MADISON COUNTY AGRICULTURE NEWSLETTER

PLOWING AHEAD

AGRICULTURE & NATURAL RESOURCES

March 2024

Martin-Gatton College of Agriculture, Food and Environment

Cooperative Extension Service
Madison County
230 Duncannon Lane
Richmond, KY 40475
(859) 623-4072
Fax: (859) 624-9510
http://extension.ca.uky.edu

COW-CALF PROFITABILITY CONFERENCE

Cow-Calf Profitability Conferences are one day, intensive seminars focusing on key topics for beef producers. Conferences are funded by the Kentucky Agricultural Development Fund through the Kentucky Beef Network and delivered by UK Agricultural Economics' Kenny Burdine, Greg Halich and Jonathan Shepherd.

Thursday,
March 14, 2024

9:00 am – 4:00 pm

Madison County
Extension Office
230 Duncannon Lane
Richmond, KY 40475

See next page for conference agenda.

Topics

- Key Profit Drivers
- Managing Hay Production Costs
- Breeding Stock Depreciation
- Reducing Fertilizer Use
- Keys to Cow Herd Management
- Tax Management Strategies
- Bale Grazing & Stocking Rates

Call
859-623-4072
to RSVP

Doors open at
8:00 AM

Sponsored Lunch
provided by
AG CREDIT

Martin-Gatton College of Agriculture, Food and Environment
University of Kentucky.

KBN KENTUCKY BEEF NETWORK

KADF KENTUCKY AGRICULTURAL DEVELOPMENT FUND

Cow-Calf Profitability Conference Agenda

Managing Cow-calf Operations for Profit

(times are approximate)

9:00 Key Profit Drivers for Cow-calf Operations
-Jonathan Shepherd, Greg Halich, and Kenny Burdine

9:30 Managing Overhead Costs on the Cow-calf Operation: Focus on hay production.
-Greg Halich

10:15 Break

10:30 Hay Production Costs on Their Impact on Cow-calf Profitability
-Jonathan Shepherd and Greg Halich

11:15 Understand Breeding Stock Depreciation: How much is too much for a bred heifer?
-Kenny Burdine

11:45 Lunch

12:30 Strategies to Reduce Fertilizer Use on Cattle Farms

-Greg Halich

1:30 Keys to Cowherd Management: Weaning rate, culling strategies, lot size, and cow size
-Kenny Burdine

2:15 Break

2:30 Tax Management Tools, Strategies, and Issues
-Jonathan Shepherd

3:15 Bale Grazing, Profitable Stocking Rates, and the Consequences of Overstocking
-Greg Halich

4:00 Evaluation and Adjournment

Benefits of Proper Soil pH

Soil type and texture vary with each having various proportions of sand, silt, and clay particles. There are several factors that influence the ability of soil to supply nutrients. This is where determining soil pH becomes important. Adjustments are not always needed but this is something we should not guess about. Soil testing is required.

Soil pH that measures outside of a certain range creates a situation where otherwise plant available nutrients are bound to soil particles and are unavailable. When plants cannot take up nutrients, even if they exist in the soil profile, growth suffers. When soil pH is properly adjusted, these previously unavailable nutrients are released into the soil solution and become available for plant root uptake and growth. In some instances, by adjusting pH, we essentially fertilize our crop without adding fertilizer by making what is already in the soil available to plants.

Occasionally soil pH needs to be lowered to make nutrients available but by far, when pH needs adjusting an increase is required. In general the best and most cost efficient way to increase soil pH is to apply agricultural limestone. This can be done by broadcasting either with or without tillage. In No-tillage situations lime is surface applied. Rainfall and freeze/thaw cycles help incorporate it in the soil. Certain applications require lime to be incorporated into the soil with tillage. Since soil pH adjustments may take 6 months to 1 year, tillage is a good way to speed that process up by providing lime more surface area interaction with the soil. Ideally soil pH will be within the proper range prior to planting. In other words, be sure to plan ahead! If soil tests determine the need, soil pH adjustment is the most cost-effective way to release plant nutrients in the soil.

It's important to know that not all agricultural limestone is created equal. The ability of lime to increase soil pH depends on purity and fineness of grind. Be aware that lower quality lime will be required in greater amounts than high quality lime to provide the same acid neutralizing effect. Soil samples analyzed by the University of Kentucky, if needed, will recommend differing amounts of lime per acre based on the source. Typically the two or three closest quarries to your location are listed. Use this address to find current and historical Ag Lime test results from across the state: https://www.rs.uky.edu/soil/technical_info/

Madison County Beekeepers Association

Madison County Beekeepers Association next meeting is planned for March 25, 6:00 pm, Madison County Extension Office. For more info, call Kent, 859-623-3576 or Paul, 859-582-6172.

