

GRAVES COUNTY AGRICULTURE & NATURAL RESOURCES NEWS



University of Kentucky
College of Agriculture,
Food and Environment
Cooperative Extension Service

GRAVES COUNTY
COOPERATIVE EXTENSION
SERVICE

4200 US HWY 45

MAYFIELD, KY 42066

(270)247-2334

GRAVES.EXT@UKY.EDU

MARCH 2023

IN THIS EDITION:

- AGENT NOTES
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How is it March already? Not that I'm complaining that my two least favorite months have passed by so quickly, but we sure are flying into spring! I am all for it. As a summer lover, I am more than ready for green grass, leaves on the trees, and warm temperatures.

Over the last month I have had the pleasure of meeting many of you in person through the various programs that we have had. Thank you all for being so welcoming! Our Winter Ag Conference had a great turnout and our speakers brought very good information that we can use heading into this next growing season. If you missed out on the Estate Planning Seminar that Denise and I planned, you missed some very important information that is relevant to everyone. There are still some copies of the publications we handed out available at the office, so stop by and grab some! Penny Wade Smith and Elizabeth Wieneke delivered fantastic presentations and we are thankful to them for their time.

If you missed the first opportunity to get or renew your private applicator license, make sure to sign up for one of the remaining two trainings so that we can get you all set to purchase and apply pesticides this season. Those times are March 14 at 8:30am or March 21 at 5pm. Make sure to let us know you're coming!

On March 6th the Mayfield Fire Department will be coming to the office and teaching a Farm First Aid class! This is going to be a great event. They will be teaching a non-certified CPR class and some basic first aid. If you attended Dale Dobson's talk at the Winter Ag Conference you saw some photos that were great reminders that working in Agriculture is one of the most dangerous professions in the world. Accidents can and do happen, but if we are trained and prepared with knowledge on how to act quickly we can potentially save someone's life. We will have a meal provided as well, so please call the office to RSVP so we know how many to plan for! Don't have a farm, but want to get freshened up on your first aid skills, please come to this event! There will be information for everyone, so we would love to have you!

With the warm weather, brings pests of many varieties. If you see something you have a question about or want to know how to control it, feel free to get in touch! I'm here to help you diagnose and manage whatever you're dealing with in your yards, gardens, and farms. The warmth also brings the time to get some of your garden plants planted. See page 15 for a chart that shows you what is safe to plant now! I think everyone has the itch to get their hands in the soil and start growing. Even though we are experiencing a very early spring, don't get too carried away with some of the warmer season crops. Weather here does what it wants and it wouldn't surprise any of us if we experienced a late frost, so follow the planting guides to hopefully save yourself some heartache!

Throughout this newsletter you will find many flyers about upcoming events that you may be interested in attending, so be sure to look through everything! On the very last page you will also see a QR code to get on my communications list. I want to be sure that you get all of the information you need, so please take a second to scan and fill it out so I can get you added and you can keep up with everything we have going on. As always, please feel free to send me a message and let me know if there is anything in particular you would like to have a program on and I'll see what I can do to accommodate those requests!

A handwritten signature in blue ink that reads "Miranda Rudolph".

Miranda Rudolph

Extension Agent for Agriculture & Natural Resources

Graves County

miranda.rudolph@uky.edu | 270.247.2334 | 270.978.7052

WHAT'S HAPPENING?

Highlighted events are hosted by the Graves County Extension Office. Please call the office at 270-247-2334 for more information or to sign up to attend!

- **March 2 - Pastures Please!! - Grand Rivers Community Center, 5:30-8pm**
- **March 6 - Farm First Aid Night- GCEO, 5:30pm**
- **March 7- Purchase Area Cattlemen's Annual Mtg.- GCEO, 5:00pm**
- **March 8- IPM Training School- McCracken CEO, 8-4pm**
- **March 9- KATS Soil Fertility & Assessment- Caldwell CEO**
- **March 14- Private Applicator Training- GCEO, 8:30-11:30am**
- **March 21 - Commercial Pesticide Testing- GCEO, 10am**
- **March 21- Private Applicator Training- GCEO, 5-8pm**
- **April 11- Fencing School- Scottsville, KY**
- **April 13- Fencing School - Richmond, KY**
- **April 25-26- Spring Grazing School - KY Soybean Board Office, Princeton, KY**

**"Never iron a four-leaf clover, because you don't want to press your luck.
-Irish Proverb**



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Do Snow and Ice Accumulations Harm or Help the Wheat Crop?

It is not uncommon for Kentucky to experience cold, and at times, bursts of extreme cold temperatures in the winter. Following sub-freezing and especially sub-zero temperatures wheat growers throughout the state usually ask “did the snow (and or ice) hurt the wheat?”

To get a better understanding of this soil surface temperatures are being monitored in Princeton, Kentucky. During two winter weather events, both with extreme cold temperatures, snow and ice both acted as insulation protecting the wheat from the damaging temperatures.

The first of the two events occurred December 22 through December 26. During the five-day period, actual temperatures ranged from 46.1°F to -5.7°F with windchills as low as -28.8°F (Table 1). With the snow cover, temperatures remained above freezing except for briefly on December 25. The snow provided enough protection from harsh wind chills that plants showed no signs of freeze injury after 5 days of active growing temperatures (above 40°F).

Date	Mesonet Air Temp (°F)		Mesonet Wind Chill (°F)	Soil Temp at Surface (°F)	
	High	Low		High	Low
Dec 22	46.1	0	-22.3	46.3	34.2
Dec 23	5.6	-5.7	-28.8	35	32.9
Dec 24	18.6	4.8	-12.3	33.4	32.6
Dec 25	23.2	8	-4.4	33.4	31.9
Dec 26	32.7	17.4	8.7	34.3	32.7

Table 1: Air temperature, wind chill and soil surface temperatures in Princeton, KY 12/22/22 – 12/26/22

From January 30th to February 2nd the majority of Western Kentucky experienced another cold weather event which included accumulations of ice. Temperatures were not as cold as the December weather event but ice accumulated at 0.01 – 0.02 inches. This ice acted as a layer of insulation for plants according to soil surface data and, like snow cover, showed no damage to wheat plants.

Date	Mesonet Air Temp (°F)		Mesonet Wind Chill (°F)	Soil Temp at Surface (°F)	
	High	Low		High	Low
Jan 30	35.9	24.7	13	40.5	33.8
Jan 31	25	20.7	8.7	33.8	31.4
Feb 1	32	20.2	11.8	32.6	30.4
Feb 2	35.7	31.3	22.5	36.5	32.6

Table 2: Air temperature, wind chill and soil surface temperatures in Princeton, KY 1/30/22 – 2/2/22



Figure 1: Winter wheat on 2/2/23 after partial melting of ice accumulation at Princeton, KY.

