

Agriculture and Natural Resources



A Message From Your ANR Agent:

Just wanted to mention a few items for agriculture. Just finished a training that brought out some amazing facts. It was a shocker to hear that 1.4 % of the people are farmers and that inflation for farmers was well over 200%. Between the cost of fertilizers and fuel (major growth areas) the farmers have a very difficult future. It simply amazes me, that basically 1.4 % of the people raise enough food for the entire world. We are more and more dependent upon the farmer and at the same time more and more people think that food comes from the grocery store and not the farm.

First off—frost is in the forecast for this weekend. For those of you that would like to keep your gardens going a little longer, here is a quick tip. If you spray your vegetables with plain old water, it will help in protecting from 2-4 degrees, your plants. This is a method used often in the orange groves of Florida. This helps by causing the freeze to be the water on top of the leaf instead of within the leaf cells and in some cases will even act as insulation to keep the leaf from freezing. 2 degrees is not much, but often will save your plants. Second—would like to say “Thank you!” to our High Tunnel Growers that participated in the “Root Knott Nematode study” last week. This is a problem that is developing in High Tunnels across the state. Third—would like to brag on our Beekeepers. At the meeting last night, we had 47 members in attendance & learning about mite control. This is the most we have had since Covid started. Fourth—Master Gardener program has done a wonderful job of maintaining the Demo Garden this year. For people to be able to come by the office and see actual crops growing in ways they can reproduce at home, is very educational. It simply does not take acres of land to raise a home vegetable garden. It can be as simple as a few small raised beds or small part of your yard. I firmly believe Agriculture/Horticulture are one of the answers for eastern Kentucky.

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So, the Fall Invasions Begin

By Ric Bessin, Extension Entomology Specialist

Based on what I saw trying to enter my home this weekend, brown marmorated stink bug (BMSB) has begun the search for overwintering sites. Either I'm searching harder or this is earlier than what I've seen before. So, if you have had problems with BMSB using your home as their overwintering hotel, now is the time to be sure your home is invasion-proof. Shorter day length is a trigger for many insects to begin searching for protected places to pass the winter, and for some stink bugs, ladybugs, and boxelder bugs, that can mean your home! The best method to deal with fall insect invaders is prevention: pest-proofing your home to keep them out in the first place.

In Kentucky, there are a number of insects that may choose to move into homes for the winter, including brown marmorated stink bug, multicolored Asian lady beetle, boxelder bug, western conifer seed bug, and cluster flies. Of these, brown marmorated stink bug is usually the first to search for protected places to spend the winter. Multicolor Asian lady beetle begins seeking refuges a month or more after the stink bug. Homes that have had a history of unwanted fall invaders should expect problems in the future.

Figure 1. Brown marmorated stink bug can squeeze through cracks less than 1/6 inch wide (Photo: Ric Bessin, UK).

Preventing Entry

BMSB will begin to gather on structures and vegetation around some structures late in the afternoon on sunny days in late August and September before attempting to gain entry. There are a number of steps to properly pest proof your home, but the primary method is to exclude pests by sealing places through which they enter. Here are steps to reduce problems with fall insect invasions. Seal cracks around doors, windows, and dryer vents with caulk. Cracks as small as 1/8" will permit some insects to pass. Seal openings for pipes and wires in the foundation and siding with caulk, expandable foam for larger openings, or other suitable material. Check the seal under doors. While lying on the floor, look for light filtering



underneath. Replace door sweeps and thresholds as needed.