Plate It Up! Kentucky Proud!

Whatever the season, Plate It Up with delicious recipes that put a new twist on your favorite Kentucky Proud foods. Visit http://fcs-hes.ca.uky.edu/piukp-recipes to find all the Plate It Up recipes using Kentucky Proud products.

Cook Wild Kentucky

Fireside Turtle Pocket

Fireside Turtle Pocket

- *4 large turtle legs, about 2 1/2 pounds*
- *2 tablespoons dried minced onion*
- *1 teaspoon black pepper*
- *Water to cover*
- *4 tablespoons butter*
- *4 large potatoes, peeled and diced*
- *4 carrots, peeled and cut into 1-inch lengths*
- *1 onion, chopped*
- *3/4 teaspoon salt*
- *1 teaspoon black pepper*
- *1 teaspoon garlic powder*

Place turtle legs, dried onion, and black pepper in a slow cooker. Add enough water to cover. Cook on high for 1 hour, reduce heat to low, and cook an additional 8 hours until meat is tender and falls off the bones.

Pick out the meat and discard the bones and cartilage. Place a long sheet of heavy-duty foil on a large cookie sheet. The ends of the foil will hang off the pan. Slice butter into pats onto the foil. Place potatoes, carrots, and onion in center of foil. Place turtle meat on top of vegetables, and sprinkle with salt, pepper and garlic powder. Bring ends of foil to center and fold to seal in juices. Bake at 450 degrees F for 40 minutes or until potatoes are tender.

Yield: 6 servings

Adapted from: Clinton Hardy's Sorgho Creek Turtle recipe.

Nutrition Facts

6 servings per recipe

Serving size 12 ounces (475g)

Amount per serving	
Calories	**360**
	% Daily Value*
Total Fat 2g	**3%**
Saturated Fat 0.5g	**3%**
Trans Fat 0g	
Cholesterol 95mg	**32%**
Sodium 490mg	**21%**
Total Carbohydrate 42g	**15%**
Dietary Fiber 7g	**25%**
Total Sugars 7g	
Includes 0g Added Sugars	**0%**
Protein 42g	
Vitamin D 0mcg	0%
Calcium 282mg	20%
Iron 4mg	20%
Potassium 1508mg	30%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Find this Cook Wild Kentucky recipe and others for Fish, Venison, Rabbit, Dove, Frog Legs, and more at: https://www.planeatmove.com/recipes/, then Browse by Category, and choose Cook Wild Kentucky.

Pasture and Hayfield Soil Fertility

Legumes fix nitrogen in the air to a plant available form. The importance of legumes in grasslands has long been recognized. They bring nitrogen into grassland ecosystems via symbiotic nitrogen fixation, improve forage quality and animal performance, and dilute the toxic effects of the endophyte found in tall fescue. It is estimated that commonly used pasture legumes will fix between 50 and 250 lb of nitrogen per acre per year.

Legumes share nitrogen with grass indirectly. Nitrogen is transferred to grass grown in association with legumes through the ingestion of legumes and subsequent deposition of dung and urine by grazing animals, death and decomposition of above and below ground plant parts including roots, shoots, and nodules, and to a lesser extent direct legume to grass transfer.

Overseeding legumes is not the same as applying commercial nitrogen fertilizer. Mixed stands of grasses and legumes may yield as much or more than grass monocultures fertilized with moderate rates of nitrogen, but a significant proportion of that yield will be made up of the legumes. In other words, legumes not only increase grass growth by supplying nitrogen, but also compensate for lower grass production in mixed stands.

Applying nitrogen fertilizer to mixed stands shifts botanical composition. The addition of nitrogen fertilizer to grass-legumes mixtures tends to shift the composition of the mixture toward grasses. Nitrogen fertilizer also reduces nitrogen fixation in the legumes since energetics favor uptake of nitrogen in the soil rather than biological fixation.

Improved legumes require good soil fertility to be productive and persistent. Improved legumes such as red and white clover and alfalfa require relatively high soil fertility and pH's above 6.0 to be productive. This means an initial investment in potash, phosphorus, and lime must be made. Base these applications on a recent soil test.

Legumes are most productive when rotationally stocked. Like other forages legumes respond well to improved grazing management. Resting pastures allows leaf area to regrow and carbohydrate reserves to be stored up. In general, tall growing legumes like alfalfa and red clover are more dependent on stored energy for regrowth. This means that they need time to rest and replenish their stored carbohydrates between grazing events. That is the reason that alfalfa does not persist well in continuous grazing systems. Even white clover that tolerates close grazing very well benefits from rest.

