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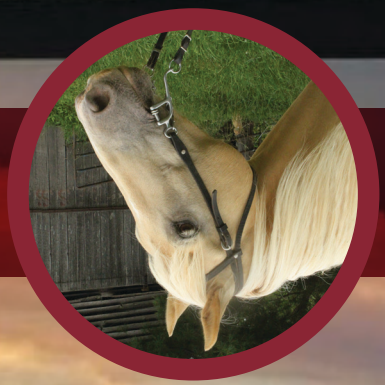

AGRONOMY & EQUINE EDITOR

February 2024

SINCE 1929

Augusta Cooperative FARM BUREAU, INC.

HOW TO PREVENT NUTRIENT DEFICIENCIES DURING WINTER

HORSES THAT ARE USED TO BEING ON PASTURE DURING THE SPRING, SUMMER, AND FALL MIGHT EXPERIENCE NUTRIENT DEFICIENCIES DURING THE WINTER.

Q: What nutrient deficiencies are common in horses, especially in the winter, and what are some signs to watch for?

A: For horses that are stabled year-round, there will not be much difference in their nutrient intake from season to season. However, for horses that have access to good-quality pasture in the spring, summer, and fall, shifting to a hay-based diet in winter could result in some new challenges, specifically involving adequate protein, vitamin E, and omega-3 fatty acids. These issues exist for the horses stabled and on hay year-round, but they are not winter-specific for these horses the way they are for those that have pasture access in other seasons.

Pasture grass can be an abundant source of vitamin E and omega fatty acids if it is good-quality and horses have adequate access, meaning you don't need to supplement their forage with additional hay because the pasture is fully meeting those needs. The problem is neither vitamin E nor omega fatty acids are particularly heat stable. This means when the grass is cut and laid out in the sun to cure, much of it is lost. So, horses on hay-based diets are consuming far lower amounts of these essential nutrients and, therefore, we recommend providing additional sources.

Horses that receive a good-quality ration balancer or other commercial feed fed at the correct manufacturer-recommended intake, should be receiving adequate vitamin E to meet their National Research Council (NRC) recommended daily requirement. However, owners often feed these incorrectly, offering far less than the manufacturer recommends for their horses' weight or work level. Further, feeds commonly use synthetic sources of vitamin E, which is not as bioavailable as natural vitamin E and less likely to meet the horse's needs.

The incorrect feed intake and lower bioavailability can leave horses being deficient in vitamin E, even when on paper it appears their NRC needs are being met. Additionally, the utilization of vitamin E varies greatly from horse to horse. The same diet could be fed to three horses with the exact same vitamin E requirements, and one might have serum levels that are deficient, another normal, and the third above normal. Therefore, the only way to know for sure is to test your horse's serum vitamin E levels, which is a good thing to do in winter to make sure the hay-based diet is doing its job.

Horses that are on hay year-round can be tested when convenient, but in performance horses I recommend testing as their work gears up for competition to make sure they're being set up for success going into the season.

Providing a source of omega-3 fatty acids is most easily done by feeding ground stabilized flax or an oil such as flax oil, camelina oil, or fish oil. Horses without access to adequate omega-3 fatty acids might have a dull coat and poor skin quality. Low vitamin E can also be reflected in coat quality but is linked to muscle soreness, poor performance recovery, and lack of topline development.

Quality protein is also important for topline development and maintenance, and while most hays provide adequate crude protein, it is not always the best quality. This is especially true in more mature stemmy hays, which have a higher amount of indigestible fiber that might impact protein availability. A lab test might show adequate amounts of crude protein, but in the digestive tract it might not be available to the horse.

This is again where a good ration balancer can save the day, as these are typically quite high in protein and guarantee good levels of the typically limiting amino acids lysine, methionine, and threonine. Good performance and complete feeds can also provide these, as long as they are fed in the quantities recommended

The Horse

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HOW TO KEEP YOUR HORSE HYDRATED DURING THE WINTER

WHEN THE TEMPERATURES DROP, MAKE SURE YOUR HORSES ALWAYS HAVE ACCESS TO WATER AND THAT THEY ARE DRINKING ENOUGH.

As we head into an incredibly cold stretch of weather for the start of winter, there has been much discussion on how to prepare horses. Increasing forage intake to help keep core body temperature warm while it ferments in the digestive tract is incredibly important. Also consider providing blankets and shelter, depending on your horse's hair coat.

