AGRICULTURE
Golden Plains Area Newsletter

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GOLDEN PLAINS AREA AG NEWSLETTER

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AG BUSINESS

Corn Prices Spike Higher Following General Trend in Commodities
Livestock Marketing Information Center

Corn prices in Omaha in the last half of March reached $4.50 per bushel, the high for the crop year that began last September. The low price for Omaha corn prices this crop year was last September at $3.90 per bushel. Prices have risen steadily as export prospects have improved with the decline in the US dollar in foreign currency markets and stable trading conditions with our best grain customers such as Mexico, Japan, and South Korea. Even Western Europe is taking considerably more corn than several years ago. According to USDA's Office of the Chief Economist (OCE), corn exports should set a record this crop year at 3.3 billion bushels, up from 2.858 billion bushels last year and 2.255 billion bushels in the 2023/24 crop year.

Demand for corn from the domestic ethanol industry has also been holding steady during the last few years. Corn consumed for ethanol and its by-products are expected to be up to 5.6 billion bushels this crop year from 5.436 billion bushels in the 2024/25 crop year and from 5.489 billion bushels in 2023/2024.

The USDA-National Agriculture Statistics Service (NASS) reported in late March that inventories of corn on March 1 were record-large for March 1 at nine billion bushels. Inventories stored in elevators off farm were slightly less than a year ago (-2%) and generally below the amount of corn stored in elevators off farms on March 1 in the years between 2017 and 2022. Corn inventories stored on farms this March 1 were unprecedentedly large at 5.4 billion bushels, 900 million more bushels than a year ago and topping the previous March 1 record set in 2019 at 5.2 billion bushels. Corn prices in the first week of April declined about $0.20 from their highs in late March.

The effects of large corn inventories on farms in the spring of 2019 on corn prices were muted. Corn prices settled back slightly in April but then began to gradually recover as the focus shifted to crop weather development conditions that were less than ideal. It is also worth noting that crop year corn prices in those years tended to average close to $3.50 per bushel at the farm.

Retail Beef Price Climbs from Year Ago, Pork and Chicken Steady
Livestock Marketing Information Center

The retail price for beef increased from a year ago in March, while the retail price for pork and chicken softened. The all-fresh retail beef price was $9.55 per pound in March, softening from $9.64 per pound in February but an increase of $1.12 per pound (+13%) from last year. Ground beef was reported at $6.86 per pound in March, up $0.73 per pound (+12%) from last year. Rounds increased $1.06 per pound (+12%) from last year to $9.61 per pound in March but fell slightly by $0.49 per pound from the prior month. Steaks were reported at $12.73 per pound in March and on par with the prior month but increased $1.75 per pound compared to the prior year.

Retail pork prices have softened since the start of the year from $4.94 per pound in January to $4.90 per pound in February and $4.87 per pound in March. March's retail pork price was down $0.08 per pound (-2%) from a year ago and the lowest monthly price since February 2025 ($4.84). Retail prices for bacon, pork chops, and ham were all lower than a year ago in March. In March, the retail ham price fell $0.06 per pound (-1%) to $4.44 per pound, bacon decreased $0.18 per pound (-3%) to $6.80, and pork chops were lower by $0.16 per pound (-4%) to $4.18 per pound.

The retail composite broiler price in March was reported at $2.41 per pound, down $0.05 per pound (-2%) from last year. Since the start of 2022, the retail composite broiler price has stayed within a $0.32 per pound range between $2.22 to $2.54 per pound with an average of $2.44 per pound. The retail whole chicken price was $2.03 per pound in March, down $0.03 per pound (-2%) from last year. Since November 2024, the retail whole chicken price has been above $2 per pound, ranging from $2.02 to $2.09 per pound with an average of $2.06 per pound. Overall, retail chicken prices remain steady.

AGRONOMY

Herbicide Mixing and Loading Guidelines

Ron Meyer, Area Agronomy Specialist
Catie Green, Area Agronomy Specialist

Pesticide application season will begin soon for many. Following, are mixing and loading guidelines for most applications. Keep in mind that a number of choices exist when applying pesticides including water soluables, wetable powders, dispersible granules, flowables, Emulsifiable Concentrates, and other solutions. As a result of those choices, guidelines exist for mixing and loading to obtain optimum pesticide performance.

