

News Around the Knobs

A Newsletter on Bullitt County Agriculture and Natural Resources from the University of Kentucky Cooperative Extension



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View from the field

By Nathan Rider

Have you been to a farmer's market yet this summer? Go stock up on fresh veggies and make yourself a squash bake or a summer tomato salad! I've enjoyed taste testing my way across the county visiting vendors at both the Shepherdsville and Mt. Washington Farmers' Markets. Bullitt County is a bountiful place...especially when it rains. Thankfully, a helpful amount of rain has fallen on most of Bullitt County. As we count our blessings here, keep in mind our neighbors in Eastern Kentucky. Read more inside for ways to immediately help those recovering from the inundation in the last two weeks.



As the growing season continues, consider updating your Private Applicator License for restricted-use pesticides on Sept 26, check out a livestock producers' meeting this month, or learn how to grow your own mushrooms on Sept 9. There are loads of ways to get connected to resources or new ideas. If I can help you troubleshoot anything, don't hesitate to give me a call.



If you find yourself with any extra time this month, I've enjoyed watching short videos made by farmers, for farmers on a website called One Good Idea. (<https://bit.ly/GoodIdeaFarm>) Try something new this year and tell me how it goes!

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

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 LEXINGTON, KY 40546



Disabilities accommodated with prior notification.



Small Ruminant Profit School Complete! But it's not over...

Congratulations to our inaugural class of SRPS Graduates! Since January over 40 sheep and goat producers from 13 different counties have attended at least one of the seven classes held. We've covered topics including fencing, newborn care, parasites, nutrition, marketing, and more. We even trimmed hooves, tagged ears, and gave shots to live goats in our Multipurpose Education Building.

If you missed any or all of these classes, it's not too late to join in the sheep and goat fun! While the SRPS Class Series is over, we will continue to offer small ruminant programming occasionally throughout the year. Keep checking the newsletter and website. Or thanks to the brainstorming of several class attendees, consider joining the new **Central Kentucky Shepherds and Goatherds Google Group/Listserv**. Email Nathan.rider@uky to request to join!

The next Central KY Shepherds and Goatherds educational event will be held at Christy Mulhall's farm off Bardstown Road near Broad Run Park in Louisville on **Sept 22 at 5:30 PM**. We will learn how to do body condition scoring, hoof trimming, and FAMACHA checks for animal health. RSVP at <https://bit.ly/SheepGoatFieldDay9-22> or call our front office to RSVP with Julie or Chloe at 502-543-2257. The exact location and details will follow. More information online at <https://bit.ly/BullittANRevents>



Read more about the previous classes here: <https://bit.ly/SuccessSRPS>



Helping Neighbors in Eastern Kentucky

On July 28, Gov. Andy Beshear opened an online portal for donations to flood victims at TeamEKYFloodReliefFund.ky.gov. The website will allow you to once again help your Kentucky neighbors in a time of desperate need.

The funds will be used to provide long-term relief to individuals directly impacted by this historic flooding in Eastern Kentucky. These donations can help with food, shelter, and other necessities of life and supplement emergency funds that come into the area.

Money collected through the donation site will not be used for administrative costs. Credit card and treasury fees may apply.

After Western Kentucky's devastating tornados in December 2021, people came together and raised \$52 million through more than 150,000 donations to help survivors with their long-term recovery.

If you would like to donate items toward immediate relief in Eastern Kentucky, contact your local shelter, Red Cross or United Way before purchasing items to prevent unnecessary warehousing of unneeded donations.

Through the extension network, contributions are also being raised to support 4-H members, employees, and families from counties facing significant losses from the July 2022 flooding. Any funds not utilized for these efforts will remain in the fund for the future needs of 4-H'ers. Find more information and donate here: <https://kentucky4hfoundation.org/relief-fund/>

More regional information can be found from the incredible non-profit Appalshop: <https://appalshop.org/news/appalachian-flood-support-resources>



Report Your Summer Wild Turkey Sightings Online

The Kentucky Department of Fish and Wildlife Resources encourages anyone who observes wild turkeys in Kentucky during July or August to enter some basic information about their sightings into an online survey portal. Data collected through this survey enable the department to better understand turkey trends over time.

The online survey portal for reporting sightings can be found here: <https://bit.ly/KYFWTurkeysurvey>. "This simple survey provides important data to help us better understand what is happening with the population over time," Kentucky Fish and Wildlife Wild Turkey Program Coordinator Zak Danks said. "More observations also give us increased data points and enhance our survey coverage statewide. Citizen science can help conservation efforts in many ways. Our summer wild turkey survey is a great example, and we welcome everyone's contributions."



AgrAbility Webinars this Fall

AgrAbility's vision is to enhance quality of life for farmers, ranchers, and other agricultural workers with disabilities, so that they, their families, and their communities continue to succeed in rural America. AgrAbility addresses a wide variety of disabling conditions in agriculture, including, but not limited to:

- Arthritis
- Spinal cord injuries/paralysis
- Back impairments
- Amputations
- Brain injury
- Visual impairments
- Hearing impairments
- Disabling diseases
- Cerebral palsy
- Respiratory impairments
- Head injury

Check out these upcoming webinars to learn more!
<https://bit.ly/AgrabilityWebinars2022>

- August 18: "Vision Solutions for Farmers"

Gain a deeper understanding of different vision impairments and assistive technology to use as a farmer with vision impairments. Speakers: Kyle Haney – Georgia AgrAbility and Ned Stoller – Michigan AgrAbility

- September 15: "Managing Stress on the Farm"

This session introduces strategies to increase occupational stress awareness and develop stress resilience strategies. The first part of the workshop will help you define, assess, and recognize symptoms and consequences of stress. The second part will explain and apply practical strategies to cope with stress and communication strategies. Speaker: Dr. Suzanna Windon – Pennsylvania State University

- October 13: "Build Resilience into Your Farm: Let Nature do the Heavy Lifting"

When we use regenerative practices, we are also using risk management techniques; these techniques will provide layers of protection in our operations through soil health, healthy plants, healthy livestock and nutrient-dense foods for humans while cutting down on synthetic chemicals and sequestering carbon to drawdown CO2

levels. The best part of regenerative farming is that nature is doing all the heavy lifting; we are lowering our inputs, and stress levels and getting our lives back.

