MADISON COUNTY AGRICULTURE NEWSLETTER

PLOWING AHEAD

AGRICULTURE & NATURAL RESOURCES

February 2025

Martin-Gatton College of Agriculture, Food and Environment

Cooperative Extension Service
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WINTER MEETINGS AT THE MADISON COUNTY EXTENSION OFFICE

Join us for the following Winter Meetings at the Madison County Extension Office, 230 Duncannon Lane, Richmond, KY. **Call 859-623-4072 to register.**
(if weather is bad, these meetings may be cancelled.)

Each of these meetings qualify for the CAIP Educational Credit

Pasture and Hayfield Weed Control

February 6th at 6:00 pm
Presented by Rachel Walker
Pasture Specialist for Corteva AgriScience.

We will be discussing several pasture and hayfield weed control strategies and products as well as a new option to control weeds without killing white clover.
A meal will be served. **Call 859-623-4072 to register.**

Kentucky Farmland Transition Initiative Program

February 17th at 6:00 pm
Presented by Aleta Botts, Project Coordinator
Kentucky Farm Bureau

How do we keep farmland in the hands of active farmers?

- Resources and References
- Considerations, Documents Needed, Things to Think About
- KY Farmer Selling Tax Credit
- How to take the next steps
- Question and Answer Session

Sponsored by Madison County and Kentucky Farm Bureau Federations. A meal will be served. **Call us at 859-623-4072 to register.**

MADISON COUNTY YOUTH AGRICULTURAL INCENTIVES PROGRAM - YAIP

YAIP is a 50/50 cost share up to $1,500 for 9-18 year olds to use toward getting started in agriculture.
Eligible investment areas are livestock, equine, horticulture, and many others. Applications **should be** available on February 3rd, and are due back to the Madison County Farm Bureau, Richmond location (300 High Land Park Drive, Richmond, KY) by 5:00 pm on February 28th.
Pick up your application from:

- Farm Bureau North
- Farm Bureau Richmond
- Farm Bureau Berea
- Tri County Fertilizer
- Madison County Extension Office
- Madison Central FFA
- Madison Southern FFA
- Central Kentucky Ag Credit

Brandon Sears

Brandon Sears
County Extension Agent
for Agriculture & Natural Resources
859-623-4072 brandon.sears@uky.edu

KDA Nuisance Weed Spraying Program

This program consists of weed spraying demonstration plots. The department will provide the sprayer and enough chemical for the treatment of 10 acres of agricultural land or 100 gallons of spot spraying mix to be used on agricultural land. The department's representative will demonstrate proper mixing and application techniques. A number of nuisance weeds can be treated under this program depending on the needs of the participant. This program is limited to broadleaf weeds. This program is designed to target weeds that have a negative impact on the participant's agricultural production.

Broadcast Spraying demonstration plots consist of:

- 10 acres of agricultural land will be treated with chemical provided by the department
- Application is performed with a two-wheeled trailer type sprayer equipped with boomless nozzles
- If additional chemical is provided by the participant, an additional 10 acres can be treated

Spot Spraying demonstration plots consist of:

- 100 gallons of broadleaf chemical mix which is applied until sprayer is empty
- Application is performed with a two-wheeled trailer type sprayer equipped with a handheld spray wand used by the tractor operator
- If additional chemical is provided by the participant, an additional 100 gallons can be sprayed

For each demonstration:

- The participant must provide water source
- The participant must provide tractor and operator
- All chemical products must be labeled and the product label will be strictly followed
- A maximum of 7 participants per county, and each can only spray once every four (4) years

There will be an annual online application period to participate in this program. **Applications can be completed online from February 1 to February 28.** https://www.kyagr.com/consumer/nuisance-weed-spraying-program-application.aspx

Seed Swap

Thursday, Feb 27th ~ 10 am to 12 noon

Interested in learning more about saving seeds? Come to the Seed Swap! We will have a lot of information to share about seed saving and gardening.

If you have seeds to share, great! But if not, that's OK, come anyway! We should have plenty for everyone.

Acceptable seeds are those saved from open-pollinated varieties of plants or any unused seed from packets. If you have questions about types of seeds to bring, contact Amanda Sears, 859-623-4072 or amanda.sears@uky.edu.

