

October 2025 ISSUE

AGRICULTURE & NATURAL RESOURCES NEWSLETTER



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Bourbon County Cooperative
Extension Agent For
Agriculture and Natural
Resources



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

Bourbon County Extension Service
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Agent's Note

Hello everyone.

I don't know if anyone else feels this way, but October seemed to really sneak up on me this year. We have had a jam-packed fall already with two fields days, both with over 100 people in attendance, as well as several other successful programs. I know all of us were thankful for the slight amount of rain we received a few weeks back but most of the damage was already done to our crops. It will be especially important to test hay this year as we are seeing quality down across the board. Just like soil sampling, we offer hay testing through our office and even have hay probes we can let you borrow to take the samples, or you can schedule with me to come out and take them for you. For those who would like to do so, we also need to be thinking about getting a game plan for frost seeding clover-February seems far off but it will be here before we know it. This newsletter is full of educational opportunities for this month and next. Please let me know if you have any questions or need assistance!

Forage Timely Tips: October

- ✓ Feed hay to allow cool-season pastures to accumulate forage growth for winter grazing.
- ✓ Do NOT harvest or graze alfalfa fields until after killing frost or early November.
- ✓ Inventory and test each hay lot for nutritive value and consult a nutritionist to design a supplementation program as needed.
- ✓ Remove ruminants from pastures that contain sorghum species (forage sorghums, sorghum-sudangrass hybrids, sudangrass, and johnsongrass) when frost is expected. Even small patches of johnsongrass that have been frost can cause prussic acid (cyanide) poisoning.
- ✓ Begin strip grazing early planted small grain and brassicas (turnips and rape) mixes by the end of this month.
- ✓ Late October/early November is a good time to control weeds like poison hemlock, plantain (broadleaf or buckhorn), and biennial thistles (bull, musk, plumeless).

**Cooperative
Extension Service**

Agriculture and Natural Resources
Family and Consumer Sciences
4-H Youth Development
Community and Economic Development

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Disabilities
accommodated
with prior notification.

BEEF QUALITY CARE & ASSURANCE (BQCA) TRAINING

Required for Large Animal CAIP Investment Area

Thursday, Nov. 6th

5:30 p.m.

or


Wednesday, Nov. 19th

9:00 a.m.

Bourbon County
Extension Office,
603 Millersburg Rd., Paris

Call 859-987-1895 to reserve a
spot

**\$5
CHECK
ONLY**

SPONSORED BY  **PURINA**

BEEF CATTLE FIELD DAY & ANNUAL MEETING


OCTOBER 23RD
5:30 PM
SEVEN SPRINGS FARM
1236 JACKTOWN ROAD
PARIS, KY 40361

TOPIC #1 BODY CONDITION SCORING

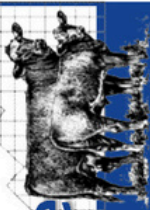
TOPIC #2 HEIFER DEVELOPMENT

TOPIC #3 FORAGE ANALYSIS 101

--RSVP to the Bourbon County--
Extension Office
859-987-1895

 BOURBON COUNTY
BEEF CATTLE
ASSOCIATION

Kentucky Beef Conference



October 21, 2025

3:00 — Welcome & Sponsor Recognition
Allison Tucker, Fayette County Agriculture & Natural Resources Extension Agent

University of KY Remarks & Welcome

Dr. Craig Wood, Asst. Director or Extension for Agriculture, Natural Resources & Horticulture

Marketing Update & Outlook

Dr. Kenny Burdine, UK Beef Economic Extension Specialist

4:00 — Bull Management & Selection

Dr. Saulo Zoca, University of Tennessee Institute of Agriculture Beef Reproduction Extension Specialist

5:00 — Emerging Insect Pests

Dr. Hannah Tiffin, UK Extension Entomologist

Dr. Jessie Lay, UK Extension Animal Health Veterinarian

6:15 — Questions/Wrap up

6:30 — Meal

Fayette County Extension Office
1140 Harry Sykes Way
Lexington, Kentucky 40504

2:00-3:00

Registration, visit
sponsors

RSVP by October 17th

**to Fayette County
Extension Office**

859.257.5582

****If you have a gluten or
alpha gal allergy please
indicate that when you
call****

CAIP Education Eligible

**Cooperative
Extension Service**

Agriculture and Natural Resources
Livestock and Poultry Sciences
4-H Youth Development
Community and Economic Development