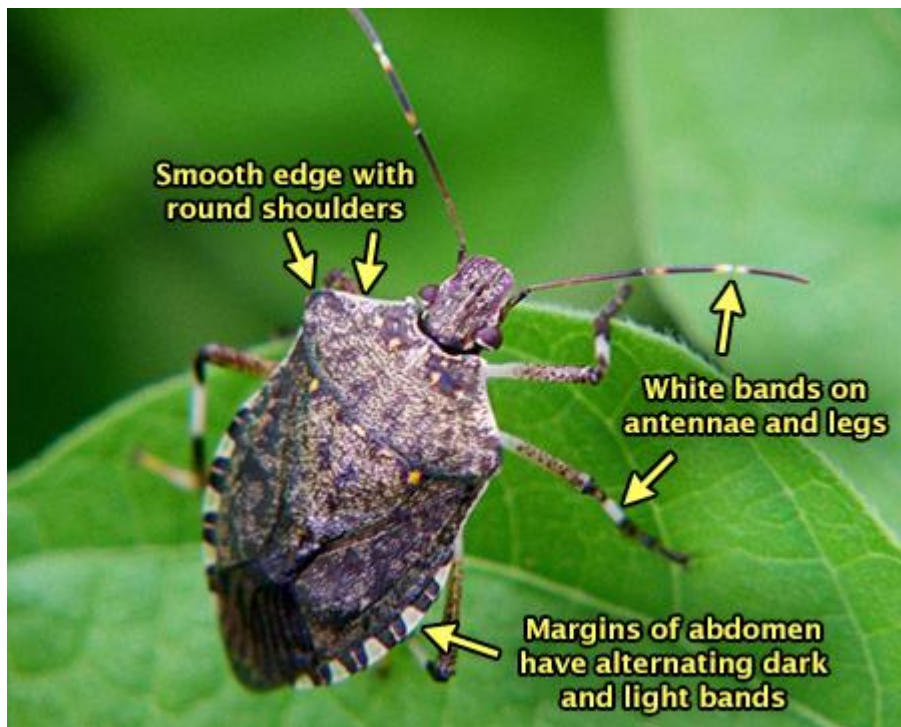
Replace torn or damaged window screens.

Consider adding a chimney cap to exclude brown marmorated stink bug and other wildlife. Cover attic and roof vents with hardware cloth. The cloth needs to be 1/6 inch or smaller to exclude BMSB.

Apply a barrier insecticide to the exterior of the home. Treat areas underneath and around doors, windows, utility openings, and around the base of the foundation. Read and follow all label directions.

After Entry

Indoors during winter, BMSB try to congregate in various places inside structures. This can be in chimneys, closets, window air conditioning units, attics, behind books on a shelf, etc. Insecticides are not recommended inside the home to control pests after they have entered. The best way to remove them once inside is with a vacuum. A knee-high stocking can be used in the suction tube of the vacuum to reduce the number of bags needed. Just drop the stink bugs into soapy water. Various types of light-baited/funnel traps and soapy water traps have been used successfully to remove them from dark areas in a home.



Managing Diseases with Sanitation Practices

Importance of Sanitation

Diseases can become a significant problem in commercial and home landscape plantings (Figure 1a), resulting in premature leaf drop, dieback, decline, and even plant death. When diseases do occur, it is often presumed that fungicides are the most important and effective disease management tools available. However, a good sanitation program can help reduce the need for chemical controls and can improve the effectiveness of other practices for managing disease. This often-overlooked disease management tool reduces pathogen numbers and eliminates infective that cause disease. For example, certain foliar fungal and bacterial leaf spots can become prevalent during rainy or humid growing seasons. When disease management is neglected, pathogen populations build-up and continue to increase as long as there is susceptible

plant tissue available for infection and disease development. Infected plant tissue infested soil, and pathogen inoculum all serve as sources of pathogens that can later infect healthy plants.

Reduction of pathogens by various sanitation practices can reduce both active and dormant pathogens. While actively growing plants can provide host tissue for pathogen multiplication (Figure 1), dead plant material (foliage, stems, roots) can harbor overwintering propagules for months or years. These propagules can travel via air/wind currents, stick to shoes or tools, or move with contaminated soil or water droplets. Thus, prevention of spread of pathogens to healthy plants and the elimination of any disease-causing organisms from one season to another are the foundations for a disease management program using sanitation practices.



FIGURE 1. WHEN MARIGOLD BLOSSOMS INFECTED WITH BOTRYTIS ARE LEFT IN THE LANDSCAPE (A) PATHOGEN LEVELS BUILD UP ON DISEASED TISSUES (B), RESULTING IN THE PRODUCTION OF NUMEROUS ADDITIONAL INFECTING SPORES (C).

Sanitation Practices

Elimination and/or reduction of pathogens from the landscape results in fewer pathogen propagules.

The following sanitary practices can reduce amounts of infectious pathogens:

- Remove diseased plant tissues from infected plants. Prune branches with cankers well below the point of infection. Cuts should be made at an intersecting branch. Rake and remove fallen buds, flowers, twigs, leaves, and needles (Figure 4).
- Disinfect tools used to prune galls and cankers. Cutting blades should be dipped into a commercial sanitizer, 10% Lysol disinfectant, 10% bleach, or rubbing alcohol between each cut. If using bleach, rinse and oil tools after completing work, to prevent corrosion.

- Discard perennial and annual plants that are heavily infected and those with untreatable diseases (e.g. root rots, Figure 4; and vascular wilts). Dig infected plants to include as much of the root system as possible, along with infested soil.