When assessing wheat for freeze damage it is important to remember:

- Wait for 4 to 5 days of active plant growth (above 40°F) to determine injury severity.
- Accurately growth stage plants and be familiar with temperature damage thresholds.
- That snow and ice coverage typically act as a layer of insulation and aid in regulating soil surface temperatures.
- If freeze damage in wheat is suspected, refer to [AGR 253](#) and [ID 125](#)

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Thoughts on Corn Nitrogen Sources for 2023 – What Really Matters?

Corn planting is fast approaching, and pre-plant nitrogen (N) applications will soon start. One question that arises every year is the “best” source of N to use for corn production. This year there is a pricing anomaly driving the question – prices for anhydrous ammonia (AA) and urea. In western Kentucky, the cost of urea is \$0.15 to \$0.20/lb N cheaper than the cost of AA. In prior years AA has been the cheapest source of N. Some corn producers are rethinking their N program – a change in N source can cause changes to the entire N management protocol. Other important factors in the decision include local availability of different N sources and appropriate application equipment; and expected soil, field, and weather conditions that could drive the different N losses and necessitate addition an N loss inhibitor, which raises the cost.

That said, all major corn fertilizer N sources (Table 1) can be effectively utilized if properly managed. We know enough to make any N source agronomically equal (same yield at the same N rate) as long as we optimize management to deal with the specific strengths and weaknesses of each fertilizer material. Growers who are comfortable with one N source often have a good grasp of what they need to do for the particular material they are using. This article is to remind ourselves of needed management considerations when thinking about a corn N source change.

Table 1. Pros and Cons for the Major Nitrogen Sources Used for Corn Production in Kentucky.

Source	Pros	Cons
Anhydrous Ammonia (82% N)	Highest N concentration, retards nitrification initially	Hazardous to humans, large losses with improper application
Urea (46% N)	Low storage and handling costs, fast, easy application	Ammonia volatilization losses high under certain conditions.
UAN Solutions (28-32% N)	Easy to handle and transport, can mix with other liquid materials	Salt out potential in cold environments
Ammonium Nitrate (34% N)	Easy to handle, no volatilization loss concerns	Low N content, explosive potential, scarce, expensive

Pre-Plant/At-Plant Application. Anhydrous is a pre-plant N favorite because of its high analysis and tendency to retard initial nitrification after injection. Injection is required to minimize ammonia gas loss and also avoids fertilizer N immobilization by soil microbes as crop/cover crop residues with a high C:N ratio are decomposed. This causes injected AA to be a heavy pre-plant N source choice for no-till corn after corn, or for no-till corn after a good rye cover crop that has been/is being terminated. Anhydrous injection is slower (acres/day), causing AA users to begin application 3 to 6 weeks prior to planting. Anhydrous N applied this early, relative to significant corn N uptake (4 to 6 weeks after planting), often benefits from a nitrification inhibitor, either nitrapyrin (N-Serve) or pronitridine (Centuro).

Pre-plant N sources also include broadcast dry urea, dry ammonium nitrate (AN), and liquid urea-ammonium nitrate (UAN) solutions, the latter can be used as a carrier for “weed and feed” herbicide applications. Dry AN is not widely available in large quantities, is usually significantly more expensive, and is not widely used in corn production. Broadcasting these N sources, especially urea, has the advantage that the producer doesn't have to start so early with pre-plant N application. Dry urea spreading rates cover a lot more acres per day. This means that the earliest applied pre-plant urea-N is not “out in the field” as long, exposed to weather driven N loss. A corn grower using urea can more easily keep up with their planter(s). Urea is more likely to be custom applied, saving the producer time (especially important when planting) and equipment investment.

There might be concern that urea and UAN-urea will interact with the soil and residue-based urease enzyme, losing N via ammonia volatilization. This is unlikely in the usual pre-plant time frame, from mid-March to mid-April, regardless of what primary tillage system is used. The weather is cool (doesn't sustain 70 F for more than a few days) and moist (rains every 3 to 5 days). Lower temps slow enzyme activity and the rainfall ‘incorporates’ urea so there is little worry of volatilization loss. Immobilization is the greatest N loss problem with broadcast urea/AN/UAN for no-till corn after corn or a heavy rye cover crop and this challenge is reduced for UAN by injecting or dribbling the product rather than broadcasting. If the time period is wet, and the soil is not well-drained, potential pre-plant/at-plant N loss from denitrification and nitrate leaching can be important, regardless of the N source. A good nitrification inhibitor is then needed for both urea (nitrapyrin-Instinct NXTGEN) and UAN (pronitridine-Centuro).

Corn Nitrogen Cont..

Denitrification is the most often observed N loss mechanism in Kentucky corn production, especially with pre-plant/at-plant fertilizer N. This loss of nitrate-N occurs when soils become excessively wet for an extended period of time. The loss can be reduced by slowing nitrification, the transformation of am-monium-N to nitrate-N. Nitrate, like ammonium, is available to the plant but nitrate is more transient in the soil profile and subject to leaching and denitrification losses. Leaching of nitrate is not as likely in Kentucky, even on well-drained soils, due to the presence of red/red-brown clay subsoils common in the limestone derived soils. These red subsoils exhibit anion exchange capacity, a positive charge that holds negatively charged nitrate anions and gives crop roots a greater chance to utilize that nitrate. Denitrification occurs when the soil is water-logged (more likely with less than well-drained soils), and oxygen becomes limiting for soil microbial activity. These microbes use nitrate instead and release N₂ and N₂O into the atmosphere. Leaching and denitrification losses are reduced by maintaining fertilizer N as ammonium-N. The nitrification inhibitors slow/reduce transformation of ammonium to nitrate for 2-3 weeks, allowing greater ammonium residence time and potential plant uptake, even as ammonium is being transformed to nitrate.

Post-Emergence Application. All N sources can be applied post-emergence (side-dressed/top-dressed between V4 and V8), but anhydrous still has to be injected, which can be a bit more challenging with narrower row spacings or twin-row planted fields. Both UAN and AA injection are slow. Urea has more flexibility - can be top-dressed (faster) or surface side-dressed (slower). Liquid UAN is usually injected (slower) or dribble banded (somewhat faster) to avoid leaf burn. Conditions are generally warmer and rainfall less regular - a good volatilization-urease inhibitor (Table 2) might be needed for surface applied urea or UAN (especially with no-till corn).

