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ANIMAL SCIENCE E-NEWS

INSIDE:

DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Prairie restoration is not just for the looks

Dirk Philipp, Associate Professor-Forages

The term 'prairie restoration' has certainly a bit of a romantic connotation to it as many people equate it with some front-yard pollinator area. But this is just one benefit, and it is worthwhile understanding the ecological and ultimately economic benefits of native, complex plant communities that once covered enormous areas in North America.

A quick definition: the word 'prairie' simply means 'meadow' in French but encompasses the description of a host of grass-dominated ecosystems, ranging across a variety of soil types, climates, and hydrological regimes. Historically, there were several types of prairies present in Arkansas as well, but only very small areas remain in its original stage. One of the outstanding features is the genetic diversity of prairies, brought forth by hundreds of species. In prairies, grass plants dominate in terms of seasonal biomass, and while forb species vastly outnumber grass species by numbers, they contribute a much smaller part of the generated dry matter. When people establish pollinator plots, they are after all those flowering forbs that give the typical colorful appearance that attracts insects.

Native, species-rich plant communities are more resilient than non-native, less-complex ones, simply because chances are higher the former contain plants that can adapt to outlier climatic conditions such as prolonged periods of drought, heat, or cold and rain on the other side of the spectrum. These plant communities also offer more ecosystems services that will become economically more important in the future.

How do you restore a specific type of prairie? The good news is prairie plant species

Native tallgrass paddocks.

are very competitive in the long-term; the bad news is it takes patience and strategy to get them to that point. Select a marginal site on your land to experiment with for a couple of years. The effort is long term anyway so losses in production are minimized. 'Marginal' here actually means ecological valuable, as a low-fertility, challenging site is exactly what you need to succeed.

There are several agencies, among them NRCS and AGFC, that can help with different kinds of native plant establishment, so I encourage you to look into their programs. One of my goals here at the Department of Animal Science is to develop strategies to integrate current livestock production systems with restored prairie ecosystems as way to enhance climate resilience for ruminant production systems. Don't hesitate to get in touch with us to learn more about prairie restoration and the benefits it can offer to your farm. ■

FDA changes in beef cattle production – Summer 2023

Maggie Justice, PhD- Extension Beef Cattle Specialist
Jeremy Powell, DVM, PhD- Professor Dept. Animal Sciences

Changes have occurred this summer that will impact common products we purchase for our beef cattle herds. The first major change in regard to **over-the-counter (OTC)** antibiotics was issued by the US Food and Drug Administration (FDA) in an effort to combat antimicrobial resistance. On June 11th, 2023, the FDA's directive, Guidance for the Industry #263 went into effect. This directive states that OTC antibiotics used in livestock production will no longer be available without a prescription from a licensed veterinarian. With this change, livestock producers will be legally required to obtain a prescription for antibiotics from a licensed veterinarian in which the producer has an established veterinary-client-patient relationship (VCPR).

Under a VCPR a veterinarian has assumed the responsibility for making clinical judgements regarding the health of the animals on a farm/ranch, and the client has agreed to follow the veterinarian's instructions. This also means that the veterinarian knows the client and is familiar with the farm/ranch and its common herd health practices. With the VCPR, this relationship ensures that animals are properly identified, and withdrawal times will be followed to ensure no illegal drug residues might occur.

Products that are affected by this change include but are not limited to penicillin, oxytetracycline, sulfa antibiotics, tylosin and lincomycin. Products that are unaffected by this change include ionophores, vaccines, antiparaciticides, oral probiotics and prebiotics, topical nonantibiotic treatments and others. These products will continue to be available through the standard over-the-counter marketing channels.

Another change in beef cattle production in affect this summer comes from the usage of implants. The FDA has stated that after June 2023, only implants that are expressly labeled for **reimplantation** will be able to be placed in cattle more than once per production phase. The FDA defines the production phases as: 1) Beef calves- pre-ruminating and nursing their dams from birth until 2 months of age, and calves ruminating and nursing their dams from 2 months of age to weaning 2) Growing beef steers and heifers on pasture (stocker, feeder, and slaughter) 3) Growing beef cattle in a dry lot and 4) Growing beef cattle fed in confinement for slaughter.

Cattle are still allowed to be implanted and reimplanted across the different production phases. But with this change, producers should reimplant cattle only with implants that are **explicitly** labeled for reimplantation in that phase. There are implants approved for all of the production phases, but it is important to note the label addressing reimplantation before making decisions on which product to use. As labels on products are being updated it is important to carefully read all labels. If the label does not state how reimplantation of the product may be accomplished, then only use it once during that phase.

