EXTENSION

Ag Insights

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Spring Management in Wheat

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Overall, wheat looks to have a good potential for grain production this year. Planting date has proven to have played a critical role in wheat pasture this year. Early sown wheat has produced very well. A warmer than average December led to late sown wheat, producing sufficient tillers and decent top growth.

While some of the wheat has remained small, it has produced a viable root system and will continue to develop new tillers this spring. When assessing wheat fields for grain yield potential, it is best to start by evaluating the stand. Past research at OSU has shown that at least 60 heads per square foot is ideal to produce max grain yield. Using a little math, that would equate to 38 tillers per foot of row when on 7.5-inch row spacing.

Since many producers have adequate soil moisture and viable stands, there will be a good potential for wheat to respond favorably to additional inputs. For example, if a pound of nitrogen costs about $0.55 and it increased yield by only one bushel; the return on investment is there, even at low grain prices. Even with the application cost, it will be economical to topdress.

Timely herbicide applications are key to early spring weed management. Always, the sooner the better. Most wheat herbicides need to be applied when temperatures start to get at least into the fifties. Ideally for good weed efficacy and crop safety, there should be a few days prior and following the herbicide application with good growing conditions.

Topdressing nitrogen tank-mixed with an herbicide can be an economical option. Since the sprayer will be using a broadcast nozzle, such as a flat fan, Urea Ammonium Nitrate (UAN) rates should be limited to 10 to 20 gallons per acre depending on conditions. Applications should be avoided when air temperatures rise above 70° and relative humidity is low. Applications should be made prior to jointing stage, which will limit yield loss by allowing more recovery time if crop injury occurs.

Disease management has shown to be economical most years. If applied timely, most commercially available fungicides have had good yield protection in OSU field trials. If only one application is budgeted, it is best to apply late, and protect the flag leaf. Long-term data typically averages about 10 to 20 percent yield increase compared to no fungicide.

From 2014 to 2021, the OSU variety trial near Lahoma, has evaluated more than 50 wheat varieties, with and without, a fungicide applied around the boot to flagleaf growth stage. Some varieties had good rust resistance and had little to no benefit to a fungicide application, while others had yield reductions of 20 to 40%. Including all varieties, there has been a 20% average increase in grain yield over that time frame. Six of the 8 years the fungicide application protected grain yield.

The disease must be present to protect yield with a fungicide application. Knowing whether or not your wheat variety has good tolerance or resistance to leaf diseases is another factor to be considered. At the current wheat prices, if the wheat has a yield potential of at least 30 bushels per acre, then more than likely it will be economical to apply a fungicide if foliar diseases develop on the wheat.

Timely field scouting is the only way to determine if a pest is present and if an application of an herbicide, insecticide, or fungicide is warranted. The only way for one of these pesticides to protect yield and have a positive return on investment, would be knowing what pests are present and knowing how much yield potential can be saved if applied correctly.

How much water do cows really need during cold weather?

Dana Zook, NW Area Livestock Specialist

As I write this, most of Oklahoma has been through several weeks of some form of cold plus rain, ice, and/or snow. It's no surprise that the main topic of conversation is the cold and how to help cows through this awful weather. One often overlooked topic during cold weather is water. How much water do cows really need during cold weather?

Growing up in Nebraska, our cows were always grazing crop residues during the winter and there was rarely a natural water source. Because of this, water was hauled. Some Oklahomans look at me aghast when I tell them this, but I can honestly say it was just part of the job. Instead of supplementing cows with feed most of the winter, we hauled water.

How did we determine the water needs? This was well before I went to school to learn anything about the nutritional needs of cattle. So, in the coldest of times, we simply hauled enough water so that all cows could get one good drink each day. We were fortunate in some places to have a tank heater hooked up to a portable propane trailer which helped keep the tank mostly free from ice.

When natural water sources are used and tank heaters are not available, keeping water sources open is the biggest challenge in extreme cold. Chopping ice is a big, tiresome job but the thing I hated the most was getting the big chunks of ice out of the way. When it's really cold, those big chunks aren't going to melt and they need to be moved away from where the cows will be standing. Otherwise, those large sharp ice chunks refreeze to the ground making another hazard for your cows when they come up to drink.

Back to nutrition. The cold, hard fact of beef nutrition is that decreased temps increase the need for additional energy. This extra energy often comes in the form of dry feeds such as hay, byproduct cubes, or commodity blends. Water is essential to helping cows digest this additional feed. Limiting water will in turn compromise feed intake and make it very hard for cows to maintain weight. Another factor that affects water need is the stage of production. The need for water will increase with the demands of production. For example, lactating cows will require more water than pregnant, dry cows.

So how much water do they need? According to the OSU factsheet "Estimating Water Requirements for Mature Beef Cows", 1300-pound cows experiencing 40°F require approximately 9-15 gallons of water daily. The lower end of that scale would be used for open or pregnant, non-lactating cows while the upper limits would be for lactating cows.

Preliminary water data being collected by the OSU Beef Extension group confirms this range of water intake. In the current study, 5-year-old cows weighing an average of 1363 pounds with calves at side have been consuming an average of 15 gallons per pair since mid-November. Consumption by the calves is included here but Dr. Lalman said it would be accurate to assume they are drinking 1-2 gallons of this total amount. That brings up a good point about the importance of water for calves. To ensure calves get enough to drink, ensure tanks are filled high enough so they can reach. Natural water sources should be chopped so that calves can access the water source safely.