N Loss Inhibitors are added to the fertilizer prior to application and should be considered integral to N source behavior and value/cost. Generally, inhibitors useful in corn N management come in two classes, urease-volatilization inhibitors and nitrification inhibitors (Table 2). Again, growers are reminded that urease driven volatilization losses are lower when pre-plant fertilizers are being applied due to cooler temperatures and the greater likelihood of rain sufficient to incorporate the urea. If a urease inhibitor is needed, both the active ingredient and its use rate must be chosen carefully for effective N loss inhibition. There are many products that claim to inhibit volatilization. Urease inhibitors tend to be more numerous than effective. The use of a nitrification inhibitor might be warranted because the full rate of N is to be applied pre-plant, the field soil drainage class is less than well-drained, and/or the greater length of time between when N is applied, prior to planting, and significant crop N uptake (V5).

To calculate the amount of a product to be added to a fertilizer material for effective inhibition, the user will need to know the active ingredient concentration in the product and, if the product is a liquid, the product density (weight) per gallon. Example: Product XYZ contains 30% NBPT and has a density of 10 lb per gallon. To deliver 1.5 lb ai/ton urea, you need to apply $1.5 / (0.3 \times 10) = 0.5$ gallon (2 quarts) per ton.

Table 2. Inhibitors Shown Effective Under Field Conditions In Peer Reviewed Research.


Active Ingredient (ai)	Inhibitor Class	N Source Applied To	Use Rate
NBPT (Agrotain and other generics)	urease	urea, UAN	1.3 – 1.6 lb NBPT*
NPPT (Limus – also contains NBPT)	urease	urea, UAN	0.26 – 0.38 lb NPPT & 0.75 – 1.15 lb NBPT*
Duromide (Anvol – also contains NBPT)	urease	urea, UAN	0.94 lb Duromide & 0.56 lb NBPT*
Nitrapyrin (N-Serve, Instinct NXTGEN)	nitrification	AA (N-Serve); urea, UAN (Instinct NXTGEN)	0.25 – 1.0 lb ai/acre
Dicyandiamide (DCD)	nitrification	urea (SuperU), UAN	12 – 17 lb ai/ton
Pronitridine (Centuro)	nitrification	AA, UAN	3.725 lb ai/ton UAN; 7.45 lb ai/ton AA

*Urease inhibitor rates are given as lb active ingredient (ai) per ton urea. As UAN is only about 50% urea, inhibitor use rates per ton UAN are one-half those shown.


Corn Nitrogen Cont..

Other Considerations. Experience has shown that there are probably more dry urea application errors with spinner spreaders than with AA injection equipment. Still, we do see fields where the anhydrous applicator did a poor, uneven, application. Any N application tool can mess up – and this seems to depend on machine maintenance, pre-season calibration, and in-season performance monitoring. One thing the broadcast urea user can do is to ask for the rate to be cut in half and the field then double spread.


Summary. Going back to the original question posed – what N source should I use for corn production in 2023? The decision should come down to equipment availability, N source availability, and N source cost, including any inhibitor. The overall cost should also include the cost of any change in N application management.



Dr. John Grove
Professor of Agronomy/
Soils Research and Extension



Dr. Edwin Ritchey
Extension Soils Specialist
(859) 562-1331

Soil Fertility and Assessment


March 9, 2023

8:30 am to 12:30 pm
(sign in begins at 8 am)

Caldwell County Cooperative
Extension Office
1025 US HWY 62W
Princeton, KY 42445

Pre-registration is required at
<https://katssoilfertility23.eventbrite.com>
Registration cost: \$60
Lunch will be provided

- How can we improve predictions of phosphorus response in KY soils
- How we got our soil test-based rate recommendations
- How to determine what products work and if they are compatible in your production system.



For more information contact
Lori Rogers (lori.rogers@uky.edu)
270-365-7441 ext 21317

Credits: TBA



KATS.ca.uky.edu

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Organized by the Biosystems and Ag. Engineering, and the Kentucky Agriculture Training School (KATS)

2023 Drone Sprayer Workshop

This program is designed for agricultural professionals and producers to learn the newest way to dispense chemicals with drone sprayers and will be a combination of classroom and hands-on learning

Two dates and locations

March 27 8:15-3:30 (sign in begins at 7:30)
Caldwell County Cooperative Extension Office
1025 US 62W
Princeton, KY 42445

<https://ukdronesprayerprinceton2023.eventbrite.com>



March 29 8:15-3:30 (sign in begins at 7:30)
Fayette County Cooperative Extension Office
1140 Harry Sykes Way
Lexington, KY 40504

<https://ukdronesprayerlexington2023.eventbrite.com>

Registrations are limited and will close on March 22, 2023
\$105 fee includes workshop materials, refreshments and lunch

If you have questions please contact:
Josh Jackson (joshjackson@uky.edu 859-218-4339) or
Lori Rogers (lori.rogers@uky.edu 270-625-2143 ext 21317)

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PRIVATE APPLICATOR TRAINING SESSIONS



College of Agriculture,
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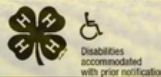
CHOOSE ONE SESSION TO ATTEND!
MONDAY, FEBRUARY 20: 8:30-11:30AM
TUESDAY, MARCH 14: 8:30-11:30AM
TUESDAY, MARCH 21: 5-8PM

Graves County Extension Office
4200 US HWY 45 N
Mayfield, KY 42066



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LEXINGTON, KY 40546



IPM Training School

March 8, 2023

McCracken County Extension Office
2025 New Holt Road Paducah, KY 42001



Program

8:00 AM	Registration
8:15 AM	Welcome

Field Crop

8:25 AM	Changes to Pesticide Certification and Training	Dr. Ric Bessin
8:50 AM	Herbicide Resistance in KY Weeds	Dr. Travis Legleiter
9:15 AM	Old Foes and New Challenges: Managing Corn Diseases	Dr. Kiersten Wise
9:40 AM	Fungicide Resistance and Management of Foliar Pathogens of Soybean	Dr. Carl Bradley
10:05 AM	COFFEE BREAK	
10:20 AM	Updates on the Control of Stink Bugs Attacking Soybeans in Western Kentucky	Dr. Armando Falcon-Brindis
10:45 AM	Description of Caterpillars in Soybean and Efficacy of Insecticides for their Management	Dr. Raul Villanueva
11:10 AM	Soil Sampling, Testing and How Recommendations Are Made	Dr. Edwin Ritchey
11:35 AM	After the Recommendation: What to/not to Do?	Dr. John Grove