1. Fill the pesticide tank ½ full of water
2. Add fertilizer, AMS or other pH reducing agents or anti-foamers
3. Start agitation
4. Add pesticides into the tank
5. Add emulsifiers, oils, or other surfactants
6. Fill the tank with water

Remember that if you aren't sure about the compatibility of the materials you are mixing, a compatibility test can be performed.

1. Add 1 pt of material (fertilizer or water) to a 2 quart jar
2. Add ¼ teaspoon to the mix of the surfactant you choose
3. Add the herbicide to the jar: if dry herbicide add 1.5 teaspoons for each pound of herbicide per acre desired, if liquid herbicide add 0.5 teaspoons for each pint per acre desired
4. Mix the products by shaking the covered jar
5. Let the solution stand for 15 minutes
6. Look for separation such as flaking, precipitates (solids on the jar bottom), or gels forming.
7. If no issues are observed, the products are compatible with each other in a tank

USDA Approves GMO Wheat
Ron Meyer, Area Agronomy Specialsist

The United States Department of Agriculture has approved Genetically Modified Organism technology (GMO) wheat for production in the US. The approved trait is HB 4, a drought tolerant transgenic gene found in sunflower. Along with drought tolerance, heat tolerance is also expected to accompany the trait. In addition, wheat varieties may also carry herbicide tolerance. Since the trait is transgenic and GMO, EPA along with FDA will also need to review the application. It is expected that both agencies will follow USDA and approve GMO wheat.

The HB 4 trait was developed by an Argentine Company, Bioceres. This trait, when fully approved for US production, will be integrated into already released wheat varieties. From that point, local production testing will occurr on Colorado farms. Released varieties are expected to be generally available in 3 to 5 years.

Wheat Stem Sawfly
Ron Meyer, Area Agronomy Specialist

Wheat stem sawfly is a native insect that feeds on grasses in Colorado. The insect was first identified by entomologists in Colorado around the late 1800's and primarily fed on range grasses. However, wheat stem sawfly emerged as a Colorado wheat pest in 2010 and damage from this insect has been expanding and increasing since. Today, this pest is estimated to cause $30 million in damage, according to Brad Erker, Executive Director of the Colorado Wheat Research Foundation. Sawfly damage to wheat is now found as far south as I-70 and continues to move south. As a result, Colorado State University (CSU) is focused on addressing cropping strategies to ease pest losses to this insect. Research is focused on cropping rotations and developing wheat varieties that discourage wheat stem sawfly from reproducing and damaging plants.

Colorado State University (CSU) and others have found that wheat stems that are more solid than the traditional hollow stemmed varieties have shown merit in reducing the pest's damage. Typically, adult wheat stem sawfly lay eggs in the stem during the growing season. The developing larvae feed and move downward in the plant and eventually cut the plant's stem off near the soil surface. The wheat plant with seed in heads fall to the ground and are un-harvestable. Thus, not only is yield impacted negatively, but straw residue is also now laying flat on the ground. The larvae survive in the remaining stem near the soil surface.

Cropping strategies include shallow tillage that lifts wheat crowns and loosens soil. This activity exposes larvae to winter weather and increases mortality during some winters. However, tillage interferes with biological control insects (insects that feed on sawfly) and may increase soil erosion. In addition, there have been two parasitic wasps that attack wheat stem sawfly, however their populations are currently found in low numbers in Colorado. Keep in mind that the advantages of controlling sawfly with tillage must be compared to the benefits of leaving residue on tops of fields.

Another strategy for tolerating wheat stem sawfly is to swath wheat early. Swathing wheat at 25-30% moisture allows wheat to reach physiologic maturity and permits harvest before sawfly cut plants off. This strategy necessitates the use of a swather to windrow wheat, allowing grain to dry, before stem cutting has occurred. Swathing before grain is 30% moisture, will cause test weights to drop as plants are still filling grain. Wheat stem sawfly will still cut stems after swathing, but losses to yield will be reduced.

Planting trap crops along field edges has shown promise in research trials. Wheat stem sawfly will deposit eggs in oats, barley, and rye and developing larvae will not survive in these crops. Trap crop strategy works best with low to moderate wheat stem sawfly populations. If populations are heavy, adults will continue to fly past the trap crop and into wheat fields. Also, avoid planting new wheat next to a previous field that contained wheat with sawfly populations. Adults emerge from the old wheat stubble in the spring and move into actively growing wheat. Adult wheat stem sawflies are not strong flyers and do not move long distances.

