APRIL 2025

Cooperative Extension Service

AGRICULTURE NEWSLETTER PULASKI COUNTY

T.J. Adkins, Agent for Agriculture & Natural Resources

Don’t Chase Price per Pound at the Expense of Value per Head

Over the last few months, I have been able to talk with a lot of cattle producers at Extension programs. As you can imagine, the strength of the cattle market is almost always the first topic of discussion. We are seeing prices like we have never seen before for cattle of all types and weights. But my observation has been that producers tend to become a bit more enamored than they should with price per pound and sometimes don’t think as much as they should about value per head.

I see this play itself out in a couple ways. First, I hear some producers talk about selling cattle sooner to capture the higher prices. I don’t necessarily think that downside price risk is greater in high priced markets, but I think there is a perception among some that there may be “more to lose”. This perception lowers interest in adding value to cattle by taking them to higher weight before sale and leads to more calves being sold off the cow, as opposed to being weaned and preconditioned.

Secondly, I think people get too focused on price per pound differences across weight categories and don't make the mental adjustment to the new price environment. To illustrate this point, I am going to use Kentucky average auction prices from the last week of March. The table below shows the average price for medium / large frame #1-2 steers at 450 lbs, 550 lbs, and 650 lbs. For transparency, I am using the average prices for cattle without a description (not value-added or fancy), which represents most cattle being sold. Also, I am averaging the 50 lb weight ranges to arrive at my average price. In other words, the estimated price per lb for a 450 lb steer is the average of the 400 to 450 lb and 450 to 500 lb weight ranges.

Examine the average prices from Kentucky last week in the table for 450 and 550 lb steers. The price per pound drops by $0.50 on that 100 lb increase in weight. If one looks solely at price per lb, they may be tempted to sell calves sooner and avoid the $0.50 slide. However, in this cattle price environment, those 550 lb steers were still worth $113 per head more than the 450 lb steers. The relevant question becomes whether that difference justifies keeping those 450 lb steers longer. In many cases, the answer to that question may be yes, especially in the spring with pasture starting to grow.

To be fair, cattle prices are extremely high by historical standards. Price slides widen as the overall market gets higher and we have never seen a calf market this high. What may have seemed like a bizarre price slide a few years ago, may make perfect sense now. For example, if 450 lb steers were selling for $2 per lb and we applied the same $0.50 price slide for 550 lb steer, that 550 lb steer at $1.50 per lb is actually worth $75 less than the 450 lb steer at $2. But that is irrelevant in the current market.

The main point is that the spring 2025 feeder cattle price environment is like nothing we have seen before. Given that, we must be careful about using rules of thumb and simple approaches that may have worked in the past. Focusing on price per lb, without consideration of weight impacts, can be very misleading. And one needs to be careful they aren’t chasing price per lb at the expense of value per head!

Dr. Kenny Burdine, University of Kentucky

Tariffs and Trade: The Cost of U.S. Agriculture

By: Grant Gardner

Tariffs are a government tool used to raise the price of foreign products, encouraging consumers to buy domestically produced goods. They serve multiple purposes, including protecting local industries from foreign competition, generating government revenue, and responding to unfair trade practices. This article examines the US export portfolio for corn, soybeans, and wheat, highlighting key countries where retaliatory tariffs could lead to price volatility and losses in agricultural commodities.

While tariffs may seem beneficial by offering protection, generating revenue, or as a negotiating tool for broader policy issues, they create winners and losers. When the US imposes tariffs, other countries often retaliate, targeting industries reliant on exports. In many cases, US agriculture bears the brunt of these actions.

As of March 15, the US has enacted tariffs on Canada, Mexico, China, and the European Union—nations that collectively purchase nearly 54% of US corn exports, 62% of soybean exports, and 24% of wheat exports (2020–2024 average). Additional tariffs have been proposed against Japan, which accounts for 18% of US corn exports, 4% of soybean exports, and 10% of wheat exports. As retaliatory tariffs take effect, US commodities become more expensive internationally which reduces exports and increases domestic supplies, which in turn drives domestic prices down. While these countries may not stop purchasing US crops entirely, they are likely to shift demand toward competing suppliers such as Brazil, Argentina, and the Black Sea region.