October 27: "Low-Stress Marketing for Farmers"

Marketing should start before the seeds are planted and continue well-past harvesting, but it is not always easy! Learn how to tell your story through low-stress marketing strategies and walk away with a clear action plan for your farm for 2022!



Renew your Private Pesticide Applicator License on Sept 26

A certified private pesticide applicator can use Restricted Use pesticides to produce any agricultural commodity on property owned or rented by the applicator or an employer, or to the lands of a farmer-neighbor if the application is made without compensation other than trading of personal services between producers of agricultural commodities. Certified private applicators also may train workers to satisfy Worker Protection Standards

Private applicator certification is valid for 3 years and expires on December 31 of the final year. Applicators must go through the county training program to keep their certification in effect.

If you need to renew your private pesticide applicator's license, please email me or call the front office to RSVP for the training on **Sept 26, 2022**, from **4-7 PM** before the Soil Conservation Meeting at the Bullitt County Extension Office.

Sample Hay to Improve Feeding



The Bullitt County Extension Agriculture and Natural Resources Development Board recently purchased a hay probe and drill that will soon be available to rent for a nominal fee. We will offer hay analyses from Dairy One Lab.

Knowing the nutritional quality of forage and hay is an integral part of a profitable and efficient livestock operation. Accurate estimation of forage quality starts with obtaining a representative sample of the forage to be fed. Proper sampling technique is critical.

Delay sampling until three to four weeks after baling for hay stored out of the weather. During this period bales undergo the heating or sweating process and forage quality can decline. For hay stored outside, it is best to delay sampling until three to four weeks before feeding to account for weathering that occurs after harvest. Remember to allow time for sample shipping and analysis and for making the feeding adjustments needed.

Hay should always be sampled in lots. A lot consists of hay made from the same field and cutting. A lot should not represent more than 200 tons of dry matter. If a lot exceeds 200 tons of dry matter, multiple samples should be taken and forage quality results should be averaged to represent the overall lot.

A representative sample will consist of 20 cores from 20 bales (one core per bale), resulting in a sample size of approximately one-half pound of hay from each lot. Sample bales at random or using a sample strategy and not on some predetermined characteristic such as leafiness, color, or weed content. Using a sampling strategy such as dividing the total number of bales by the number of desired cores can help to get a representative sample of the hay lot. For example, if a lot consists of 240 large round bales and 20 cores are desired, then every 12th bale should be sampled ($240 \text{ total bales} \div 20 \text{ cores} = \text{every } 12\text{th bale}$). If the lot contains less than 20 bales, sample every

bale. Core rectangular bales by centering the probe in the end and inserting the probe horizontally into the bale. Sample round bales by drilling or pushing the probe horizontally into the center of the rounded side of the bale. For round bales, before sampling remove weathered material that livestock would generally refuse from the area to be probed.

The probe should penetrate the bale at least 15 to 18 inches for rectangular or round bales. Always submit the entire sample. Subdividing the sample can result in altered lab results since the fine material segregates from the larger particles. Clearly label the bag with all required information. After the lot has been sampled, the entire sample should be placed into a labeled plastic bag and sealed. Make sure that the bag is clearly labeled with :

- your farm's name
- a description of the hay lot sampled that will allow you to reference the results back to the hay lot
- the type of hay
- Cutting number (1st, 2nd, 3rd) & Year
- Sample date



The sample should be immediately brought to the extension office so we can send it in for analysis. In cases where the sample is not immediately submitted, store the sample in a cool, dry place that is not in direct sunlight.

Feeding the right hay at the right time is both an art and a science. But knowing the nutrient content of the hay is the first step to making the right feeding decisions for your herd or flock.

If you would like to rent the hay probe please email Nathan.Rider@uky.edu or call Julie or Chloe to join our waitlist.

Register for the 2022 Kentucky Master Naturalist program

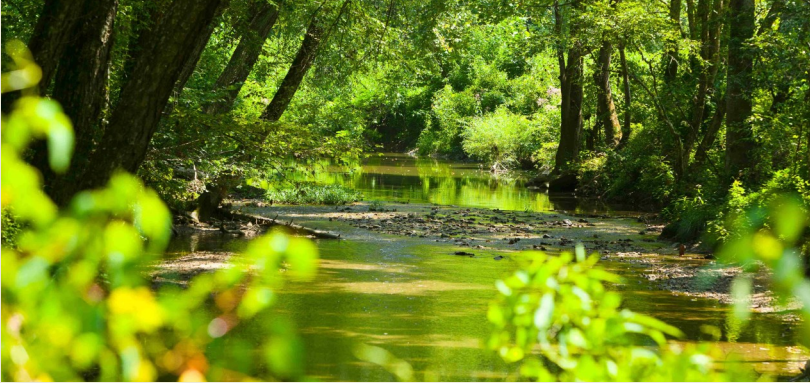


Photo by Matt Barton, UK Agricultural Communications

By: Jordan Strickler

Kentucky residents who want to learn more about the natural world now can with the Kentucky Master Naturalist program.

The University of Kentucky developed the program to educate volunteers who want to advance learning, research and outreach regarding conservation and natural resource management within their local communities.

"I think it's a fantastic opportunity for anyone interested in archaeology, geology, soil, entomology, weather, climate, water resources, and botany," said Ellen Crocker, assistant professor of forest health extension in the UK College of Agriculture Food and Environment. "It's a wonderful chance for anyone interested in those kinds of things not only to learn more but also to meet other people who share their passion."

The UK Cooperative Extension Service is leading the program, which offers 15 Zoom classes and a choice of one of two field trainings from Aug 26 to Dec. 16. The program includes 40 hours of online learning and fieldwork and requires participants to complete 40 volunteer hours in a natural area or with an organization of their choice. The program structure is similar to the Kentucky Extension Master Gardener Program.

Organizers will host the two-hour Zoom sessions on Fridays from 10 AM to 12 PM ET and record them so that participants may watch them at their convenience. Participants will take a short quiz at the end of each class to track attendance.

"Our goal is for these master naturalists to work in natural areas and various groups in their communities," Crocker said. "We believe it will have a significant positive impact on communities and nature."

The registration fee is \$150, however, scholarships are available.

Email Forestry.Extension@uky.edu or visit <https://bit.ly/UKYnaturalist> for more information on the Kentucky Master Naturalist Program. To apply, visit <https://bit.ly/UKYnaturalistApply>

Beginning Farmer Class Series Coming Soon

Spencer County and Bullitt County will be working together this fall to bring a three-part class series for beginning farmers of all ages. If you have 10 years or less of landownership or farming experience or are in search of direction after many years, consider joining us this fall. We will have classes that will help you assess your skills and assets, set goals for your farm, determine a plan of action, and write a budget to stay profitable and pay the bills.