One factor we cannot overlook, however, is keeping horses hydrated. Most equine nutritionists consider water to be the most important nutrient because of the various functions it performs. These include regulating body temperature, digestion, absorption, and utilization of nutrients, moving feedstuffs through the digestive tract from mouth to rectum, and removing waste products.

On average, the adult horse drinks approximately 1 gallon per 100 pounds of body weight; therefore, the average 1,000-pound horse needs about 10 gallons of water a day. It is very important to make sure horses are consuming enough water, especially when their diets are high in dry feed content, such as hay, to help ensure the feed is moving through the digestive system. If horses do not consume an adequate amount of water, they may become dehydrated quickly, could go off their feed, and might suffer from impaction colic.

Many horses decrease their water intake below required amounts in extremely cold weather for a variety of reasons, such as not wanting or being able to walk to a water source, water being too cold to drink (preferred water temperature is between 45 and 65 degrees F for most horses), or water being frozen.

Horse owners and managers can do several things to ensure their horses do not become dehydrated:

- If a drop in temperature is predicted, make sure water is freely available before the temperature change, so horses are properly hydrated before the cold weather hits.
- If hot water is not available in the barn, get insulated water jugs and bring it from the house. Invest in heated water buckets or a water heater. Make sure these are grounded, and routinely check to make sure they are working properly. A horse that gets shocked when he tries to drink will be conditioned to not drink!
- Break ice if it forms on the water source, and remove the chunks of ice. Although horses can break through thin ice, it can deter them from drinking. "Frost-free" type waterers can be helpful, but even these can freeze if horses are not drinking often enough. Check water sources for ice at least twice a day and more often in colder conditions.
- Monitor your horse's hydration status daily. If you do not know how, ask your veterinarian or another experienced horse person to train you in doing skin pinch tests and evaluating mucous membranes.
- Soaking feeds can be a way to get additional water into your horse. For example, beet pulp is a feed that can hold a good amount of water, and most horses are willing to eat it. Chopped hays also absorb water and are usually willingly consumed by horses. Ideally, soak these dry feeds in warm water for about 15 minutes before offering them to the horse.

Take-Home Message

When the temperatures drop, make sure water is accessible at all times, and that horses are drinking enough. It is crucial to have water available at mealtimes, especially when feeding dry feeds; researchers have shown that horses drink the most water within three hours of consuming a meal. Finally, carefully monitor both water intake and hydration status daily, especially during extreme or rapid changes in the weather.

The Horse

EVALUATING HORSE DIETS: WHAT TO KNOW

NUTRITIONAL EVALUATIONS TAKE THE GUESSWORK OUT OF WHETHER YOUR HORSE IS CONSUMING A BALANCED DIET.

Your horse has a shiny coat and has never had issues maintaining weight. The 2-year-old in the next stall is growing steadily into the reining prospect of her owner's dreams. And the barrel racer across the barn aisle performs well and always recovers from competition quickly.

It'd be easy to assume each of these horses is fueled by a well-balanced nutritional plan, but making assumptions in the diet department can have serious consequences. That's where nutritional evaluations—making sure the diet is supplying all the necessary nutrients—are key to keeping horses healthy.

We consulted two equine nutrition specialists to learn what you need to know about deconstructing a horse's diet to ensure he's getting what he needs to thrive.

Do All Horses Need Nutritional Evaluations?

"A nutritional evaluation can determine if a horse needs additional nutrients or if some nutrients are in excess of needs," says Laurie Lawrence, PhD, a professor of equine nutrition at the University of Kentucky, in Lexington. "With that knowledge, the owner can make adjustments to the amount or type of feeds that are in the ration."

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All horses benefit from occasional nutritional evaluations and resulting ration adjustments. But, our sources agree, certain equine classes—including those with health problems or that are competing, growing, or breeding—should have their diets assessed and balanced on a more regular basis.

Take the growing horse, for instance. "Most of us want to develop a horse into an athlete, or at least something that's going to be healthy and have longevity," says Brian Nielsen, PhD, MS, PAS, Dipl. ACAN, a professor of equine nutrition and exercise physiology at Michigan State University, in East Lansing. "To do that you have to be certain you're feeding the appropriate nutrition."

It's not just ensuring the horse is consuming enough calories. Growing horses need a specific mix and quantity of nutrients in their diets to ensure their bodies grow and develop properly.