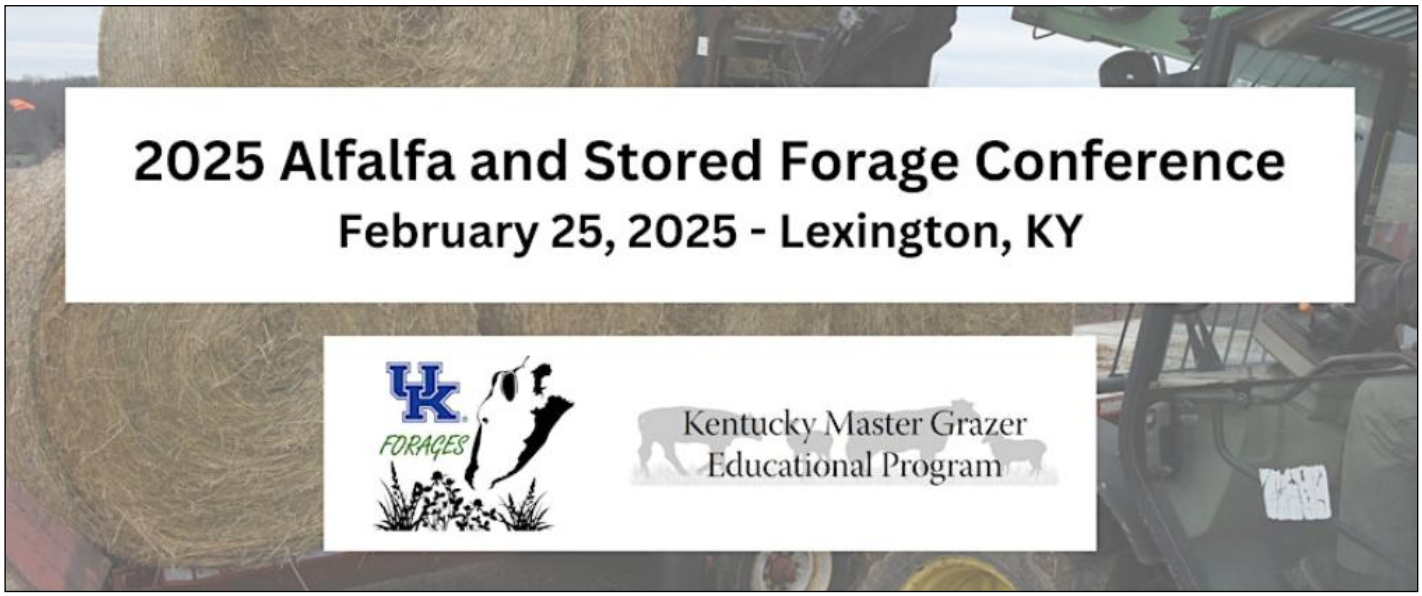
If you plan to attend the Seed Swap, let us know by calling 859-623-4072 so we can know how many handouts to prepare!

Farm Machinery Show Bus Trip February 13

Interested in going to the National Farm Machinery Show in Louisville in February? Want a ride to the show? On Thursday February 13, a bus will leave Ag Credit at 7:30 a, returning at around 5:00 pm. The cost is $10 a person.

Attendees can pre-pay at Ag Credit. Bottled water, soft drinks and snacks will be provided on the bus. Special thanks to Madison County Farm Bureau, Madison County Beef Cattle Association, Central KY Ag Credit and Madison County Soil Conservation District for sponsoring!

Please call the Madison County Extension Office at 859-623-4072 to register soon!



2025 Kentucky Alfalfa and Stored Forage Conference

"Alfalfa Updates and Producing Grass Hay for Premium Markets"

When: February 25, 2025 from 8:00 to 3:30EST (7 to 2:15CST)

Where: Fayette County Extension Office, 1140 Harry Sykes Way, Lexington, KY 40504

Registration: General $45; Students $15 (Sponsorship: $250 and $500)

Register online at https://KYAlfalfa2025.eventbrite.com or mail a check payable to KFGC to Krista Lea, N222 Agriculture North, Univ. of Kentucky, Lexington, KY 40546-0091

Agenda

8:00 - Registration, sponsors, and silent auction

8:45 - Welcome and program highlights - Dr. Ray Smith, University of Kentucky

9:00 - Everything I Ever Needed to Know about Armyworms – Dr. Raul Villanueva, Univ. of KY

9:45 - Armyworm Control Methods: What to spray and when – Brett Reese, So. States, Paris

10:15 - Break, visit with sponsors, and silent auction

10:45 - What's New in Alfalfa Varieties - Dr. Don Miller, Mt. View Seeds, Commercial alfalfa breeder for over 45 years.

