

# Weed It and Reap

**FRANKLIN COUNTY  
COOPERATIVE EXTENSION  
NOVEMBER 2024 NEWSLETTER**



## Why Leaves Change Color in the Fall

Source: Sharon Flynt, UK extension horticulture agent

Fall is one of the most beautiful seasons of the year, as tree leaves change colors to bright oranges, vibrant reds and eye-popping yellows. Trees that change color in the fall are deciduous trees. They go dormant in the winter to protect the tree from freezing temperatures and will generate new leaves in the spring.

Three factors cause the tree leaves to change color at this time of year: length of night, leaf pigments and weather. Length of night is the only constant of the three. Following the summer solstice in June, the daylight shortens in the Northern Hemisphere and nights become longer. The increasing length of night triggers certain reactions in trees and leaves.

In conjunction with sunlight, chlorophyll, which produces the green color in leaves, and carotenoids, which give us the orange, yellows and browns, are working all summer to produce food for the tree. After the solstice, night length steadily

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*HAPPY  
THANKSGIVING!*



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increases, causing excess plant sugars to build up and chlorophyll production to slow down and eventually stop in the leaf. When chlorophyll production ceases, the carotenoid pigments are unmasked, and any anthocyanins in the leaf start producing reddish purple colors in response to bright light, giving the leaves their fall colors.

As time passes, a cell layer between the leaf petiole, which connects to the tree's stem, begins to close. Once that cell layer completely closes, the leaf drops, closing off any openings into the tree and protecting it from winter's freezing temperatures and harsh winds.

Fall color vividness depends on temperature and moisture. Sunny, warm days, cool nights and soil moisture in early fall produce the most color. This combination of moisture and temperature produce a vast array of color, and that's why no two autumns are ever alike.



## Franklin County Extension Office Completes Solar and Battery Installation

New Solar PV System Expected to Save County Taxpayers Over \$10,000 per Year in Electricity Costs at Extension Office

**Frankfort, Kentucky** - The Franklin County Cooperative Extension Office is looking

forward to their next electric bill, to see how much they saved in the first month since their new solar electric system began operation. The 164-panel solar PV (photovoltaic) system is expected to meet nearly 100% of the office's net annual electricity needs. Although they will remain tied to the utility

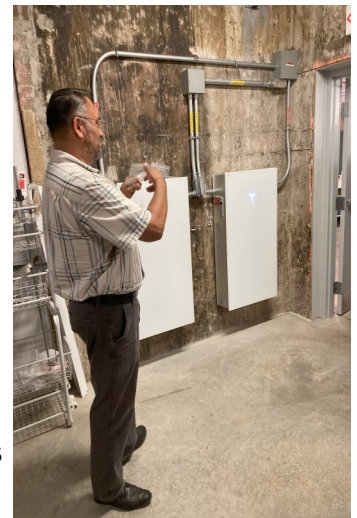


Photo: David Gomez, owner of Daily Green Power, explains operation of Tesla Powerwall batteries at FCCES office.

grid, a net metering agreement with Kentucky Utilities Co. will allow the office to earn credits for any excess power they produce on sunny days and redeem those credits at nighttime and on cloudy days.

“We expect the solar array to reduce Extension’s electric bills by about \$10,000 per year,” said Andy McDonald, the director of Apogee - Climate & Energy Transitions, who advised the Extension Office throughout development of the project. “The system should pay for itself in about 10 years and with a 25-year warranty on the solar panels, this makes for a really good long-term investment for the agency.”

The solar PV and battery system was installed by Daily Green Power of Elizabethtown over the course of four weeks in August and September. “With four Tesla Powerwall batteries, the project will provide back-up power for critical loads at the office,” said David Gomez, owner of Daily Green Power. “This will enable them to keep their computers and lights on, keep refrigerators and freezers operating, and keep other critical circuits operational during grid outages. It also creates a resilience center for the community during emergencies, offering a shelter with power when the grid is down.”

The Extension Office expects to receive a \$66,000 “Direct Pay” rebate from the US Treasury to offset 40% of the project’s initial cost, \$165,000. The Direct Pay program was created by the Inflation Reduction Act of 2022, enabling tax exempt agencies and organizations (including local governments and churches) to claim the equivalent of the Federal tax credits for clean energy projects. The project should provide net savings of over \$225,000 during the first 25 years of operation.