"And here's the tricky thing with nutritional deficiencies: A lot of them aren't things you'd see acutely," Nielsen says. "In other words, they typically develop slowly, and you might not notice it happening at all. Some mineral deficiencies can take years to become a significant problem."

The calcium to phosphorus ratio is important in diets for growing horses, Nielsen says; diets with less calcium than phosphorus can put youngsters at risk for issues such as osteopenia, or decreased bone mass. This, in turn, can result in enlarged joints or crooked long bones, which can ultimately increase the horse's risk for injury or mechanical breakdown as he ages and enters work.

Similarly, study results have suggested dietary copper deficiencies can put growing horses at increased risk for developing potentially performance-limiting osteochondritis dissecans (OCD) lesions.

It's not just the vitamins and minerals that can cause issues. Simply feeding growing horses too many calories without adequate amounts of other nutrients can promote rapid growth, which can put them at a greater risk for developmental orthopedic disease than a youngster with a more consistent growth rate.

"You could essentially set your horse up for some long-term health problems by not evaluating the diet," Nielsen stresses.

Broodmares need not only enough calories to support themselves and their growing fetuses or foals but also the right balance of nutrients to give their offspring a good start in life. Horses working in high-intensity sports might have different electrolyte needs than pleasure horses. And horses with certain health issues might need custom-tailored diets to keep their bodies functioning properly. For instance, researchers know horses with the muscle disorder type 1 polysaccharide storage myopathy (PSSM1) need a low-sugar and -starch, high-fat diet to help prevent excess levels of glycogen and an abnormal type of polysaccharide (a form of carbohydrate) from building up in muscle tissue.

"But, even for happy and healthy horses, an occasional nutritional 'checkup' is a good idea," Lawrence adds.

For instance, protein and associated amino acid deficiencies can result in weight loss, poor hair and hoof quality, and muscle mass loss. Excess dietary -selenium—a trace mineral to which equids are incredibly sensitive—can cause signs of colic, increased heart and respiration rates, head pressing, and even death in otherwise healthy horses.

The key point: While certain classes of horses might benefit from more regular dietary evaluations, it's an important part of maximizing all horses' health.

Evaluating the Diet Step by Step

"A basic evaluation compares the nutrients that a horse is consuming to the nutrients that horse needs," Lawrence says.

So, the first step in evaluating the diet is to determine what the horse eats each day.

"That's a very simple task, right?" Nielsen says. "But here's the issue: Many owners will probably tell you, 'I feed two scoops of this 12% feed.' They probably don't know how many pounds of feed that is.

"Plus," he adds, "many owners might not think to include forage in the evaluation. And, if they do, they often tell me the horse gets two flakes of a mixed-grass hay and is turned out on pasture. That doesn't really tell me a whole lot about what nutrients the horse is actually getting."

The good news, Lawrence says, is it's not hard to reach a fairly accurate estimate of what makes up your horse's diet, particularly if they are fed individually in stalls and have limited pasture access.

"The easiest way to do that is to weigh the amount of hay and concentrate that the horse is getting each day," she says. "It doesn't take fancy equipment, just a bathroom scale (a fishing-type scale works, too), a bucket, and a large garbage bag."

If you don't have a scale with a tare ¬button/adjustment, weigh the empty bucket before adding the amount of ¬concentrate the horse gets each day; subtract the weight of the bucket to find out how many pounds the horse eats. Then, place the horse's daily hay ration in the garbage bag (or a haynet) and weigh it; a garbage bag probably won't affect the numbers too much, but a haynet could weigh a pound or two, so use your best judgment on whether to determine its weight separately and subtract it from the total.

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One point to remember: “You may have to make an adjustment on the amount of hay consumed if your horse doesn’t consume all that is offered,” Lawrence says.

If your horse consistently leaves forage behind, consider weighing what you offer, then weighing his leftovers to determine how much he consumes. Doing this over the span of a week or so and finding the average amount consumed can give you a good working number to use in your evaluation.

“If your horse is out on pasture, intake will be much more difficult to estimate,” Lawrence says. “The amount of time in the pasture, as well as the composition and density of the plants, will affect intake.”

She says access to a sparse field for a few hours each day likely won’t contribute much nutritional value to a horse’s diet. But longer turnout on lush pasture is a different story.