The September and November classes will be held at the Spencer County Cooperative Extension Office while the October class will be held at the Bullitt County Cooperative Extension Office. We encourage new landowners, beginning farmers and market gardeners, hobby farmers, and aspiring growers in Spencer, Bullitt, and surrounding counties to attend.

Please tentatively save the date for our September class on the evening of September 15 at 100 Oak Tree Way, Taylorsville, KY. RSVP online for more up-to-date details: <https://bit.ly/BeginningFarmerClass22>

Bird of the Month



Tree Swallow
(*Tachycineta bicolor*)
Image: VJAnderson Wikimedia

^Tree Swallow peering out of a bluebird nest box at the Bullitt County Extension Office.

Flying around fields and lawns like aerial acrobats, a pair of tree swallows can eat 8000 flies per day, making them great fly control in pastures. Read more about the beautiful iridescent blue birds here: <https://bit.ly/BCBTreeSwallow> or watch a video by cattleman, Greg Judy, on using swallows in pastures: <https://bit.ly/GregJudy-TreeSwallow>

Bullitt County Cattlemen's Association hosts July Field Day



On July 14, 2022, the Bullitt County Cattlemen's Association and Bullitt County Cooperative Extension hosted a field day and cookout at Cedar Creek Beef Company in Shepherdsville. Jewett Borden, owner and operator, gave demonstrations of his cattle handling facility and use of electronic identification and answered questions about his compost bedded pack barn, rotational grazing, annual forage crops, and more. Dr. Beth Johnson, DVM of the State Veterinarians Office gave a talk on the benefits of electronic identification (EID) ear tags and gave away over 600 EID ear tags to the 62 producers in attendance from several counties. If you missed this great field day and would like more information, or would like to acquire some EIDs please let me know.

Otherwise, come to an upcoming Bullitt County Cattlemen's Association Meeting!

Tues. Aug 9 @ 7PM - Dr. Kenny Burdine, UK Ag Econ will give a beef market update and answer beef market questions.

Tues. Sept 13 @ 7 PM - Topic TBD

USDA Ag Census Begins Nov 2022

The Census of Agriculture The Census of Agriculture is a complete count of America's farms and ranches and the people who operate them. Taken every five years, the census provides valuable information used at the local, state, and national levels to plan for the future. The census is the only source of uniform, comprehensive agricultural data for every state, county, and county-equivalent in the nation. By participating in the census, you help show the value and importance of U.S. agriculture.

USDA will begin data collection for the 2022 Census of Agriculture in November 2022. Please respond in one of the following ways: Online at www.agcounts.usda.gov. Online reporting is fast, user-friendly, and secure. By mail. Fill out the census questionnaire and return it in the prepaid envelope provided. Your response to the Census of Agriculture is required by law (Title 7 USC 2204(g) Public Law 105-113).



2022 OAK FIELD DAYS

September 13: No-Till Organic Market Gardening - Rough Draft Farmstead

October 4: Cover Crops, Integrated Grazing, Soil Health in Row Crops -Beiler Farm

October TBD: CSA Marketing, Recordkeeping, and More - Virtual

REGISTER AT WWW.OAK-KY.ORG



Update Your Contact Information

Please help us by updating [your contact information and interests](#). Please go to the following link or scan the QR code on the back page to fill out a very quick form to update your interests, address, phone number, and email address. Otherwise, feel free to email me, give us a call or drop by the office and we can update your information that way.

<https://bit.ly/UpdateContactInfoHere>

Now that it's raining...

I previously reported that we recently installed an Ambient Weather monitoring station at the Bullitt County Extension Office. You may have noticed that it went offline for about a month. It has been repaired and is back online now! For real-time rainfall, wind speed, temperature, and soil moisture readings, check out the weather online. Bookmark this link to go back and check our super-local weather reports!



<https://bit.ly/BullittWeather>

And when the rain stops...

University of Kentucky Cooperative Extension Service has pulled together a web portal with drought monitoring information as well as resources to help you weather another dry spell. <https://bit.ly/UKYdrought>

USDA Announces Assistance for On-Farm Food Safety Expenses for Specialty Crop Growers

On June 17, 2022, U.S. Agriculture Secretary Tom Vilsack announced that the U.S. Department of Agriculture (USDA) plans to provide up to \$200 million in assistance for specialty crop producers who incur eligible on-farm food safety program expenses to obtain or renew a food safety certification in calendar years 2022 or 2023. USDA's new [Food Safety Certification for Specialty Crops \(FSCSC\)](#) program will help to offset costs for specialty crop producers to comply with regulatory requirements and market-driven food safety certification requirements, which is part of USDA's broader effort to transform the food system to create a more level playing field for small and medium producers and a more balanced, equitable economy for everyone working in food and agriculture.

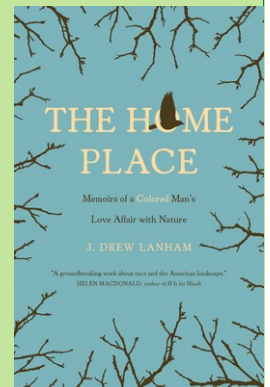
More info here:

<https://bit.ly/FoodSafeAssistance>

Agent's Corner

What I'm Reading:

The Home Place: Memoirs of a Colored Man's Love Affair with Nature: "In me, there is the red of miry clay, the brown of spring floods, the gold of ripening tobacco. All of these hues are me; I am, in the deepest sense, colored." From these fertile soils of love, land, identity, family, and race emerges *The Home Place*, a big-hearted, unforgettable memoir by ornithologist and professor of ecology J. Drew Lanham.



What I'm Listening to:

The No-till Market Garden Podcast is a show for professional and home gardeners alike to learn more about profitable, bio-intensive no-till growing methods through interviews with successful gardeners.



What I'm eating:

Farmers' Market Skillet Bake!
See next page for the recipe...