- Trees and shrubs infected with systemic diseases (e.g. Dutch elm disease, Verticillium wilt, bacterial leaf scorch) that show considerable dieback should be cut and the stump removed or destroyed (e.g. by grinding).

- If infected plants are to be treated with fungicides, prune or remove infected tissue (flowers, leaves) and debris to eliminate sources for spore production or propagule multiplication. This should be done before fungicide application.

Fungicide effectiveness may be reduced when disease pressure is heavy, which can result when pathogen levels cannot be reduced sufficiently by chemical means (fungicides).

- Discard fallen leaves, needles, prunings, and culled plants. Never leave diseased plant material in the landscape, as pathogens may continue to multiply by producing spores or other propagules. Infected plant material should be buried, burned, or removed with other yard waste.

- Do not compost diseased plant material or infested soil because incomplete composting (temperatures below 160° F) may result in survival of propagules.

- Homeowners should be cautious about storing diseased limbs and trunks as firewood or using the woodchips as mulch. For example, wood from trees infected with Dutch elm disease should be debarked before placing in a firewood pile.

- Remove weeds and volunteer plants to prevent establishment of a “green bridge” between plants. A green bridge allows pathogens to infect alternate hosts until a more suitable one becomes available. Be sure to remove aboveground parts AND roots.

- Soil from container-grown plants should not be reused from one season to the next because pathogens can survive in soil.



FIGURE 4. HEAVILY INFECTED PLANTS OR THOSE WITH UNTREATABLE DISEASES, SUCH AS BLACK ROOT ROT (ABOVE), SHOULD BE REMOVED FROM THE LANDSCAPE.

Winter Can Mean Poor Footing for Horses

Winter is on the horizon, which means it's time to talk muddy fields.

Those familiar with horses know that cold seasons can make your farm quite muddy. Mud is not ideal ground for a variety of reasons. First off, it can create erosion of topsoil and the loss of organic matter, while increasing soil compaction. Second it can cause weight loss as horses who traverse through mud expend more energy. They also can suffer because mud on the animals' coats makes it more difficult for them to regulate their body temperature. This increases the amount of energy they need to generate heat for warmth in the winter. Mud can also up the risk of slipping and falling. And don't forget lost shoes, the bane of most horse owners.

"In winter you get the same amount of rain as you would in the summer, however, you don't have the temperatures to evaporate it," said Stephen Higgins, PhD, director of environmental compliance for the University of Kentucky College of Agriculture, Food and Environment's Agricultural Experiment Station. "When you mix water, soil and foot traffic, you get a lot of mud."

Fortunately, there is a solution: heavy-use traffic pads.

"Traffic pads are a great solution," Higgins said. "You have many material choices for heavy-use pads. Some of these include concrete, plastic traffic grid and geotextile fabric and rock. However, for horses, I would not recommend concrete as they need softer surfaces.



The material you use varies depending on many factors, including material availability, installation costs and the size of your operation.”

Pad thickness depends on the type of livestock you have, stocking density and whether the area also gets a lot of equipment traffic. Higgins says with equine traffic, an eight-inch-thick layer of dense grade aggregate placed on a six-to-eight-ounce non-woven geotextile fabric would be the best course of action.

Geotextile fabrics are generally used in road construction projects for subgrade stabilization. The geotextile, which is used to separate the soil from the rock layers, is a key component for effective long-term performance of the traffic pad. If the geotextile is not used, the rock material will sink into the ground over time and mud will seep up through the voids. This would negate all of the work (and money) which had been dedicated toward creating safe footing for horses in the first place. The purpose of geotextile fabric is to separate the rock from the soil, provide reinforcement, and friction, while providing drainage for the rock matrix.

Ideally pads would be located on a summit and not a sloping area. If it must be constructed in a hilly location, the area should be leveled to allow runoff to move across as sheet flow to reduce channeling and erosion of the rock pad.

However, like everything else, COVID-19 has thrown an unforeseen wrench in the works.

“Some things aren’t as cost effective anymore,” Higgins said. “The price of plastic resins has gone up 30% in the past year. So now we’ve had to look at other ideas. Some are a little inventive, such as cinder blocks.”

Higgins says that one idea is to set the blocks on the ground on filter fabric and then backfill it with rock. In addition to providing infiltration, cinder blocks absorb moisture from the environment. The blocks end up acting like sponge in that they wick moisture. This type of footing surface is an idea for indoor areas. A bench top lab study suggested that each block could actually store an entire gallon of liquid. It’s not without its drawbacks, however. This type of flooring might also draw moisture to the surface near an animal and bedding.

