

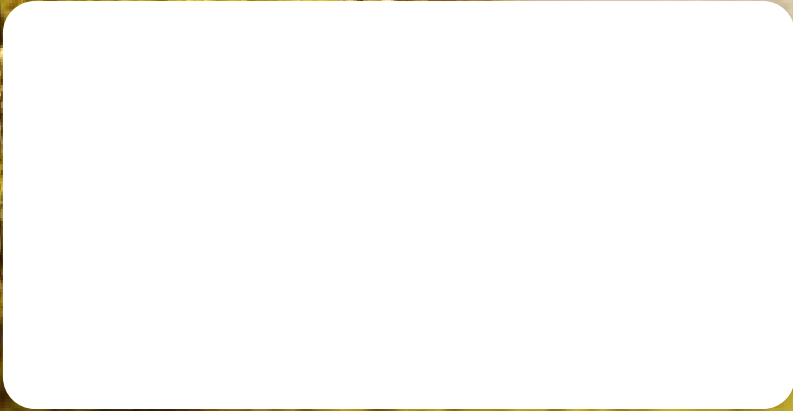
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**SMALL RUMINANT EDITOR**  
May 2023



1929



SINCE

# DO YOUR SHEEP RECEIVE OPTIMAL NUTRITION?

## SHEEP THAT RECEIVE OPTIMAL NUTRITION ARE MORE LIKELY TO PERFORM AT HIGHER LEVELS THAN SHEEP THAT RECEIVE LESS THAN OPTIMAL NUTRITION.

However, for most production oriented flocks, optimizing nutrition can also translate into optimum efficiency and profitability. Optimum nutrition is one of the best practices recommended by the American Lamb Industry Roadmap Project as a means to improve production efficiency in sheep flocks.

A closer look at optimizing nutrition might start with body condition scoring the flock. Ewes should have a body condition score of 3 or slightly less on a 5 point scale as they enter the breeding season. This allows flushing to have a higher impact on ovulation rates and can lead to more twins born during lambing season. Many sheep producers who raise breeds that lamb out of season have likely weaned lambs born during the winter and turned ewes out with rams in April or May to breed for fall born lambs.

These ewes likely are below the body condition score of 3 if they did a good job producing milk for their winter born lambs. Turning them out on spring grass is a great way to increase their nutritional plane and thus encourage higher ovulation rates. Fall breeding programs can also take advantage of lush pasture growth or can add ½ lb. of grain per head per day to the daily diet to increase energy in the ration and promote higher ovulation rates.

Throughout gestation pasture, or other forages, should provide enough protein and energy to support nutritional requirements for maintaining ewe body condition. It really isn't until the last third of gestation that nutritional requirements begin to increase. A quick look at the 1985 National Research Council nutritional requirements for sheep shows that the energy requirement (TDN or total digestible nutrients) for a ewe that weighs 80 kg (176 lb.) increases from .72 kg (1.58 lb.) during maintenance to 1.3 kg (2.86 lb.) during the last four weeks of gestation. This will jump again to 1.95 kg (4.29 lb.) during the first six to eight weeks nursing twins. Bear in mind that the crude protein requirements also increase from 122 g (.27 lb.) to 223 g (.49 lb.) to 435 g (.96 lb.) during that same timeframe.

Sheep that don't receive adequate nutrition, especially during the last third of gestation, are more likely to produce smaller and less vigorous lambs. Lamb size and vigor becomes very important when lambing during cold temperatures. It can be critical for lambs to get up and nurse as quickly as possible in order to promote lamb survival. From a shepherd standpoint, healthy and vigorous lambs typically result in a lot less labor during lambing season. Every shepherd prefers to see lambs up and nursing when he or she gets to the barn!

Nutrition can also affect colostrum quality and quantity. There are a large number of interactions that occur at birth and contribute to lamb survival including weather conditions, energy reserves, competition with siblings and mothering ability. Lamb survival rates increase greatly if the lambs receive adequate colostrum intake within 48 hours after birth. During the first 48 hours lambs are able to absorb important antibodies that protect their health status until their immune system begins to function on a higher level. Adequate colostrum intake is also important for thermoregulation, or the ability of the lamb to keep itself warm. Good nutrition for the ewe prior to lambing can increase both the quality and quantity of colostrum and can also help to promote milk production.