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University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating

Lexington, KY 40506

35th Annual Elite Bred Heifer Sale

WWW.ELITEHEIFER.COM

Inspection
1:00 - 4:30 PM

**Monday, November 3rd 2025
6:00 pm
Paris Stockyard - US 68 North**

Approximately 300
CAIP Eligible Heifers
- Half AI Bred



Bourbon County Extension Office: 859.987.1895
Sale Day Phone: 859.987.1977



FAQs about Cyanide or “Prussic Acid” Poisoning in Ruminants

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

Usually within the month of October when the first frosts are expected in KY, the questions begin regarding the risk of prussic acid poisoning from Johnsongrass (*Sorghum halepense*) after frost and when is it “safe to graze again”. Prussic acid, cyanide, or hydrocyanic acid are all terms relating to the same toxic substance. Hydrogen cyanide was first isolated from a blue dye (Prussian blue) and because of its acidic nature, it became known by the common name “prussic acid”. No matter which name is used, cyanide is one of the most rapid and deadly toxins that affects cattle.

Where does the cyanide come from in a plant? Certain plants contain compounds called “cyanogenic glycosides” which are not toxic by themselves but only when the plant is damaged. These cyanogenic glycosides and the enzymes necessary to convert them to free cyanide gas are separated in different locations within the plant cells. Sorghum species including Johnsongrass, sorghum, sudan grass and hybrid sorghum-sudan contain the cyanogenic glycoside “dhuririn”. When plant cells are damaged, the plant enzymes can reach dhuririn and cleave it, releasing cyanide gas (abbreviated as HCN). Dhuririn concentrations are highest in the leaves, particularly new growth. Peak concentrations occur in the first week after germination, declining markedly once the plant reaches approximately 2 ft in height.

Regrowth (for example, after a light frost) contains extremely high dhuririn concentrations. Why is Johnsongrass and other Sorghum species only risky at certain times of the season but safe in others? The cyanogenic glycosides are used by the plant as protection from grazing animals, insects, and parasites when the plant is most vulnerable. The cyanogenic “potential” of plants is affected by the type (species and variety) of the plant, weather, soil fertility and stage of plant growth. Cyanide poisoning of livestock has been associated with Sorghum species including johnsongrass, sorghumsudangrass, and other forage sorghum; Prunus species (e.g., wild cherry, black cherry, and chokecherry); elderberry (*Sambucus* spp); serviceberry (*Amelanchier alnifolia*); and less frequently arrowgrass (*Triglochin* spp), white clover (*Trifolium repens*), birdsfoot trefoil (*Lotus* spp); and many others.

Certain environmental conditions reduce protein synthesis within a plant but nitrate conversion to amino acids continues and these form the “building blocks” of cyanogenic glycosides. Obviously factors that damage the plant such as crushing, wilting, freezing, herbicide treatment, drought, insects, and plant disease will reduce growth and protein synthesis. However, cool, cloudy days and moist growing conditions, high nitrogen fertilization, high soil nitrogen: phosphorus ratio, and low soil sulfur can also increase the cyanogenic potential. Application of herbicides such as 2,4-D have been shown to increase the cyanogenic potential of plants and potentially increases palatability.

Highest cyanide potential occurs when these plants are growing rapidly after a period of retarded growth such as after drought or frost. The early stages of plant growth, especially young, rapidly growing areas and areas of regrowth after cutting also contain high levels of cyanogenic glycosides. The risk of poisoning decreases as forages mature. Leaf blades are higher risk than leaf sheaths or stems, upper leaves are higher risk than older leaves, and seed heads are considered low risk.