“Then, intake could be pretty high,” she says. “Some estimates suggest that during one hour of grazing on lush pasture, a horse can ingest the equivalent of 1 to 3 pounds of hay.”

Once you’ve determined what your horse consumes each day, it’s time to evaluate which nutrients are in his feed. Be sure to include supplements in this step, as some can alter the diet’s balance significantly.

“This part is straightforward for most commercial feeds, and the feed tag/bag should have information about the nutrient content,” says Lawrence. “Manufacturers are usually happy to supply information on nutrient content beyond what is on the feed tag,” so reach out to the feed company if you have a question.

Likewise, most supplements have nutritional information on their packaging, and many manufacturers can supply additional information upon request.

Our sources agree that the diet’s forage component is the most complicated part of this step of the evaluation.

“The best way to determine nutrient content of a forage is to obtain a representative sample and have it analyzed” at a commercial or university laboratory, Lawrence says.

It’s a relatively inexpensive endeavor, Nielsen says, and you typically receive results in a few weeks.

“Sometimes it makes sense to do that, but, practically, there are times when it doesn’t really make sense,” he adds.

If you produce your own hay or buy enough hay (ideally grown in the same fields) to last six months or a year from one seller, “it makes a whole lot of sense to get it analyzed,” he says.

“But if you buy 20 bales at a time from the local hay auction or retailer,” Nielsen continues, “by the time you send off samples and get results from one batch of hay, your horses have eaten it all and you’re on to the next one.”

In those cases, or if sampling and ¬analyzing hay isn’t an option, “textbook” reference values for different forages can give at least an estimate of what the products your horses consume might contain, Lawrence says.

“I typically go to Equi-Analytical’s website, which lists the average concentrations of various nutrients from the huge number of samples they analyze,” Nielsen says.

Next, it’s time to get out your calculator to determine nutrient intake.

“Nutrient intakes are calculated as feed amount times nutrient concentration,” Lawrence says. “For example, if a horse is receiving 10 pounds of hay and the hay contains 10% protein (10 x 0.10), the horse is consuming 1 pound of protein via hay each day.”

You’ll need to determine how much of each nutrient your horse is consuming to complete the final step, which is comparing his intake to how much he needs. This is based on his weight, activity level, and whether he needs to gain, lose, or maintain weight, Lawrence says.

“There are several feeding standards that have been developed in different countries and by some feed companies for horses,” she explains. “In the U.S., the National Research Council’s publication Nutrient Requirements of Horses is a common resource.”

An online calculator containing the same information as the publication can help streamline the evaluation process, she adds.

Evaluation Complete. Now What?

The analysis might be done, but the work isn’t over. Now it’s time to translate the results into practice.

“Once the evaluation is complete, owners can make diet adjustments if the horse’s needs are not being met or if some nutrients are being fed in excessive amounts,” Lawrence says.

An equine nutritionist or a veterinarian trained in equine nutrition can help refine the diet based on the evaluation results to ensure the horse is consuming the nutrients he needs to stay healthy at the appropriate level, Nielsen says.

“I love straight forage diets,” he says. “If you can get by with it, I think it’s absolutely phenomenal. But I also recognize that many forages aren’t going to meet all horses’ dietary ¬requirements.”

On the other hand, pricy supplements and feeds that can benefit some horses might, for others, have little to no dietary benefit, he adds.

“People spend so much money on supplements and grain because they’re so concerned about their horses’ diets,” Nielsen says. “But they won’t spend any money to bring somebody in to do a quick analysis. A lot of times you can save a lot of money and potentially avoid some long-term health problems. It really does behoove you to go ahead and have an evaluation done, both for the benefit of your horse’s health and your bottom line.

The Horse

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STAFF UPDATE

BRAD BROWN - CEO

Brad Brown is the Chief Executive Officer at Augusta Cooperative Farm Bureau, Inc.

Before being named CEO in January 2024, Brad was Augusta Co-op's Assistant General Manager / Retail Operations and Purchasing Manager and was responsible for all of the company's retail supply chain, store operations and sales generation.

Prior to Augusta's senior leadership team, Brad was Manager of both the Weyers Cave and Staunton retail store locations and was responsible for day-to-day store operations including inventory management, sales generation and payroll.

Brad also leads Augusta Co-op's wholesale division, Greener Valley Supply, LLC., and played a key role in the company's launch and development of strategic supplier relationships, overall ensuring flexibility to an increasingly demanding marketplace.