One aspect of nutrition that is essential for optimum performance is water. Sheep should have access to an adequate supply of clean and fresh water at all times. Water consumption can affect feed consumption and so plays a major part in nutrition. According to the Sheep Production Handbook, "water consumption is about twice the weight of the air dry feed intake." So, for every four pounds of dry feed that a sheep consumes, that sheep would also need to drink about a gallon of water. Keep in mind that water requirements increase during hot weather.

Mineral programs play another essential role in optimum nutrition. While minerals appear to be an expensive part of nutrition, those minerals pay for themselves very quickly. Not only does a good mineral program promote healthy sheep,

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*continued on page 2*

but it can also play a factor in reproduction and growth rates. Always feed a good quality salt and mineral mix formulated for sheep that is the only salt source for the flock.

Follow good nutrition practices to keep sheep healthy and highly productive. This is just one step that can improve production and profitability in a sheep flock.

*Penn State Extension*

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## **SHEEP NUTRITION IS KEY TO LESS MASTITIS IN EWES**

### **PROPER SHEEP NUTRITION DURING DRY OFF CAN REDUCE MASTITIS AND IMPROVE LONGEVITY FOR EWES.**

Lambs get 100% of their nutrition from ewes' milk during the first eight weeks of life, so it's vital to maintain udder health. On top of that, weaning occurs shortly after peak milk production for the ewe – making the risk for mastitis in ewes high. An easy way to proactively manage udder health and mastitis is through nutrition.

Managing mastitis via nutrition and management are simple ways to keep mastitis in check and ewes and lambs thriving through weaning and beyond. Heading off mastitis can help reduce long-term udder quality issues and maintain future milk production – and keep ewes in the flock longer.

Follow these tips to reduce the risk of mastitis and maintain ewe and lamb health:

#### **SLOW DOWN MILK SUPPLY**

One of the best ways to avoid mastitis in ewes is by gradually slowing down milk production leading up to weaning.

There's a higher risk of mastitis, hard bag and other issues if milk production is still high at weaning. The goal is to reduce energy in the diet and slow down milk production before removing lambs.

At peak production, typically 5-8 weeks after lambing, ewes are commonly fed a high-energy, corn-based ration and high-quality hay to maximize milk production and lamb growth. At the eight-week mark, while lambs are still on the ewes, start a 10-14 day dry-off period. During this timeframe, gradually remove grain and switch to grass hay to lower energy levels in the diet and reduce milk production while keeping ewes full.

Reduce water availability for ewes 24-hours after weaning to further decrease milk production, but don't eliminate water access, especially during warm weather.

#### **LET EWES LEAD THE WAY**

One of the biggest mistakes made with mastitis management is weaning lambs too early – before milk production has sufficiently decreased.

If ewes are still producing high volumes of milk at eight weeks post lambing, even after changing to a low-energy diet, wait to remove lambs. Watch ewes closely to monitor milk production and wait to wean until milk production has slowed to protect udder health and limit mastitis risk.

Operations with ewes and lambs on pasture throughout lactation typically see ewes wean lambs around six months old. Mastitis isn't common because ewes gradually dry up themselves.

#### **PREPARE EWES FOR THE NEXT PHASE**

With so much excitement around weaning, it's easy to get caught up in the moment and not look ahead to the next phase of life for the ewe. But, it's a phase to monitor and manage closely – especially with breeding season on the horizon.

Ewes coming into lambing with an acceptable level of body condition – a body condition score 3 on a 5-point scale – are in a better position to rebound quickly after weaning. But don't wait until flushing begins to start getting ewes back in the correct body condition.

Adding a mineral to the diet helps get ewes back in shape quickly so they're ready for breeding season.

*Purina Mills*

# WHAT ANTIBIOTICS WILL NO LONGER BE AVAILABLE OTC?

On June 11, 2023, the FDA's new directive, "Guidance for the Industry #263," is slated for implementation, meaning that over-the-counter (OTC) antibiotics will no longer be available through traditional retail channels. Instead, these antibiotics will now require a prescription from a licensed veterinarian.

While livestock producers are continuously working to practice judicious antibiotic usage, no longer having the ability to purchase commonly used antibiotics can throw farmers a curveball. Instead, these antibiotics will only be available with a veterinary prescription and will need to be purchased from a veterinarian or a pharmacy.

The Pennsylvania State University Dairy Extension team lists the following antibiotics that will no longer be available for purchase over-the-counter.

## Injectable Products

- Penicillins
- Tetracyclines
- Sulfa Antibiotics
- Erythromycin
- Tylosin
- Lincomycin
- Spectinomycin
- Gentamicin



For a complete list of products impacted by the FDA's new directive, including manufacturer information, scan the QR code.

