

SINCE



1929

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AGRONOMY & BEEF BULLETIN

August 2022



1929



SINCE

UNDERSTANDING THE BENEFITS OF CHROMIUM SUPPLEMENTATION IN CATTLE

All cattle producers understand that healthy, efficiently growing cattle generate the greatest returns. With feed costs attributing to nearly 70% of total production costs, constant effort and creativity are required to achieve optimal return on investment.

A variety of strategies and products exist to prevent disease, improve growth and maintain overall health in cattle. However, one of the more underutilized of these strategies is the inclusion of chromium, an organic trace mineral, in the diet.

It was once thought that feedstuffs contained adequate concentrations of this essential trace mineral, yet recent studies have demonstrated that among grains, forages and byproduct/miscellaneous feeds, there are actually low chromium concentrations.

CHROMIUM AS AN ESSENTIAL NUTRIENT

Chromium primarily acts to improve insulin sensitivity and reduce the release of the stress hormone cortisol. The more insulin-sensitive an animal is, the more glucose will be readily available for cells involved in growth and immunity, two vital aspects of beef production.

Growth, immunity and stress go hand in hand when it comes to cattle productivity, as stress plays a significant role in the ability of an animal to generate an adequate immune response to fight off infection. Furthermore, fighting infection competes with muscle growth. Therefore, improving overall immunity is essential to minimizing losses due to health issues and maximizing production.

The primary fuel source of activated immune cells is glucose. Glucose also happens to be the primary fuel source for muscle growth, so it is easy to see how these two metabolic systems will compete with one another when limited glucose is available. Furthermore, the animal's body prioritizes immunity over growth, naturally, which increases the glucose requirements of the animal during an immune insult. The distribution of glucose to various tissues based on a hierarchy of metabolic needs results in the list below.

WHAT CAN CATTLE DO WITH MORE GLUCOSE?

- Withstand effects of weather (heat and cold) stress
- Improve immune function and increase protein accretion
- Optimize performance during high metabolic demands
- Increase feed efficiency and minimize production losses

The interactions among growth, immunity and stress are important to understand in order to achieve optimal nutritional management. Chromium supplementation primarily acts to improve insulin sensitivity and reduce the release of stress hormones – ultimately leading to a minimization of production losses in addition to improvements in overall health, growth and carcass merit. These improvements should ultimately contribute to lower veterinary/medical costs, lower discounts at the packer and a higher-quality beef product.



KemTRACE® Chromium – the first product of its kind on the market – is a water soluble, highly bioavailable, organic source of chromium. To learn more about the science behind **KemTRACE® Chromium**, and watch the mode of action in video format, visit kemin.com/chromium.

For additional cattle nutrition research or product information, please contact keminag@kemin.com.

References available upon request.



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RESEEDING PASTURES

INTRODUCTION

A productive pasture is contingent upon a good plan, careful management, and clear goals. Reseeding can be necessary to increase nutritional value, eradicate weeds, fill in bare spots, and improve the stand after disease problems or poor management. It is important to determine the reason behind the need for reseeding. For example, if perennial weeds caused a significant reduction in the stand, then the weeds must be controlled before reseeding. Similarly, if soil pH or nutrient status is low then these need to be corrected. Successful reseeding depends on several factors: field characteristics, soil fertility, time of seeding, plant species selection, animal species being grazed, and grazing management style. A plant's adaptation to the pasture depends on winter hardiness as well as soil type, drainage, fertility, and pH. If all of these factors are considered and managed accordingly, then your pasture forage can provide all nutritional requirements for your grazing animals. A healthy pasture means healthier animals with better nutrition and fewer diseases and parasites.

SITE SELECTION

The topography of the land, such as terraces or sloped and shallow areas and soil water holding capacity, greatly affects the success of seeding by limiting equipment access and the application of amendments. Soil characteristics often differ with the contour of the land, greatly affecting the growth habits of the plant species in the pasture.

