# GRAVES COUNTY AGRICULTURE & NATURAL RESOURCES NEWS

July 2025



GRAVES COUNTY COOPERATIVE EXTENSION SERVICE 4200 US HWY 45 MAYFIELD, KY 42066 (270)247-2334 GRAVES.EXT@UKY.EDU

### IN THIS EDITION:

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# **Agent Notes**





Summer is here!

I know it has been a very frustrating start to the summer, but hopefully we are on the flipside of things and our weather will start to level out soon.

June has been a very busy month at the extension office and July looks to be much the same. We have some great programs coming up that I hope you all will attend if they interest you. Our floral class is sold out, however we are taking names on a waitlist as people may drop out as we get closer to time.

We are excited to host a Beef and Forage Field Day on July 29<sup>th</sup> here in Graves County. It will be a great evening of learning and eating! Make sure to RSVP so that we can plan for food. Details are on the

flyer in the following pages! Make sure to look through this newsletter and see what might interest you and I hope to see you soon!

Miranda Budelph

Miranda Rudolph Extension Agent for Agriculture & Natural Resources Graves County miranda.rudolph@uky.edu | 270.247.2334 | 270.978.7052

## **Upcoming Events:**

- July 8: Quail & Habitat Management 5:30pm GCEO
- July 19: Farmers Market Grand Opening Celebration 10am
- July 22: Corn, Soybean, & Tobacco Field Day 8am UKREC
- July 25: Florals & Fizz 5:30pm GCEO
- July 29: Beef and Forage Field Day 4:30pm, Heath Livestock

Cooperative Extension Service

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

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

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, coloc, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mennal disability or reprisal or retalization for prior civil rights activity. Reasonable accommodation of disabilit may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating. Lexington, KY 40506

Graves County Agriculture & Natural Resources



Disabilities accommodated with prior notification.

## Announcements

## July 2025

## **QUAIL AND HABITAT MANAGEMENT: STRATEGIES FOR SUSTAINABLE POPULATIONS**

TUESDAY, JULY 8, 2025 5:30 PM **GRAVES COUNTY EXTENSION OFFICE** 

RSVP: 270-247-2334

Join us as Riley Dollenbacher, Kentucky Fish & Wildlife, explores the ecology of quail species, with a focus on their habitat requirements and the factors influencing population dynamics. This program highlights the challenges facing quail populations, including habitat loss, land-use changes, and predation. Emphasis is placed on effective habitat management practices-such as prescribed burning, native vegetation restoration, and sustainable agricultural integration-that support quail conservation. Attendees will gain practical insights into designing, implementing, and monitoring habitat management strategies that promote long-term viability of quail populations across diverse landscapes.

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Friday, July 25 5:30-8:00 pm **Graves County Extension** \$30

**Come celebrate Kentucky Cut Flower Month with** us! Enjoy snacks and a soda bar while Dakota Moore, Kentucky Horticulture Council, teaches about Kentucky flowers and principles of floral design. Each participant will create their own bouquet of 100% Kentucky grown flowers! **Class is limited to 20 participants!** 

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SOLD OUT!

CALL TO JOIN THE

WAITING LIST!



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## Announcements

July 2025

Seef and Forage Production Field



Join us for a on-farm Beef and Forage Production Field Day. Our speakers and specialist's topics will cover:

Forage and Hay Production

Herbicides and Pasture Weed Control

**Working Facilities** 

Waygu Beef Production

**CALL TO REGISTER BY 7/22!** Graves County Cooperative Extension Office





Cooperative Extension Service

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

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A meal will be provided, call to RSVP!