## Intramammary Products (Mastitis Tubes)

- Erythromycin
- Penicillin
- Dihydrostreptomycin
- Novobiocin
- Cephapirin
- Cephapirin Benzathine

## Oral Liquids and Boluses

- Dihydrostreptomycin
- Sulfa Antibiotics
- Tetracyclines
- Spectinomycin
- Gentamicin

## Eye Ointments

- Gentamicin
- Tetracyclines

Products that will not be impacted by the June 2023 changes include:

## Products Under Veterinary Oversight

- Prescription Products
- Veterinary Feed Directive Products

## OTC Animal Health Products

- Vaccines
- Dewormers
- Fly Control
- Hormone Implants
- Teat Sealants
- Ionophore Products

Linda Tikofsky, DVM and senior associate director of dairy professional services at Boehringer Ingelheim, says there are several steps producers should be taking now to prepare for the change.

## TAKE INVENTORY

"I think the number one thing to do is just take inventory of what you're using and what you won't be able to purchase after June 2023," Tikofsky says. "Go through your drug cabinet, take note of what you're using and how often you're using it."

## KNOW WHAT YOU'RE TREATING

It's hard to know what you need if you don't know what you're treating. According to Tikofsky, part of judicious antibiotic use is understanding the diseases on your farm and knowing how to treat them.

"Understanding what you're up against and how to treat a disease is an important part of animal husbandry," Tikofsky says. "Very often, antibiotics are not the only avenue when treating an illness or condition. Talk with your veterinarian to better understand when and how to treat when using an antibiotic, and work with them to see if there are other treatment options available."

## PRIORITIZE PREVENTATIVE MANAGEMENT

The best way to avoid using antibiotics is to prioritize preventative management. Take time to review herd health protocols and work proactively with your veterinarian and other consultants to address health issues within the herd.

## TALK WITH YOUR VET

Now is the time to work with your veterinarian to develop a plan to adjust the way your operation will access animal health products.

"Going forward, all prescriptions will need to be provided by a licensed veterinarian with whom the producer has a valid veterinary-client-patient relationship," Tikofsky says. "This really shouldn't affect farmers too much, it will just require them to have a good working relationship with their vet, which is always the goal. When it comes to obtaining antibiotics, producers will either need to purchase antibiotics from the veterinarians themselves or use a distributor that has a pharmacy license. Your vet should be able to help you find one of these distributors."

## ASSEMBLE YOUR TEAM

Surrounding your operation with the best team members should always be top of mind. According to Tikofsky, now is the time to make sure your entire team is on board with your farm's animal health objectives.

"It's important to not only talk to your veterinarian about this, but also your nutritionist, herd managers and employees," she says. "Make sure you're assembling the right team to set your operation up for success."

# IS YOUR GOAT MINERAL WORKING FOR YOU?

## CHECK THE BIOAVAILABILITY

MONITOR THE BIOAVAILABILITY OF NUTRIENTS IN MINERAL TO MAXIMIZE YOUR GOAT NUTRITION PROGRAM.

Bioavailability is the amount of mineral a goat can ingest and utilize. The higher the bioavailability, the higher the absorption rate for your goats.

Why is this important? A goat mineral with a high bioavailability of nutrients increases your return on investment (ROI) because nutrients are absorbed by the goat rather than wasted.

Ideally, a goat mineral should contain 90% or higher bioavailability. If bioavailability falls below 85%, absorption rates drop, and the goats will pass nutrients through urine and feces. The bioavailability percentage is indicated on the mineral tag as either “percent bioavailability” or “percent ash.”

Here are three things to look for when choosing a goat mineral to increase mineral absorption and ROI:

### ORGANIC VS. INORGANIC MINERALS

Organic minerals tend to be more bioavailable than inorganic minerals. Organic minerals are naturally occurring, so they are easier for goats to absorb. Inorganic minerals tend to be passed through waste by goats at a higher rate.

Look for a mineral that has a higher amount of organic minerals to maximize the bioavailability of nutrients. Purina® Goat Mineral contains organic zinc, manganese, copper and cobalt to help with several metabolic functions including growth, reproduction and health.

### CALCIUM AND PHOSPHORUS LEVELS

An important factor to watch for in your goat mineral is the ratio of calcium to phosphorus. An imbalance in these two mineral levels can result in lower bioavailability and other health issues. For example, elevated phosphorus levels can result in urinary calculi, leading to blockages in the urethra. High phosphorus levels can also result in lower fertility in rams.