Applying insecticides has not been an effective strategy for this pest. Adults have an extended flight time during the growing season and repeated insecticidal applications in trials have not been cost effective for control.

One of the most effective strategies for reducing wheat stem sawfly damage is planting solid stemmed wheat varieties. Larvae trying to feed and develop in solid stemmed wheat varieties have higher mortality rates. CSU is currently incorporating solid-stem characteristics into existing wheat varieties and has released varieties that are showing positive results. Further, private seed companies have also developed semi-solid varieties which are available as certified seed. For more information regarding local wheat variety availability, contact your local wheat seed dealer.

Advances in Agricultural Technology
Ron Meyer, Area Agronomy Specialist

Plant scientists have been employing science to improve crops for centuries. David Harris from the University of London believes that gatherers began selectively breeding wheat about 12,500 B.C.. Cutting edible grasses with rock-edged sickles they took the grain-bearing grasses home. Only the strongest kernels of wheat or barley were left on the stalk because they may have been hard to cut. Those plants had stronger stalks and those plant seeds fell to the soil nearest the Neolithic campsites, and after sprouting and growing, they produced plants with maybe stronger straw and heartier kernels. Thus began an unintentional plant breeding program selecting for different and better plants.

As knowledge improved science improved. Plant scientists (Agronomists by today's title) advanced plant varieties and traits, one gene at a time. Early plant breeders selected plant varieties that yielded better and had improved qualities for processing needs or human preferences (plants that tasted better). A striking breakthrough occurred in 1866 when an agronomist monk named Gregor Mendel crossed pea plants and became known as the "Father of Genetics". As it turned out, traits for peas could be easily manipulated using manual cross pollination techniques. Scientists quickly adopted the discovered cross pollination strategies to create plant hybrids. These new hybrids were selected to produce plants that yielded better, produced stronger stalks, and had superior quality characteristics. The new hybrids not only benefited farmers planting them (in the form of higher yields), but also consumers who noticed better and healthier food.

In 1953 scientists discovered a long molecule found in all living things they called DNA which contained genetic "codes" for traits and characteristics. Later it was discovered that desirable DNA (rust tolerance, higher yields, etc.) could be transferred to new plants with success. As a result, agronomists now found selected genes that produced positive outcomes (better yield) that could be transferred from one plant to another with greater accuracy and with less time. But plant breeding was still a "hit and miss" science. Agronomists knew which gene they wanted to advance but needed multiple tries to finally get the desired result. This required lots of cross pollination and then further back crossing to finally achieve success. As a result, it sometimes took as many as 15 years to get a new and improved variety released.

In 1973, another scientific agronomic breakthrough was found. Plant scientists discovered how to successfully transfer a gene from one species into a completely different species. This discovery was something thought impossible by many in the scientific community and a new science was immediately born; biotechnology. Scientifically referred to as transgenic crops or Genetically Modified Organisms (GMO), this new science continues to produce better and healthier plants today.

In 1996, the first commercially available GMO crops were planted. The new GMO crop was a herbicide tolerant soybean and the herbicide applied was glyphosate. The new discovery now made controlling weeds much less difficult for producers who adopted the new technology. Herbicide tolerance in other crops followed. Glyphosate resistant corn was widely adopted by corn farmers looking for an easier method to control weeds. Another innovation occurred when an insecticide producing trait was inserted into corn plants. Known as BT corn, the trait enabled corn plants to produce a naturally occurring insecticide, eliminating chemical insecticide applications to control insects that attack corn plants. BT corn did not require farmers to apply insecticides to corn plants to control insects.

So how does transgenic technology work? Early methods used a 22 caliber pistol's bullet that was dipped into DNA material and shot into young corn plant material. The result didn't always work but when it did, the corn plant's DNA accepted the foreign genes and began to replicate and multiply the new gene. From there, corn plants were tested to make sure they contained the desired traits. Current improved research uses a natural soil borne bacterium to transfer the desired trait from one species to the next.