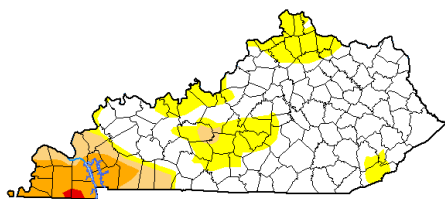


U.S. Drought Monitor Kentucky

July 26, 2022
(Released Thursday, Jul. 28, 2022)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	66.41	33.59	14.10	8.19	0.30	0.00
Last Week 07-19-2022	55.19	44.81	24.99	8.92	0.00	0.00
3 Months Ago 04-26-2022	89.59	10.41	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2022	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-29-2021	100.00	0.00	0.00	0.00	0.00	0.00
One Year Ago 07-27-2021	100.00	0.00	0.00	0.00	0.00	0.00



Intensity:
 None (White) D2 Severe Drought (Orange)
 D0 Abnormally Dry (Yellow) D3 Extreme Drought (Red)
 D1 Moderate Drought (Light Orange) D4 Exceptional Drought (Dark Red)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:
Curtis Riganti
National Drought Mitigation Center



droughtmonitor.unl.edu



Farmer's Market Skillet Bake

- | | | |
|---------------------------------------|---|--|
| ½ small onion, finely chopped | 2 cups shredded mozzarella cheese, divided | 4 medium sized tomatoes, sliced |
| 2 cloves garlic, minced | 1 medium summer squash, sliced | 1 teaspoon salt |
| 4-5 small red potatoes, sliced | 1 medium zucchini, sliced | 1 teaspoon pepper |
| 1 tablespoon olive oil | | 5 fresh basil leaves, finely chopped, divided |

Preheat oven to 375 degrees F. **Prepare** onion, garlic and sliced potatoes (about ¼ inch thick). **Heat** olive oil over medium heat in a 10 or 12-inch oven safe skillet. **Add** onion, garlic, and potatoes to pan and **stir** to coat with oil. **Cook** over medium heat, **stirring** occasionally until golden brown and tender. **Add** 1 cup mozzarella cheese. In a bowl, **toss** together the squash, zucchini and tomatoes with salt, pepper, and half of the finely chopped basil. **Layer** squash

and tomato slices over the potato and cheese layer. **Top** with remaining mozzarella cheese. **Bake** 35 minutes or until vegetables are tender and cheese is melted. **Remove** skillet from oven and **top** with remaining basil.

Yield: 8, 1 cup servings

Nutritional Analysis: 200 calories, 8 g fat, 4 g saturated fat, 20 mg cholesterol, 490 mg sodium, 24 g carbohydrate, 3 g fiber, 5 g sugars, 10 g protein.

Summer Squash

SEASON: June through October.
NUTRITION FACTS: Squash is low in calories. One cup raw squash contains only 20 calories. It contains vitamins A and C, and is naturally free of fat, cholesterol and sodium.
SELECTION: Popular summer squashes include yellow crookneck, yellow straightneck, zucchini, cocozelle and patty pan. Summer squash should be picked or purchased when small and tender; both skin and seeds are eaten. The peel holds many of the nutrients so do not peel. It should be harvested when 6 to 8 inches in length. Patty pan squashes are ready when they are 3 to 4 inches in diameter or less.
STORAGE: Store unwashed squash in plastic bags in the crisper drawer of the refrigerator. Wash the squash

just before preparing. The storage life of summer squash is brief. Plan to use within two to three days.
PREPARATION: Summer squash is a mild flavored vegetable that combines well with herbs and seasonings. Try it with basil, allspice, rosemary and marjoram. Cook summer squash as a vegetable or use in stews, casseroles and main dishes. Summer squash can be grilled, steamed, boiled, sautéed, fried or used in stir-fry recipes.
PRESERVING: Select small squash with small seeds and a tender rind. Wash and cut into ½ inch slices and heat in boiling water for 3 minutes. Cool promptly in cold water and drain. Pack in containers leaving ½ inch headspace. Seal and freeze.

SUMMER SQUASH

Kentucky Proud Project
 County Extension Agents for Family and Consumer Sciences
 University of Kentucky, Dietetics and Human Nutrition students
June 2017

Source: www.fruitsandveggiesmatter.gov

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers market, or roadside stand.
<http://plateitup.ca.uky.edu>



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



Homeowner's Guide to Rainwater Harvesting: Rain Barrels and Beyond

Lee Moser and Amanda Gumbert, Agriculture and Natural Resources Extension



BiancaGruneberg/iStock/Getty Images Plus via Getty Images

Stormwater runoff is one of the many water quality and quantity challenges in urban settings. Urbanization increases the proportion of impervious surfaces (surfaces that prevent rainfall from soaking into the ground, such as roofs and driveways) in a landscape. Greater amounts of impervious surfaces increase the volume of stormwater runoff to storm sewers and local waterways. As stormwater flows across impervious surfaces, it can transport pollutants to nearby streams and rivers.

One strategy for reducing stormwater runoff from a residential property is through water harvesting for beneficial reuse. Water harvesting can come in many forms and is a scalable concept. This publication will explore the opportunities and challenges associated with three systems for residential water harvesting: 1) rain barrels; 2) high-volume, above-ground tanks; and 3) cisterns or other large-volume, below-ground tanks. The information presented is intended to support decision-making for you as a homeowner in evaluating the potential for installing a water-harvesting system at your residence. Additional references and resources are provided at the end of this document to offer more insight and guidance on the topics covered within this publication.

Water-Harvesting Potential Analysis

One of the first steps to take when evaluating the potential for rainwater harvesting for beneficial reuse at your residence is to estimate how much water can be harvested from one or more roofs on your property. This can be accomplished by using the following simple procedure for estimating the water yield from your roof that would result from a one-inch rainfall event.

How to estimate water yield

Example: How much water could be collected from a 2,400-square-foot roof during a one-inch rainfall?

1. Determine the roof area and calculate the volume of water hitting the roof during a one-inch rainfall as measured in cubic feet, using a conversion factor of one inch of rainfall equaling .083 feet.

$$2,400 \text{ square feet of roof area} \times 0.083 \text{ feet of rainfall} = 199 \text{ cubic feet of water}$$

2. Convert cubic feet of water to gallons by using a conversion factor of 7.48 gallons per cubic foot.

$$199 \text{ cubic feet} \times 7.48 \text{ gallons per cubic foot} = 1,489 \text{ gallons of water (if 100 percent of rainfall is captured)}$$

3. Account for some loss of water during the collection process by applying a coefficient. In this example, a coefficient of 0.95 projects that 95 percent of the rainfall is likely to be captured.

$$1,489 \text{ gallons} \times 0.95 = 1,415 \text{ gallons of water}$$

Result: The estimated amount of rain to be collected during a one-inch rainfall from a house with a roof measuring 2,400 square feet is 1,415 gallons.