Rotational stocking is a tool to manage botanical composition. How we graze our pastures has a profound impact on botanical composition. In grasses, energy for regrowth is dependent on leaf area remaining after grazing. The remaining leaf area is like a solar panel that captures sunlight and converts it into energy (sugars and carbohydrates) that the plant can use to fuel regrowth. The more leaf area we leave, the larger the solar panel, the faster pastures will regrow, and the more competitive the grass will be over the tall growing legumes. If we graze closely with a rest period between grazings, we will tend to favor tall growing legumes in the sward since they are more dependent on stored carbohydrates for regrowth.

Control Efforts for Poison Hemlock and Buttercups Begin in Late Winter

Late winter is a good time to assess fields and fencerows for presence of cool-season weeds. The time to implement control tactics can often be in March as daytime air temperatures begin to rise and are maintained above 55F. Cool-season weeds are younger and begin active vegetative growth before initiating flowers later in the spring. Winter annual and biennial weeds germinate from seed in fall and produce flowers during the spring.

Poison hemlock is easily recognized throughout the winter and early spring. Classified as a biennial, it often grows as a winter annual in Kentucky, particularly plants that germinate during the previous fall. Poison hemlock plants form rosettes that remain green throughout the winter in a somewhat semi-dormant stage (Figure 1, next page). These young rosettes are often found in areas where poison hemlock was present the previous year, particularly along fence rows and other isolated areas. Younger plants can be identified by their fern-like leaves with leaf petioles that have purple spotting and no hairs. After resuming active growth in late winter, they form larger rosettes. Later flower stalks elongate during the spring producing clusters of white flowers in June. Mature plants can grow up to 6 to 9 feet tall (Figure 2, next page).

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Control Efforts for Poison Hemlock and Buttercups Begin in Late Winter *(Continued from previous page)*

Figure 1. Poison Hemlock Rosette

Figure 2. Mature Poison Hemlock

The best time for control using herbicides is generally when plants are in the younger rosette stages of growth in late February and early March. Herbicide products containing 2,4-D, dicamba+2,4-D (eg. Weedmaster, Brash, Rifle-D, etc.), and aminopyralid (i.e. GrazonNext, DuraCor) are the preferred choices for obtaining effective control. Effectiveness of chemical control can decrease as plants begin to elongate and become more mature. Poison hemlock plants can be toxic to animals; therefore, when using herbicidal control methods on larger plants it is important to remove animals from treated areas. Animals are more likely to graze poison hemlock plants following herbicide treatment than before. On mature plants mechanical methods such as mowing can be an alternative control method if infested areas are accessible. Mowing and other mechanical control efforts should be done after flower stalks elongate but before plants begin to flower.

Figure 3. Buttercups

Another common weed we observe during the spring in grazed pasture fields are the buttercups (Figure 3.) Various species of buttercup (*Ranunculus* spp.) are likely to be found in Kentucky. These include Bulbous, Creeping, Hispid, Tall, and Smallflower buttercup. Although their leaf shape, flowers, and other characteristics may vary, many buttercup plants can be noticed by their yellow flowers, commonly with five waxy-like petals. Like other winter annual weeds, buttercup often emerge in the fall, but they can also germinate in late winter and early spring. The peak of the flowering period usually occurs in April, but may persist into May. When flowers are observed, new seed may already be in development on the flower stalks.

Buttercup is more frequently found in fields or field areas that are utilized or heavily grazed in the fall and winter months. This results in thin, bare areas throughout the field creating an environment whereby buttercup seed can readily germinate and seedling plants can thrive. Therefore, one long-term control strategy involves utilizing management practices which help promote growth of desirable forage species and minimize bare areas. Interseeding more desirable forage species may be another practice to consider. This is not always practical in some fields that are essential for winter feeding.

In the short-term, herbicide treatment in early spring is an option. Herbicide products that contain 2,4-D, or other broadleaf type pasture herbicides are generally effective on most buttercup species. To be most effective, herbicide treatment should be completed when plants are in the vegetative stages of growth before flowers develop and produce new seed. Hence, herbicide applications should normally occur by late March. Treatments after flowering offer little benefit since buttercup plants are already producing new seed and plants die back naturally by late spring and will not be present the remainder of the year.