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How much cyanide is considered dangerous? The lethal dose of cyanide is in the range of 2 to 2.5 mg/kg body weight. Forages can be tested for cyanide content. Hay, green chop silage or growing plants containing >220 ppm cyanide on a wet weight basis are very dangerous and <100 ppm is considered safe. On a dry weight basis, >750 ppm is considered hazardous, < 500 ppm is considered safe and suspect in between. Conflicting information is available with regards to risk of cyanide in hay. A study from 2012 investigating methods to prepare sorghum for cyanogenic analysis found that whole leaves or entire plants can be harvested and dried then analyzed later, so air drying plants did not decrease dhurrin concentrations during storage. However, the enzyme beta-glucosidase which converts dhurrin to cyanide was significantly decreased during drying. Bottom line- hay is rarely hazardous if adequately cured but should be tested if the cyanide risk was high when cut. Ensiling plants will significantly reduce the cyanogenic glycoside content.

How does cyanide attack the animal's system? As ruminants consume these plant materials, hydrogen cyanide gas that is released in the rumen is quickly absorbed into the bloodstream. In addition, the rumen microflora contain enzymes that, in the presence of water, are also capable of converting cyanogenic glycosides in plants to free cyanide gas. Under conditions of low-level exposure, cattle can detoxify cyanide to thiocyanate which is excreted in the urine. If large quantities of cyanide are absorbed rapidly enough, the body's detoxification mechanisms are overwhelmed, and the animal soon dies.

Rumen pH is an important factor in determining rate and amount of HCN released in the rumen. The enzymes are more active at a higher pH of 6.5-7 so cattle on grass or hay diets are at higher risk than those on grain diets. Consumption of water, either before or after grazing, also increases the HCN risk. Animals that are most at risk are hungry and/or have not had time to adapt to these plants as they may tolerate higher amounts over time.

What does an animal with cyanide poisoning look like? Affected animals may begin showing signs of poisoning within 15-20 minutes and rarely survive more than 1-2 hours after consuming lethal quantities of cyanogenic plants. Death may be sudden without symptoms. If seen alive, cattle may exhibit rapid labored breathing, frothing at the mouth, dilated pupils, muscle tremors, and staggering prior to death.

There may be a "bitter almond" smell to the breath but the ability to detect this smell is genetically determined in people, so this is an unreliable sign. The mucous membranes are bright red in color due to oxygen saturation of the hemoglobin but may become more cyanotic (blue) at the end of life.

How is cyanide poisoning diagnosed? History, clinical signs, and detection of cyanide in rumen contents support a diagnosis of cyanide poisoning. Cyanide is rapidly lost from animal tissues unless collected within a few hours of death and sealed in airtight containers.

Liver, muscle (heart, especially the ventricular myocardium), whole blood, and rumen contents should be collected in airtight containers before shipment to a laboratory capable of performing cyanide analysis. Personal protective equipment should be worn when gathering samples from the animal. Minimal lethal blood concentrations are approximately 3 mcg/ml or less. Perhaps most important in the diagnosis of cyanide poisoning is to

identify plants in the area accessible to the animals and determine if they are likely to contain cyanogenic glycosides. Cyanide concentration determinations in suspect plants can be performed if samples are collected and immediately sent on ice overnight to a diagnostic laboratory. Some diagnostic laboratories prefer samples to be frozen immediately after collection and prior to shipment.

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Is there an effective treatment? Treatment can be attempted if affected animals are discovered quickly, but often animals are found dead. Contact a veterinarian immediately if cyanide poisoning is suspected. The intravenous administration of sodium thiosulfate by a veterinarian is an effective treatment for cyanide poisoning although this compound has been difficult to find in recent years. The dose can be repeated after a few minutes if the animal does not respond. Administering 0.5-1.0 liter of a diluted vinegar solution (one gallon of vinegar diluted in 3 to 5 gallons of water) via stomach tube can lower rumen pH, reducing the production of hydrogen cyanide, however, stress of handling may exacerbate signs and possibly lead to the animal's death. Most animals that survive treatment recover fully.

What can be done to prevent cyanide poisoning in cattle?