The resulting value from this estimation procedure is the potential water yield from your roof during a one-inch rainfall event. This value will be needed to aid in sizing your potential system design in comparison to the potential water needs assessment that you will conduct in the next step. It is important to evaluate historic rainfall data by month to evaluate the suitability of a specific-capacity water-harvesting system to meet your needs. If you plan to use harvested water for watering landscaping plants or gardens, it is critical to evaluate monthly rainfall trends during the growing season (roughly April through October in Kentucky) versus the expected water demand. Determine the expected average inches of rainfall by month and multiply this value by the result from the water-harvesting potential analysis of a one-inch rainfall event to estimate total potential monthly yield from the roof or other catchment.

Needs Assessment

A method for estimating supplemental irrigation water need that your water-harvesting system may be able to provide is to determine the inches of supplemental irrigation water your planned landscape or garden plants will need over a specified period during one of the months of highest-expected water use. This can be accomplished by subtracting the expected rainfall from the water demand in inches for a given plant in your landscape or garden. For example, most vegetable crops require roughly one inch of water per week from rainfall or irrigation, or from a combination of the two. Convert the amount of additional water needed (beyond that supplied by rainfall) over the desired time period from inches to feet and multiply that needed amount by the area of the landscape or garden plants requiring supplemental irrigation. The result will provide an estimate of the volume of required supplemental irrigation water in cubic feet, which can then be multiplied by 7.48 to convert it to gallons of supplemental irrigation needed. This estimate could help provide insight into sizing your water-harvesting system based on a needs assessment. Compare the water-need estimate with your water-harvesting potential from the previous section and determine the feasibility for a water-harvesting system to potentially address your supplemental water needs. These values can also be utilized for guiding decisions on storage volume and system design as detailed in the following sections.



A rain barrel used for residential rainwater harvesting.
Photo by: Lee Moser

How to estimate supplemental water need

Example: How much supplemental water would be needed for a 10-foot-by-20-foot vegetable garden planted with crops that require one inch of water per week?

1. Determine the area of the garden.

$$10 \text{ feet} \times 20 \text{ feet} = 200 \text{ square feet}$$

2. Estimate the volume of supplemental irrigation needed by subtracting the average precipitation per week from the garden's weekly water requirements. For this example, we will estimate approximately 0.75 inches of water expected from precipitation per week.

$$1 \text{ inch of water required} - 0.75 \text{ inches of rainfall} = 0.25 \text{ inches of supplemental water needed}$$

3. Convert the water measurement from inches to feet.

$$0.25 \text{ inches} \times 1 \text{ foot} / 12 \text{ inches} = 0.021 \text{ feet of water}$$

4. Multiply the feet of supplemental water needed per square foot by the total area of the garden.

$$0.021 \text{ feet} \times 200 \text{ square feet of garden} = 4.2 \text{ cubic feet of supplemental water for entire garden}$$

5. Convert 4.2 cubic feet of water to gallons, using a conversion factor of 7.48 gallons per cubic foot.

$$4.2 \text{ cubic feet of water} \times 7.48 \text{ gallons per cubic foot} = 31.42 \text{ gallons of supplemental water needed}$$

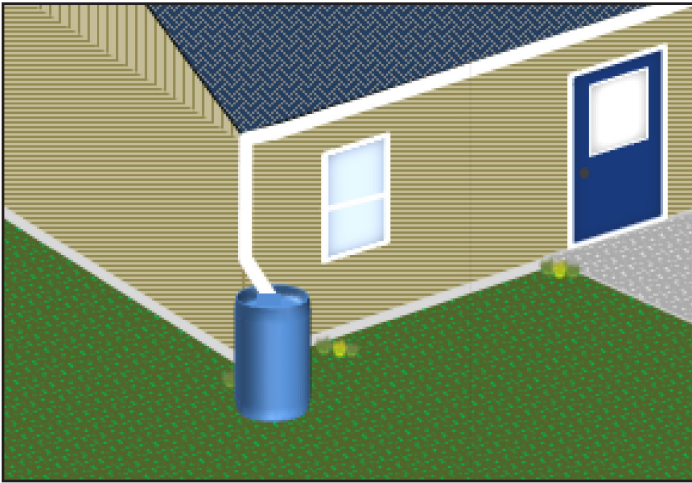
6. Add additional volume to serve as reserve capacity. Assuming the size of your catchment area can provide the amount of supplemental water required on average per week, you would want to size your storage tank to hold this volume of water with approximately 25 percent additional volume in reserve, if possible. To calculate the supplemental water needed with additional reserve capacity, multiply 31.42 gallons by 1.25.

$$31.42 \text{ gallons} \times 1.25 = 39.28 \text{ gallons of water storage capacity}$$

Result: An estimated 39.28 gallons of supplemental water storage capacity would be needed to fill the example garden's weekly irrigation needs.

Designs to Consider

General characteristics of three residential water-harvesting systems are presented in the following section for consideration. Compare this information with the estimate of the water-harvesting potential of your roof and a general idea of the water needs assessment for your desired use to determine which type of system might be suitable for your situation.



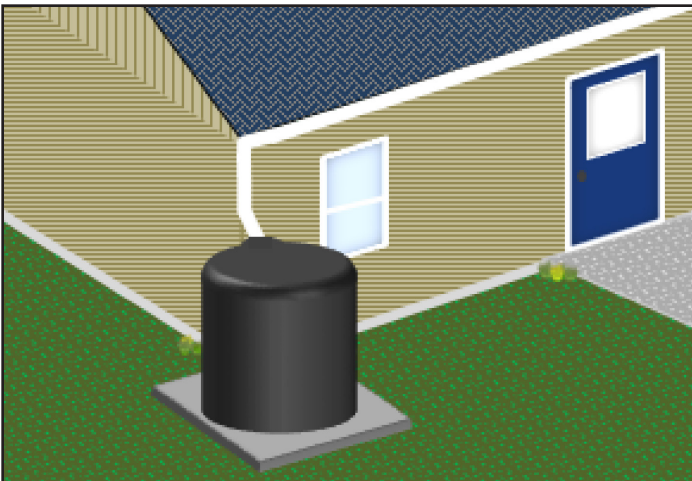
Rain Barrels

Pros

- Easy to assemble and easy to move, if necessary
- Comparatively low-cost
- Aesthetically appealing in many situations
- Multiples can be connected to increase capacity

