual weaning process. Weaning means separating the ewes from their lambs. Lambs should be started on some sort of solid feed at least two weeks before weaning so that they are adapted to living on their own. In addition, lambs should also be accustomed to drinking water. Solid feed often comes in the form of a high protein grain mix, but could also mean highly palatable and high protein hay.

Weaning can occur in a number of different ways. Some producers like to wean early to take advantage of a lamb's ability to more efficiently turn grain and hay or pasture into pounds of gain. It is more efficient to feed the lamb directly than to feed a ewe that produces milk that a lamb consumes. Early weaning generally takes place when lambs are 60 days old. Lambs should weigh at least 45 pounds at this time.

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Most ewes peak in their milk production around three to four weeks after the lambs are born. After that point, milk production decreases rapidly. Therefore, lambs should have plenty of grain and/or hay to eat by that point in time to get them accustomed to eating solid feeds.

Some producers will wean earlier to accommodate situations such as drought or the desire to breed back ewes more quickly. Earlier weaning may take place when lambs are just 30 to 45 days old. This can be challenging for drying off ewes at this time though. Lambs that are raised on milk replacer are often weaned at these early ages.

On the other hand, some producers prefer a natural weaning method where lambs stay on pasture with their mothers until they are four to six months old. This greatly decreases the stress of weaning for both the ewes and lambs, but can also mean lower weight gains in lambs.

When weaning, producers should prepare the ewes several days prior to the planned weaning date. Start by removing any grain from the diet of the ewes. And, switch to a low quality hay. This abrupt drop in protein and energy levels will cause the ewe to decrease milk production. Some producers will also limit water for 24 hours after weaning, but ewes that are weaned from 60 day old lambs or older don't necessarily need water withheld unless they are heavy milkers. Be careful of limiting water during hot weather!

Lambs should have all their vaccinations at least two weeks prior to weaning. They should receive their first C, D and T vaccination shot at about five weeks of age if their mother received a booster four to six weeks before lambing. Lambs born to mothers that did not receive a booster vaccination during pregnancy should receive their first vaccination shot at two to three weeks of age. A booster vaccination should be given to the lambs three to four weeks later. Deworming, castration and tagging should also be completed well ahead of weaning as all these practices cause additional stress to the lambs at weaning. If unable to perform these tasks prior to weaning, producers should wait until several weeks after weaning when lambs are well adjusted to living without their mothers. Watch lambs closely for any signs of health problems for several weeks after weaning. This includes health problems such as pneumonia, scours, and coccidiosis.

To decrease stress to the lambs, move the ewes to another location rather than move the lambs. The lambs should remain in the pen where they were raised because they are familiar with the surroundings and know where to find feed and water. This results in less decrease in feed and water consumption and thus less weight loss in the lambs in the first few days after weaning.

Ewes should remain on the low quality hay until their udders begin to shrink and dry off. For the first few days after weaning, be sure to look for any signs of exceptional swelling or redness. This can be a sign that mastitis is present and will need to be treated. If a ewe is very uncomfortable, some milk can be removed from the udder to lessen the pressure. Never remove all the milk as this will continue to stimulate milk production. Be sure to consult with your local veterinarian for treatment protocols.

DETERMINING THE MOST EFFICIENT EWE SIZE FOR YOUR OPERATION

BIG ONES, LITTLE ONES, FAT ONES, SKINNY ONES; EWES COME IN ALL SIZES AND SHAPES. BUT, WHICH IS THE MOST EFFICIENT EWE SIZE FOR YOUR OPERATION?

The most efficient sheep or better yet the most efficient flock of sheep is what producers should strive for. But, the most efficient sheep for one flock is not always the most efficient sheep for another producer's flock. So, how do we arrive at first describing an efficient sheep and then go about choosing the size that best fits your operation?

Let's start by defining efficiency as it relates to animal production. Dr. Gordon Dickerson, who was a leader in defining efficiency in beef production, defined it as the ratio of total costs to total animal products from females and their progeny over a given period of time. He further looked at efficiency in two different ways. One was biologic efficiency or feed consumed to product produced. The other was economic efficiency, which is dollars spent compared to dollars returned.