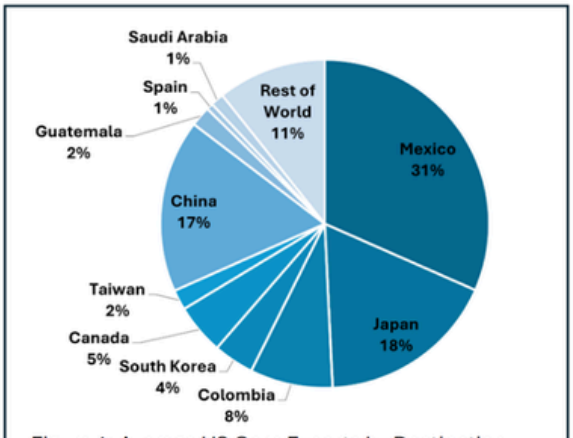

Figure 1: Average US Corn Exports by Destination (2020-2024), Source: Data Source: U.S. Census

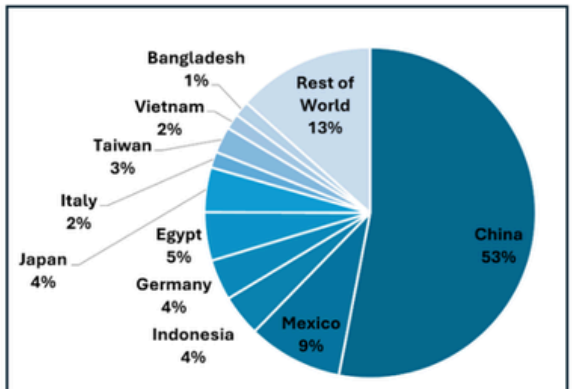

Figure 2: Average US Soybean Exports by Destination (2020-2024), Source: Data Source: U.S. Census

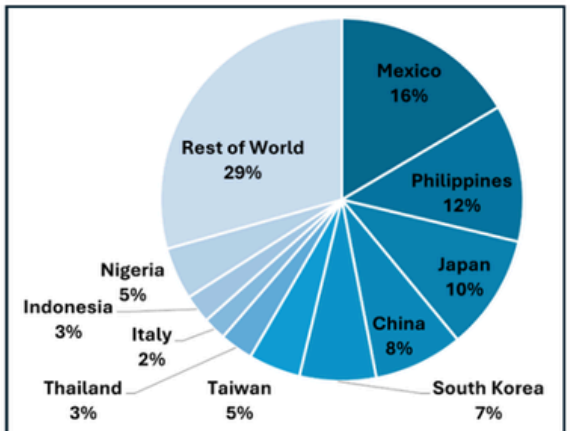

Figure 3: Average US Wheat Exports by Destination (2020-2024), Source: Data Source: U.S. Census

Regardless of political perspective, tariffs disrupt free trade, undermining comparative advantage and efficiency. For example, the US holds a comparative advantage in corn production relative to Canada, while Canada holds a comparative advantage in potash production. When tariffs are imposed, the domestic supply of efficiently produced US corn rises, pushing US prices lower. Meanwhile, retaliatory tariffs restrict access to efficiently produced Canadian goods, such as potash, causing their US prices to increase.

While tariffs may provide short-term benefits to certain industries and could serve long-term policy goals, their immediate impact on US agriculture is overwhelmingly negative.

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UPCOMING EVENTS

WHEAT FIELD DAY (UKREC)	**May 13th**
KATS Crop Scouting Workshop (UKREC)	May 15th
KATS Planter Clinic (UKREC)	June (TBD):
KATS Drone Pilot Certification Exam (Madisonville)	June 16- 17th
Pest Management Field Day	June 26th
CORN, SOYBEAN & TOBACCO FIELD DAY	**July 22nd**
KY High School Crop Scouting Competition	July 24th
KATS Field Crop Pest Management & Spray Clinic	August 28th

To sign up & receive the **Kentucky Field Crops News**, click the link: KFC NEWSLETTER or scan the QR code.

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Lexington, KY 40506

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University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

Forage-Related Cattle Disorders
Hypomagnesemic Tetany or "Grass Tetany"

Michelle Arnold, Veterinary Science, and Jeff Lehmkuhler, Animal and Food Sciences

Magnesium is a vital component of normal nerve conduction, muscle function, and bone mineral formation. Hypomagnesemic tetany or "grass tetany" is a disorder caused by an abnormally low blood concentration of the essential mineral magnesium (Mg). Synonyms for this disorder include spring tetany, grass staggers, wheat pasture poisoning, or lactation tetany.