Cons

- Comparatively low volume (most in the range of 55 gallons or less per barrel)
- Low-pressure gravity feed systems may limit distribution potential
- Potential to harbor insects
- Regular utilization needed to achieve a stormwater quantity benefit
- Winterization required



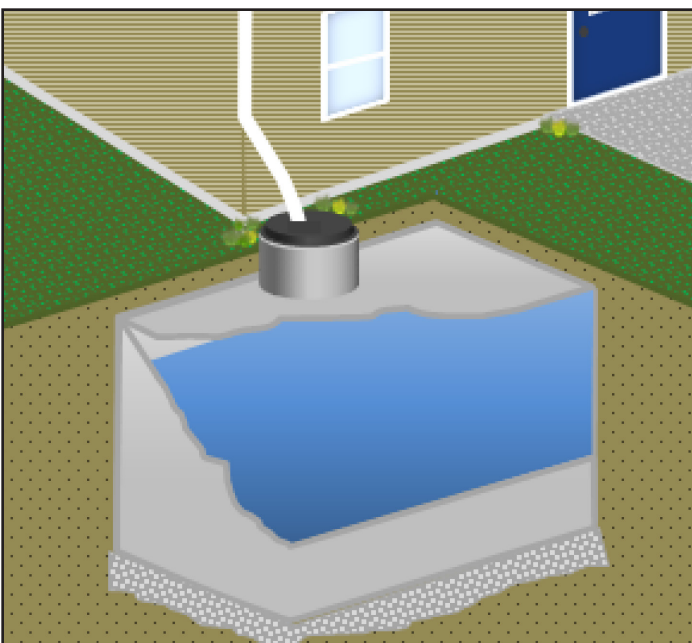
High-Volume, Above-Ground Tanks

Pros

- Comparatively high volume (can be in the range of hundreds of gallons to multiple thousands of gallons in capacity)

Cons

- Large and often difficult to move
- Aesthetically undesirable for some homeowners
- Require winterizing
- Moderate to high cost
- Likely to require some site preparation prior to installation
- Usually reliant on gravity feed, which can limit distribution potential



Cisterns or Other High-Volume, Below-Ground Tanks

Pros

- Comparatively high volume (can be in the range of hundreds of gallons to multiple thousands of gallons in capacity)
- Underground location helps regulate water temperature

Cons

- Pump required to distribute water
- Comparatively high cost
- Extensive excavation and site preparation required for installation
- Inability to move after installation (essentially permanent)
- Some components will likely require winterizing, depending on design

Siting and General Precautions

There are several precautions that should be considered prior to starting any water-harvesting project:

- Homeowners should check on any state and local ordinances, as well as neighborhood or homeowners association restrictions, that may prevent or limit residential rainwater harvesting.
- It is important to remember that water is heavy. Water weighs approximately 8.34 pounds per gallon. Any system that you design should take this into consideration.
- Site preparation may be necessary to accommodate the loads generated by large volumes of water.
- Elevated storage containers should be avoided, if possible, to avoid the risk of tipping and crushing accidents.
- Choose opaque containers and locate them out of direct sunlight to discourage algal growth.
- Non-potable water signage should be affixed to all rainwater-harvesting storage containers, and the water that is captured should only be utilized for non-potable purposes (no human consumption of harvested water).
- Always call 811 to check for utility lines in the project area prior to excavation.

Operation and Maintenance

The specific operation of each system is unique to the design and will depend on the end use of the harvested water. It is a best practice to document the design and operation of your system in case another individual may use the system. Producing a drawing of your system with all valves, pipes, and end-use points of the harvested water identified is an excellent way of documenting and communicating important operational information about your system.

Routine maintenance is required on any water-harvesting system. To maintain the integrity of the system components and the quality of water in the system, the following maintenance considerations should be observed:

- Ensure that your roof, gutters, and downspouts are free of debris to avoid potential contamination from material that may deposit in these areas.
- Barrels, tanks, and cisterns should be cleaned as needed. It is recommended that rain barrels be emptied every five to seven days to discourage algal growth. If excess debris builds up, algal growth becomes evident, or insect or pest issues become apparent, it is time to drain and clean the system.
- Install screens over inlets to reduce the amount of debris and the potential for insect or pest intrusion.
- Consider adding a clarifier or first-flush diverter to your system to further reduce potential contaminants in the system.
- Drain tanks and lines for winter to avoid freeze-thaw damage to tanks, pipes, valves, and fittings.
- Affix a "Non-potable Water" sign to water-harvesting tanks and ensure that the harvested water is only used for non-potable purposes. The harvested water is unfit for human consumption.

Summary

Residential rainwater harvesting has the potential to help address stormwater quality and quantity issues in urban areas. The three options presented in this publication should not be considered an exhaustive list of potential water-harvesting system designs. When assessing the feasibility of a design to meet your needs, it is important to consider the potential water yield from your roof, the water requirements of your non-potable water project, project budget, and the overall operation and maintenance requirements of the system in consideration. Homeowners should investigate state and local ordinances as well as potential homeowners association restrictions prior to constructing water-harvesting systems on their properties.

References and Further Reading

- Building a Rain Barrel (HENV-201) <http://www2.ca.uky.edu/agcomm/pubs/henv/henv201/henv201.pdf>
- Understanding the Water System (IP-1) <http://www2.ca.uky.edu/agcomm/pubs/ip/ip1/ip1.pdf>
- Water Quality for Kentucky: Cisterns for Kentucky (IP-4) <https://www2.ca.uky.edu/agcomm/pubs/ip/ip4/ip4.htm>
- Parts of a Cistern Water System (ENRI-203) <http://www2.ca.uky.edu/agcomm/pubs/enri/enri203/enri203.pdf>
- Choosing Cistern Material and Location (ENRI-204) <http://www2.ca.uky.edu/agcomm/pubs/enri/enri204/enri204.pdf>
- Cleaning a Cistern (ENRI-205) <http://www2.ca.uky.edu/agcomm/pubs/enri/enri205/enri205.pdf>
- Reducing Stormwater Pollution (AEN-106) <http://www2.ca.uky.edu/agcomm/pubs/aen/aen106/aen106.pdf>
- Off the Grid: Ultra-low Pressure Drip Irrigation and Rainwater Catchment for Small Plots and High Tunnels (HO-120) <http://www2.ca.uky.edu/agcomm/pubs/HO/HO120/HO120.pdf>
- Stormwater (HENV-203) <http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV203/HENV203.pdf>
- Saving Water at Home (HENV-601) <http://www2.ca.uky.edu/agcomm/pubs/HENV/HENV601/HENV601.pdf>

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Bullitt County Events

BC Cattlemen's Association Monthly Meeting - Meet Dr. Burdine, UK Ag Economist to get an update on the KY beef market. Join local beef producers every second Tuesday of the month to learn new techniques in herd management and earn educational credits to meet KY Ag Development Fund and Beef Quality and Care Assurance requirements.