Is GMO technology in plants safe for us to consume? It is estimated that today more than 70% of U.S. food contains GMO plants. In the U.S. prior to release into the food system GMO plants are compared to their traditional counter parts for chemical, genetic, biochemical, compositional, nutritional and environmental tests as well as known allergens. GMO crop testing is done by the FDA, EPA, and USDA. Further, more than 50 scientists from the National Academy of Science regularly evaluate GMO crops. Furthermore, countries such as Argentina, Canada, Australia, and China conduct their own testing for GMO food safety. As a result, GMO crops are highly regulated and tested for both human and environmental safety.

Plant breeders also work with non-transgenic methods to transfer desirable traits from one plant to the next generation. Wheat and sunflower are two crops that are not GMO or transgenic, which means that more traditional plant breeding techniques are employed. In an effort to employ new technologies more efficiently with non-transgenic crops, plant breeders have discovered better and faster methods for transferring desirable plant traits to the next generation. DNA Marker-Assisted Selection (MAS) is one technology that is currently being employed. DNA markers have now been found that allow a plant breeder to more efficiently identify and select specific plant traits to advance to the next generation. While some genetic markers may or may not be the DNA that controls the desired trait, they act as a "flag" that point to the specific gene that plant breeders want transferred. This technology has been used since the early 2000's.

One particularly powerful form of DNA marker technology is Single Nucleotide Polymorphism or SNP (pronounced snip). This plant breeding technology allows less expensive and high-throughput DNA sequencing methods to identify and locate genes controlling important traits such as better yield and quality. SNPs located close to a particular gene act as a marker for that gene. Once the marker is identified, plant breeders know which genes to focus on and select for transfer.

Two other plant breeding methods that are currently garnering increased attention are Genomic Selection and High Throughput Phenotyping. Genomic Selection allows the breeder to use SNPs to increase the accuracy and efficiency of trait selection, with the key goal of shortening the breeding cycle time and more quickly increase the rate of genetic gain. High throughput phenotyping uses remote sensing and other technologies to rapidly and inexpensively evaluate breeding germplasm for drought tolerance, heat tolerance, plant biomass, pest tolerance, and other important production characteristics.

Further, another new plant genetic transfer technique is called Clustered Regularly Interspaced Short Palindromic Repeats or CRISPR. The CRISPR breeding method involves more nature than science and uses proteins to change the sequence and potentially "deactivate" certain undesirable genes. For instance, CRISPR technology could disable a plant's gene that allows disease or insect susceptibility, thus making the plant resistant to specific pests, without using transgenic methods. This means this technology could make plants more insect or disease resistant by turning off the bad genes and enabling the good genes to thrive, without inserting foreign genes into the plant. This could also eliminate or reduce pesticide applications to control pests.

As a result of improved crop production techniques, agronomists are now able to reduce the time required to release a new and improved variety equipped with targeted pest tolerant traits from 10 years to approximately 3 years, in some cases. As a result, farmers can now employ better varieties in a third of the time it used to take to develop.

It is no accident that record crop yields are happening yearly. The record corn yield harvested in 2018 was 477 bushels per acre. In 2023, David Hula, a farmer from Charles City, Virginia, set the world record for corn yield at 623 bushels per acre (bpa) in the National Corn Growers Association (NCGA) yield contest. To be sure, agricultural scientists are currently employing the best technology available, and the return on investment is showing up with quicker variety release times, enhanced pest resistance, and higher yields using similar inputs.

Sources: Colorado Wheat Farmer, Glenda Mostek.
Maine Organic Farmer & Gardener » Spring 2011, John Koster.
Dr. Scott Haley, Colorado State University Wheat Breeder.
Dr. Ademola A Adenle, UNU- IAS

LIVESTOCK

PASTURE TO PROFIT

Foreign Material in Beef
Scott Stinnett, 4-H Youth and Livestock Specialist

In the most recent 2022 National Beef Quality Audit (NBQA), producers have responded to the need for responsible injection site management to the point injection site lesions on beef carcasses are almost nil. Unfortunately, a new top issue with carcass quality has emerged, foreign material in the beef carcass.

How prevalent is foreign material in beef? Of the processing plants included in the 2022 NBQA, all reported events of foreign material contamination. Higher incidents were found in bull and cow processing plants compared to feeder processing plants, but all had incidents. The processing plants also reported that 50% of them received complaints from customers which revealed foreign material is getting past the original processor. The top contaminant is bird or buck shot from firearms. Bullets, darts, needles, wire and other metals have been identified at contaminants but to a much lesser extent.