If you do see developing cool-season weed problems as we transition from late winter into early spring you may need to take action soon to begin to correct these problems. In general, herbicide products that contain 2,4-D are usually effective on younger rosettes of poison hemlock, biennial thistles, and buttercups. Another course of action in the spring is a “wait and see” approach before implementing a control tactic. Yet, keep in mind that smaller weeds are easier to control using herbicide treatments than after they increase in size and become more mature.

(Source: Dr. J.D. Green, UK Extension Weed Specialist.)

Managing Mud: Strategies for Reclaiming Disturbed Areas

Dr. Chris Teutsch, UK Research and Education Center at Princeton

Hoof damage from livestock during the winter months can result in almost complete disturbance of desired vegetation and soil structure in and around heavy use areas. Even well-designed hay feeding pads will have significant damage at the edges where animals enter and leave. Highly disturbed areas create perfect growing conditions for summer annual weeds like spiny pigweed and cocklebur. Weed growth is stimulated by lack of competition from a healthy and vigorous sod and the high fertility from the concentrated area of dung, urine, and rotting hay. The objective of this article is to describe two approaches to revegetating these areas.

Figure 1. Excessive rainfall and high livestock concentration in and around hay feeding areas can result in almost complete disturbance.

Regardless of the reclamation strategy that is employed, it is important to create an environment that will allow seeds to germinate quickly and uniformly, resulting in rapid canopy closure. This will help to inhibit weed seeds from germinating. Creating this environment starts with making sure that soil fertility is in the medium to high range, soil pH is 6.0 to 6.4, and preparing a fine, but firm, seedbed.

Plant cool-season grasses and legumes.
The first strategy is to seed cool-season grasses or a mixture of grasses and legumes in the spring. While this is commonly done, results are usually less than spectacular in most years. Seedings are normally delayed until late spring or early summer. Consequently, seedlings do not have time before the hot summer months set in. The second reason is that summer annual weed pressure is usually very high. Summer annuals weeds like foxtail, goosegrass, spiny pigweed, cocklebur, and others actively compete with cool-season seedlings for light and water, often causing stand failures.

If a spring planting of cool-season grasses and legumes is attempted, there are several things that can be done to enhance, but by no means guarantee, success. These are listed below.

- ***Plant adapted forage species.*** Plant forages that are well adapted to Kentucky and the soils and drainage found on your farm. Tall fescue, red clover, and ladino clover are, by far, the best adapted and most versatile forage species for pastures in the Commonwealth. If this area is disturbed again, then investment in novel endophyte tall fescue varieties is not recommended. Information on the best adapted varieties for Kentucky can be found on the University of Kentucky Forages webpage.
- ***Consider leaving legumes out of the mix*.** While legumes are an important part of grassland ecosystems, herbicide options for controlling weeds in grass-legume mixtures are limited. Leaving legumes out will allow you to apply selective herbicides to control broadleaf summer annual weeds.
- ***Use the high end of the recommended seeding rate*.** Seeding rates are normally given as a range (Table 1). For spring seedings, make sure and use the high end of this range. Rapid canopy closure is critical to suppressing summer annual weeds.

Table 1. Seeding rates for perennial cool-season forage species planted ALONE or in a MIXTURE.

Species	Seeding Rate (lb/A)	
	Alone	In a Mixture
Tall fescue	20-25	10-15
Orchardgrass	15-20	6-8
Perennial Ryegrass	20-25	10
Kentucky Bluegrass	NR†	4-6
Red clover††	NR	6-8
White clover††	NR	1-2

†NR, not recommended
††Do NOT include red and white clover if herbicides will be used to control broadleaf weeds.

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- ***Plant as early as possible.*** Spring seeded cool-season forages should be planted starting in early to mid-March. Early plantings will have more time to emerge and form a canopy that can shade summer annuals weeds. Early planted grass seedlings will also have additional time to develop a root system that can sustain the new planting during the summer months.
- ***Plant in two directions.*** If drilling, cut seeding rates in half and plant in two directions. This will aid in obtaining quicker canopy closure, helping to reduce the germination of weed seeds.
- ***Use a shallow seeding depth.*** Small seeded cool-season forages should not be planted deeper than ½ inch. Make sure to check and recheck your seeding depth. Seeding deeper than ½ inch will delay emergence, result in uneven stands, and in many cases cause complete stand failure.
- ***Control broadleaf weeds in cool-season grasses.*** Once seedlings have four collared leaves, some herbicides can be applied. Always consult and follow label directions.
- ***Clip or flash graze new stands.*** Summer annual weeds compete very aggressively for light, water, and nutrients with cool-season grass seedlings. If not controlled, plantings will likely fail. The most effective control of competition is to flash graze paddocks before weeds get well established. Flash grazing is accomplished by placing a large number of animals in small areas for a short period of time. This reduces selective grazing and increases grazing uniformity.