SOIL FERTILITY

Soil should be tested to determine pH and fertility.

In pastures, the optimal pH range is 6.5-7.0. Add lime according to your soil test prior to seeding. Incorporation of lime is better for the reaction of lime in soil since time is needed for a significant change. It is recommended that lime be added 6 months to a year before the desired change in soil pH. Exploration of the soil for nutrients is confined mostly to the root zone in the surface one foot of soil depth. Certain nutrients (P and Ca) do not move much in soil and correction of these nutrients with fertilizer, manure and lime is best done before tillage.

CHOOSING THE BEST MIXTURE

The most productive and highest quality pastures are those that contain a mixture of grass species with one or more legume species. When selecting species for pasture, it is important to understand both grass and legume growths habits and match them to the soil characteristics and climate. Fields have differing soil types, thus planting the same mixture in each field is not advised.

The following factors will influence your choice in forage species:

- The type and age of livestock to be grazed
- The time of year desired for pasture availability
- The seasonal distribution of pasture growth
- Soil type, drainage, water holding capacity, fertility, and pH

Legumes- provide protein and compliment grasses improving the quality of the pasture. Legumes also add nitrogen to the soil nitrogen fixing bacteria making it indirectly available to grasses. Clover can add 90-140 lbs N/ac/yr, while alfalfa is capable of adding considerably more. In order for N fixation to occur, the legume seed must be inoculated with the correct bacteria, or it must be seeded into a previously inoculated field. Legumes may cause bloat in ruminants, so they should not be seeded alone for grazing.

Grasses- provide roughage for the animals, increasing their fiber intake. While adequate fiber is needed by grazing animals, if grasses are permitted to grow for long periods (especially during spring) they may become fibrous, resulting in reduced animal intake and growth. Grasses are either sod forming or bunch types. Sod forming and those that form many tillers compete better with weeds.

CLIMATE CONSIDERATIONS

There are two categories of forage species: cool season and warm season species. Cool season pasture species include, but are not limited to, tall fescue, orchardgrass, perennial ryegrass, Kentucky bluegrass, white clover, red clover, and alfalfa. Some cool season species, such as alfalfa, red clover and reed canarygrass are active in the summer, except on hot dry days.

METHODS OF PLANTING

Consider the erosion potential on every field. Different methods may be more appropriate for some fields than others.

Till- Sometimes referred to as conventional seeding, due to the specific tillage practices implemented such as plowing, disking, harrowing, etc. Tilling of soil allows for aeration, alleviation of compaction, elimination of existing vegetation and residues, incorporation of lime and fertilizer into the soil, and to provide a smooth surface for seeding and the occasional harvest. Take care not to destroy the soil structure by overworking the seedbed.

No-till- Helps to reduce soil erosion, conserve soil moisture, and reduces fuel and labor requirements. A specialized planter is required to assure good seed to soil. No-till performs best on sandy or silt loam soils. Planting in both directions in a grid can increase the stand density.

"Frost Seeding" can be utilized from February till late March. The alternate thawing and freezing of the soil with the addition of rain will help incorporate the seed into the soil. Red clover works well but grasses are not suited to frost seedlings.

SEEDING RATE

The rate at which you seed depends on the species being planted, method and time of planting, climate conditions, type and number of grazing animals and intent of reseeding. Check with your agronomist for specific recommendations.

TIME OF SEEDING

Seeding legume into an existing grass pasture

Late winter/early spring- is the best time to seed legumes into an existing stand of grass that is productive. Seeding should take place in mid March to mid April depending on soil conditions and method of planting. An early seeding will aid in the competition with weeds and grasses. No-till and frost seeding are options.

Seeding both legumes and grasses to eliminate existing species

Late summer/early fall- is considered the best time to seed if a blend of species will be planted. When seeding late in the summer, soil moisture tends to become an issue but weeds are less competitive. Time your seeding accordingly so that soil moisture is available.