In addition to his professional activities, Brad currently sits on the board of the Virginia Cooperative Council and is an active board member of the Augusta County 4-H and FFA Market Animal Show & Sale since 2017. Furthermore, he speaks regularly on leadership in agriculture at industry forums and other agriculture institutions.

Brad earned a Bachelor of Science degree in Ag Science with an Ag Business Management minor from Penn State University in 2007.

TROY GRIMM - COO

Troy, an Augusta County native, grew up outside of Churchville, VA where his passion for agriculture began at a young age. After graduating from Buffalo Gap High School, Troy attended Virginia Tech University where he received an Associate's degree in Agri-Business in 1990. Troy began his professional career with May Brothers, managing a beef and poultry operation outside of Parnassus, VA while simultaneously building his own cow/calf operation.

In 2007, he accepted a Field Sales Representative position with Augusta Cooperative managing the western territory region. Two years later, Troy began managing the Weyers Cave store and moved into his role as Agronomic Manager in 2011.

As the lead for the agronomy team at Augusta Co-op, Troy maintains a Nutrient Management Planner and Commercial 1A license. In January of 2024, Troy accepted the position of Chief Operations Officer, and in tandem, will additionally remain as the Agronomic Division Manager.

In his 17 years with Augusta Co-op Troy has made significant contributions to many aspects of the business, as well as to the customers and community he serves. He has charted high standards for his team members he manages and takes pride in being a knowledge resource for his customers.

Troy and his wife Lori, currently reside outside of Churchville, VA. Their two children, Taylor and Drew also reside in VA, pursuing their professional careers; Taylor, Ministry and Drew, IT/Cyber Security. Troy's love for hunting and traveling with his family remain as a passion in his personal time.

To visit with Troy about any agronomic needs he can be reached at TGrimm@AugustaCoop.com.

MEET RYAN SENSABAUGH AUGUSTA CO-OP FIELD REPRESENTATIVE

Ryan grew up in Greenville, Virginia on his family's sheep farm.

Throughout middle and high school, he was active in both 4-H and FFA where he competed in various contests including Stockman's, Livestock Judging, Forestry Judging and Poultry Judging. He also participated in the Augusta County 4-H & FFA Market Animal Show. Ryan graduated from Virginia Tech in 2021 with a degree in Agribusiness Management.

While in college he was an active member of the Virginia Tech Block and Bridle Club, a national organization focused on agriculture and service. During his membership he was active in assisting host many 4-H and FFA Block and Bridle events.

Ryan currently lives in Greenville, Virgina and is an active member in the community.

To contact Ryan, customers may reach him at (540) 294-5179 or RSensabaugh@AugustaCoop.com.

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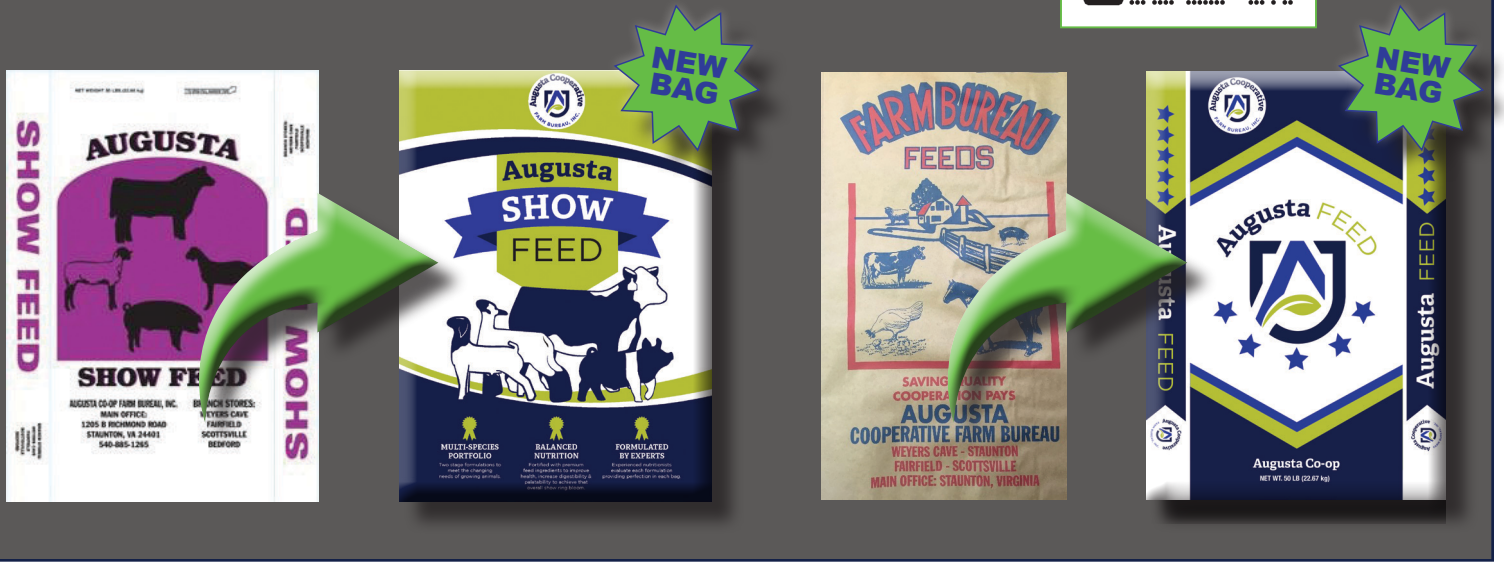