For more information on these products and changes, check the labels or contact your veterinarian or county Extension agent. ■

Record keeping- a tool not a headache

Maggie Justice, PhD- Extension Beef Cattle Specialist- Assistant Professor

How many times do we find ourselves in the pasture thinking, "I'll remember that…" but then inevitably forget it when it comes time to make herd decisions? No matter the size of your operation, record keeping is an important part of raising cattle. Records play a huge role in measuring production practices for better overall management. Whether you prefer handwriting your data or using record keeping software, there are several different approaches that can be taken. The system chosen should be practical to your operation and work to help maintain and increase efficiency and profitability in the herd. There are several different types of records that can be kept and usually center around health, reproduction, and performance. Ultimately the types of records you choose to keep should center around the goals and priorities you have for your herd.

Successful record keeping starts with proper cattle identification whether that be with permanent identification markers such as tattoos or non-permanent identifiers such as ear tags. Individual animal identification is an important aspect of keeping health records related to drug treatments and specific health issues. These types of records are especially important to ensure drug withdrawal periods are followed correctly. Record keeping surrounding reproduction allows you to track the fertility and general productivity of your cows. Keeping track of dates such as the date the bull was put in or removed can help to better track your calving season. Records such as birth and weaning weights allow you to better evaluate calf and cow performance through calf gains.

If you are just getting started it may seem overwhelming to manage records, but rest assured that the process does not need to be complicated. Start out slowly and take small steps towards beginning or improving your records. Don't bite off more than you can chew, begin with record dates for this year's calving season or breeding dates and expand from there. Record keeping is a vital tool that helps us make more informed production management decisions about our herd. Make sure to keep your records relevant to your operation's goals and never lose sight of the fact that record keeping is a tool to help your operation, not create new headaches.

If you don't have a system for record keeping or are interested in ways to improve your current system reach out to your local county extension agent or visit: https://www.uaex.uada.edu/farm-ranch/animals-forages/beef-cattle/cattle-record-keeping.aspx. ■

Should you plant winter annual forages in dry weather?

Kenny Simon, Instructor – Forages

Cattle grazing winter wheat. Photo credit: Brad Beckmen, University of Kentucky agricultural communications specialist

Fall drought creates a more worrisome problem for forage management than does a summer drought. Summer drought primarily affects the summer season, leaving time for forages to rebound in fall and potentially winter if winter annual forages are grown. In contrast, a dry fall season affects three seasons – fall, winter, and spring. Last fall season was obviously affected due to poor fall forage growth. That in turn leads to overgrazing which weakens forages going into winter, creating more weed problems and slow forage emergence in spring. A dry fall also leads to earlier hay feeding which puts pressure on the system due to stretching the hay supply over a longer period with no relief from fall pasture growth. And further, a dry fall deters many producers from planting winter annuals that have the potential to provide late winter and early spring grazing that would offset shortfalls in the hay supply.

The time periods for initiating stockpiled bermudagrass or stockpiled fescue have passed. If started earlier, those forage options still have time to finish growth accumulation. The time period for late-summer planting of winter annuals and brassicas for fall grazing has also passed. Brassicas planted after September 15 rarely produce any significant forage for fall grazing. However, planting winter annuals such as wheat, cereal rye, and ryegrass are still viable options for late winter and early spring grazing. The current dry fall weather is creating serious doubt among producers of the viability of this option.

The main question being asked is "should I plant now during this dry weather (mid September) or wait for rain?" Borrowing from experience, winter annuals planted in October have a very high chance of good establishment. At the Southwest Research and Extension Center in Hope, (SWREC), the mindset is that if dry conditions persisted into mid-October, go ahead and plant in the dust. Any rain that is received at that time is more effective due to cooler temperatures and lower evaporation, thereby increasing odds of good establishment. However, waiting until rain occurs before planting can have negative effects. We have seen years in which producers delayed planting until receiving rain, then suddenly a rainy pattern developed that prevented planting at all.

Research conducted at the SWREC in 2017 has shown that forage growth of winter annuals planted in early October outyielded the same forages planted in mid-November. Forages planted were Elbon rye, AGS 2027 winter wheat, Genuine Marshall Ryegrass, Nelson Ryegrass, and Coker 227 winter oat. The October planted forages produced more growth in the winter and the spring growth was harvested 4 weeks sooner compared to the November planting March 27 and April 27, respectively.