12:00 PM

LUNCH BREAK

Horticulture

1:00 PM	Advanced Concepts in Fungicides	Dr. Paul Vincelli
1:25 PM	Forest Health Update	Dr. Ellen V. Crocker
1:50 PM	Management Options for Root-Knot Nematode	Dr. Rachel Rudolph
2:15 PM	COFFEE BREAK	
2:30 PM	Soil Water Monitoring Options for Horticulture Crops	Mr. Daniel Becker
2:55 PM	Wolves on the Border: New Invasive Species and Kentucky	Dr. Jonathan Larson
3:20 PM	Current Wildlife Management Issues in Kentucky	Dr. Matt Springer



To register to attend the in-person or online meeting click [Here](#)

CEUs Pesticide Applicator: 4 specific categories 1A and 10; 2 specific for category 2 and 1 specific for category 3. (2 sessions)
Certified Crop Adviser: Integrated Pest Management: 5.5; Soil and Water Management: 0.5; Nutrient Management: 1. (2 sessions)

Contacts

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Ric Bessin r. bessin@uky.edu, Phone: (859) 323-1120

Sustainable Ag Webinar with Jackson Rolett from



THURSDAY
MARCH 23
2023
6:30pm ET/
5:30pm CT

Join us to learn about implicating appropriate or no-tillage, cover cropping, & mulching in small-scale market gardens.

REGISTER FOR FREE ON
EVENTBRITE



This webinar series is part of a Southern Region Sustainable Agriculture Research and Education (SARE) project.



Register for the Sustainable Ag Webinar here!

https://www.eventbrite.com/e/sustainable-ag-webinar-with-no-till-growers-jackson-rolett-tickets-528427539997?fbclid=IwAR0_UtFsJH-kmPxC972qLYjZ6qoA9gCj9Cb0EFXi19FWXUVWpZMI3Y09_7Q

HAVE YOU RAN YOUR SOIL TESTS YET? DROP YOUR SAMPLES OFF AT THE OFFICE! \$7 PER SAMPLE!



Critical time to Begin Sampling for Alfalfa Weevil

Kentucky Pest News

by: Ric Bessin, UK Entomology Extension Specialist



The University of Kentucky Ag Weather Center's degree day model for alfalfa weevil indicates that many counties in Kentucky are likely to exceed the 190 Degree Days (DD) used as a starting point to begin scouting by early to mid-March. Once temperature accumulations reach 190 DD, growers are advised to look at their alfalfa fields and begin their alfalfa weevil larval counts. So far, degree day accumulations for this year are trending close to average for the last 10 years.

Count from 01/01/2023, end in 02/20/2023

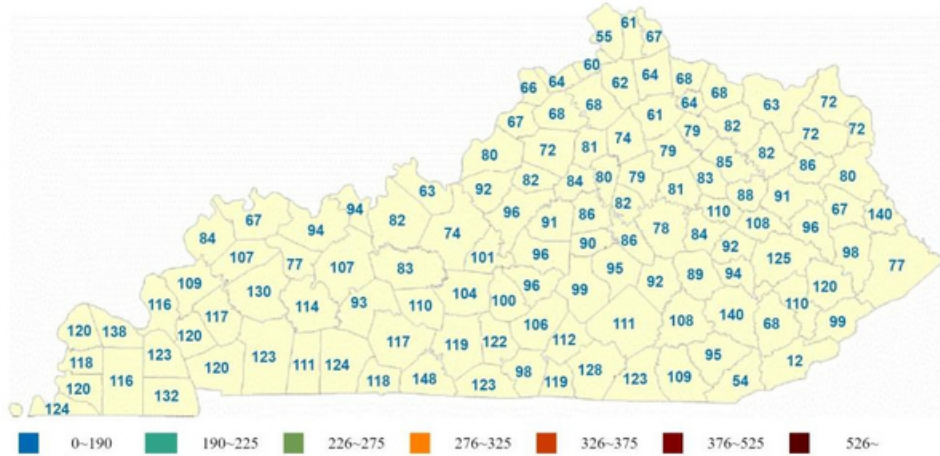


Figure 1. When degree day totals reach 190 Degree Days, it is time to begin scouting for alfalfa weevil larvae. Scouting continues at least on a weekly schedule until regrowth after the first cutting. Treat the DD totals for the counties as estimates.

Fall-laid alfalfa weevil eggs are the first to hatch in the spring. These eggs hatch earlier than those laid in the spring, and 190 DD approximates when first leaf feeding damage becomes noticeable. Temperature extremes during the winter help to limit the survival of alfalfa weevil eggs that were laid in stems in the fall. Damage by the young larvae will first appear as tiny pin holes in the leaves.

Scouting & Thresholds

To scout for alfalfa weevil, use the stem sampling method. While walking in a “U” or “Z” pattern through a field, collect 30 alfalfa stems; carefully cup the top of each stem in one hand and break off the crown with your other hand, then place it bud-end downward in a plastic bucket. Be sure your samples are at least 20 feet from the edge of a field so that they are representative of the entire interior of a field.

If the field is close to harvest, harvest can be an alternative to spraying, but producers need to watch for damage to the regrowth. There are similar scouting tables for regrowth after the first cutting.

Alfalfa Weevil Larvae Thresholds for Spraying 190 to 225 Degree Days

Average stem height (inches)	Number of alfalfa weevil larvae on 30 stems
2	27
4	67
6	100
8	130

Alfalfa Weevil Larvae Thresholds for Spraying 226 to 275 Degree Days

Average stem height (inches)	Number of alfalfa weevil larvae on 30 stems
2	15
4	19
6	20

For degree day accumulations above 275, use the economic threshold tables in ENTFACT 127 or ENT-17 to determine the need to spray the field for alfalfa weevil.

Avoid Pesticide Resistance

If you need to treat for alfalfa weevil larvae, keep in mind that insecticide resistance has been an issue in some areas. The best strategy to manage resistance is to use an insecticide only when necessary and to rotate modes of action each year. For many other pests I would recommend rotating more often, but alfalfa weevil has only one generation per year. To rotate modes of action, select insecticides that have a different IRAC group number on the label.

Join us for the 1st annual Western KY

Pastures Please!!

Thursday, March 2nd, 5:30 – 8:00 pm



University of Kentucky
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Grand Rivers Community Center

115W Cumberland AVE, Grand Rivers, KY
Hosted by the UK Cooperative Extension
and UK Ag. Equine Programs



College of Agriculture,
Food and Environment
Equine Programs

Program

- 5:30 Supper
- 6:00 Controlling Pasture Weeds after Drought, Dr. Witt
- 6:30 Rescue a Pasture By Seeding Annuals, Dr. Teutsch
- 7:00 Manage Your Pastures after a Drought, Dr. Coleman



RSVP online using the
QR code or call:
Livingston County: 270-928-0189
Or Caldwell County: 270-365-2787

Thank you to our sponsors:
UK Cooperative Extension Service
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Timely Tips

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

Spring-Calving Herd

Get ready for calving season this month!

