



University of Kentucky
UKnowledge

Forage News

Plant and Soil Sciences

4-2022

Forage News [2022-04]

Department of Plant and Soil Sciences, University of Kentucky

Follow this and additional works at: https://uknowledge.uky.edu/forage_news



Part of the [Plant Sciences Commons](#)

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Repository Citation

Department of Plant and Soil Sciences, University of Kentucky, "Forage News [2022-04]" (2022). *Forage News*. 295.

https://uknowledge.uky.edu/forage_news/295

This Newsletter is brought to you for free and open access by the Plant and Soil Sciences at UKnowledge. It has been accepted for inclusion in Forage News by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.



Forage News

Keeping Forage-Livestock Producers in Kentucky Informed

Dr. Ray Smith and Krista Lea, editors

April 2022

This issue of Forage News is sponsored by Growmark/FS Forage Seeds, now available at Southern States.



If you would like to receive this newsletter via email, please visit: <https://kyforagenews.com/sign-up/>

World Alfalfa Congress to be held in San Diego, California, USA 14-17 November 2022

Hay and silage farmers, scientists, and forage industry professionals from around the world will gather in San Diego, California this November for a four-day session to talk all things alfalfa. The purpose of the World Alfalfa Congress is to share knowledge, new research data, and industry trends this important crop.

Alfalfa is one of the most important forage crops in the world and the fourth most valuable field crop in the United States as of 2022. Alfalfa is a crucial part of the agricultural landscape, as it is grown on over 16 million acres in the US and is important in many other countries. World trade in alfalfa hay has increased in recent years, with a strong interest in Asia, Europe, North Africa, and the Middle East.

The Congress is co-sponsored by a wide range of organizations from around the world: National Alfalfa & Forage Alliance (NAFA-US), California Alfalfa & Forage Association (CAFA-US); UC Davis (US); USDA-ARS (US); China Grasslands Association (China); China Alfalfa Industry Association (China); INRAE (France); INTA (Argentina); CIDE (EU); China Agricultural University (Beijing); and AEFA (Spain).

Program topics include economic and ecological importance of alfalfa, genetics and breeding, agronomic practices, exports, soil fertility, weeds, pests and diseases, forage machinery, new uses, forage quality, equipment, irrigation, water, and environmental aspects. The Congress features a one-day training on pest management and irrigation for practitioners, as well as two days of technical presentations. The program also features a full day touring the Imperial Valley, an important alfalfa-growing area in Southern California. The tour will feature year-round alfalfa production, irrigation methods, research plots, hay and seed exports, environmental issues, winter vegetable production, and equipment displays.

For general information or to register, exhibit or to submit papers-<https://worldalfalfacongress.ucdavis.edu/>. Direct contacts: Beth Nelson (nafa@alfalfa.org) or Nicole Helms (Nicole@agamsi.com)

Pub of the Month: Kentucky Corn Silage Hybrid Performance Report, 2021.

Corn hybrids were evaluated for silage performance on cooperating farms. Representatives from numerous seed companies submitted their best silage hybrids for the trials. University of Kentucky staff planted the hybrid seeds. Farmers applied the soil amendments and pest management. UK staff also harvested and weighed the material for silage yield. All samples were ground and sent off for quality analysis. All yield and quality information is found in the final report which can be downloaded at: <http://www2.ca.uky.edu/agcomm/pubs/PR/PR797/PR797.pdf>

Does Lightning Help Grass Grow?

Some of you may have heard that a thunderstorm results in greener grass. That may or may not be exactly true since much of the green likely comes from water helping the plant grow. It is true though that a storm's electrical display contributes to plant nutrition and helps to some degree with the growth of grass. The connection might seem hard to grasp – what does a flash of lightning contribute to the health of grass? – but it's actually fairly straightforward, and an example of one of the planet's fundamental, life-sustaining physical cycles.

Nitrogen is an essential nutrient for plants and other organisms, being a fundamental part of nucleic acids, amino acids and proteins, not to mention the photosynthesizing plant pigment called chlorophyll. It's also the single most abundant gas in the Earth's atmosphere, accounting for about 78 percent of its composition. (Oxygen is the second-most abundant atmospheric gas, at about 20 percent.)

Despite that abundance, atmospheric nitrogen (N₂) isn't readily available to most lifeforms with the exception of blue-green algae, some free living soil bacteria and rhizobia bacteria in nodules of legume roots. All other organisms require nitrogen to be transformed, or "fixed," into more reactive compounds such as nitrates (NO₃) or ammonia (NH₃) before they can use it for biological growth and processes.

The process by which nitrogen is converted into a usable form is called nitrogen fixation. Rhizobia bacteria are by far the most significant source of biological nitrogen fixation. Atmospheric fixation is another way nitrogen gas can be transformed into nitrates and ammonia. Humans also artificially accomplish nitrogen fixation in the industrial production of fertilizers but nature does this for free through lightning.