Plant warm-season annual grasses

The second strategy involves planting a summer annual grass in late spring or early summer. This strategy has a much higher probability of success than planting cool season grasses in late spring. Summer annual grasses, especially sorghum-sudangrass or sudangrass, have very rapid emergence and canopy closure. This will prevent summer annuals weeds from germinating and provide forage for grazing or harvesting during the summer months (Figure 2). Perennial cool-season grasses can then be reseeded under more ideal conditions in late summer or early fall.

The following tips will help to enhance your chances of success when using warm season annual grasses.

- ***Plant adapted summer annuals species.*** Always plant forages that are well adapted to Kentucky and the soils and conditions on your farm. Summer annuals that can be used to reclaim hay feeding areas include sudangrass, sorghum-sudangrass, pearl millet, and crabgrass. A description of these species can be found in AGR-229, Warm Season Annual Grasses in Kentucky.
- ***Use the high end of the seeding rate.*** Seeding rates are normally given as a range. (Table 2). Make sure and use the high end of this range. Even with summer annuals, rapid canopy closure is critical for reducing unwanted weed competition.
- ***Plant after soil warms.*** For summer annual grasses to germinate and rapidly emerge, soil temperatures at planting should be at least 60 degrees F. This should allow plenty of time to let hay feeding areas dry out and to get them smoothed up prior to planting. If there is a delay in planting the summer annuals after final tillage, it may be a good idea to do one more pass of light tillage to disturb any weed seedlings that may have germinated.

Table 2. Seeding rates for commonly planted summer annual grasses in Kentucky†.

Species	Seeding Rate (lb/A)
Sorghum-sudangrass	30-40
Sudangrass	15-20
Pearl millet	15-20
Crabgrass	4-6

†A small amount of crabgrass, 2-3 lb/A, can be seeded with the taller growing summer annual species to fill in thin spots in the stand that may develop

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- ***Control broadleaf weeds.*** Once warm-season annual grasses are established, some herbicides can be applied to control summer annual broadleaf weeds. If cool-season perennials are to follow in the fall, make sure and check the label for reseeding restrictions prior to application. Always consult and follow label directions.
- ***Grazing summer annual grasses.*** Allow taller growing summer annuals like sorghum-sudangrass and pearl millet to reach a height of 18-24 inches before grazing and stop grazing at 8-10 inches. Regrowth can be stimulated be applying 40-60 lb N/A after each grazing but the last. Crabgrass can be grazed once it reaches a height of 6 to 8 inches. Cattle should be pulled off once it has been grazed to a height of 3 to 4 inches. Detailed management recommendations on for individual summer annual species can be found in AGR-229, Warm Season Annual Grasses in Kentucky.
- ***Haying summer annual grasses.*** Allow taller growing summer annuals to reach a height of 30 to 40 inches before mowing. This will optimize yield and forage quality. If regrowth is desired, do not mow closer than 6 inches. Apply 40 to 60 lb N/A after each cutting, but the last. Crabgrass should be cut for hay at the late boot -stage. Care should be taken to not mow crabgrass closer than 3 to 4 inches. With the taller, thicker stemmed species, a crimping mower-conditioner will help the crop dry to safe baling moistures, although this may take some time. Ideally, summer annuals should be conserved as chopped silage or baleage.
- ***Reseeding cool-season grasses in the fall.*** Pastures with summer annuals should be sprayed with a non-selective herbicide in late summer to control any remaining summer annual grass and any weeds that have germinated. Use a no-till drill to plant cool-season grasses into the killed pasture area. More information on forage establishment can be found in AGR- 64: Establishing Forage Crops.

Figure 2. Sorghum-sudangrass (left) formed a quick canopy that was able to shade out summer annual weeds compared with forage (right).

Soil Testing Is Free! Madison County Cooperative Extension Service continues to offer free soil testing year round. We need at least two cups of dry soil to run a test. If you have question on how to collect your samples, call 859-623-4072. Agricultural and horticultural samples **from Madison County residents** will be accepted. **There is a 10 sample limit per farm or home per calendar year!**
(Please note: Commercial lawn care companies submitting samples do not qualify for free soil testing; call 859-623-4072 for pricing.) We would like to thank our sponsors:

- **Madison County Extension District Board**
- **Madison County Conservation District**

Save the Date!

Saturday April 13th
Livestock Predator Trapping and Control Workshop
Madison County Extension Office
More information coming in the April newsletter.

Brandon Sears
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