One feedstuff to avoid is dried distillers grains because of the elevated phosphorus created during ethanol processing. Feeding dried distillers grains to goats can throw your calcium-to-phosphorus ratio off dramatically and lead to urinary calculi issues.

Mineral should be balanced at a rate of approximately two-to-one for calcium relative to phosphorus.

### BALANCED MINERAL

Feeding individual minerals and vitamins can reduce bioavailability compared to feeding a mineral mix. Mineral mixes combine and balance each mineral to improve the overall utilization for your goats.

Our mineral products are formulated with combinations of minerals with altered molecular states to increase the bioavailability of nutrients for goats, improving the overall level of absorption. For instance, pairing organic zinc, manganese, copper and cobalt, while adjusting each mineral's molecular state increases the overall bioavailability for individual nutrients. Purina® Goat Mineral contains an Availa 4® package to increase bioavailability and provide a balanced mineral for goats. The trace minerals from Availa 4® are adjusted through a patented process that consists of one metal ion bound to one amino acid ion, creating a metal amino acid complex that is readily absorbed.

Our scientists and nutritionists work hard to ensure all nutrients are in the proper ratios for optimal ROI and goat performance. Feeding Purina® Goat Mineral ensures your herd gets the proper balance of bioavailable nutrients that won't go to waste, benefiting your bottom line.

*Purina Mills*

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# MILK FEVER IN GOATS

## WHAT CAUSES MILK FEVER IN GOATS?

With the onset of milk production after giving birth, your goat must supply a large quantity of calcium with her milk. The goat normally has more than enough calcium reserves in her bones, but if she has been on a diet high in calcium during her dry period, her body may have “forgotten” how to mobilize those calcium reserves because it hasn’t needed to. Consequently, when she starts lactating, and she needs to deliver calcium to the mammary glands for milk production, her blood calcium levels may fall to a dangerous level, resulting in what is known as milk fever.

### SYMPTOMS OF GOAT MILK FEVER AND WHAT TO DO

Moderate milk fever will make the goat lethargic, with poor appetite and poor milk production. Acute cases of milk fever can leave the goat in a coma; she will need immediate veterinary attention. Your veterinarian will need to administer calcium gluconate directly into the bloodstream to restore the normal concentrations of blood calcium and re-establish your goat’s health. Your goat cannot absorb enough calcium nor can she absorb it fast enough from food to meet the immediate needs of lactation, and if she is ill, she won’t be eating anyway.

### HOW TO PREVENT MILK FEVER IN YOUR GOATS

You can help address milk fever in goats by not feeding too much high-calcium feed, such as alfalfa, during late pregnancy. Grass hay or pasture is a much better choice during the dry period. If the doe’s body does not get all the calcium it needs in the feed, it will start pulling calcium reserves from the bones. By the time the doe gives birth and begins milking, the body is accustomed to quickly mobilizing bone calcium, and the doe will not suffer a potentially fatal drop in blood calcium. You can then gradually begin feeding high-calcium feeds again to support the calcium needs of lactation. As the goat progresses through lactation and begins to decrease her milk production, this higher dietary calcium will be used to restore bone reserves so she will be ready for her next lactation period.

*Purina Mills*

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# HAVE YOU TESTED THE WATER LATELY?

**ONE OF THE MOST IMPORTANT COMPONENTS OF A SHEEP’S DIET IS WATER. POOR WATER QUALITY CAN AFFECT INTAKE, WHICH IN TURN AFFECTS ANIMAL GROWTH AND MILK PRODUCTION.**

In order to maximize feed intake and promote growth, sheep need access to a high quality water source. So, have you tested your water lately to know just what your sheep are drinking?

According to “Nutrient Requirements of Small Ruminants” from the National Research Council, water use during gestation increases as much as 130 percent from the first to the fifth month of gestation. The Sheep Production Handbook from the American Sheep Industry states, “On average, sheep drink about 1.0 to 1.5 gallons of water for each 4.0 pounds of dry matter consumed.”

During cool times of the year, such as in the spring and fall, sheep meet most of their water requirement through consuming pasture. However, obviously, water requirements vary throughout the year and depend on production status of the sheep. It is also possible for forages to have very high moisture levels that limit dry matter intake. In other words, the sheep fill up on water and do not consume enough dry matter to meet nutrient needs.