Can cows eat snow to meet water requirements? The answer is yes but there are some caveats. Eating snow is a learned behavior and cows accustomed to this can consume enough snow to meet part of their requirement. According to Utah State University, the snow must be clean and accessible. Ice-crusted, trampled snow will not be adequate. Also, cows in low body condition should not be forced to depend only on snow. In my mind, cows can eat snow in extreme situations, but that second drinkable source is recommended.

Water is usually a “hot weather” topic, but its importance should not be overlooked in the winter. Dehydration is an added stress for cows in cold weather. Help cows deal with winter stress and maintain their body condition by ensuring they have adequate water.

Grass Tetany (Hypomagnesemia)

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With spring approaching, producers should be aware of a disease associated with rapidly growing forages. Hypomagnesemia, commonly referred to as grass tetany, is a serious, and often fatal, metabolic disease that occurs in cattle, and less commonly, in sheep and goats. This disease is often associated with grazing lush green pastures during cold rainy weather in early spring. It is characterized by low blood and cerebral spinal fluid levels of magnesium. These low levels of magnesium in animals are associated with tetanic convulsions. Other names for hypomagnesemia are grass staggers, hypomagnesmic tetany, lactation tetany, or wheat pasture poisoning.

Magnesium is an important mineral because it activates many enzymes in chemical reactions in the body. Without this mineral, cells are unable to produce energy, transport genetic information, transport materials across cell membranes, and nerves cease to respond in a normal manner. Magnesium also plays a role in electrolyte balances in the body.

Maintaining magnesium levels requires adequate daily intake to meet the needs of the animal. Factors that increase magnesium requirements are fetal growth during pregnancy, milk production, soft tissue growth, and bone growth. Failure to absorb magnesium may also lower blood levels. Magnesium is poorly absorbed in the rumen, in diets high in potassium and nitrogen and low in phosphorus and sodium. Soils that are heavily fertilized with nitrogen, potassium, or chicken litter may result in lush green forages high in potassium and nitrogen.

This disease most commonly affects older cows in early lactation, but it may also occur in cattle of any age or sex. It is typically a late winter or early spring problem, coinciding with the rapid growth of cool season grasses low in magnesium. Poor weather conditions may also play a role in cattle getting this disease if it interferes with food intake. During short periods of starvation, a sudden drop in calcium and magnesium levels may result in the clinical signs of grass tetany. All the above may contribute to this disease, but an emphasis should be placed on watching cows when they are in early lactation, grazing lush green pastures during inclement weather.

Clinical signs of grass tetany vary depending on how early detection of the disease is made. Many producers do not know there is a problem until they find cattle dead or a cow down.

Early signs of the disease include incoordination, hypersensitivity to touch or sound, frequent urination, and muscle tremors. As the disease progresses, cattle will have convulsions which accelerate heart and respiratory rates. The sound of the beating heart is easily heard without a stethoscope. Body temperatures may reach 105˚F due to muscle activity. This will be followed by coma and death.

Diagnosis of the disease is usually based on response to treatment. However, blood, cerebrospinal fluid, or urine samples can be evaluated for magnesium levels. In suspicious animal deaths, veterinarians can submit the eye for analysis.

Treatment of the disease requires Intravenous (IV) or subcutaneous (SQ) injections of magnesium or oral supplements of magnesium. Most veterinarians will administer a solution that contains both calcium and magnesium, since symptoms of grass tetany are similar to milk fever. Also, it is common to have low levels of both minerals with grass tetany. If cattle respond to the IV or SQ injections, veterinarians will recommend follow up treatments with an oral supplement. Producers need to remember that even with the best of care, some cows will not respond to treatment.

Preventing grass tetany is much more rewarding than treatment. Magnesium stored in bone is difficult to mobilize which means cattle require a daily source. In conditions that are susceptible to low magnesium levels, such as lush green pastures, magnesium should be provided in the feed or a mineral supplement. Magnesium is not very palatable, so producers need to monitor intake. Since cows in early lactation are the most susceptible to the disease, it may be a better option to graze steers, heifers, dry cows, or cows with older calves on susceptible pasture. It is possible to reduce the danger of pastures susceptible to grass tetany by adding legumes and fertilizing based on a soil analysis. As mentioned above, cattle tend to fall victim to the disease following inclement weather because they tend to be stressed and eat less, so providing shelter and feed and hay should aid in preventing the disease. Adding hay to the diet may help prevent the disease because mature forages tend to have higher concentrations of magnesium. These suggestions may not totally eliminate the potential of grass tetany but incorporating them should lower the risk.

Producers wishing to learn more about grass tetany may want to read Oklahoma State University Extension fact sheet E-861 *Vitamin and Mineral Nutrition of Grazing Cattle* at https://extension.okstate.edu/fact-sheets/vitamin-and-mineral-nutrition-of-grazing-cattle.html. Also, for additional information, producers should visit their local veterinarian or contact their Oklahoma State University County Extension Ag Educator.

References

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Extension Experience – Insights into Oklahoma Agriculture

The West Area Extension Staff would like to announce the creation of our new podcast *Extension Experience.* The *Extension Experience* podcast is brought to you by Josh Bushong and Dana Zook. Each week they provide perspective on Agriculture topics and offer insight from our experience working with Extension Educators and Producers across Oklahoma.

The *Extension Experience* podcast is available on Spotify, Google Podcasts, and Apple Podcast platforms. You can also access the episodes on spotlight, http://spotlight.okstate.edu/experience/podcast/

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