Disease Occurrence

Hypomagnesemia occurs most often in beef and dairy cows in early lactation because of the large demand for magnesium during lactation and the cow's limited ability to mobilize magnesium reserves within her body. Affected cattle are often found to have concurrent low blood calcium. Typically this disease occurs when grazing ryegrass, small grains (such as wheat or rye) and cool season perennial grasses in late winter and early spring (February through April). Fast-growing spring grass is often high in potassium (K^+) and nitrogen (N^+) and low in magnesium (Mg^{++}) and sodium (Na^+); each of these factors contributes to decreased absorption of magnesium through the rumen wall. Low concentrations of forage magnesium become a problem most often in the late winter and early spring cool weather, when grass plants cannot take up sufficient magnesium from water-logged soils.

"Winter tetany" in beef cattle is an underlying form of hypomagnesemia caused by a chronic energy shortage and insufficient intake of magnesium. The condition may be observed when feeding forage silage from cereal grains such as wheat and rye during the winter since it is often high in potassium and nitrogen but low in magnesium. Clinical signs of grass tetany are triggered by a stressor such as cold weather following an extended period of consuming forages with low concentrations of magnesium.

Cause

Maintenance of a normal blood magnesium concentration is almost entirely dependent on absorption of magnesium from the diet rather than under hormonal control as with other major minerals. Factors affecting absorption include:

- Magnesium must be present in dissolved form ("in solution") to be absorbed in the rumen; only then can it move from the rumen into the bloodstream. In late winter/spring grazing animals, the concentration of magnesium in solution in rumen fluid is often low due to the small amount of magnesium present in the forage, the relatively high pH of the rumen fluid, and magnesium "binders" within forages that form insoluble (unavailable) salts in the rumen.
- High levels of forage potassium (such as with application of potash fertilizers) also disrupt the absorption of magnesium. The movement of magnesium across the rumen wall is primarily dependent on an active transport mechanism (or "pump"). This pump does not work as efficiently with high dietary potassium and low sodium because this changes the electrical potential necessary at the cell membrane. Adding sodium to the ration may help, but excessive sodium will ultimately result in loss of magnesium in the urine due to increased frequency of urination. Research has shown that the negative effects of high levels of potassium cannot be overcome by the addition of large quantities of salt.
- Lush pastures are low in fiber and pass through the rumen rather quickly, reducing the time available for absorption.
- If the active transport mechanism fails to maintain a normal blood magnesium concentration, there is a secondary pathway, but it depends on a high rumen magnesium concentration. This is not attainable when only consuming low Mg forages.

Signs

Hypomagnesemia often presents as sudden death without premonitory signs. It is encountered most commonly in older lactating beef cows four to eight weeks after calving without appropriate supplementary mineral feeding. This condition should not be confused with hypocalcemia or "milk fever" that typically occurs in dairy cattle around the time of calving. The hypomagnesemic cow is most often found dead with disturbed soil around its feet indicating paddling/seizure activity before death. However, if seen in the acute stage, grass tetany is characterized by hyperexcitability (nervousness), tetany (constant contraction of muscles resulting in muscle stiffness and rigidity), convulsions, then death. The clinical signs begin when blood Mg concentrations fall below 1.1 mg/dL (normal blood concentrations range from 1.9 to 2.4 mg/dL). The earliest signs, twitching of the facial muscles, shoulder, and flank, are due to the uncontrolled activation of peripheral nerves. Affected cows become separated from the group and have a startled expression, show an exaggerated blink reflex, exhibit frequent grinding of the teeth, and may show aggression. As the fall in blood magnesium progresses, sustained muscle spasms become more

common, eventually causing the cow to stagger and fall. Convulsions and seizures quickly follow, with chomping of the jaws and frothy salivation. The low concentration of magnesium in the cerebrospinal fluid (CSF less than 1 mg/dL [normal CSF magnesium is 2.4mg/dL]) is responsible for the convulsions seen in grass tetany. Affected animals lie with the head arched back and the legs paddling. The heart rate may reach 150 beats per minute (approximately twice the normal rate) and can often be heard without the use of a stethoscope. Respiratory rates of 60 breaths per minute (normal is 10 to 30 breaths per minute) and a rectal temperature as high as 105°F may result from the excessive muscle activity. Animals may get up and repeat these convulsive episodes several times before they finally die. A milder form of hypomagnesemia with blood Mg concentrations of 1.1 through 1.8 mg/dL can occur with signs of reduced feed intake, nervousness, and reduced milk production.

Diagnosis

The diagnosis is made based on history, clinical signs, and low magnesium concentration in the blood or CSF. Blood is not always an accurate sample to measure Mg because muscle damage may cause leakage of Mg from within cells into the bloodstream, causing an artificially high result. Postmortem samples of CSF that test below 1 mg/dL of magnesium or vitreous humor (fluid within the eye) below 1.34mg/dL are reliable indicators of grass tetany for approximately 24 to 48 hours after death.