Several other factors can affect water consumption. Temperature is probably the most obvious. Sheep normally consume more water when temperatures rise above 70 degrees F. Increased water intake allows sheep to account for higher levels of water loss due to increased respiration, or rapid breathing, on hot days. On the other hand, when temperatures fall below 20 degrees F, water consumption drops. Low water temperatures also affect rumen microbial function. This can then decrease milk production for ewes nursing lambs during cold weather as well as growth rates for lambs.

The Sheep Production Handbook goes on to explain that ideal water temperatures range between 45 and 55 degrees F. While it is not practical to maintain these water temperatures at all times, sheep producers can keep this in mind throughout the year. During the summer, producers can locate water troughs in shaded areas whenever possible. For the winter, heaters will not only prevent freezing, but can also help to keep water temperatures closer to ideal.

*continued on page 6*

continued from page 5

Unless you hand water your sheep, you may not be aware of how much water your sheep drink on a daily basis. However, testing water is one method to assess potential intake. Check with your local county Extension office to locate a water testing company near you with the ability to assess water quality for livestock. Here are some parameters to consider when you look at the water test results:

- Livestock can tolerate some bacteria in the water. The preferred range according to the Agricultural Waste Management Field Handbook of the Natural Resources Conservation Service (NRCS) is less than 200 per 100 ml, but these bacteria should not be fecal coliform bacteria. Any presence of fecal coliform bacteria can create problems in young animals, although older animals can tolerate up to 10 per 100 ml.
- Water pH studies have shown few if any livestock health issues or decreased performance. However, NRCS recommends water pH fall between 6.8 and 7.5, with expected problems to occur when the pH falls below 5.5 or is above 8.5
- Total dissolved solids (TDS) assesses the total amount of all inorganic contaminants in a water sample, often thought of as mineral levels. NRCS suggests that TDS levels should be below 500 mg/L, although TDS levels up to 3,000 mg/L can still be acceptable, depending on the exact contaminant in the water. Several research studies showed that sheep are much more tolerant of high TDS levels than other livestock species and extend this maximum to 10,000 mg/L, except for lactating ewes. However, be aware that high mineral levels that cause decreased water intake, could lead to problems with urinary calculi, particularly in rams and wethers. Animals may experience some diarrhea and short-term decreased water intake when first introduced to water sources with 2,000 to 4,900 ppm TDS levels according to Nutrient Requirements of Small Ruminants.

*\*Discuss any concerns about your water test results with your veterinarian or your nutritionist.*

Aesthetic pollutants, such as iron, manganese and sulfates, commonly cause water related problems because they influence the taste and smell of the water and can result in decreased intake. Other pollutants, such as nitrates and heavy metals, can cause health related issues. Although NRCS has no recommended maximum standards for iron and manganese levels for livestock, the human standard should be below 0.3 mg/L for iron and 0.05 mg/L for manganese. The desired level of sulfates in water for livestock is less than 250 mg/L, and the expected problem range for livestock is set at over 5,000 mg/L. Recommended nitrate levels should fall below 100 mg/L.

Overall, a clean, fresh and cool water supply is important to promote growth and performance in a sheep flock. For more information on water quality for sheep, check out the Nutritive Needs of Sheep section in the Nutrition chapter of the Sheep Production Handbook, Nutrient Requirements of Small Ruminants, or the Agricultural Waste Management Field Handbook.

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50140078	SQUARE SHALLOW	34 in	34 in	12 in	60 gal	2
50140088	SQUARE TALL	34 in	34 in	24 in	120 gal	2
50140048	TRIANGLE SHALLOW	34 in x 34 in	40 in	12 in	30 gal	2
50140058	TRIANGLE TALL	34 in x 34 in	40 in	24 in	60 gal	2
50140068	UTILITY SHALLOW	35 in	18 in	12 in	25 gal	2
50140018	UTILITY TALL	35 in	18 in	24 in	50 gal	2



ITEM #	WIDTH	LENGTH	HEIGHT	CAPACITY	WEIGHT
52120275	20 in	42 in	12 in	27 gal	13 lb
52120605	31 in	52 in	14 in	60 gal	26 lb
52120755	31 in	44 in	25 in	75 gal	30 lb
52121005	31 in	52 in	25 in	100 gal	36 lb
52121015	31 in	52 in	25 in	100 gal	42 lb
52121505	42 in	57 in	25 in	150 gal	55 lb
52123005	48 in	82 in	26 in	300 gal	84 lb

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