It is well documented that the number of lambs weaned per ewe is the largest factor that affects profitability in an operation. But, we need to consider what size ewe will best utilize the resources available on a particular farm. Ewes need to be able to convert forage from pasture or stored feeds to maintain their body condition and also to produce lambs. Maximizing stocking rate on pasture is a key to arriving at efficient ewe sizes. Across the country stocking rate varies greatly depending on the productivity of soils as well as rainfall. In the east, a typical stocking rate would be 1,000 lbs. of animals per acre. But, with excellent pasture management, this stocking rate could double. Compare that to stocking rates in some western areas where you might need five or more acres to support just one ewe.

Let's use a scenario to compare the difference in costs for maintaining a 175 lb. ewe versus a 225 lb. ewe. For many operations, producers will need to provide about four months of supplemental feed during the winter months. A 175 lb. ewe requires about 2.9 lb. of dry matter per day and a 225 lb. ewe requires about 3.3 lb. of dry matter per day according to National Research Council's "Nutrient Requirements of Small Ruminants." Translate that into the amount of hay that would actually be fed, and we are looking at about 0.5 lb. per day more hay for the larger ewe. This is calculated using hay at 90% dry matter and by adding in a bit extra for waste. Over a four month period, the additional cost to maintain that larger ewe is \$4.50 for \$150 per ton hay costs. Well, that cost seems no big deal. But, remember that we also have to decrease the stocking rate on pasture to account for the additional dry matter intake of the larger ewe. If we consider a full year of additional dry matter intake needs using the value of hay, the larger ewe will cost about \$13.50 more to feed. Bear in mind that this cost does not include the cost of the additional pasture acreage needed to meet her feed requirements.

There are obviously some additional costs that will be needed for health care, more feeder and barn space, etc. that we have not specifically accounted for. So, let's estimate that additional costs for that ewe at around \$15 per year. If lamb prices for weaned lambs are \$2.00 per lb., that ewe will need to produce lambs that weigh 7.5 lbs. more as a group at weaning than the smaller ewe to justify her larger size.

What have we missed in the comparison? Larger framed ewes are more likely to produce larger framed lambs at birth, which could possibly increase lambing problems which could in turn affect survivability and weaning percentages. Those larger lambs will have a higher dry matter intake than the smaller lambs. This won't make much difference for the small producer. But, if you are a large producer with 100 lambs or more this certainly will make a difference.

What this comes down to is that each individual producer will need to determine what the most efficient ewe size is for his or her operation. Pasture stocking rates, ewe productivity, feed efficiency and lamb values all play a part in determining what size ewe is most efficient for a particular operation. So, take a closer look at your farm records to sort through the pieces of the puzzle that determine what size is best for your operation.

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IN SEARCH OF THE PERFECT BROOD EWE

One of the challenges of raising sheep is to find a perfect brood ewe. In fact, we would all like to have a whole flock of those perfect females. In order to select rams to mate with these ewes, we must first define just what that perfect female should look like. This is also going to vary from one farm to another because each farm may have different goals. Here are a few things to think about as we look for that perfect brood ewe.

BODY CONDITION

A ewe should be able to maintain an average body condition score by eating a forage-based diet. In other words, she should be able to live on pasture and hay or haylage and maintain an average body condition score throughout the year. Forage is one of the most economical feed sources for flocks.

A ewe should lose some body condition while nursing her lambs, but should regain that lost weight to reach an average body condition score before the next breeding season. Her body condition is most important during the last third of her pregnancy so that she will have adequate fat stores to put into additional milk production. Her body condition score during that time is also important so that she does not develop pregnancy toxemia, also known as pregnancy disease. Overly fat sheep may not be able to eat enough to meet the growing nutritional needs of multiple lambs. This is because there might not be enough room inside her to accommodate her rumen, two or three lambs and all that fat! Very thin ewes may also develop pregnancy toxemia. Producers with thin ewes should evaluate why ewes are thin. Are ewes thin due to poor nutrition? Or, is the cause more related to genetics?