Forage Timely Tips: April

- ✓ Graze winter annuals that were inter-seeded into thin pastures last fall.
- ✓ Graze cover crops using temporary fencing.
- ✓ As pasture growth begins, rotate through pastures quickly to keep up with the fast growth of spring.
- ✓ Creep-graze calves and lambs, allowing them access to highest-quality pasture.
- ✓ Finish re-seeding winter feeding sites where soil disturbance and sod damage occurred.
- ✓ As pasture growth exceeds the needs of the livestock, remove some fields from the rotation and allow growth to accumulate for hay or haylage.
- ✓ Determine need for supplemental warm season forages such as sudangrass or pearl millet.
- ✓ Flash graze pastures newly seeded with clovers to manage competition.

The tremendous heat released by a bolt of lightning – some 50,000 degrees Fahrenheit, roughly five times the temperature of the sun's surface – can split apart a nitrogen molecule to free up two nitrogen atoms. A liberated nitrogen atom can then bond with oxygen atoms to form nitrogen oxides that, dissolving into raindrops, become nitrates. The lightning-freed nitrogen may also bond with atmospheric hydrogen to form ammonia. These soluble nitrogen compounds then fall to the Earth in rainfall, providing a natural, lightning-produced fertilizer for grass and other plants.

When you consider that some 40 lightning bolts flash over the (mighty stormy) Earth every second, you get a sense for the significance of this atmospheric nitrogen fixation, even if it's overall less important than biological fixation. It's been estimated that lightning produces roughly 13,000 tons of nitrates each day around the globe. Now before you stop planting legumes or stop applying N fertilizer, remember that 13,000 tons spread around the globe every day equals only about 10 lbs/acre per year on your farm in Kentucky via lightning.

There's no question that lightning provides a source of nitrogen useful for growing grass. Heavy downpours from a thunderstorm may also simply wash dust off grass leaves, resulting in greener grass. ~ adapted from article by Ethan Shaw, Sciencing.com, Sept. 2021.

Monensin Promotes Growth, Lower Bloat Risk

Ionophores such as monensin have been a part of the beef production landscape for nearly 50 years. Their value as a performance enhancer in finishing cattle is well documented. Ionophores can also be used for grazing stocker cattle and mature cows to improve rumen fermentation characteristics and performance.

"Ionophores select against gram-positive bacteria and protozoa in the rumen," explains Kim Mullenix, an extension beef specialist with Auburn University. "When these bacteria are controlled, the rumen fermentation environment becomes more efficient because fewer waste products, such as methane, are produced." She continues, "This also creates a favorable environment for more desirable bacteria to grow, producing

fermentation products that enhance the overall energy status and feed efficiency of the animal."

Shane Gadberry, a beef nutrition extension specialist with the University of Arkansas, recently conducted a meta-analysis that summarized the performance of monensin in pastured stocker cattle on high-forage diets. "With an average initial body weight of 518 pounds, the average monensin response was estimated to be a 23.3-pound increase in average ending body weight with an average trial duration of 112-days," writes Gadberry in a recent issue of Arkansas' Beef Cattle Research Update.

In addition to performance, some studies also measured differences in bloat incidence. In total, these found that monensin reduced the number of bloat cases by 20 percentage units.

~Article by Mike Rankin in eHay Weekly. Go to hayandforage.com for free subscription to Hay & Forage Grower magazine and the weekly eHay Weekly email.

Red Clover as Natural Growth Promoter

Research started several years ago at the USDA-ARS lab in Lexington, KY has found natural plant compounds that will also increase gain-to-feed ratios in ruminants. Some of these compounds come from forage plants. The USDA group discovered an antimicrobial growth promoter in red clover. The compound, called biochanin A, belongs to a family of chemicals called isoflavones that are found in many legumes. Red clover has long been an important pasture legume and high-protein diet component, and the effects of biochanin A might explain the production benefits that go beyond protein content.

Biochanin A promotes the growth of cattle by modulating the activity of bacteria in the rumen, so that protein and amino acids are used more efficiently. In short, biochanin A is kinda like a natural monensin. The Lexington group continue to do research to determine how much red clover must be consumed to provide this extra growth promoter effect.

Remember, red clover is a highly nutritious, high protein legume like white clover and alfalfa. Therefore, unlike monensin which can reduce the potential for bloat, red clover grazed at a lush, vegetative stage increases the chance for bloat.

~Highlights of article by Michael Flythe, Glen Aiken, Brittany Harlow. USDA-ARS. The full article can be downloaded at <https://hayandforage.com/article-1231-a-ruminant-growth-promoter-you-can-grow.html>

Upcoming Events (see Forage website for details and to register, click on EVENTS)

TBA-Eastern and Western KY KFGC Forage Field days

Oct 3-6 Eastern Native Grass Symposium, Louisville

October—KY Grazing Conference

Nov 14-17—World Alfalfa Conference, San Diego, CA

May 14-19, 2023—International Grassland Congress, Covington, KY

Subscribe or access full articles at the UK Forage Website www.forages.ca.uky.edu. Go to the forage website to access the "KY Forages YouTube Channel" for recordings of recent KY forage conferences.