MANAGEMENT DURING ESTABLISHMENT

A strong root system must be established prior to grazing. The root systems in perennial forages are where food reserves are stored. If the roots are not strong enough, then there are not enough reserves for the plant to survive winter. Therefore, animals should only be allowed to graze on well-established plants.

- Never graze new stands during wet periods, especially on tilled seedbeds.
- Test for root development by grasping a handful of desired plant material and tugging on it. If it is easily uprooted, then the root system is not sufficiently established and another cycle of mowing and regrowth should be allowed.
- Do not graze plants lower than 3-4 inches.
- Graze only when soil surface is firm and dry.
- Implement rotational or intensive grazing management practices for efficient use of pastures.
- After grazing, pastures should rest for a period of 24- 30 days.

WEED CONTROL

Controlling weeds in newly seeded pastures is one of the most important aspects of pasture establishment.

- Grow a companion crop such as oat to help prevent weed growth in spring.
- Increase seeding rate if weeds are expected.
- Apply broad spectrum herbicides prior to no-till seeding.
- Rotationally graze and mow or clip pastures if needed to remove seedheads and ungrazed excessive growth. Never let weeds go to seed.
- Mowing- is a good weed management practice because it helps develop hardy root systems, suppress weeds, promotes uniform grazing, and removes pasture plants of low palatability. Take care not to mow too early. If preformed too early, only the tops of the weeds will be eradicated, leaving the active buds, which will produce new growth. Mow pastures at a height of at least 3-4 inches.

CONCLUSION

Evaluate all pastures on a consistent basis to ensure proper management. Adopting practical and environmental management techniques will ensure productive and healthy pastures for a long time.

HOUSE AG CHAIR ANNOUNCES BILL TO SUPPORT SMALL CATTLE FARMERS

House Agriculture Chairman David Scott announced the intention to introduce a bill to help small family farmers and ranchers and address the national crisis in our nation's beef supply chain.

The bill creates a new program that strengthens the federal safety net and makes insurance products work better for small cattle farmers and ranchers, both in terms of coverage and accessibility.

The second pillar establishes a grant program at USDA to help small farmers and ranchers and producer-owned cooperatives to undertake innovative business initiatives.

By developing more direct-to-consumer and direct-to-institution markets, the legislation will give small farmers and ranchers more control over where they sell their cattle or meat products and provide them with opportunities to add value to their products and increase their profitability, according to Scott.

AUGUSTA COOPERATIVE FARM BUREAU, INC. UNVEILS NEW LOGO



Augusta Cooperative Farm Bureau, Inc. (Augusta Cooperative) embraces change while reaffirming its commitment to agriculture, business and community with the unveiling of a new logo. The logo debut marks the fourth revision of the Augusta Cooperative logo during the organization's 93-year history.

Created during a four-month strategic rebrand, the new logo is an evolution of previous logos while also incorporating growth elements. A blue and green color palette maintains the brand's heritage with fresh modern hues.

A unique logo graphic element tells the Augusta Cooperative story. In the center of the graphic, a blue "A" represents "Augusta." A green leaf growing up from the "A" conveys Augusta Cooperative's commitment to agricultural excellence while also illustrating its growth. Today, Augusta Cooperative manages four divisions including agronomic

services, feed production and sales, small engine services, and retail sales.

The outer lines of the logo's graphic depict an upward facing "C," representing "Cooperative" and the organization's commitment to local farmers, members, and the community in which it does business. As the "C" rises upward, it forms a shield around the "A" and the leaf, representing the bond that patrons form with Augusta Cooperative's knowledgeable staff. The shield further symbolizes protection, strength, stability, and as an icon of the past, it also symbolizes the nearly 100-year history of Augusta Cooperative.

"Our new logo signifies both Augusta Cooperative's rich history and our continued commitment to the agricultural and the rural communities we serve," explained Kevin McLaren, General Manager of Augusta Cooperative. "It pays tribute to our legacy, while looking to our future."