- Have calving equipment, supplies and labor ready for the spring calving season. Some supplies that may be needed are: ear tags and applicator (put numbers on ear tags now), tattoo pliers and ink, record book, scales for calf weights, iodine for calves' navels and colostrum supplement. Calving equipment (puller and chains, etc.) and facilities should be ready and clean. Keep your veterinarians phone number handy!
- Overall condition of the cow herd should be evaluated. Cows losing weight now are more likely to have weak or dead calves. These cows will likely be a poor source of colostrum milk for the newborn calf. Feed cows, if necessary, to keep them in good body condition. Cows need to calve in a BCS of 5, minimum, to expect them to rebreed in a timely fashion. Calve you heifers a little heavier, BCS of 6.
- Heifers may begin head-start calving in early February. Move them to a clean, accessible pasture, away from cow herd and near facilities so that calving assistance can be given. Cows may start calving later this month. Signs of calving are relaxation of pelvic ligaments, enlargement and swelling of the vulva, and enlargement of the udder. Expect calving difficulty if (1) calf's head and two feet are not visible, (2) only the calf's tail is visible, and (3) the cow has been in labor for 1½ hours. Be sure calf is being presented normally before using calf puller. Recognize situations that are beyond your capability and seek professional help as early as possible. Calves that aren't breathing should receive assistance. Try sticking a straw in nostril to stimulate a reflex or try alternate pressure and release on rib cage. Commercial respirators are also available. Calves should consume colostrum within 30 minutes of birth to achieve good immunity.
- Record birthdate, cow I.D., and birthweight immediately (use your Beef IRM calendar). Identify calf with an ear tag and/or tattoo. Registered calves should be weighed in the first 24 hours. Male calves in commercial herds should be castrated and implanted as soon as possible.
- Separate cows that calve away from dry cows and increase their feed. Increase feed after calving to 25-27 pounds of high quality hay. Concentrate (3-4 lb. for mature cows and about 8 lb. for first-calf heifers) may be needed if you are feeding lower quality hay. Hay analysis will greatly aid any decisions regarding type and amount of supplementation. Supplementation may have a beneficial effect on date and rate of conception. It's an important time to feed a beef cow after calving. Thin cows don't come into heat very soon after calving. We must have cows in good condition, if we plan to breed them early in the season for best pregnancy rates, especially on high-endophyte fescue pastures.
- Sub-zero weather can mean death for newborn calves. During extremely cold spells, bring the cow(s) into a sheltered area as calving approaches to protect the calf. Be prepared to warm-up and feed newborn, chilled calves. Calving in mud can also cause problems.
- Watch for scours in newborn calves. Consult your veterinarian quickly for diagnosis, cause, and treatment. Avoid muddy feeding areas so that cows' udders won't become contaminated and spread scours. Don't confine cows to muddy lots.
- Replacement heifers should be gaining adequately to reach target breeding weights by April 1st. Be sure that their feeding program is adequate for early breeding.
- Start looking for herd sire replacements, if needed.



Fall-Calving Herd

- Breeding season should end this month – maybe Valentine's Day. Remove bulls and confine them so that they regain condition.
- Consider creep feed or creep grazing (wheat, etc.) to supply extra nutrition to fall-born calves which may have to depend solely on their dam's milk supply for growth. They are not getting much except their dam's milk now (i.e. there is nothing to graze). February/March is the worst time of the year for fall-born calves.
- Provide windbreaks or clean shelter for calves.

General

- Increase feed as temperature drops. When temperature falls below 15 degrees, cattle need access to windbreaks. For each 10 degrees drop below 15 degrees, add three pounds of hay, two pounds of corn, or six pounds of silage to their rations.
- Always provide water. Watch for frozen pond hazards. If cattle are watering in a pond, be sure to keep ice "chopped" to keep cattle from walking on the ice and, possibly, breaking through. Keep automatic waterers working.
- You should be feeding a mineral supplement with adequate magnesium to prevent grass tetany (~ 15% Mg) now. The Hi-mag UK Beef IRM mineral can be used.
- Control lice. Watch for signs such as rubbing.
- Begin pasture renovation. You can overseed clover on frozen or snow-covered pastures. For more information on frost seeding clover, look at the January issue of Off the Hoof or go to the UK Forages website. (www.forages.ca.uky.edu).

Antibiotic Stewardship-What to do Now to Prepare for Changes Ahead

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

On **June 11th, 2021**, The Food and Drug Administration (FDA) finalized a Guidance for Industry (GFI) #263, which outlines the process for animal drug manufacturers to change all remaining antibiotic formulations used in animal health care from over-the-counter (OTC) to prescription status. Products commonly used by beef producers such as injectable penicillin and oxytetracycline (for example, LA-300) will no longer be available without a prescription from a veterinarian as of June 2023. Specifically, all dosage forms of medically important antimicrobials approved for use in animals will only be available from, or under the supervision of, a licensed veterinarian, and only when necessary for the treatment, control, or prevention of specific diseases. Producers will need to consult a veterinarian to obtain all antibiotics in any form (injectable, bolus, topical, intramammary) or to request a prescription to purchase them from a distributor.

FDA's goal through GFI #263 is to curb the development of antibiotic-resistant bacteria and, in turn, reduce the risk of human infections that are difficult to treat due to ineffective antibiotics. To accomplish the goal, FDA is promoting the implementation of "responsible antibiotic stewardship practices in veterinary medicine" which are defined as "actions that preserve the effectiveness of antibiotics while maintaining animal health". Examples of responsible practices include 1) only using antibiotics when necessary to treat a sick animal; 2) establishing vaccination protocols and other disease prevention plans to reduce the need for antibiotics; and 3) livestock owners and veterinarians working together to make decisions to improve the overall animal health and welfare of the herd over the long term.