11:30 - What do Horse Owners Want and Why - Dr. Bob Coleman, UK Horse Specialist

12:00 - Lunch, Alfalfa Awards, KCA Hay Quality awards, and silent auction winners

12:45 - Kentucky Forage and Grassland Council update – Cody Rakes, KFGC President

1:00 - What We Can Learn from the Results of the KY Hay Contests – Dr. Chris Teutsch, Univ. of KY

1:30 - Emerging Markets for Unique Forage Species – Dr. Ray Smith, University of Kentucky

2:00 - Producer Panel: How I Produce Quality Grass Hay – (Panelists – Brad Hines, Hart Co.- Timothy; Kevin Priddy, Grayson Co. – Orchardgrass; Allen Arthur, Nicholas Co. - Teff hay; and Central KY producer – fescue and mixed grass hay) Each producer will take 10-12 minutes to explain the basics of how they produce quality grass hay including establishment, fertilizing, harvesting and marketing; And then open the floor to questions)

3:00 - Take-Home Lessons from Today's Meeting - Dr. Ray Smith, Univ. of KY

3:15 - Survey, pick up silent auction items

3:30 - Adjourn

Keep Them Fit!

Dr. Les Anderson, Beef Extension Specialist, University of Kentucky

While reading some industry information, I was reminded about an article Dr. Burris wrote for Cow Country News a few years ago. The focus of his article was to treat your herd bulls like an athlete; keep them fit and in great working shape. As always, it was a super article and is still relevant. Recently, more research has been done on bull fitness and fertility that is quite interesting.

We have known for years that over-conditioning bulls is detrimental to their fertility. When bulls are over fed and their body condition score get excessive (> 7), fat begins to build up in the scrotum and in the spermatic cord. Fat is an excellent insulator and this buildup of fat in the neck of the scrotum leads to an increase in scrotal temperature. For optimum sperm production, the testis needs to be about two degrees cooler than body temperature and this buildup of fat especially in the neck of the testis (around the spermatic cord) can lead to abnormal sperm development. When these fatter bulls are subjected to a breeding soundness exam, they are more likely to fail due to an increase in abnormalities with sperm morphology and motility. More work from Dr. Pedro Fontes at the University of Georgia also indicated that bulls with more backfat were more likely have defects in the development of sperm and to fail a breeding soundness exam.

Dr. Fontes has completed some fascinating work extending our knowledge on the impact of bull condition on fertility. He recently used IVF to exam the ability of sperm from moderately- and over-conditioned bulls to fertilize an oocyte resulting in the proper development of an embryo. His research demonstrated that if an oocyte was fertilized by an over-conditioned bull the resulting embryo was less likely to continue to develop. His work suggests that bull diet and condition can negatively impact the ability of an embryo to grow and may lead to increases in early embryonic mortality. His studies examined both mature and young, developing bulls and the results did not vary. Interestingly, in this work sperm morphology and motility were similar between over-conditioned bulls and moderately-conditioned bulls suggesting the reduced embryonic survival may run deeper than simple changes in sperm development. Truly fascinating work.

Over-conditioning not only impacts sperm production, but it also reduces the bull's interest in breeding cows. Research from Australia indicated that over-conditioned bulls also have lower libido, and their serving capacity was significantly lower than moderately-conditioned bulls.

Research from Canada clinched the nail on the head. The goal of this research was to identify factors associated with the male that impacts pregnancy in pasture situations. Considerable data on the bulls was collected including scrotal circumference, a wide variety of sperm traits, and back fat thickness. These 277 bulls of British and Continental breeds were turned out with over 9,000 cows and pregnancy was assessed after the end of a 70-day breeding season. Of all the measurements taken, backfat thickness of the bull had the highest significant correlation with failure to breed. Basically, fatter bulls got fewer cows pregnant.

So, as Dr. Burris advised years ago, keep your bulls fit and think of them like athletes. Also, we are entering bull buying season so find bulls that not only meet your herds genetic needs but also are in proper body condition. If a bull's BCS exceeds 6, check to see if his scrotum looks blocky and full of fat and avoid purchasing him. Once you get your bull home, manage his diet and exercise to keep him in a BCS of 5-6. The pregnancy rate of your herd may depend on it!