“We all want to take care of our horses,” Higgins said. “One of the best ways to do that in the winter is to take care of their footing. Pads can really save owners plenty of headaches down the road.”

More information for installing pads for horses can be found online at <http://www2.ca.uky.edu/agcomm/pubs/id/id164/id164.pdf>.

Jordan Strickler is an agriculture communications specialist within UK’s College of Agriculture, Food and Environment. Photo courtesy Dr. Jimmy Henning.

Winter Tips and Reminders for Livestock

Tips for the Winter Season - The winter is a time of adaptation for farmers in Kentucky. We have to change the way we manage our livestock in order to sustain the animals as well as preserve our pastures for the coming spring. As forage becomes less available throughout the months of December, January, and February supplemental feed is the main alternative for most farmers. Some pastures become unavailable for grazing and careful thought should be put into how to efficiently maintain livestock. Here are just a few things to keep in mind as you prepare for the winter.

- Check hay quality before feeding
- Move cattle often to avoid compaction and destruction of pasture area
- Move cattle according to weather conditions to avoid heavy traffic on pastures
- If possible feed cattle on an all-weather surface or feeding pads
- Consider feeding hay in feeders that don't allow much waste
- Plan for any changes to your grazing system that will be made in the spring
- If you are planning on frost seeding clover; the best time to seed is February-early March
- Apply fertilizer according to soil tests.
- Apply Nitrogen in February to promote early grass growth if needed.

Reminders for Winter Watering - Keeping watering systems from freezing during the winter months has been a challenge for as long as domesticated cattle have been raised in cold climates. Mature beef cattle can consume as much as 30+ gallons of water in a day, the amount will fluctuate depending on the weather, how much the cow is eating, distance to water, or if the cow is lactating. Hydration keeps the digestive tract functioning.

Below are ways to keep water available during the winter.

- Check waterers daily for any freezing that may occur.
- Be aware of location (if system is not in a building). Watering systems that aren't exposed to any sunlight will stay frozen much longer than those in a sunny area. Also pay attention to elevation as a lower elevation will stay at a lower temperature in the early part of the day.
- Check your watering system for contamination on a regular basis. Food particles often contaminate water as well as fecal material/urine.



- Utilize insulation: indoor watering sheds, insulated buckets/troughs, and insulated water tanks. Take advantage of buildings and terrain that are already available to you.
 - Avoid ball waterers if you have recently weaned calves in your herd. A calf is unable to push down the ball if it freezes and will not be able to access the water.
- Keep water pipes from freezing. Make sure any exposed pipe that is capable of freezing is insulated.
- Burying water lines is the most common way farmers utilize insulation, although some use hay or fabric and surround the pipe with these materials.
- Geothermal heating of troughs can be an alternative to conventional insulation, though this can take time to set up.
- If any heating elements are being used, check to see if they are keeping water at the desired temperature. While doing this make sure there is no electrical current in the water from a malfunctioning heating unit.

Sheep Pests

Lee Townsend, Extension Entomologist

Sheep Keds

Sheep keds are wingless, reddish brown biting flies that resemble, and are sometimes called, ticks. They use piercing- sucking mouthparts to feed on blood. Although sheep are the primary host but keds may feed on goats. This irritation makes the animals restless. Consequently, growth and weight gain, especially of lambs, can be reduced. Scratching to relieve the itching at feeding sites may damage wool quality. Heavily infested animals also may be more susceptible to diseases and other stresses. In addition, ked bites can cause hard nodules on the skin, a defect known as "cockles". These pimple-like blemishes cannot be completely flattened or covered with dyes.

This insect has a very unusual life cycle. At about weekly intervals, a single egg hatches inside the body of the female and the maggot-like larva grows in her body. The mature larva is expelled and glued to the animal's fleece. It forms a chestnut brown bean-shaped pupa that can be found stuck to the wool on the belly, shoulders, or thighs. About three weeks later, the adult fly emerges. Adults live three to four months and produce about 10 to 12 offspring.

Ked numbers in a flock are lowest during the summer and highest during the winter. They usually are spread from animal to animal by direct contact but keds can crawl to a new host. Keds can only survive off of the animal for about a week.

Sheep keds are readily controlled with insecticide dusts or sprays. Treatment is recommended immediately after shearing. About half of the adult keds and most of the larvae are removed with the fleece and better coverage is obtained on shorn animals.