Given that this change is less than 6 months away, what can a livestock producer do now to prepare for it? For a veterinarian to legally sell or prescribe prescription products, FDA states, "A licensed veterinarian may legally use or dispense a prescription animal drug only within the course of her/his professional practice where a valid veterinarian-client-patient relationship exists. Veterinarians employed by drug manufacturers or distributors may not legally dispense prescription drugs to laypersons unless they meet the above criteria. Similarly, practicing veterinarians or their employees may not legally sell prescription animal drugs to walk-in customers unless the same criteria are met." Therefore, the first step to do now is establish a valid veterinary-client-patient relationship (VCPR). Kentucky has its own definition of a VCPR (see Box 1). Although the rules are straightforward, how to build a VCPR first requires communication with a veterinarian and asking the question "What do I need to do to establish and maintain a VCPR with you?" The law requires the veterinarian to be familiar with the client, the livestock, and the management of the animals on the farm through "medically appropriate and timely visits" to the place the animals are kept. Scheduling routine veterinary visits to the farm at intervals established by the veterinarian is a perfect way to meet this requirement. At a minimum, the veterinarian needs to know the livestock business you are in (commercial cow/calf; stocker/backgrounder; seedstock operation), what vaccines are routinely given and when, what diseases are recurring problems at the farm and how you typically treat them (for example, pinkeye, foot rot, bronchopneumonia, calf scours, etc.) and any health concerns that may be on the horizon. Some veterinarians will execute a written VCPR agreement although it is not required.

Box 1

KRS Sec 321.185 Veterinarian-client-patient relationship (VCPR)

(1) In order for a veterinarian to practice veterinary medicine, a relationship among the veterinarian, the client, and the patient shall be established and maintained.

"Veterinarian-client-patient relationship" means that:

- (a) The veterinarian has assumed the responsibility for making judgments regarding the health of the animal and the need for veterinary treatment, and the client, whether owner or other caretaker, has agreed to follow the instructions of the veterinarian;
 - (b) There is sufficient knowledge of the animal by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal. This means that the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal by virtue of an examination of the animal or by medically appropriate and timely visits to the premises where the animal is kept; and
 - (c) The practicing veterinarian is readily available or shall provide medical service for follow-up in case of adverse reactions or failure of the regimen of therapy. A new regimen of therapy shall be contingent only upon cooperation of the client and availability of the subject animal.
- (2) The veterinarian shall maintain records which document patient visits, diagnosis, treatment, and other relevant information.

Antibiotic Stewardship cont...

Once the VCPR is established and recognized by both the client and the veterinarian, then the discussions can begin regarding how to obtain prescription antibiotics after June 2023. Working with the veterinarian to establish when antibiotics are necessary before illness occurs is crucial to having the drugs on hand when needed. Setting up treatment protocols in advance with the veterinarian for common problems on your farm, including a written plan of when to treat an animal (also known as a “case definition”), what drug to use (dose, route of administration, how often to give it), what treatment records should be kept, and how withdrawal times will be recorded and observed will reduce the need for emergency veterinary visits and expedite treatment. An important piece of the protocol is to establish when an antibiotic treatment should be considered a failure and what the next step should be when failure is recognized. The treatment protocol needs to be discussed with every person on the farm who may be involved in identifying, pulling and treating an animal in the herd.

Although producers express frustration if a veterinarian does not honor a request for a prescription medication or veterinary feed directive (VFD), it is important to understand that any violative antibiotic residue detected at slaughter will result in an investigation of the veterinarian who prescribed the drug, even if the drug was administered improperly by the producer and/or instructions were not followed. In addition, if a drug is used in any manner differently from what is written on the label (known as Extra label drug use or ELDU), the meat withdrawal time usually must be extended. For example, if a higher than label dose is used, it changes when the residue concentrations will fall below the drug testing tolerance. Bear in mind that any drug delivered with a dart is considered extra label use and may require an extended withdrawal period, even when all other label directions are met. The only way a drug can legally be used extra label is when it is prescribed by a veterinarian, who must also issue an extended withdrawal interval. Veterinarians can contact the Food Animal Residue Avoidance Databank (FARAD) for guidance in establishing the required withdrawal time.

Bottom Line: Talk to your veterinarian, sooner rather than later!



Figure 1: Excerpted from FDA “Antibiotic Stewardship in Veterinary Medicine” brochure; accessed 1/10/2023

Purchase Area Beef Producers Annual Purchase Beef Production Meeting

Tuesday, March 7, 2023

Trade show: 5:30-6:30

Ribeye Dinner: 6:30-7:15

Presentations: 7:15-8:30

Announcements: 8:30

Hosted at the Graves County Extension Office

Call 270-247-2334 to RSVP



2023 POULTRY WEBINARS

ALL WEBINARS BEGIN AT 2PM CST/3PM EST

- FEBRUARY 7: REPRODUCTIVE ISSUES WITH SMALL AND BACKYARD POULTRY FLOCKS
- MARCH 7: RAISING TURKEYS IN SMALL AND BACKYARD FLOCKS
- APRIL 4: DAILY MANAGEMENT OF A HOME POULTRY INCUBATOR
- MAY 4: HATCHING WATERFOWL EGGS IN A HOME INCUBATOR
- JUNE 6: DOING FECAL FLOTATIONS FOR THE IDENTIFICATION OF INTESTINAL PARASITES IN POULTRY ** THIS DATE IS SUBJECT TO CHANGE**
- AUGUST 1: SANITIZING IN A POULTRY HOUSE
- SEPTEMBER 5: ORGANIZING A COUNTY POULTRY SHOW
- OCTOBER 3: RESPIRATORY ISSUES WITH POULTRY
- NOVEMBER 7: DESIGNING A SMALL FLOCK POULTRY HOUSE
- DECEMBER 5: MANAGING A POULTRY FLOCK ON PASTURE

Visit poultry.extension.org/webinars to register for upcoming webinars or watch past webinars!



Issues • Innovation • Impact

A Part of the Cooperative Extension System



Join this webinar to get prepared for the changes coming in June 2023 in how you purchase antibiotics for your livestock!

Visit this link to register!

<https://www.kysheepandgoat.org/event-registration>



VIP EVENT

Join us online for

Event available to KSWPA & KGPA Members Only

GFI 263 - ANTIBIOTICS REQUIRE VETERINARY PRESCRIPTION



WITH DR. BETH JOHNSON, DVM

March 21st, 2023 • 7:30 pm EST

Event Sponsored by



PLANTING SEASON IS UPON US! LOOK TO SEE WHAT YOU CAN SAFELY PLANT NOW!