Madison County Beekeepers Association

Madison County Beekeepers Association next meeting is planned for February 24, 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.

HAY QUALITY LOWER IN 2024

Dr. Chris Teutsch, Forage Extension, UK Grain and Forage Center of Excellence at Princeton

Last fall we analyzed 1,127 hay samples as part of the Eastern, Central, and South-Central Kentucky Hay Contests. A summary of the results can be found in Table 1. Nutrient requirement s of various livestock classes can be found in Table 2. So here is what we found:

- Crude protein (4.6 to 26.7%) and total digestible nutrients (39 to 76%) varied widely
- 3% of the hay samples contained less than 50% TDN
- 1.4% of the hay samples contained less than 8% crude protein
- 283 samples or 25% contained enough energy to meet the requirements of a beef cow at peak lactation
- 777 samples or 69% would meet the protein requirements of a beef cow at peak lactation
- 1111 samples or 99% contained enough **protein** to meet the needs of a dry pregnant cow
- 1091 samples or 97% contained enough **energy** to meet the requirements of a dry pregnant cow

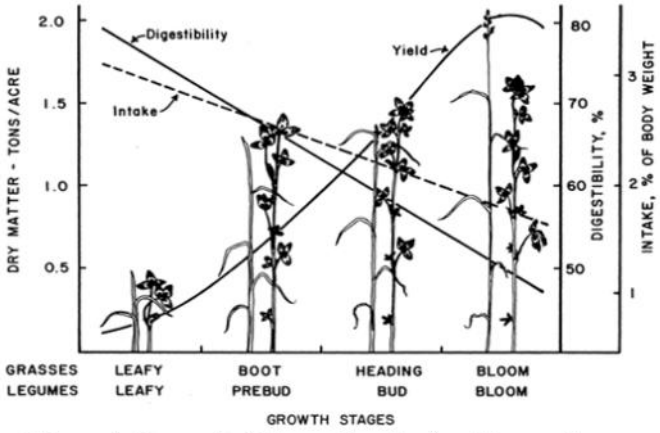


Figure 1. Impact of stage of maturity at harvest on forage quality (Blaser et al., 1986).

In general, a higher percentage of hay samples required supplementation to meet the energy needs of a lactating beef cow (75% in 2024 versus 40% in 2023). This was most likely due to rain delays in harvest, allowing forages to become more mature and therefore lower in forage quality (Figure 1). I guess the biggest take home from the 2024 samples is that we still have a way to go in terms of improving hay quality!

So, what don't these results tell us? Since there is still wide variation in both crude protein and energy for the hay samples in this dataset, the average or median of the results CANNOT be used to make recommendations on what or how much to supplement. To make this type of recommendation, you will need to sample individual hay lots (one cutting from one field) that you will be feeding (see AGR-257 Hay Sampling Strategies for Getting a Good Sample). Once you have the results in hand, then a supplementation strategy can be designed by either working your local extension agent, nutritionist or veterinarian or by using the UK Beef Cow Forage Supplementation Tool.

NEW YEAR'S RESOLUTION: Improve Hay Quality in 2025

A good New Years's Resolution for 2025 would be to improve hay quality! Making just a few small tweaks to your hay production program can make a big difference in hay quality. Below is a short list of things that you can implement to improve hay quality and production on your farm.

- ***Fertilize and lime according to soil test.*** A balanced fertility program is essential for optimizing hay yield and quality. Phosphorus, potassium, and lime should be applied according to soil test results. Avoid using "complete" fertilizers such as 10-10-10. These fertilizers commonly over apply phosphorus and under apply potash.
- ***Apply nitrogen early to promote rapid spring growth.*** Applying 80 lb N/A in mid- to late March will promote early growth in hay meadows, resulting in higher first harvest yields with improved crude protein values. Recent research at the University of Kentucky has shown that fall nitrogen fertilization promotes hay growth in the spring. In fact, 80 lb N/A applied in the fall was equivalent to more than 100 lb N/A applied in the spring.
- ***Harvest at the boot stage.*** The single most important factor impacting forage quality is stage of maturity at harvest. Hayfields should be mowed as soon as the grass reaches the late boot-stage. The boot stage occurs when the sheath of the flag leaf swells just prior to the emergence of the seed head. By making the first cutting in a timely manner, we will have time to make a leafy second cutting just prior to the summer months.
- ***Mow early in day.*** Some studies have shown that sugars tend to be highest in late afternoon, making this the optimal time of day to cut. However, in high rainfall environment like Kentucky, maximizing curing time is the highest priority. Therefore, hay should be mowed in mid to late morning after the dew has dried off.