The 68 kilowatt (KW-DC) solar array used Silfab solar PV panels, which provide a 25-year product warranty and 30-year power production warranty. The Silfab solar panels were manufactured in Washington State.

The County Extension Office will host an open house and workshop on November 12th at 6:00pm to tour the new system, explain how solar and battery systems work, and discuss grant opportunities that are available for Kentucky farmers and small businesses.

The Franklin County Extension Office is a partner in Solarize Frankfort, a community program organized by the Kentucky Solar Energy Society. The Extension Office solar project received technical assistance from Apogee – Climate and Energy Transitions, a clean energy program based in Frankfort, and the Kentucky State University Land Grant Program.



Photo: 68 KW-DC solar array on roof of Franklin County Cooperative Extension Office.

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# Growing Native Wildflowers from Seed in Kentucky

Adapted from *The Lady Slipper Newsletter*

Growing native wildflowers from seed is an inexpensive and rewarding endeavor, especially if you enjoy a hands-on approach. In Kentucky, most native wildflowers require some form of preparation, such as stratification or scarification, to ensure successful germination. This article focuses on stratification, the most common method needed for Kentucky natives.

## Understanding Stratification

Stratification is the process of breaking down a seed's outer protection to promote germination. In nature, this occurs when seeds fall to the ground and overwinter in cold, moist soil. The fluctuating temperatures and moisture levels gradually wear down the seed coat, preparing it for germination in the spring. Many native wildflowers in Kentucky will naturally reseed themselves year after year without human intervention.

## Manual Stratification Methods

For those who prefer more control over the germination process, collecting seeds and manually stratifying them can be effective. This can be done using various methods, including wet paper towels, sand, or vermiculite.

### 1. Using Paper Towels

Paper towels are a cost-effective option, though seeds can sometimes stick to the towel, making them difficult to remove. To use this method, layer seeds between two moist paper towels, ensuring there is ample

space between them. Place the towels in a zip lock bag, seal it, and mark the bag with the date and species. Store the bag in the refrigerator, checking occasionally to ensure the towels remain moist. When ready to plant, you can lay the paper towel on your planting medium and cover it lightly.

### 2. Using Sand

Sand is less favored due to its tendency to dry out quickly and the difficulty of removing seeds for planting. If you choose this method, use fine sand, mix in the seeds, and place the mixture in a zip lock bag in the refrigerator. Regularly check to ensure the sand remains moist.

### 3. Using Vermiculite

Vermiculite retains moisture longer than sand and is easier to handle when transferring seeds to a planting medium. Mix seeds with moist vermiculite, place in a zip lock bag, and store in the refrigerator. This method may take up more space, but it simplifies the process of moving seeds to the planting medium.

## Outdoor Stratification

If you prefer to let nature handle the stratification, you can prepare seed trays with your planting medium, spread the seeds, and place the trays outside in a protected area. This method mimics natural conditions but requires careful monitoring due to Kentucky's unpredictable weather. Ensure the trays have drainage holes to prevent water from standing and causing seeds to rot. Mark your trays or create a map to identify what is germinating in the spring.



## The Milk Jug Method

A popular method among growers is using milk jugs to create mini greenhouses. Cut a jug in half, fill the bottom with planting medium, and secure the top with waterproof tape. The jugs protect seeds from harsh winter conditions while allowing for ventilation and watering as temperatures warm. This method can lead to earlier germination, so be prepared to protect seedlings from late frosts.



## Experiment and Learn

For beginners, experimenting with different methods can be educational and rewarding. Some species may germinate more easily than others, and you may find one method works better for you. Purchased seed packets often include stratification period information, but additional resources like “Growing and Propagating Wildflowers of the United States and Canada” by William Cullina can be invaluable.

## Conclusion

Growing native wildflowers from seed in Kentucky involves understanding and applying stratification techniques. Whether you choose manual methods or let nature take its course, the process can be both satisfying and cost-effective. With patience and experimentation, you'll soon enjoy the beauty of native wildflowers in your garden.