Table 14. Vegetable gardener's calendar with planting dates for Western, Central, and Eastern Kentucky¹

Western Ky	Central Ky	Eastern Ky	Planting Method ²	Crop
Jan. 15	Jan. 22	Jan. 29	I	Onions
Feb. 1	Feb. 8	Feb. 15	I	Brussels sprouts
Feb. 15	Feb. 22	Mar. 1	I	Cole crops (Broccoli, cabbage, cauliflower, kohlrabi), lettuce, Chinese cabbage
Mar. 1	Mar. 8	Mar. 15	O	Spinach, mustard, beets, peas, edible podded peas
Mar. 15	Mar. 15	Mar. 22	M	Cabbage, kohlrabi
			O	Asparagus and rhubarb (crowns), beets, carrots, collards, kale, mustard, spinach, peas, edible pod-ded peas, early potato seed pieces, radishes, turnips, green onions, onion sets, endive
			I	Peppers, tomatoes, eggplant, sweet potato slips. Dig and divide any 4 year old rhubarb plants. Fertilize asparagus and rhubarb with 1 lb 5 10 10 per 100 sq ft.
Apr. 1	Apr. 8	Apr. 15	M	Broccoli, cauliflower, collards, lettuce, Chinese cabbage, Swiss chard, onions from seeds
			O	Mustard, spinach, radishes, lettuce, Swiss chard
Apr. 5	Apr. 12	Apr. 19	I	Muskmelons, watermelons, squash
			O	Sweet corn, beets, carrots, mustard, spinach, radishes, lettuce
May 1	May 8	May 15	O	Sweet corn, mustard, radishes, lettuce
May 7	May 15	May 22	O	Green beans, lima beans
			M	Tomatoes, muskmelons, watermelons, squash
June 1	June 8	June 15	O	Sweet corn
			M	Sweet potatoes
June 15	June 22	June 29	O	Sweet corn, late potatoes, summer squash, bush beans, lettuce, parsnips, beets, carrots
July 1	July 8	July 15	O	Sweet corn (early maturing variety), carrots, beets
July 10	July 18	July 25	O	Sow seeds of fall cole crops in a nursery area
July 15	July 22	July 29	O	Sweet corn (early maturing variety), kale, mustard, turnips, summer squash
Aug. 1	Aug. 8	Aug. 15	M	Transplant fall cole crops to permanent location between now and Aug. 15
			O	Peas, edible podded peas, bush beans, radishes, beets, mustard. Divide old rhubarb or plant crowns if not done in spring.
Aug. 15	Aug. 22	Aug. 29	O	Radishes, spinach, turnips, turnip greens, beets, mustard, lettuce, endive
Sept. 1	Sept. 8	Sept. 15	O	Radishes, spinach, mustard
Sept. 15	Sept. 22	Sept. 29	O	Radishes, mustard, turnips, turnip greens
Oct. 1	Oct. 8	Oct. 15	O	Radishes
Oct. 15	Oct. 22	Oct. 29	O	Sow sets of Egyptian tree or multiplier onions. Harvest carrots before heavy freeze.
Nov. 1	Nov. 8	Nov. 15	O	Dig parsnips and store at 32-40°F, or mulch parsnips heavily in the ground

¹ Planting dates are approximate, consult you local weather conditions and adjust planting dates accordingly.

² I: Start seeds indoors; M: Move transplants to garden; O: Start seeds outdoors



STOP BY THE GRAVES COUNTY EXTENSION OFFICE AND GET YOUR COPY OF ID-128 FOR ALL OF YOUR HOME GARDENING INFO!

Seed Germination Test for Leftover Seeds

Supplies:

- paper towel
- spray bottle of water
- plastic resealable bag
- seeds



1. Dampen paper towel with spray bottle.
2. Place 10 seeds from your packet to test in a row on your damp paper towel.
3. Fold paper towel over row of seed and place in resealable bag.
4. Put bag in a warm place out of direct sunlight (the top of your fridge works great).
5. Check seeds every few days for germination and dampness of paper towel. Lightly spray towel if needed.
6. If less than 5 seeds have sprouted after specified germination time has passed, purchase new seeds.



Getting Ready for Spring

By Derrick Snyder - National Weather Service Paducah, KY



March is when the traditional springtime thunderstorm season begins to ramp up in the Commonwealth. As we all know, some of these storms can be real doozies, and it's important we're prepared to weather them. Here's a few tips to help keep you and your loved ones safe:

1. Stay informed: Make sure you've got a weather radio or follow a trusted news station to stay on top of what's brewing. Your local National Weather Service offices offer free storm spotter training classes during this time of year, and these courses are excellent ways to learn about how severe thunderstorms form and how to stay safe around them.

Call your local office to find out more information about a spotter training near you.

2. Have a plan: Make sure you and your family have a designated place to take shelter and a plan for how to stay in touch with one another during a storm. Write it down and keep it handy, just in case. Don't forget to practice your plan too!

3. Stock up: Keep a well-stocked pantry with enough non-perishable food and water to last a few days, in case of power outages or other emergencies. Other items to keep on hand in case of an emergency include extra clothes, medications, cash, and a first aid kit. See the list below for additional supplies.

4. Secure your property: Make sure any loose items around your property are secured to prevent them from becoming dangerous projectiles during high winds. Consider moving livestock to a safe place and securing any loose roof shingles to prevent damage to your home, farm buildings, or workshops.

Don't forget, there's plenty of resources out there to help you get prepared for severe weather.

The National Weather Service, Federal Emergency Management Agency (FEMA), and your local emergency management office can all provide you with valuable information on what to do before, during, and after a thunderstorm. Learn more about making an emergency plan at www.ready.gov/plan.

So, don't wait until it's too late! Take a little time now to get ready for springtime thunderstorms in the Bluegrass State, and you'll be ready to weather whatever comes your way.





Pepper Sauce Zoodles with Chicken

3 skinless, boneless chicken breast halves	2 ½ tablespoons olive oil, divided	½ teaspoon dried basil
1 ¼ teaspoons paprika, divided	1 medium onion, diced	½ teaspoon dried oregano
1 ¼ teaspoons salt, divided	1 red bell pepper, diced	½ teaspoon freshly ground black pepper
¼ teaspoon cayenne pepper	1 green bell pepper, diced	4 zucchini, cut into noodles with a spiralizer
	4 fresh Roma tomatoes, diced	
	3 garlic cloves, minced	

Dice chicken breasts and **season** with ¼ teaspoon paprika, ¼ teaspoon salt, and ¼ teaspoon cayenne pepper. In a large pan, **sauté** chicken in 1 tablespoon olive oil until chicken is no longer pink in the center and the juices run clear. **Remove** chicken to a bowl and **set** aside. In a medium saucepan, **add** ½ tablespoon olive oil, onions, and red and green peppers. **Cook** on medium-high heat until the peppers and onions are tender. **Add** tomatoes, garlic, basil, oregano, 1 teaspoon paprika, black pepper,

and 1 teaspoon salt. **Simmer** on low for 5 minutes, **stirring** often. **Add** 1 tablespoon olive oil to large pan. **Heat** to medium-high and **sauté** zucchini noodles 3 to 5 minutes. **Top** zucchini noodles with chicken breasts and pepper sauce.