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HAY QUALITY LOWER IN 2024 *Continued from previous page...*

- ***Use mower-conditioner.*** Conditioning the stems allows moisture to escape at a faster rate. This shortens curing time and improves your chances of avoiding rain. Conditioning is especially important for first cutting grasses, summer annual grasses, and legumes, all of which tend to have larger stems.
- ***Set swath on mower-conditioner to the widest possible setting.*** Maximizing the swath width decreases curing or wilting time by exposing a larger portion of the forage to direct sunlight.
- ***Rake or ted at 40-50% moisture content.*** Raking and tedding the forage while it is still pliable helps to reduce leaf loss and maintain forage quality. Once the moisture content is below 40%, leaf loss increases, especially in legumes such as alfalfa and clover.
- ***Bale at 18-20% moisture.*** Baling in this moisture range inhibits mold growth and reduces heating. Avoid baling hay that is excessively dry due to high levels of leaf loss and hay that is above 20% moisture due to heating and potential hay fires.
- ***Store dry hay under cover and off the ground.*** Protecting hay from weathering helps to reduce dry matter losses and maintain forage quality. Much of the weathering damage is a result of the hay bale wicking moisture up from the ground. So, storing hay off the ground can greatly reduce deterioration.
- ***Consider using baleage.*** The biggest advantage of baleage is the shortened period between mowing and baling. In many cases, hay can be mowed one day and baled the next. This facilitates harvesting hay at the correct stage of growth, the NUMBER ONE factor impacting forage quality. To learn more about baleage see AGR-235 Baleage: Frequently Asked Questions online at https://publications.ca.uky.edu/sites/publications.ca.uky.edu/files/AGR235.pdf

If you need help with hay sampling or interpreting your hay testing results, contact your local extension agent.

Forage testing is available from several commercial labs and the Kentucky Department of Agriculture. The Kentucky Department of Agriculture offers a standard forage analysis to Kentucky producers for a reduced cost.

Table 1. Summary of 2024 Hay Contest forage quality results. Samples (n=1127) were collected by extension agents, dried in a forced air oven, ground to pass through a 1 mm screen, and predicted using a near infrared spectroscopy.

Constituent	Min	Max	Average	Median	Standard Deviation	Constituent Description
Crude Protein (%)	4.6	26.7	12.9	12.0	3.4	Estimate of protein calculated by Total N x 6.25.
Acid Detergent Fiber (%)	19.9	54.8	38.3	38.7	4.2	Chemical estimate of forage digestibility. Used to calculate energy.
Neutral Detergent Fiber (%)	23.2	82.0	58.0	59.6	7.9	Chemical estimate of indigestible and slowly digestible fiber. Used to estimate DM intake.
Ash (%)	2.1	20.2	7.3	7.3	1.5	Measure of total mineral content. Used as an indicator of soil contamination.
IVTDMD-48 Hr (%)	48.8	90.9	71.6	71.2	5.3	Amount of forage material digested after 30-hours in ruminal fluid.
NDFD-48 hr (%)	22.8	76.7	51.7	50.8	7.1	Digestible fraction of NDF expressed as percentage of Neutral Detergent Fiber.
Total Digestible Nutrients (%)-based on ADF	39.0	76.9	57.5	57.1	4.5	Estimate of energy. Calculated using ADF. Used to balance rations.
Total Digestible Nutrients (%)-based on fiber digestibility	41.9	73.7	60.0	59.9	4.5	Estimate of energy. Calculated using SUMMATIVE equation. Based on actual fiber digestibility.
Relative Forage Quality (%)	39	343	126	124	26	Relative comparison of forage quality to alfalfa harvested at full bloom. RFQ is a better ranking tool for grass than RFV.
Dry Matter Intake-NDF (% Body Wt)	1.5	5.2	2.1	2.0	0.4	Estimate of how much of given forage can be consumed. Based on neutral detergent fiber.
Dry Matter Intake-Fiber Digestibility (% Body Wt)	1.1	5.7	2.6	2.5	0.3	Estimate of how much of given forage can be consumed. Based on ACTUAL fiber digestibility.