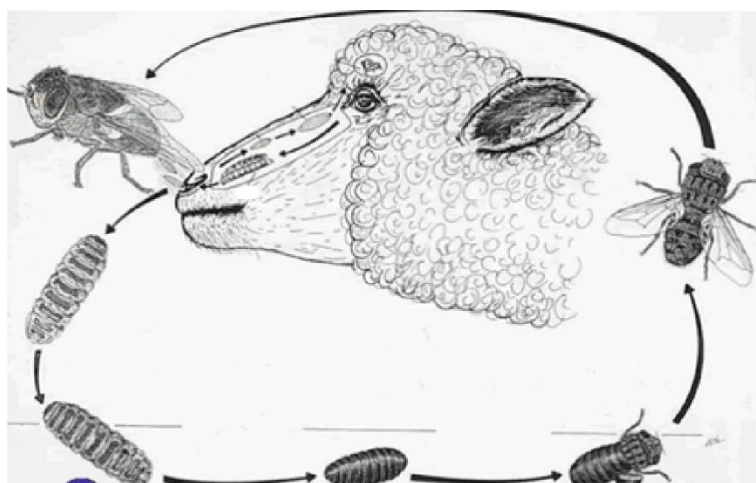
Keeping the flock free of keds requires isolating and treating newly purchased animals before they join the flock.

Sheep Nose Bots

Adult sheep bot flies are hairy yellow-brown insects about the size of a bumble bee. They follow sheep on warm, still, sunny days from late spring until autumn. The flies dart at the sheep's head and deposit newly-hatched larvae near the nostrils. When under attack, sheep may shake their heads, stamp their feet, snort, and push their noses in the dust or between other animals or run.

The small, spiny bot larvae work their way up the nasal passage, feeding on mucus secretions as they go. They end up in the sinuses or other hollow spaces in the head where they can produce severe inflammations. The excess mucus, along with dust drawn into the air passages, causes sneezing, labored breathing, and predisposes animals to bacterial infections.

The bots remain in the head until they are fully grown, although they may migrate from cavity to cavity. They then work their way out through the nostrils or are sneezed out to the ground where they bury themselves and pupate in a few hours. In 3 to 6 weeks adult flies emerge from the pupae. The length of time the larva spends in the head is dependent upon the season. Usually the first generation in the spring remains in the head of sheep for 2 to 3 months. The adults from these (2nd generation) will deposit young in the fall and these will over-winter in the head until the first warm days of spring. Research has shown that over 90% of the sheep in Kentucky are infested with bots from October through February. The highest bot levels are seen in November and December.



Weight reductions of up to 4% have been attributed to bot infestations in some studies. Harassment by adult flies and the irritation caused by bots in the nasal passages are likely to affect production.

A systemic insecticide formulation containing ivermectrin is available to control this pest.

Revised: 10/95

CAUTION! Pesticide recommendations in this publication are registered for use in Kentucky, USA ONLY! The use of some products may not be legal in your state or country. Please check with your local county agent or regulatory official before using any pesticide mentioned in this publication.

Of course, **ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR SAFE USE OF ANY PESTICIDE!**

Upcoming Dates for Oct/Nov/Dec.