Treatment

Animals exhibiting grass tetany are in need of immediate veterinary treatment; preferably 1.5 to 2.25 grams of magnesium intravenously for an adult cow. Tranquilization by the veterinarian may be needed to reduce the risk of injury during treatment. Response to therapy is not always good and depends largely on the length of time between onset of symptoms and treatment. Cattle that do recover take at least an hour, which is the time required for CSF magnesium levels to return to normal. Many of these cows will relapse and require more treatment within 12 hours. Administering oral magnesium gel once the animal has regained good swallowing reflexes or drenching with magnesium oxide or magnesium sulfate will reduce the rate of relapse. If grass tetany has occurred within a herd, an effort should be made to immediately increase the intake of magnesium to other members of the herd to prevent further losses.

Prevention and Control

Prevention is based on providing a high concentration of soluble magnesium in the rumen during times when conditions for grass tetany exist. As long as the active transport pump for magnesium is working well and driving magnesium across the rumen wall to the blood, problems should not develop. However, when factors such as a high potassium level in the forage prevent this pump from working adequately, a secondary pathway known as passive absorption does exist. Passive absorption requires a high to low concentration gradient; the rumen solution must have much higher magnesium concentrations than exist in the cells lining the rumen. A high rumen magnesium level is achieved by increasing the amount of magnesium in the diet (for example, with a high magnesium mineral mix), and this will allow magnesium to passively flow into the bloodstream of the cow. **For prevention of grass tetany, a general recommendation is to provide a high magnesium mineral supplement at least 30 days prior to calving.** Cows require approximately 17 to 20 grams of magnesium daily or 4 ounces per day of a 15 percent magnesium mineral mix during the late winter and early spring. UK Beef IRM mineral recommendations for free choice supplements for grazing beef cattle include 14 percent magnesium in the trace mineral mix and all from magnesium oxide (no dolomitic limestone or magnesium mica). These complete mineral mixtures also supply additional sodium in the form of salt to aid in combatting high potassium intakes. Consumption should be monitored because mineral intake is generally inadequate if using poor quality mineral products. Feeding ionophores (monensin, lasalocid) has been shown to improve magnesium absorption efficiency. High magnesium mineral may be discontinued in late spring once the grass is more mature, the water content of the forage is decreased, and daily temperatures reach at or above 60°F.

In addition to supplying supplemental magnesium, several management factors may decrease the risk of grass tetany. These include:

- Soil test and apply fertilizer based on soil test results; use no more potassium than recommended since grasses are often luxury consumers of potassium.
- Legumes are high in magnesium and will help offset the problem, although their growth is limited in late winter.
- Limit grazing to two to three hours per day with free-choice access to high quality hay for early lactation cattle on lush pasture during susceptible periods.
- Graze the less susceptible animals (heifers, dry cows, stocker cattle) on the higher risk pastures since the threat of disease is very low in non-lactating cattle.

In summary, increasing magnesium intake by supplementing with magnesium oxide, offering adequate salt to prevent sodium deficiency, and increasing total energy intake are all effective tools in preventing grass tetany. These are exceptionally important when moving from winter rations to young spring grass pasture, especially in early lactation cows. Grass tetany is considered a true veterinary emergency requiring prompt treatment with magnesium to prevent death.

What horse owners want from haymakers

By Mike Rankin, Senior Editor

Selling hay in the horse market can be both rewarding and frustrating. Even so, that market is the lifeblood for many commercial hay producers, especially those who make small square bales.

"We sometimes consider horse people as a bit of an enigma as to what they consider to be important when buying hay," said Bob Coleman at the Kentucky Alfalfa and Stored Forage Conference in Lexington last month.

The University of Kentucky Extension horse specialist said that they did a survey of horse owners across the U.S. a few years ago to find out what was important to them when buying hay. The survey revealed that over 85% of the respondents purchased the majority or all of their hay.

"Most horse owners don't have the acreage, equipment, or expertise to grow their own hay," Coleman noted. "Their hay requirements are often yearlong."

When buying hay, horse owners ranked the cost per bale as the leading criteria for making a purchase decision. "This doesn't come as a surprise," Coleman said. "However, it's also an economic decision that is often poorly made."

The survey also indicated that 65% of the survey respondents prefer 40- to 60-pound bales because those are easily handled without large equipment. "More than half of horse owners are women, and they don't want to carry 100-pound bales," Coleman noted.