1. Graze sorghum, sorghum crosses, or Johnsongrass plants only when they are at least 18-24 inches tall. Young rapidly growing plants or regrowth have the highest concentrations of cyanogenic glycosides, especially in the newest leaves and tender tips. Do not graze plants with young tillers. Do not turn out hungry animals in high-risk pastures because they may consume forage too rapidly to detoxify the cyanide released in the rumen. Animals should be turned out to new pasture later in the day as potential for cyanide release is highest in the morning.
2. Do not graze plants during drought periods when growth is severely reduced or the plant is wilted or twisted. Drought increases the chance for cyanide because slowed growth and the inability of the plant to mature favors the formation of cyanogenic compounds in the leaves. Do not graze sorghums after drought until growth has resumed for a minimum of 4-5 days after rainfall.
3. Do not graze potentially hazardous forages when frost is likely (including at night). Frost allows rapid conversion to hydrogen cyanide within the plant. Do not graze for at least two weeks after a non-killing (>28 degrees) frost. Grazing after a light frost is extremely dangerous and it may be several weeks before the cyanide risk subsides. Do not graze after a killing frost until plant material is completely dry and brown (the toxin is usually dissipated within 72 hours).

October Tips & Tidbits

Winter Blankets

- As the days get shorter in the fall, horses living outside will acclimate to the colder temperatures by growing a heavier hair coat. This hair coat, along with a good winter feeding program, a BCS of 5 or greater, and shelter, will allow the horse to handle most winter conditions.

However, if you decide to blanket a horse kept outside:

- Ensure the blanket fits properly.
- Remove the blanket daily and check the horse.
- Watch for signs of over-heating which may cause the animal to sweat. A wet horse will be a cold horse.

Horses with thin hair coats will benefit from being blanketed during turnout (a couple of hours per day) in the winter.

Hay Feeders

- Hay feeders can reduce feed costs for horse owners by reducing the loss of hay by up to 50 percent.
- Rotate the hay feeder location throughout the field or locate them on a high traffic area pad to help control feed waste and areas of mud.

Forages

- Prepare to use any stockpiled cool-season grass pastures.
- Continue to inventory hay supplies and needs.
- Test new hay supplies for nutrient content if you have not already done so. Knowing the nutrients supplied by the hay will help you to make best use of the hay supplies.



Grouping Horses for Winter Feeding

- Group horses according to nutritional needs.
- Consider exercise requirements, BCS, and general maintenance requirement in how they are grouped.

Stallion Evaluation and Getting Ready for the Breeding Season

- Have a general physical examination to ensure the stallion is in good health and has adequate conformation to mount a mare.
- Make sure that all stallions have a **negative** EVA certificate prior to vaccination.
- Examine the external reproductive organs (sheath, penis, and scrotum). Identify any abnormalities such as atrophy, hyperplasia, or degeneration of the scrotum.

2025 KY GRAZING CONFERENCE AGENDA

****All times local****

7:30 AM	Registration & Refreshments
8:00 AM	Welcome <i>Dr. Ray Smith, University of Kentucky</i>
8:15 AM	Seven Things That I Have Learned About Profitable Ranching in the Last 45 Years, <i>Jim Gerrish, American Grazinglands Services</i>
9:15 AM	Nutrient Cycling in Grassland Ecosystems <i>Dr. Ricardo Riberio, University of Kentucky</i>
10:00 AM	Break & Visit with Sponsors
10:30 AM	Forage Management for Shifting Weather Patterns <i>Dr. Chris Teutsch, University of Kentucky</i>
11:00 AM	Breeding a Functional Cow that Works in Your Environment <i>Cody Rakes, Loretto Motherhouse Farm</i>
11:40 AM	Kentucky Forage and Grassland Council Business Meeting & Awards
12:00 PM	Lunch & Visit with Sponsors
1:00 PM	Forage Spokesperson Contest/Local Producers
2:00 PM	What We Have Learned About Bale Grazing <i>Dr. Greg Halich, University of Kentucky</i>
2:45 PM	Managing Feed Costs in Ruminant Livestock Production Systems <i>Jim Gerrish, American Grazinglands Services</i>
3:30 PM	Adjourn