When	What	Time	Where
Oct. 8	Farmers Market	9:00 am to 1:00 pm	Farmers Market Pavilion
Oct. 10	Food Safety	4:00 pm	UK Greenhouse
Oct. 11	Farmers Market	4:30 to 8:00 pm	Farmers Market Pavilion
Oct. 11	Beef Webinar	8:00 pm	Zoom
Oct. 12	NATIONAL FARMERS DAY		
Oct. 13	Pest Management	11:00 to 2 pm	UK South Farm
Oct. 13	Master Gardener	5:30 pm	Extension Office
Oct. 15	Eden Shale Tour	Noon to 10:00 pm	Eden Shale Farm
Oct. 15	Farmers Market	9:00 am to 1:00 pm	Farmers Market Pavilion
Oct. 18	Farmers Market	4:30 pm to 7:00 pm	Farmers Market Pavilion
Oct. 19-20	SOAR	All day	Appalachian Wireless Arena
Oct. 20	Beef Bash	All day	Lexington
Oct. 25	Farmers Market	4:30 pm to 7:00 pm	Farmers Market Pavilion
Oct. 25	Fertilizer Academy	6:00 pm	Zoom—Big 3 N-P-K
Oct. 25-26	Grazing Conference	All Day	Winchester
Oct. 27	Christmas Trees	9:00 to 1:00 pm	Zoom
Oct. 29	Farmers Market	9:00 am to 1:00 pm	Farmers Market Pavilion
Nov. 1	Fertilizer Academy	6:00 pm	Zoom—Micronutrients & CEC
Nov. 3	Fencing School	All Day	Clay County
Nov. 3	Estate Planning	6:00 pm	Zoom—Farm Leasing
Nov. 4	SARE programs	6:00 pm	Zoom—Projects
Nov. 7	Beekeepers	6:00 pm	Extension Office
Nov. 8	Beef	8:00 pm	Zoom
Nov. 8	Fertilizer Academy	6:00 pm	Zoom—Lime and pH
Nov. 10	Master Gardeners	5:30 pm	Extension Office
Nov. 12	Farmers Market	9:00 am to 1:00 pm	Farmers Market Pavilion
Nov. 15	Fertilizer Academy	6:00 pm	Zoom—Spreading your fertilizer \$
Nov. 17	Estate Planning	6:00 pm	Zoom—Trusts
Nov. 19	LAST Farmers Market	9:00 am to 1:00 pm	Farmers Market Pavilion
Nov. 24 & 25	Thanksgiving Holidays		
Dec. 1	Estate Planning	6:00 pm	Zoom—Life Insurance & Funeral Exp.
Dec. 5	Beekeepers	6:00 pm	Christmas Dinner meeting
Dec. 8	Master Gardeners	5:30 pm	Christmas Dinner meeting
Dec. 13	Beef	8:00 pm	Zoom
Dec. 15	Estate Planning	6:00 pm	Zoom—End of Life Care
Dec. 17	Broken Trail	all day prep & “Christmas for Kids” project	

+ **Still to be scheduled** –
 Mushroom Workshop
 Farmers Market Meeting
 Master Gardener Class
 Landscaping Class

* If You are interested— contact Suzanne at 606-432-2534 and she will arrange to take a van



Baked Apples and Sweet Potatoes

5 medium sweet potatoes	$\frac{1}{2}$ cup margarine	1 teaspoon nutmeg
4 medium apples	$\frac{1}{2}$ cup brown sugar	$\frac{1}{4}$ cup hot water
	$\frac{1}{2}$ teaspoon salt	2 tablespoons honey

- 1. Boil** potatoes in 2 inches of water until almost tender.
 - 2. Cool** potatoes, peel and slice. **Peel**, core and slice apples.
 - 3. Preheat** the oven to 400°F. **Grease** a casserole dish with a small amount of margarine.
 - 4. Layer** potatoes on the bottom of the dish.
 - 5. Add** a layer of apple slices.
 - 6. Sprinkle** some sugar, salt, and tiny pieces of margarine over the apple layer.
 - 7. Repeat** layers of potatoes, apples, sugar, salt and margarine.
 - 8. Sprinkle** top with nutmeg.
 - 9. Mix** the hot water and honey together.
 - 10. Pour** over top of casserole.
 - 11. Bake** for 30 minutes.
- Yield:** 6, 1 cup servings.
Nutrition Analysis: 300 calories, 8 g fat, 59 g carbohydrate, 0 mg cholesterol, 320 mg sodium.
 Source: USDA Food Stamp Nutrition Connection, Recipe finder. June, 2008.

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



Pikeville Farmers Market

Vice President-Michelle W. Sword

As our 2022 Farmers Market comes to an end, I am amazed at what a wonderful season we all have had. We have many new vendors, new clients, new friendships, and many wonderful memories. With new vendors this year, came many new products that everyone has enjoyed. Start planning for your booth for next year and consider what produce or products you can add or delete for our next market season. Think new crops, new crafts, new displays, and added value foods. We only have 7 Saturdays left for this season and the 2023 Farmers Market, will be here before you know it!!! Many blessings to you and your farms/businesses!!!

The Pikeville Farmers Market is open through November 19th, 2022. We will have free Pumpkin Painting for kids on Tuesday October 18th beginning at 4:30pm while supplies last. Trick or Treat with our Vendors on Saturday October 29th from 9am-1pm.

Be sure to follow us on Facebook for more updates and event news

@PikevilleFarmersMarket



PIKEVILLE FARMERS MARKET



Every Saturday | June - Nov. | 9am- 1pm

Every Tuesday | June - Nov. | 4:30pm- 7pm

130 Adams Lane
Pikeville
Kentucky



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EXTENSION
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- Demo Garden
- Farmers Market
- Master Gardeners
- Trail Riders



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