Date: July 29<sup>th</sup> , 2025

### Time:

Registration begins at 4:30pm & starts at 5pm

#### Location:

Heath Livestock 2453 Trace Creek Church Rd Mayfield, KY 42066



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l orientation, gender identity, gender express cal or mental disability or reprisel or retaliati se available with prior notice. Program inform rsky of Kentucky, Kentucky State University

## Announcements

## July 2025



## **UK Corn, Soybean & Tobacco Field Day**

#### July 22, 2025 **TOPICS include:** Registration begins: 7:00 CT 8:00 am-12:00 pm CT AGRONOMICS AND ECONOMICS **UKREC FARM**, Economic Update **300 EXTENSION FARM RD., Round Bale Economic Discussions** . **PRINCETON, KY 42445** Weed Science Update 2025 Corn Needs for Nitrogen and Sulfur Following Cover Crops Foliar Fertilizer Rarely Increase Yield in IPM Sovbean Across the U.S. Corn Disease Concerns for 2025 Familiar and New Soybean Diseases to Look Out for in 2025 Emerging Mollusk Pests & Insect SOILS Threats in Field Crops in Kentucky NRCS Soil Health Updates Agr-1 Update: Corn N Rate Recommendations TOBACCO The Current Status of Sulfur Fertility for Red Leaf Burley Demonstration and UKREC **Row Crop Production** Tobacco Research Update UT Tobacco Research Update

**Optimizing Plant Populations for Burley** Grain and Forage Center of Excellence Assessing Quadris Effectiveness in Target



#### KENTUCKY FIELD CROPS NEWS (June 2025, Volume 01, Issue 06)

Tobacco

Spot Populations

Altria

23

-888-

Graves County Agriculture & Natural Resources

**KYCORN** 

SAAD ~ RRRS

### **Photosynthesis - The Ultimate Yield Producer**

Dennis B Egli, UK Professor Emeritus

The keys to high yield include variety selection, planting date, population, fertilizer and control of weeds and pests. Photosynthesis doesn't make the list, but there is no yield without photosynthesis. High yield requires high photosynthesis.

Think about it – a corn producer plants about 20 pounds of seed per acre and, 100 to 120 days later, harvests 250 bushels (14,000 pounds) of corn and leaves about 14,000 pounds of leaves, stems and husks, plus an unknown amount of roots, in the field. That 20 pounds of seed produced more than 28,000 pounds of plant material per acre. That is the miracle of photosynthesis.

Years ago, scientists pondering how a small seed could produce a large plant, concluded that the sustenance for growth must come from the soil. But when they grew a willow tree in a large soil-filled pot they found no decrease in the weight of the soil, so they mistakenly concluded that growth came from water. Finally, in the early 1800's, they demonstrated that the increase in plant weight came from carbon dioxide in the air (with a small contribution from water) in the presence of sunlight – in other words, they discovered photosynthesis.

Photosynthesis in green plant tissues uses the energy in sunshine to convert carbon dioxide into simple sugars that are the building blocks for all plant tissues. Energy from respiration of these simple sugars is used to acquire nitrogen and to make starch, protein, oil, cellulose and all the many compounds that make up a plant.

Photosynthesis requires energy (from the sun), carbon dioxide, warm temperatures (but not too warm), water (mostly just evaporates from the leaves), and mineral nutrients to function.

Photosynthesis not only feeds us, but, for most of recorded history, it provided the energy to cook our food, heat our homes and, more recently, to move us from place to place. The plant tissues that ultimately, over geologic time, became coal and petroleum came from photosynthesis.

Photosynthesis of a field of corn or soybean reaches a maximum when the leaves completely cover the ground because only sunlight that is intercepted by the leaves is used in photosynthesis. Only weeds benefit from sunlight that reaches the soil. Maximum yield requires complete ground cover near the beginning of reproductive growth. We don't often think about it, but crop management is all about providing the ideal environment for photosynthesis. We irrigate, fertilize, adjust row spacing, and control weeds and pests in large part to maximize photosynthesis. Managing for maximum yield is maximizing photosynthesis.

Biochemists tell us that there are two types of photosynthesis (there is a third, but it doesn't appear in any common crops). Most crops have C3-type photosynthesis (first stable product is a 3-carbon sugar) while only a few crops use the C4 system (first stable product is a 4-carbon sugar).C4 crops have higher photosynthesis rates and a greater tolerance to high temperatures, while the photosynthesis rate of C3 crops increases when the carbon dioxide concentration in the air goes up. Carbon dioxide levels in the air increased from 280 ppm at the beginning of the industrial revolution to roughly 426 ppm today. This increase contributed to higher yields of C3 crops and is also causing climate change. C4 crops do not respond to higher carbon dioxide levels.