UK Cooperative  
Extension Service

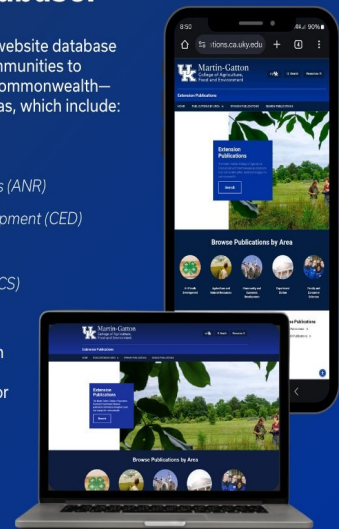
## New Extensions Publications database!

The Extension Publications (pubs) website database has been a reliable resource for communities to strengthen, build and engage the Commonwealth—offering searchable pubs in five areas, which include:

- ✓ 4-H Youth Development (4-H)
- ✓ Agricultural and Natural Resources (ANR)
- ✓ Community and Economic Development (CED)
- ✓ Experiment Station (ES)
- ✓ Family and Consumer Sciences (FCS)

The new database offers a more visual, intuitive user experience with an updated search tool to filter results by author, area, series title, or language (English or Spanish).

[publications.ca.uky.edu](http://publications.ca.uky.edu)



Source: Tawana Brown, Associate Director for Education Publications  
An Equal Opportunity Organization.



2024 Conservation Writing and Jim Claypool Art Contest



Kentucky Division of Conservation (2024), "Protecting the Forest Together."

# RIPARIAN FOREST BUFFERS



## Have you ever heard of a Riparian Forest Buffer?

A Riparian Forest Buffer is an area that is next to a stream, lake, or wetland that contains a combination of trees, shrubs and/or other perennial (meaning they come back every year) plants. These buffer areas are managed differently than how you would take care of your yard. You would avoid mowing, raking, using herbicides, and any other landscaping practices commonly used. To maintain a healthy Forest Buffer, you would want to make sure that there are no invasive species (invasive species are non-native plants, animals, and diseases that cause harm to the environment, human health, and the economy) and then you would plant native flowers, shrubs and tree seedlings. The idea is to let native vegetation that's made for a riparian area grow, while minimizing or eliminating non-native invasives.



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## PROTECTING THE FOREST *TOGETHER*

2024 Conservation Writing and Jim Claypool Art Contest

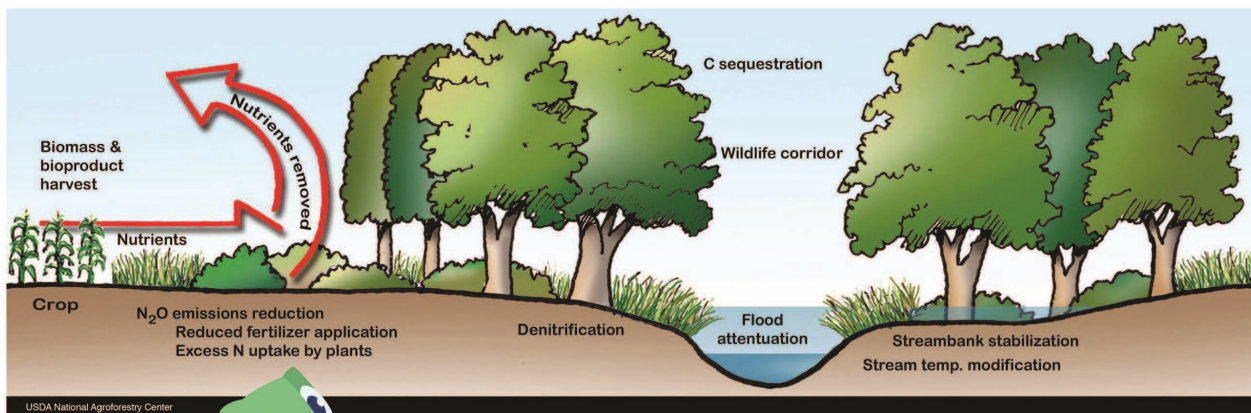
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### What does a Riparian Forest Buffer do?