National Cattleman's Beef Association (NCBA) asked West Texas A&M to investigate the effects of these contaminants. The results are eye opening. Using ground beef as an example, the average beef carcass produces approximately 238 pounds of ground beef. Ground beef is handled in 2,000-pound combo bins and three combo bins are considered a batch. When a foreign material event occurs with ground beef, guidelines dictate the batch the material is found in, and the batch prior to it, will be pulled and discarded. This equals 12,000 pounds of ground beef being discarded, from approximately 51 head of cattle. Considering current ground beef prices, each foreign material event costs over $75,000.

Expanding this out, there are approximately 45 facilities that produce ground beef in the U.S., and they average 140 foreign material events each year. This has an annual average impact of over 76,469,400 pounds at a cost of $476,280,000 in lost product. This equates to around 1% of the total ground beef produced lost to foreign material contamination.

It has now become a priority in Beef Quality Assurance (BQA) programs to educate producers of this situation. Producers are encouraged to monitor activities that may create this foreign material contamination and follow appropriate handling practices to eliminate these foreign material events.

Consider Early Weaning Cows on Limited Forage
Travis Taylor, Area Livestock Specialist

In conventional cow-calf production systems calves are normally weaned between 180 and 240 days of age. Early weaning is defined as separating calves from their mothers at less than 180 days and may be performed as early as 45 days of age. In dry or drought situations, forage becomes scarce, low quality or expensive during the breeding season and cows are at risk of reproductive failure due to high nutrient requirements during a time of poor diet quality. It is during these drought conditions times that early weaning can become a tool that reduces cow's nutritional demand by ending lactation and allowing the cow to gain or at least maintain weight and body condition. **Figure 1** shows that for every two weeks that a calf suckles a spring-calving cow, she loses one-tenth of a body condition score (BCS; 1 = thin, 9 = obese). It would stand to reason that a cow calving at a BCS 5 would be a BCS 4 by the time her calf is 140 days old under normal pasture conditions. Early weaning calves (75 to 100 days) would allow thin or nutritionally stress cows an increased chance to breed back and calve within a year interval.

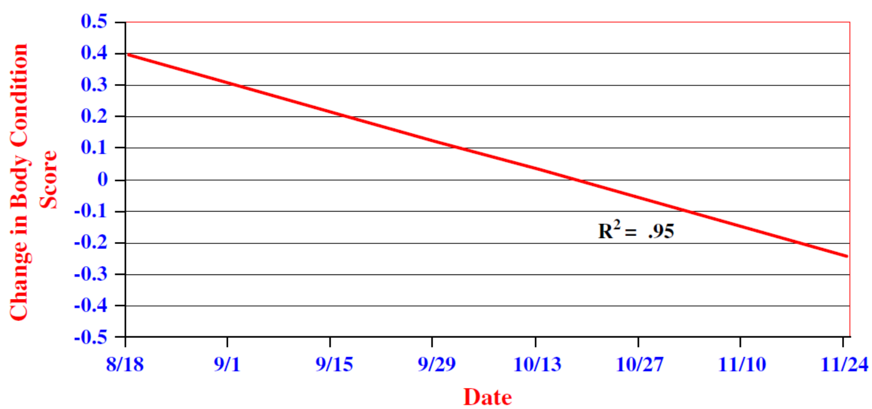

Fig. 1. Effect of weaning date on change in cow body condition score of March calving cows. (*Data from* Ciminski L, Adams D, Klopfenstein T, et al. Weaning date for spring calving cows grazing Sandhills Range. In: 2002 Beef Cattle Report MP 79-A. Lincoln (NE); Agricultural Research Division, University of Nebraska; 2002. p. 3–4.

From the range management prospective, early weaning can decrease grazing pressure on pastures. Calves weighing 250 to 350 pounds have been shown to consume 5.3 pounds of forage dry matter daily[1]. Likewise a 1200-pound non-lactating cow consumes 4.6 to 5.9 pounds less daily than when she is lactating[2]. In theory, this would allow the dry cow one additional day of grazing for every 2.5 days that her calf has been weaned. Removing the sucking stimulus and reducing the cow's nutritional lactation requirement can cause a positive energy balance on the same forage, thus having the potential to allow noncyclic cows to resume estrous and become pregnant. Early weaning is a management tool that can reduce grazing pressure on pastures by decreasing the nutrient demand of the cow, and if done correctly has no perceived effect on the calf's ability to convert feed or gain weight[3].