Tues. Aug 9, 2022 & Sept 13, 2022 – 7:00 PM - Bullitt County Extension, 384 Halls Lane, Shepherdsville, KY

Eat Your Own Mushrooms - Join Bullitt County Horticulture and Agriculture and Natural Resources Agents for an educational program on foraging for culinary mushrooms and growing your own culinary mushrooms. Call 502-543-2257 to Register.

Fri. Sept 9, 2022 – 6:00 PM - Bullitt County Extension, 384 Halls Lane, Shepherdsville, KY

Beginning Farmer Class Series - Spencer County and Bullitt County will be working together this fall to bring a three-part class series for beginning farmers of all ages. See Page 5 and RSVP online for more up-to-date details: <https://bit.ly/BeginningFarmerClass22>

Thur. Sept 15, 2022 – TBD - Spencer County Extension, 100 Oak Tree Way, Taylorsville, KY

Central KY Shepherds and Goatherds Field Day - Sheep and goat producers will gather at Christy Mulhall's farm off Bardstown Road near Broad Run Park in Louisville on Sept 22 at 5:30 PM. We will learn how to do body condition scoring, hoof trimming, and FAMACHA checks for animal health. RSVP Online or call our front office to RSVP with Julie or Chloe at 502-543-2257. Exact location and details will follow.

Thurs. Sept 22, 2022 – 5:30 PM - Louisville, KY - REGISTER: <https://bit.ly/SheepGoatFieldDay9-22>

Private Applicators' License Renewal - Are you spraying restricted-use pesticides? Is your private applicator's license up-to-date? Come renew your license before the Soil Conservation Meeting in September!

Mon. Sept 26, 2022 – 4:00 PM - 7:00 PM - Bullitt County Extension, 384 Halls Lane, Shepherdsville, KY

BC Beekeepers Association Monthly Meeting - Join local beekeepers every second Wednesday of the month to learn techniques in hive management, integrated pest management, and more.

Wed. Aug 10, 2022 & Sept 14, 2022 – 7:00 PM - Bullitt County Extension, 384 Halls Lane, Shepherdsville, KY



Scan this code with your phone's camera to access this list of events online!

Regional and Online Events

Basics of poultry genetics – Small and Backyard Flocks Extension Webinar

Tues. Aug 2, 2022 – 3:00 PM – ONLINE: <https://bit.ly/PoultryExtEvents>

From the Woods Today - Dept. of Forestry and Natural Resources discussion on the Tree of the Week, American Chestnuts, & Tree Snap.

Wed. Aug 3, 2022 – 11:00 AM - ONLINE: <https://bit.ly/WoodsToday>

X10D Cattle Management Software - X10D is a program designed to provide participants with modern practices with herd health, breeding, feeding/forage management, and record keeping at your fingertips. Meal will be provided at 5:30. Please RSVP by Aug 2, 2022 to the Henderson County Extension office (270) 826 -8387 or the Union County Extension office (270) 389 -1400.

Tues. Aug 9, 2022 – 6:00 PM - Henderson County Expo Center

From the Woods Today - Dept. of Forestry and Natural Resources discussion on wildlife sounds.

Wed. Aug 10, 2022 – 11:00AM - ONLINE: <https://bit.ly/WoodsToday>

KFGC/RCARS Summer Field Day - Registration for this Twilight Tour will begin at 5:30 with a Meal at 6:00, tours will begin at 6:30 p.m. Tour options include - Forage Cutting Heights, Weed Control in Hayfields, Frost Seeding Clovers, Crabgrass for Forage, Novell Fescue, Tomato/Cut Flowers, Fall Cabbage, Finishing Beef Cattle on a Small Scale, Hemp Trials, Sweet Potato Slip Production, and Other Seasonal Options. This tour will have CAIP Educational Hours eligible. Register at <https://bit.ly/RCARSSumField>

Thurs. Aug 11, 2022 – 5:30 PM - UK Robinson Center, Jackson, KY

KY Woodland Owners Short Course Field Tour - Learn more about your woods, wildlife, and more. Register at <https://bit.ly/UKYwosc>

Sat. Aug 13, 2022 – 9:30 AM - 3:00 PM - Berea College Forest

From the Woods Today - Dept. of Forestry & Natural Resources discussion on Cook Wild: Squirrel, Asian Long Beetle, & Lingering Ash.

Wed. Aug 17, 2022 – 11:00 AM - ONLINE: <https://bit.ly/WoodsToday>

Regional and Online Events

From the Woods Today - Dept. of Forestry and Natural Resources discussion on plant selection and what an Extension Agent does.

Wed. Aug 24, 2022 – 11:00 AM - ONLINE: <https://bit.ly/WoodsToday>

BugFest and Fall Plant Sale - Join Bernheim for BugFest, their annual celebration of insects and their relatives, at the Bernheim Visitor Center. Children and their families will go buggy exploring live critters at the insect zoo in, and at, the naturalist-led Discovery Stations. Bug-themed crafts and games for all ages will be offered throughout the day. Don't miss the parade of bugs or Eat-A-Bug. Also browse Bernheim's annual Fall Plant Sale. All plants are suitable for north central KY growing. More Info: <https://bit.ly/BernheimBugfest>

Sat. Aug 27, 2022 – All day - Bernheim Forest, Clermont, KY

From the Woods Today - Dept. of Forestry and Natural Resources discussion on how insects find food and upcoming programs.