He went on to say that one thing often overlooked by horse owners is the actual weight of the bale. "Paying $6 per bale for a 40-pound bale is a lot different than paying the same price for a 60-pound bale. In fact, that difference amounts to $100 per ton more for the 40-pound bale. Sometimes, the 60-pound bale may be the better buy even though its cost per bale is higher."

Coleman said it's also important to know what's in a bale. Many horse owners are comfortable with cool-season grass hays. Mixed alfalfa-grass hays are growing in popularity, and Coleman likes this type of hay from a nutrient profile perspective. Less popular is pure alfalfa or warm-season grass hay types, although both can be utilized in the right situation, the horse specialist said.

Surveyed horse owners also emphasized the importance of buying hay from someone with a good reputation. "It stands to reason that someone is going to be more attracted to a seller who provides a good product, stands behind it, and provides needed services within reason," Coleman said. "This is not just a horse-owner desire, it's a societal one."

What is horse quality hay?

The nutrient profile of hay ranked fifth as the most important thing horse owners consider when purchasing hay. Many horse hay buyers don't even ask for a forage test but rather just make a visual assessment.

"As a horse nutritionist, this was like being stabbed in the heart," Coleman joked. "Perhaps the two things horse people look at the most are crude protein and nonstructural carbohydrates. If you're going to sell hay into the horse market, you probably need, at minimum, to have those two measures analyzed for."

The equine specialist noted that we often see hay advertised as "horse quality" without really any indication of what that means. From Coleman's perspective, horse hay needs to possess several "must-have" characteristics. First, it must be free of mold and dust with a moisture content of 16.5% or less.

"In horses, moldy or dusty hay causes irreversible respiratory problems," Coleman said. "There's no such thing as 'just a little moldy.' In some cases, we find hay treated with an organic acid that may be a little higher moisture, and it may be perfectly fine from a mold and dust standpoint. The acid won't hurt a horse, but the owner may freak out because they've heard organic acid-treated hay is detrimental. It's not, but more education is needed," he acknowledged.

Horse hay also needs to be weed-free, especially as it relates to species like headed foxtails, which cause mouth ulcers. Finally, the hay has to be palatable — they have to eat it — along with being a reasonable source of nutrients.

From a nutrient standpoint, Coleman noted that the horse class or stage of gestation and lactation will impact the quality of hay that should be fed. But in general, he first likes to look at digestible energy (DE) to make sure it meets the horse's requirement. "In the horse industry, we don't use net energy or total digestible nutrients," he said. "I also look at crude protein, mostly to make sure it's not excessively low or high, and I note the neutral detergent fiber level, which I want to be less than 60%. If it's any higher, it can depress intake."

Nonstructural carbohydrates (NSC) are a recently popular topic among horse enthusiasts when evaluating hay. Coleman said that NSC consist of water-soluble carbohydrates and starch. The NSC level in hay is most important when it's being fed to horses that are insulin resistant, have Cushing's disease, or have laminitis. "With those horses, we want the nonstructural carbohydrate concentration to be 10% or less, but intake still has to be controlled," Coleman said.

Concluding, Coleman encouraged hay sellers to put themselves in the mindset of their horse customers. "Ask yourself if you're selling what they really need or want." As with any buyer-seller relationship, good and honest communication can go a long way in maximizing the rewards and minimizing the frustrations.

Cooperative Extension Service

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Plate it up!

Kentucky Proud

Scrumptious Strawberry Salad

5 cups spinach
½ large cabbage head, chopped
1 cup golden raisins
1 cup halved red grapes
1 pint sliced strawberries
½ small red onion, sliced
½ cup toasted and chopped pecans (optional)

Dressing
¾ cup plain non-fat Greek yogurt or plain regular yogurt
3 tablespoons honey
6 tablespoons apple cider vinegar
3 tablespoons olive oil
½ teaspoon Dijon mustard
1 teaspoon poppy seeds
1 teaspoon salt
½ teaspoon pepper

Combine all salad ingredients together in a large bowl. Prepare salad dressing by **mixing** all ingredients together in a jar, **cover**, and **shake** well to combine. **Pour** dressing over salad mixture and **toss** to combine.

Yield: 8, 2-cup servings

Nutritional Analysis:
240 calories, 10g fat, 1g saturated fat, 0mg cholesterol, 340mg sodium, 33g carbohydrate, 4g fiber, 27g sugar, 6g added sugars, 5g protein

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