Resources:

[1]Jenkins-HollingsworthK, Klopfenstein T, Adams D, et al. Intake and diet selectivity of cow/calf pair grazing native sandhills range. Nebraska Beef Cattle Report 1995; MP 62-A:3–4.

[2]NRC 1996 (2000 update). Nutrient requirements of beef cattle. 7th edition. Natl Acad Press. Washington, DC.

[3]Rasby R. Early Weaning Beef Calves. Veterinary Clinics Food Animal Practice 23 (2007): 29-40.

PASTURE TO PROFIT

Planning and Calculating Calving Dates
Scott Stinnett, 4-H Youth and Livestock Specialist

With calving season winding down and breeding season in the near future, planning for calving in spring of 2027 is upon us. Three questions producers should consider for the next calving season. When do you want to start? How long do you want calving season to be? What specific focus will you put on heifers?

When to start calving season is usually tied to traditional calving times of the past. Producers choose when they calve based on a variety of factors including weather, anticipated forage availability and marketing strategies.

Starting with weather, even though it cannot be predicted a year out, does follow seasonal averages. Some producers prefer to calve in January and February when conditions can be very cold but usually dry. Others prefer March and April trading off a chance of precipitation for warming temperatures. May and June calving operations avoid the cold all together and are not concerned by late spring and early summer precipitation.

Forage availability may drive the decision on when to calve. The highest nutritional demand of cows is in the last month of gestation and the first six weeks of lactation. Producers choosing to calve as forages are beginning to increase in nutritional value tend to be able to meet their cows' needs with less supplementation needed.

Marketing is the financial consideration in planning the calving season. A producer who would like to market six-hundred-pound calves in late October will need to plan for a calving season to match the marketing plan. Later calving operations may face two opposing forces. Although they save expense on supplementing the cow during her high nutritional needs, they are usually weaning calves when forage quality is declining or diminished for the winter, which may necessitate increased feed expenses. On the other hand, calves marketed after the fall marketing run, tend to sell calves for higher prices as supply has waned but demand is steady.

Length of calving season is as important a decision as when to start but has more to consider. Calving season length effect both expenses and incomes for the operation. Extended calving seasons, over 60

days, increase labor costs with more time and effort spent checking bred females, as well as handling and processing newborn calves. The extended calving season can decrease income by producing a less uniform set of calves to market as ages and weights may range greatly. Condensed calving seasons under 60 days tend to negate the impacts of the extended calving season. Less time and labor checking females and a more uniform set of calves to market will decrease costs and increase incomes for the operation. Calving seasons of 45 days or even as low as 30 days can be accomplished by utilizing reproductive techniques such as estrous synchronization and artificial insemination. Similar to the tradeoffs of when to start calving, utilizing reproductive techniques does have extra expense. These expenses are recuperated though with overall increased incomes associated with condensed calving seasons.
Recent research now questions what the average gestation length is for cattle. Traditionally producers have used 283 to 285 days for average gestation length. A multi-year research project out of Virginia with data from over 10,000 calf births, calculated an average gestation of 280 days. Producers can use their own calving data and calculate the average gestation for their herd and use the information when planning timing and length of their calving season.

Heifers require additional consideration. A bred heifer may not only be developing a calf but is also completing her growth to maturity. First calf heifers take more time to recover and restart their estrous cycle than mature cows. A mature cow may take 45 to 70 days to resume estrous postpartum, whereas a heifer may be 75 to 120 days postpartum. Many producers choose to breed heifers 30 days or more prior to their mature cows. This does place heifer births earlier than the rest of the mature cows in the herd, but they may resume estrous in the same time frame as the mature cows in the herd and therefore will breed and subsequently calve within the desired calving season the following year.

Planning for calving season does take some effort. Considerations of the timing of calving season based on environmental conditions and marketing goals are the base drivers of planning decisions. In the end, the result of focused planning of the calving season can help decrease expenses and increase income.