Interestingly, most of the crops that feed the world (rice, wheat, barley, soybean, peanuts, potatoes, all the grain legumes) have C3 photosynthesis, while the more productive C4 photosynthesis is found only in corn, sorghum, and millet.

The rate of photosynthesis – the amount of carbon fixed per acre per day – is directly related to the crop growth rate (pounds of dry matter per acre per day) and to yield – the higher the growth rate, the higher the yield.

Yield was reduced when we shaded soybean communities during reproductive growth to reduce the sunlight they received and photosynthesis (Egli, 1993). A 30% shade treatment reduced yield by 28%, while a 63% treatment reduced yield by 58% averaged over 2 years and 2 varieties. One could show the same response to water deficits or poor fertility. Reducing photosynthesis reduces yield.

The duration of photosynthesis is also important, especially during the seed-filling period – the longer the seed-filling period, the more time there is for photosynthesis and the higher the yield. There is evidence in several crops that selection for higher yield by plant breeders increased the length of the seed-filling period and yield. The length of the vegetative growth period is not always related to yield.

Photosynthesis – the ability of a green leaf to use energy in sunlight to fix carbon is the fundamental process that makes agriculture possible. Growing crops is basically a matter of managing photosynthesis. We will depend on photosynthesis as long as our food comes directly or indirectly from green plants. Strange as it may seem, this basic process that feeds us also produced the fossil fuels that may ultimately kill us if we continue to burn them, increasing the carbon dioxide concentration in the air and causing climate change.

Remember – "As long as you have food in your mouth, you have solved all questions for the time being." (Franz Kafka, Novelist, 1883-1924).

Adapted from Egli, D.B. 2021. Applied Crop Physiology. Understanding the Fundamentals of Grain Crop Management. CABI.

References

Egli, D.B. 1993. Cultivar maturity and potential yield of soybean. Field Crops Research 32: 147 -158.





### How Do You Select Your Bulls?

#### Dr. Darrh Bullock, University of Kentucky, Dr. Matt Sprangler, University of Nebraska

Bull selection is one of the most important decisions that a beef producer makes and can have a lasting impact on profitability. Factors such as the market endpoint of calves (e.g., newly weaned or finished cattle), whether replacements will be retained, and the level of nutritional management provided to the cow herd all impact which traits should be selected for and at what level. Understanding this complex relationship can be the difference between buying a "good" bull and buying the right bull.

The eBEEF.org team, a group of beef cattle geneticists from across the US, is trying to determine how beef producers are currently selecting their bulls and will use this information to develop educational materials to help improve this process. Knowing which traits to select for is often not the problem, it is the degree to which each should be emphasized that can be highly variable from producer to producer and can often be challenging to determine. Too often this process is more 'seat of the pants' rather than by factors affecting profitability. For example, we may give calving ease too much emphasis, which can cause us to lose potential income with lighter sale weights so getting the proper balance is important.

To assess how beef producers are selecting bulls, within their level of management, we are asking you to fill out a brief survey. This should take approximately 10 minutes of your time and provide a wealth of information for the beef industry! This information will be used to compare the survey results to values generated by iGENDEC, a software package that determines the most profitable level of emphasis that should be placed on each trait within a specific production system.

Several incentives are being offered to encourage participation in this survey. The first is a random drawing for five \$100 gift cards generously donated by the Beef Improvement Federation (beefimprovement.org). The second is a special webinar that will be offered to everyone that completes a survey, and provides their email address, to discuss the findings of the survey and resulting bull selection strategies. Lastly, and possibly most importantly, knowledge gained by beef producers by going through this process and the entire beef industry through better bull selection decisions.

The UK Beef Extension Team is a major partner in this national effort and we hope that we will get a good response from our Kentucky beef producers. We will be developing follow-up articles with both national and Kentucky results, so the more responses we get the better the information will be. Thank

you for your help!