Wed. Aug 31, 2022 – 11:00 AM ONLINE: <https://bit.ly/WoodsToday>

Breeding purebred poultry – Small and Backyard Flocks Extension Webinar

Tues. Sep 6, 2022 – 3:00 PM – ONLINE: <https://bit.ly/PoultryExtEvents>

CONNECT At Bernheim - CONNECT is a collision of art, music, science, and technology around Bernheim's Lake Nevin at night. Artists, scientists, naturalists, progressive thinkers, and innocent bystanders unite in this celebration of creativity and technology – informed, infused, and surrounded by nature. CONNECT at Bernheim is a grand invitation for all to experiment, play, dance, and dream. Open to the public. Spontaneous art, drum circles, light sculptures, and musical performances from renowned artists along with hands-on art and science activities. Food trucks, beer, and wine vendors, and the mud play zone attract visitors of all ages.

<https://bit.ly/BernheimConnect22>

Wed. Sept 10, 2022 – Bernheim Forest, Clermont, KY

Farm to Table Harvest Festival - Enjoy the 2022 Farm to Table Harvest Festival presented by Farm Bureau in the heart of Mt. Washington. Proceeds donated to Bullitt County CASA and Bullitt County Young Farmers Scholarship fund. General admission \$100 per person. Make all checks payable to Bullitt County Farm Bureau (BCFB). Tickets on sale until August 22nd, 2022. To purchase tickets call: (502)543-2320.

<https://bit.ly/TravelBullitt>

Sat. Sept 10, 2022 – Shepherdsville, KY

Fall 2022 Kentucky Grazing School - Helping producers learn the newest grazing methods with classroom and hands-on learning. More information available at <https://bit.ly/UKYForages> or 270-365-7541

Tues. Sept 13, 2022 and Wed. Sept 14, 2022 – Woodford County Extension Office, Versailles, KY

OAK Field Day: No-Till Organic Market Gardening - Join the Organic Association of Kentucky for a discussion of no-till market gardening at Rough Draft Farmstead where we can see the many different techniques and styles of no and low tillage production that can be implemented in our region. From cover cropping to mulching, living pathways and small-scale composting, Rough Draft Farmstead is an excellent place to get an in-depth look at all the options available to improve soil health on a production scale.

Tues. Sept 13, 2022 – 1:00 PM - 4:00 PM - Rough Draft Farmstead, Lawrenceburg, KY

Eastern Native Grass Symposium - This year's Symposium will feature two days of speakers and poster presentations, as well as a full day of field trips. Continuing Education Units (CEUs) will be offered for landscape architects and certified crop advisors.

<https://bit.ly/UKYForageNGS22>

Mon. Oct. 3, 2022 – Thurs. Oct. 6, 2022 – 8:00 AM - 5:00 PM - The Galt House, Louisville, KY

OAK Field Day: Multi-Species Cover Cropping, Integrated Grazing, and Soil Health in Row Crop Production - For nearly 20 years, John Beiler and his family have managed their 200 acres of hay, corn, and dairy cattle production. In the past decade, they have steadily increased their use of 7-15 species in their cover crop mixes, intentional grazing of their fields in a 3-year rotation, and a focus on healthy and carbon-rich soils across their certified organic farm. Join the Organic Association of Kentucky to walk the Beilers' "carpeted fields," learn their cover crop mixes and interplanting successes, and hear from their collaborator Chad Parmley of MicroSoil Enhancers.

Tues. Oct. 4, 2022 – 9:00 AM -12:00 PM CENTRAL - Beiler Farm, Trenton, KY

Litter management for home flocks – Small and Backyard Flocks Extension Webinar

Tues. Oct 4, 2022 – 3:00 PM – ONLINE: <https://bit.ly/PoultryExtEvents>

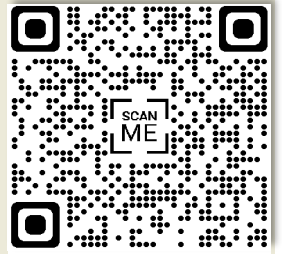
Farmer's Markets Continuing Into September!

Mt. Washington Farmer's Market - 320 N Bardstown Rd - Every Saturday 8:00 AM - 12:00 PM & Wednesday 4:00 PM-7:00 PM

Shepherdsville Farmer's Market - 170 W Joe B Hall Ave - Every Saturday 9:00 AM - 1:00 PM

Update Your Contact Information

Help us help you! Please fill out the contact information and check as many boxes for topics that you are interested in!



[Scan or click here to fill out online!](#)

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Your Spouse/Partner's First Name: _____ Last Name: _____

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Email Address(es): _____

Preferred Phone Number: _____ Alternate Phone Number: _____

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| <input type="checkbox"/> Chickens and Other Poultry | <input type="checkbox"/> Hemp | <input type="checkbox"/> Young Farmer/Landowner |
| <input type="checkbox"/> Goats | <input type="checkbox"/> Aquaculture | <input type="checkbox"/> Minority Farmer/Landowner |
| <input type="checkbox"/> Sheep | <input type="checkbox"/> Hydroponics | <input type="checkbox"/> Women in Ag Farmer/Landowner |
| <input type="checkbox"/> Rabbits | <input type="checkbox"/> Greenhouse Production | <input type="checkbox"/> Farm Diversification |
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| <input type="checkbox"/> Equine | <input type="checkbox"/> Flowers and Landscape Plants | <input type="checkbox"/> Natural Resources/Conservation Resources for Youth/Children |
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| <input type="checkbox"/> Beekeeping | <input type="checkbox"/> Forest Products/Forest Health | <input type="checkbox"/> Junior Master Naturalist |
| <input type="checkbox"/> Other Small Animals | <input type="checkbox"/> Maple Syrup | <input type="checkbox"/> Master Gardener |
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| <input type="checkbox"/> Tobacco Production | <input type="checkbox"/> Environment | <input type="checkbox"/> Recursos en Español |
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| <input type="checkbox"/> Fruit/Vegetables | <input type="checkbox"/> Hunting/Fishing/Cooking w/game | |
| | <input type="checkbox"/> Pollinators | |

Interests (Check all that apply):

Are there any other topics you would like to learn more about? We will be happy to follow up with you about anything written here.

Fill out and bring this page to our office or place in a stamped envelope and mail to:
Nathan Rider, Bullitt County Extension Office, 384 Halls Lane, Shepherdsville, KY 40165
Then stop by the office to pick up your FREE VEGETABLE SEEDS!



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University of Kentucky
College of Agriculture,
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Agriculture and Natural Resources

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**Bullitt County Agriculture
and Natural Resources
August Newsletter 2022**