Yield: 6 servings

Nutritional Analysis: 170 calories, 8 g fat, 1.5 g saturated fat, 45 mg cholesterol, 530 mg sodium, 11 g carbohydrate, 3 g fiber, 6 g sugars, 0 g added sugars, 16 g protein.



Honey Raisin Muffins

½ cup + 2 tablespoons all purpose flour	¼ teaspoon baking soda	1 cup skim milk
½ cup + 2 tablespoons whole wheat flour	1 teaspoon ground cinnamon	½ cup honey
¾ teaspoon baking powder	¼ teaspoon salt	2 egg whites
	2 cups bran flake cereal with raisins	3 tablespoons unsweetened applesauce
		2 tablespoons canola oil

- 1. Combine** flours, baking powder, baking soda, cinnamon and salt in a bowl and set aside.
- 2. In** a large mixing bowl, **combine** cereal, milk and honey; let stand for 2 minutes to soften. **Stir** in egg whites, applesauce

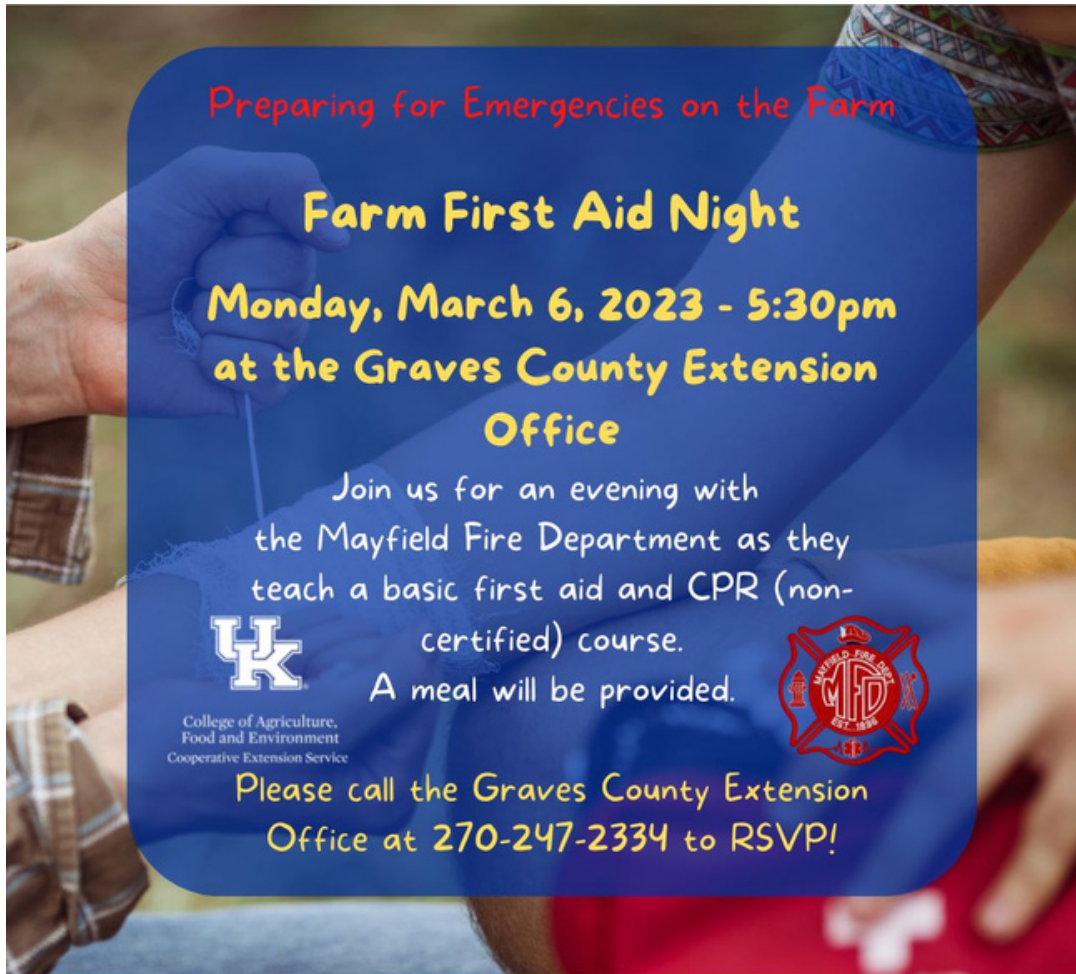
- and oil; **mix** well.
- 3. Add** dry ingredients and stir until moistened.
- 4. Fill** a greased or paper-lined muffin pan ²/₃ full.
- 5. Bake** at 400°F for 15-18 minutes.
- 6. Cool** 10 minutes before removing from pan.

Yield: 12 muffins.

Nutrition Analysis: 150 calories, 3 g fat, 0 mg cholesterol, 170 mg sodium, 30 g carbohydrate, 2 g fiber, 15 g sugar, 4 g protein.

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers' market, or roadside stand.







Preparing for Emergencies on the Farm

Farm First Aid Night

Monday, March 6, 2023 - 5:30pm
at the Graves County Extension Office

Join us for an evening with the Mayfield Fire Department as they teach a basic first aid and CPR (non-certified) course. A meal will be provided.



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Cooperative Extension Service

Please call the Graves County Extension Office at 270-247-2334 to RSVP!

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LEXINGTON, KY 40546



Disabilities accommodated with prior notification.

Local Food for Schools Cooperative Agreement Program Grant Training

All Trainings are located at the county's local Extension Office

- March 2:** Hopkins County
75 Cornwall Drive Madisonville, KY 42431-8780
- March 3:** Warren County
5162 Russellville Road Bowling Green, KY 42101
- March 8:** Franklin County
101 Lakeview Ct Frankfort, KY 40601-8750
- March 10:** Pendleton County
45 David Pribble Drive Falmouth, KY 41040
- March 14:** Breathitt County
1155 Main Street Jackson, KY 41339
- March 15:** Laurel County
200 County Extension Rd. London, KY 40741
- March 16:** Bath County
2914 East Hwy 60 Owingsville, KY 40360-8815
- March 17:** Hardin County
111 Opportunity Way Elizabethtown, KY 42701-9370



Join us for LFS grant Training. The goal of this program is to provide students with access to fresh, local foods and increasing producers' access to consistent markets. Pre-register now at <https://www.surveymonkey.com/r/LFSTrainingPreRegistration>

Contact Kacy McLean at (502)-352-3706 or Kacy.McLean@ky.gov for more information

Join Our Mailing List!

College of Agriculture, Food and Environment
Cooperative Extension Service

We are updating our Graves County Agriculture & Natural Resources mailing list! Please scan the QR code or contact the office at 270-247-2334 to make sure you are on there!