September and October are the preferred months to plant winter annuals for late winter or spring grazing. The potential for fall grazing is diminishing for every day of delay in fall rainfall. At this time of year, the main forages to consider are wheat, cereal rye, and ryegrass. It's too late for brassicas and spring oats. Winter oats "may" be an option, but due to concerns over possible winterkill of cold-sensitive varieties, it would be advisable to plant winter oat in a mix with annual ryegrass or wheat to reduce winter injury risk.

To summarize, if winter annual forages are part of a forage plan, have everything ready to plant by mid-October or just before a decent rain forecast. Don't delay too long because terribly dry field conditions can quickly become too wet to plant. If that doesn't sound feasible, just remember last summer. Fields were drying up in June and July, then suddenly in August, many producers had problems trying to bale hay due to rain. **Remember to always plan at least one season ahead and stick with the plan.** ■

Effects of fertilizer type on performance of beef cattle grazing summer annual pastures in southern Arkansas

Daniel Rivera, Cody Shelton, Cyle Jones, Grayson Gourley, Brayden Bennett, Bronc Finch, Michelle Johnson and Cody Gruber

A summer 2023 project was undertaken at the Southwest R&E Center in Hope to examine two things: the feasibility of growing summer annual forages for grazing in south Arkansas, and the use of three types of fertilizers on those pastures. Twenty-four pastures 2 acre in size were used to evaluate the effects of fertilizer type on grazing cattle performance. Pastures were sprayed with glyphosate, and then planted with a no-till drill with pearl millet at the rate of 25 lb/acre. Due to weather constraints, 12 pastures were planted initially (Block 1) with the second group planted later (Block 2). Grazing management was designed to allow the cattle to graze Block 1, then rotate them to Block 2. Based upon our plan, that would equate to 70 days or so of grazing. Treatments were nitrogen from ammonium nitrate at 25 lb/acre, urea at 18.5 lb/acre, or a liquid fertilizer at 3 gallons per acre. Each treatment was designed to deliver the same amount of N per acre.

One thing that was observed, which we think might have been an effect of the weather conditions, was an abnormal abundance of crab grass that began to grow and compete with the pearl millet. Crabgrass is a summer annual forage as well, and it began to thrive under these conditions alongside the pearl millet. At the start of grazing, pastures were equally composed of pearl millet and crab grass. Eighty head of crossbred beef steers were assigned to 12 pastures in Block 1. Forage biomass readings were taken with a rising plate reader and the stocking rate was equalized across all pastures based on animal weight and forage biomass, so some pastures had 6 head while others had 7. It was determined that when forages were declining in quality and quantity in Block 1, cattle would be moved. Cattle were allowed to graze for 34 days at which time they were rotated to Block 2. When they were moved off Block 1, cattle were weighed and performance for Block 1 was determined. Cattle were kept on their respective fertilizer treatments and moved to Block 2 following weighing. Due to excessively hot weather, lack of rainfall and rapidly deteriorating forage conditions, the decision was made to remove the cattle from the second block and terminate the study after 16 days.

Data were examined separately for Block 1 (34 days), Block 2 (16 days) and overall (50 days). Results indicated that there was no effect of fertilizer type on initial forage biomass at any time, however, there was a significant effect on residual biomass following grazing in Block 1. Pastures fertilized with liquid fertilizer had greater biomass than the other two treatments following grazing, meaning that the pastures fertilized with liquid had enough excess forage to possibly result in more grazing days. No differences were noted at all in Block 2. Total gain per pasture was not influenced by fertilizer type from day 0-34 and from day 0 to 50. Average daily gain during the first 34 days was 2.06-2.23 lb/day with the cost of gain during the first 34 days being $1.15/ lb. The latter part of the grazing in Block 1 was excessively hot and dry, and those conditions continued through the Block 2. It should be noted that animals lost weight (approximately -1/2 lb a day) during those last 16 days in Block 2. Again, we speculate that the excessive heat, dry weather, and deteriorating pasture conditions played a role in that weight loss. When the last weight was factored in, overall average daily gain during the whole 50-day period was 1.26 lb/day, which increased our cost of gain to about $1.30/lb.

In conclusion, based upon this limited study fertilizer type had no effect on most indices of performance, apart from residual biomass following grazing in Block 1. Additionally, while the initial grazing data looked promising, with the challenges faced establishing and maintaining warm season annual pastures, more work is warranted to determine if it makes economic sense to use these forages for grazing stocker cattle in south Arkansas. Further work is warranted to determine if these effects are consistent across multiple years. ■