EVENTS / CALENDAR

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6 STRATEGIES FOR MINERAL SUPPLEMENTATION

Vitamins and minerals are a small portion of the beef diet, but they are important for normal cattle body function, which results in optimum health, growth and reproduction, says Patrick Davis, University of Missouri Extension regional livestock field specialist.

Davis offers six strategies to promote optimum cattle mineral and vitamin status, which will result in optimum cattle operation performance and profitability:

1. Check feed rations. “Test your cattle rations and develop a mineral and vitamin program to offset deficiencies,” Davis says. Consult your local beef livestock field specialists to discuss testing cattle rations, determining mineral and vitamin requirements for the cattle that you are feeding and how to offset ration deficiencies.

Sometimes ration incorporation of some grains and byproducts will result in an inadequate calcium-to-phosphorus ratio. In this case, Davis encourages dietary incorporation of calcium sources such as limestone or calcium carbonate to reach the ideal 2-to-1 ratio. This results in optimum animal absorption of the two minerals, which leads to the animal's needs being satisfied.

2. Incorporate salt. “Salt is a key component of any cattle mineral supplement and should be consumed daily,” Davis says. Salt consumption leads to proper function of the cattle nervous and muscular systems. In addition, salt helps regulate animal body pH and the amount of retained water.

Cattle with salt deficiency will experience a loss of appetite and inefficient weight gains. Davis urges cattle producers to provide free choice access of salt to cattle, which should promote optimum cattle appetite and performance and lead to optimum operation profitability.

3. Manage magnesium. “Cattle grazing early-spring lush forage growth need proper mineral supplementation to prevent grass tetany,” Davis says. Grass tetany results from a deficiency in magnesium, which is needed for proper enzyme and nervous system function, as well as carbohydrate metabolism. The combination of high potassium and low sodium in lush spring forage growth reduces absorption and utilization of magnesium.

In addition to magnesium deficiency, recent evidence implicates sodium deficiency in grass tetany problems. Davis urges cattle producers to provide proper salt and use high magnesium mineral supplementation (12% to 14% magnesium as magnesium oxide) free choice while grazing spring lush forage growth to reduce the incidence of cattle grass tetany.

4. Track trace minerals. “Meeting cattle trace mineral needs through supplementation will promote proper immune function, reproduction and growth,” Davis says. Supplemental trace minerals include cobalt, copper, iodine, iron, manganese, selenium and zinc.

These trace minerals affect various body activities in cattle, including vitamin synthesis, growth enzyme systems, energy metabolism, formation of hemoglobin, reproduction, fetal development, udder development, immune function, skin development and hoof health.

Davis urges cattle producers to provide cattle a proper trace mineral supplement free choice to meet nutritional needs for proper immune function, growth and reproduction, which will lead to optimum operation profitability.

5. Value vitamins. “Vitamins A, D and E may need to be added to mineral supplementation programs in certain situations to meet cattle needs,” Davis says. These vitamins help cattle by promoting healthy skin and mucous membrane development. In addition, these vitamins help cattle in bone development and dealing with stress.

Cattle needs for the vitamins are typically met through the diet if cattle are outside grazing green growing forage. However, Davis urges cattle producers to consider vitamins A, D, and E supplementation if cattle are grazing dormant forages, being fed hay or in a situation where sunlight is limited.

6. Provide unlimited access. “Free choice supplementation of minerals and vitamins is the best way to meet cattle nutrient needs,” Davis says. Cattle should consume approximately 4 ounces of a mineral and vitamin supplement daily. If they are consuming more than this, he recommends adding salt to promote optimum consumption.

In addition, Davis suggests visiting with a local feed dealer to identify the proper free choice mineral, trace mineral and vitamin supplementation program for the cattle that you are feeding.

For more information on cattle mineral supplementation for optimum cattle operation productivity and profitability, contact Shawna Bratton, Augusta Co-op beef livestock field specialist.



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