**SPACE IS LIMITED
REGISTER TODAY**

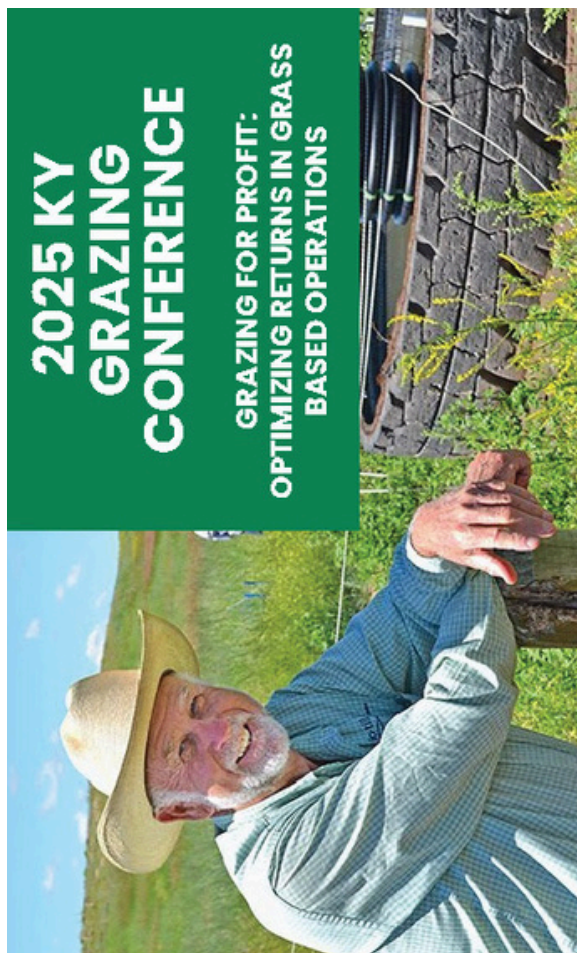
REGISTER BY MAIL

Name: _____
Address: _____
State, City, ZIP: _____
Email: _____
Phone Number: _____

**\$60 per participant OR \$25 per student
\$75 per participant at the door**

SPACE IS LIMITED REGISTER TODAY

Make checks payable to KFGC and mail to:
KFGC c/o Caroline Roper, PO Box 469, Princeton, KY 42445
(270) 704-6618



TWO LOCATIONS IN KY

Tuesday, October 28
Winchester, KY

Thursday, October 30
Leitchfield, KY

REGISTER TODAY!

<https://2025GrazingConferenceEast.eventbrite.com>
<https://2025GrazingConferenceWest.eventbrite.com>

Winchester, KY

Leitchfield, KY



FEATURING PRESENTATIONS BY...


**JIM GERRISH
DR. GREG HALICH
DR. CHRIS TEUTSCH
DR. RAY SMITH
CODY RAKES
DR. RICARDO RIBERIO
& LOCAL PRODUCERS**



Sweet & Spicy Butternut Squash



SPONSORED BY **PURINA**




BEEF CATTLE FIELD DAY & ANNUAL MEETING

OCTOBER 23RD
5:30 PM
SEVEN SPRINGS FARM
1236 JACKSTOWN ROAD
PARIS, KY 40361

TOPIC #1 BODY CONDITION SCORING

TOPIC #2 HEIFER DEVELOPMENT

TOPIC #3 FORAGE ANALYSIS 101



--RSVP to the Bourbon County--
Extension Office
859-987-1895

Directions

1. Preheat oven to 400 degrees.
2. Wash and dry the squash.
3. Place the squash in a 450 degree oven for 45 minutes.
4. Place squash on a cutting board and cut 1/2 inch off both ends. Cut squash in half lengthwise and remove seeds and pulp. Peel off the skin using a sharp vegetable peeler. Cut the squash into 1/2 inch cubes.
5. Place the squash cubes in a large mixing bowl. Add olive oil, kosher salt, cayenne pepper and cinnamon. Toss to coat.
6. Spread the seasoned squash cubes on a greased baking sheet.
7. Roast for 40 minutes or until fork tender, turning after 20 minutes.
8. Remove from oven and let sit for 5 minutes.
9. Warm honey in a microwavable dish and drizzle over the squash.

- 1/4 teaspoon cayenne pepper
- 1 teaspoon ground cinnamon
- 1/4 cup honey