- They help control the speed and amount of water flowing into our streams and rivers. The water is caught by the canopy, plants, trees, and leaf litter, then slowly is absorbed into the soil and the plants deep root system. This helps filter out pollutants before it reaches the creek.
- Leaf litter found on the forest floor acts as a filtration system by catching dirt from the upland stormwater runoff. This keeps the water from becoming so cloudy.
- The forest floor helps remove nutrients (phosphorous and nitrogen), pesticides, and fertilizers by storing them in the soil or in the plant tissue. This helps protect fish that can be sensitive to pollution.
- The forest soils act as an area for water storage. The plants take up water into their tissues and release it into the atmosphere.
- The canopy created by the riparian forest provides shade and helps keep the water temperature cooler. This is very important to aquatic life, including trout and the invertebrate (invertebrates are cold-blooded animals with no backbone) food source they depend on. Also, the leaf litter and woody debris from the canopy creates food and habitat for the aquatic food web.
- Riparian forests provide food and habitat for terrestrial wildlife and allow the animals to safely travel from one habitat to another. The tree roots and leaf litter from the forest buffer help stabilize stream banks from erosion (the process of carrying away dirt and rock from natural processes like wind or water).
- They offer recreation! The forest offers the perfect place for fisherman, birders, hikers, picnickers to visit to see a diverse land and aquatic wildlife.

### What are Riparian Forest Buffers used for?

All creeks in Kentucky would benefit greatly from using a riparian buffer. Riparian buffers are a great way to use best management practices to help reduce runoff pollution (like dirt, fertilizers, animal waste, and oils) and stormwater problems (too much water in a short amount of time) in both urban and agricultural areas.



### REFERENCES:

"Riparian Forest Buffers." USDA Forest Services. June 24, 2024.

[fs.usda.gov/nac/practices/riparian-forest-buffers.php](https://fs.usda.gov/nac/practices/riparian-forest-buffers.php)

"Riparian Forest Buffers" Virginia Department of Conservation and Recreation.

June 24, 2024. [dcr.virginia.gov/natural-heritage/riparian](https://dcr.virginia.gov/natural-heritage/riparian)

<https://eec.ky.gov/Natural-Resources/Conservation/Pages/Art-and-Writing-Contest.aspx>



## Apple Sage Pork Chops

- **1 tablespoon** flour
- **1 teaspoon** dried sage
- **2 tablespoons** garlic powder
- **1/2 teaspoon** ground thyme
- **1 teaspoon** salt
- **4** boneless center cut pork chops
- **2 tablespoons** oil
- **1/2** large onion, thinly sliced
- **2** thinly sliced red apples
- **1 cup** unsweetened apple juice
- **2 tablespoons** brown sugar (optional)

**Wash** hands with soap and warm water, **scrubbing** for at least 20 seconds. **Gently clean** all produce under cool running water. **Mix** flour, sage, garlic, thyme, and salt together in a small bowl. **Sprinkle** 1 1/2 tablespoons of the mixture over both sides of the pork chops. Remember to **wash** hands after handling raw meat. **Heat** oil in a large skillet over medium-high heat. **Sear** pork chops for 2 to 3 minutes on each side. Pan will smoke a little. **Remove** pork chops from the pan and set aside. **Reduce** heat to medium. To the same skillet, **add** onion and **cook** for 2 minutes, or until soft. **Add** apples, and **continue cooking** until tender, about 2 minutes. **Add** apple juice, brown sugar, and remaining spice mixture and stir to dissolve. **Return** pork chops to the skillet by nestling them in the pan. **Bring** the liquid to a boil, **reduce** heat to low, and **simmer** for 5 minutes or until the pork is cooked through and reaches 145 degrees F on a food thermometer. **Refrigerate** leftovers within 2 hours.

**Yield:** 4 servings. **Nutrition Analysis:** 310 calories, 10g total fat, 1.5g saturated fat, 50mg cholesterol, 660mg sodium, 35g total carbohydrate, 3g fiber, 25g total sugars, 7g added sugars, 22g protein, 6% DV vitamin D, 2% DV calcium, 6% DV iron, 15% DV potassium.



  
Adam Leonberger

### Cooperative Extension Service

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### MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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