Survey Link: https://corexmsd9bfwdhxgbhmw.qualtrics.com/jfe/form/SV\_eFqYgoQpZMJLRLE

### Make Your Home Garden Thrive! The Five Benefits of Plant Diversity Source: Rick Durham, Department of Horticulture Professor

A home garden filled with a variety of plants is not just beautiful—it's smart! Having different types of plants growing together can help gardeners enjoy fresh food much of the year, help manage pests, promote pollinators and even improve the soil.

Let's explore why a diverse garden is a great idea.

#### Seasonal Harvests: Fresh Food for Much of the Year

One of the best reasons to plant a mix of vegetables, fruits and herbs is that different plants grow best in different seasons. Some plants, like lettuce and spinach, thrive in cool weather and can be harvested in spring and fall. Others, like tomatoes and peppers, love the heat and grow best in summer. By planting a variety of crops, gardeners can enjoy fresh food throughout the year instead of just one season.

#### Intercropping: Making the Most of Space

Intercropping involves planting different vegetables side by side to take advantage of the different times of maturity, heights, spread or rooting depths. A classic example of intercropping involves corn, beans and squash. A few weeks after sowing corn seeds, you plant pole beans close to the corn rows to use the corn stalks for support. The squash is a vining plant and will spread between the rows of corn and beans. As another example, you can set tomato transplants between lettuce plants; the lettuce matures and is harvested before the tomato plants grow very large.

#### Natural Disease and Pest Control: Creating Healthier Plants

A diverse garden can also help keep insect pests under control. When a garden has only one type of plant, insects that like that plant can quickly take over. But when there are many different plants, pests have a harder time finding their favorite food. Beneficial insects such as natural pest predators may be attracted to different plants in the garden.

Just like insects, plant diseases spread more easily when there is only one type of plant in a garden. If a disease attacks one plant, it can quickly spread to all the others of the same kind. But in a diverse garden, diseases have a harder time spreading because different plants have different levels of resistance. This helps keep the garden healthy and productive.

Gardeners should also consider rearranging the placement of similar plants from year to year to prevent insect and disease build-up in the soil.

#### More Pollinators: Helping Bees and Butterflies

A garden with many types of flowers and vegetables attracts helpful insects like bees and butterflies. These pollinators help plants produce fruit and seeds by spreading pollen from flower to flower. Without pollinators, many fruits and vegetables wouldn't grow well. By planting a mix of flowers and food plants, gardeners can support pollinators and enjoy bigger harvests.

#### **Better Soil Health: Building Stronger Plants**

Different plants use different nutrients from the soil. If a garden only has one type of plant, the soil can lose important nutrients quickly. However, when a variety of plants grow together, they help balance the nutrients they take from the soil. Some plants, like beans and peas, even add nitrogen back into the soil, making it healthier for future crops.

A home garden with a variety of plants is stronger, healthier and more productive. By planting different crops, gardeners can enjoy fresh food much of the year, reduce pests naturally, improve soil health, attract pollinators, and prevent diseases. Whether growing vegetables, herbs or flowers, diversity makes a garden better in every way.

So, next time you plan your garden, think about adding a mix of plants—it's a simple way to make your garden thrive!

Contact your local Graves County Extension office for more information on garden planning, crop rotation, and suggested vegetables to plant together.





# Weather Notes

# July 2025



### **Summer Heat Safety**

By Derrick Snyder - National Weather Service Paducah, KY



As summertime ramps up across the Commonwealth, so do the dangers of prolonged exposure to excessive heat. Heat is one of the deadliest forms of weather across the country. What makes it particularly dangerous is that the effects of heat are accumulative. Impacts on the body become progressively worse with similar levels of heat exposure several days in a row. For those who work outdoors during the summer, knowing the signs of heat exhaustion and heat stroke can prevent serious injuries or even death.

Know these signs:

- Heat Exhaustion: Becoming faint or dizzy, excessive sweating, cool/clammy skin, nausea, rapid/weak pulse, muscle cramps. Act fast and move the person experiencing heat exhaustion to a cooler area, loosen their clothing, sip cool water, and seek medical help if symptoms do not improve.
- Heat Stroke: Acting confused, dizziness, loss of consciousness/passing out. If someone has these symptoms, CALL 9-1-1 IMMEDIATELY, as this condition could become deadly or cause permanent disability!