Pasture to Profit

Wheat Pasture, Magnesium and Grass Tetany
Scott Stinnett, 4-H Youth and Livestock Specialist

Due to a mild fall and winter in eastern Colorado, many producers have or may turn to grazing winter wheat pastures. This has a twofold benefit. First, the cattle are grazing a higher nutrition level forage than dormant native pasture. Second, grazing the wheat removes excess top growth, which reduces the amount of water transpired by the leaves, conserving soil moisture for the grain-filling period.
While winter wheat pastures are a great forage resource, producers should be cautious of the potential hazards associated with winter wheat grazing. Studies of wheat pastures show that magnesium, copper and zinc are typically deficient in wheat forage. Calcium and phosphorus are adequate and potassium is excessive. Excessive potassium prevents the proper absorption of magnesium.

Cattle low in magnesium can develop the condition grass tetany. Grass tetany is a result of the imbalance of minerals created by the excessive potassium. Grass tetany comes on suddenly and can be fatal if not treated. Early lactation cows are most susceptible due to their magnesium requirement increasing at calving and milk production. Higher risk is to older, mature cows as they are not as able to mobilize magnesium from their bones.

Magnesium is important for proper nerve function and consequently muscle contraction. Signs of cattle with grass tetany include excitability, muscle tremors, and difficulty breathing. Untreated or worse cases can result in death. When caught early, cattle can be treated with slow, intravenous (IV) administration of a calcium and magnesium solution.

It is recommended to prevent magnesium deficiency by providing a magnesium supplement. It is best to begin 30 days before putting cows on wheat pasture and continuing through the high-risk period. "High-mag" mineral supplements contain 10 to 12% magnesium, normally as magnesium oxide. Magnesium oxide is bitter and unpalatable to cows but can be mixed into supplement forms that contain other minerals and ingredients which make the overall supplement more palatable. Consumption should be monitored to ensure cows are intaking 3 to 4 ounces of magnesium per day, which equates to 40 to 50% of a cow's daily magnesium requirement.

Other forages can create the same conditions for grass tetany. Small grains such as oats, barley and rye as well as improved forages like orchard grass, tall fescue, perennial ryegrass, timothy, and bromegrass can be low in magnesium and high in potassium. Producers concerned about grass tetany can have their forage tested. A forage mineral analysis can be used to calculate a tetany ratio. The tetany ratio assesses the quantity of potassium to the quantity of magnesium and calcium. A ratio higher than 2.2 will likely result in grass tetany. Starting cows on magnesium supplementation is then the prevention to possible grass tetany.

HORTICULTURE

Windbreak Trees
Linda Langelo, Area Horticulture Specialist

Windbreak trees serve as an important feature of the landscape on the Eastern Plains. Their purpose is to slow down the wind speed and redirect it. Windbreaks serve other purposes, including crop protection, capturing snow, providing shade and protection for livestock, and serving as habitat for other animals.

These days, windbreaks are having their health issues. Drought years have affected trees such as Colorado Blue Spruce and Austrian Pines that are used in areawide windbreaks. If we have a summer with extended periods of high temperatures and no precipitation, these two species are the first to experience dieback or not recover from the season. First, Colorado Blue Spruce prefers humid, cooler climates. Its ideal high temperature is 75 degrees Fahrenheit, which helps keep the tree in good health by being in an environment for good growth. These trees are out of their normal range. But they have adapted to our climate until it becomes too extreme.

Austrian pines have originated from Southern Europe, from mountain ranges to coastal areas. They are very adaptable and resilient. They prefer colder climates. They are also used to heavy snows in the winter, which helps make them more resilient in the summer season. Our prolonged droughts with no snow cover over the winter have created a stressful condition for Austrian Pines.

According to the Kansas Farmer Magazine, Editor Jennifer M. Latzke in 2022 said, "The Great Plains Initiative reports that over half of windbreaks in Kansas, Nebraska, and the Dakotas are waning." In the article, she did not state why. Here is a link to the article:
https://www.farmprogress.com/conservation-and-sustainability/great-plains-windbreaks-in-decline

One of the major reasons is that the trees in the windbreaks are aging out or have reached their maturity since 1930's when they were introduced during the Dust Bowl. This is what is happening in our rural towns. Renovating the windbreak is key. As we age, so do our trees.

Other issues are conflicts with farming practices that drive windbreak removal. The cost of managing the windbreaks is an issue. This can increase the poor condition of a windbreak. Therefore, climate issues are only one factor in the decline of a windbreak.

There are grants through the Conservation Districts for producers to help renovate their windbreaks. I would recommend that for new plantings to place the trees further than 15 feet apart, giving the root system a place to expand without competing with the next tree, and giving each tree proper sunlight before growing into each other.