STRUCTURAL CORRECTNESS

If you expect a ewe to walk through a pasture to harvest her own meals, she should be structurally sound. The correctness of her feet and legs will allow her to walk freely and easily around the fields and should help her to remain sound over the many years of her lifetime.

MUSCLING

For sheep, muscling is important for ewes to pass on to their offspring. Ewes should not be overly muscled or round in their muscle design because this could lead to lambing difficulties. On the other hand, she should have enough muscling so that her offspring will produce adequately muscled carcasses.

MOTHERING ABILITY

I have yet to meet a sheep producer who enjoys bottle-feeding lambs. It is the ewe's job to produce adequate amounts of milk for her lambs, and also take care of her lambs. She needs to lick the lambs off when they are born and needs to keep track of those lambs during her travels throughout the pasture or in the barn if lambing inside. In addition, she needs to stand to allow the lambs to nurse numerous times throughout the day. Both sides of her udder must work properly and her udder should appear level with a strong suspensory ligament as viewed from the rear.

PERFORMANCE

Sheep producers should expect a certain level of performance from their ewes. For those interested mostly in growth characteristics, ewes should be able to produce enough milk to meet weaning weight goals. Keep in mind that this will vary based on the age of the ewe, birth and

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rearing type (single, twin or triplet) and sex of the lamb. Adjust weaning weights to account for these differences so that you can better evaluate ewes and ewe lambs. For producers more interested in wool production, ewes should have a uniform fleece from their shoulder to their rear leg. Ewes should also have very little britch wool, the wool on the lower part of their rear leg. Also, belly wool should not extend up the sides of the ewe.

One of the keys to profitability in a sheep operation is that ewes should produce twins. Yearlings will most likely produce a single lamb, however mature ewes should consistently produce twins throughout their lifetime.

Take a moment to consider what is important to your operation. Set goals and then select rams that should help you meet those goals and improve the overall genetics in the flock. Evaluate lambs based on those goals and only keep replacement ewe lambs that best meet those goals.

Penn State Extension

MEET DENNY SELLS – AUGUSTACO-OP RUMINANT NUTRITIONIST



Denny is a native of Overton County, Tennessee. While growing up he was very active in both of his grandparent's farming operations. He had two uncles in the Dairy business, which sparked his interest and love of dairy and livestock production. While a freshman in high school, Denny's family moved to eastern North Carolina where he became involved in 4-H and FFA. He participated in numerous activities including livestock and dairy judging contests.

Denny attended North Carolina State University in Raleigh, NC and earned a degree in Animal Science. While in college, Denny worked at the university dairy research farm for 3 ½ years and was active in Alpha Gamma Rho fraternity. He was also a member of the livestock and poultry judging teams.

After graduation, Denny worked on a large swine operation in eastern NC and managed the sow herds. The operation also had a 300-cow beef herd of which ~ 100 head were registered Angus. He had several responsibilities helping the owner manage the registered cattle. In the mid 90's, Denny decided to move back to Tennessee and pursue a career working with beef and dairy producers in the Southeast and Mid-Atlantic region. Denny and his wife, Tonya, have two daughters that live and work in Nashville.

To contact Denny customers may reach him at DSells@AugustaCoop.com or (540) 885-1265

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EVENTS / CALENDAR =

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RSVP Link: https://equineanddial1.rsvpify.com

AGRONOMY CUSTOMER APPRECIATION DAY

Friday, February 10 | 11 AM - 2 PM

Augusta Expo Building #2 277 Expo Road, Fishersville, VA 22939 Additional information: **RSVP** to Staci Alger by January 31 at (540) 885-1265 x 253 or SAlger@AugustaCoop.com

BEDFORD AGRONOMY & FEED DIVISION MEETINGS

Thursday, February 16 | 6 PM - 8 PM

The Traveller Event Venue | 3763 Peaks Road, Bedford, VA 24523 Additional information: Producer related meeting, offering door prizes, food, educational material & much more. Dinner served at 6 PM. **RSVP** required to Mikala Liptrap at (540) 430-3169 or MLiptrap@AugustaCoop.com RSVP Link: https://BedfordAgronomy.rsvpify.com

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