Follow these tips to practice heat safety:

- Avoid heavy activity and direct sunlight.
- Do the most intensive outdoor work early in the morning or late in the evening to avoid exposure to the greatest heat and humidity levels.
- Stay hydrated, find a cool indoor place, and check on children, the elderly, and pets.
- Protect yourself outside by wearing light, loose-fitting clothes, and spend time in the shade.
- Never leave anyone (or pets) alone in a locked car, even in the winter, as death from heat stroke can occur in as little as 10 minutes!



# Recipes





## Blueberry Cream Cheese Pound Cake

1 (8 ounce) package fat free cream cheese 1/2 cup canola oil 1 (18 ounce) package yellow butter cake mix

1 (5 ounce) package instant vanilla pudding mix 2 large egg whites 2 large eggs

2 teaspoons vanilla extract 2 cups fresh blueberries

6. Spoon batter into prepared pan. 2. Lightly spray Bundt pan with nonstick 7. Bake 60 minutes or until wooden toothpick inserted in center comes out

> clean. 8. Cool cake in pan for 20 minutes.

Remove from pan and cool completely. Yield: 16 slices.

Nutrition Analysis: 260 calories; 10g fat; 1.5g saturated fat; 0g trans fat; 30 mg cholesterol; 390mg sodium; 38g carbohydrate; 1g fiber; 23g sugar; 4g protein.

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



**Kentucky Blueberries** 

SEASON: Mid-June through July

NUTRITION FACTS: One half cup of blueberries has 40 calories and provides 22 percent of the Daily Value of fiber. Blueberries are rich in vitamin C and do not contain any fat or sodium.

SELECTION: Blueberries should be plump and firm and have a deep blue-black skin. They should also have a silvery sheen, which is referred to as bloom.

STORAGE: Cover and refrigerate blueberries for up to 14 days. Wash them just before using.

**PREPARATION:** Blueberries can be served fresh or used in cooking. Cooking blueberries in batter

Source: www.fruitsandveggiesmatter.gov

may cause their color to turn greenish-blue, but change in color does not affect flavor.

Freezing: Place blueberries, unwashed and completely dry in a single layer on a cookie sheet in the freezer. Once the berries are frozen, transfer them to plastic freezer bags or freezer containers.

#### BLUEBERRY

**Kentucky Proud Project** County Extension Agents for Family and Consumer Sciences University of Kentucky, Nutrition and Food Science students May 2011

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## Recipes

## July 2025



#### Kentucky Baked Dove Breasts

Program – SNAP.

- 12 dove breasts, cleaned
- 2 cups buttermilk
- ¾ teaspoon salt
- ¼ teaspoon pepper
- 1 ½ teaspoons smoked paprika
- 1 tablespoon vegetable oil
- 2 medium apples, diced
- 1 large onion, diced
- · 2 celery stalks, sliced
- 1 cup orange juice

In a covered container, soak the dove breasts in buttermilk overnight in the refrigerator. Remove breasts and discard buttermilk. Pat breasts dry with a paper towel. Preheat the oven to 350 degrees Fahrenheit. Combine salt, pepper, and smoked paprika and stir. Rub mixture into breasts. Place breasts in a shallow greased baking dish and brush with oil. Add diced apples, onions, and celery. Add a half cup of water to the pan and cover tightly. Bake for one hour and 15 minutes. After 45 minutes, pour the orange juice over breasts and baste.

**Note:** Removing skin before cooking can lower fat content. This might also reduce "wild" flavor.

Yield: 6 servings

Serving size 2 dove breasts (262g)	
Amount per serving <b>Calories 3</b>	20
% Daily	Value'
Total Fat 17g	22%
Saturated Fat 4.5g	23%
Trans Fat 0g	
Cholesterol 130mg	43%
Sodium 370mg	16%
Total Carbohydrate 15g	5%
Dietary Fiber 2g	7%
Total Sugars 11g	
Includes 0g Added Sugars	0%
Protein 28g	
Vitamin D 0mcg	0%
Calcium 46mg	4%
Iron 7mg	40%
Potassium 508mg	10%