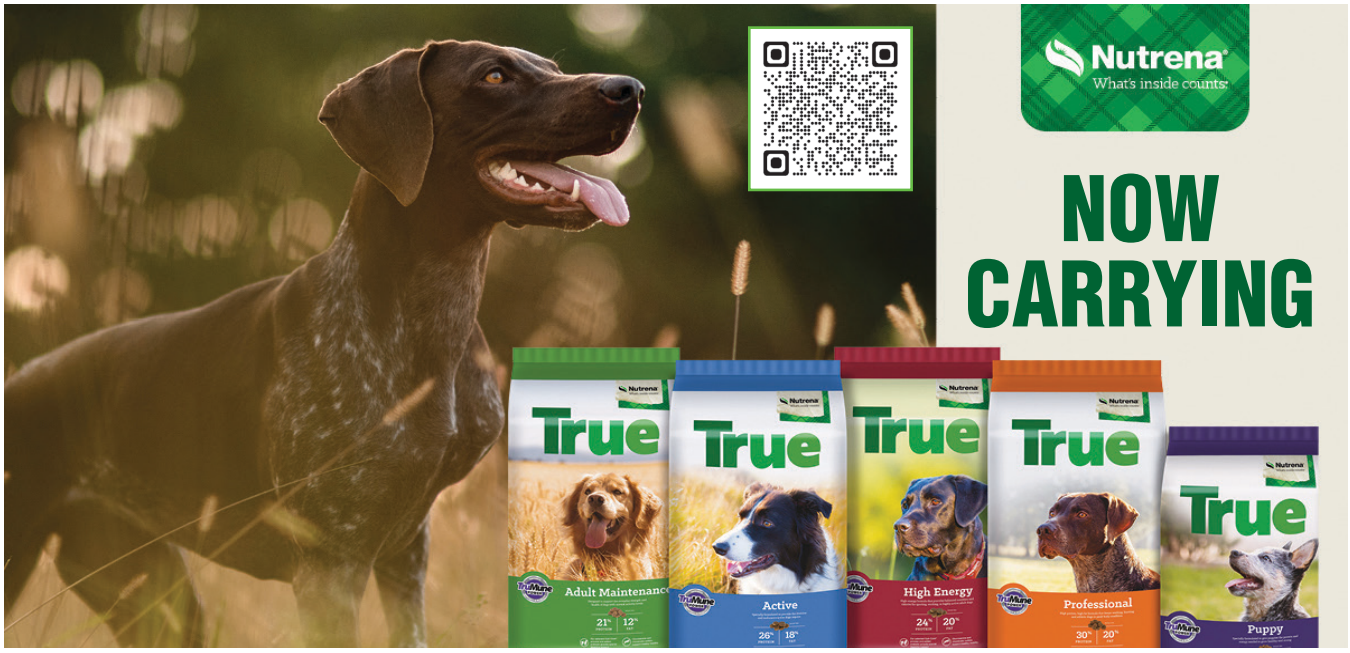

EVENTS / CALENDAR

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Friday, February 9 | 11 AM - 2 PM

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