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Agent for Horticulture



Horticulture Newsletter

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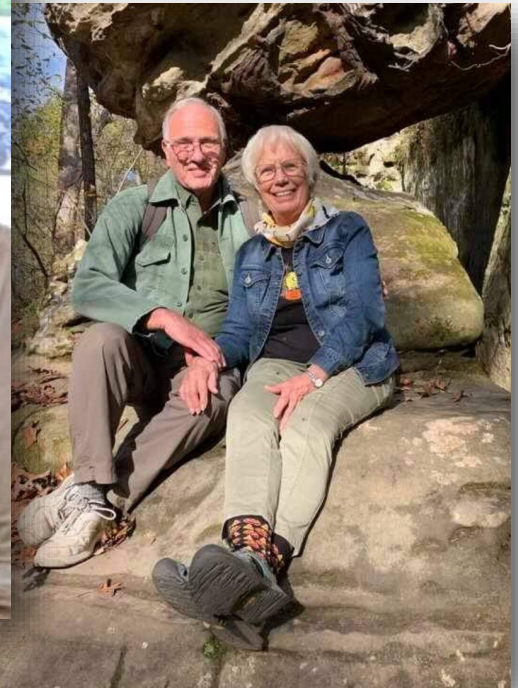
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Class of 2016



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Early Blight & Septoria Leaf Spot of Tomato

Early blight and Septoria leaf spot are the most common diseases of tomato in Kentucky. Tomatoes produced in greenhouses and high tunnels may also experience disease. These diseases may occur individually or together. While these diseases rarely result in plant death, the damage caused to leaves and fruit impacts overall yield and produce quality. Cultural and sanitation practices can help reduce severity of these diseases, but chemical management may be needed to protect plants from infection.

Early Blight Facts

- Symptoms first appear on older leaves as small, brown lesions, which over time expand and develop a concentric ring (bulls-eye) pattern (Figure 1). Disease spreads upward and lesions develop on newer growth as disease progresses. Lesions may merge together resulting in a rapid dieback of plant tissue. Fruit may also become infected. Affected fruit develop dark, brown to black lesions with concentric ring patterns near the stem attachment point (Figure 2).
- Disease overwinters in plant debris left over from the previous season.
- Early blight spreads when spores are carried by water, such as irrigation and rain splash.
- Warm, wet conditions and periods of high humidity favor disease development.
- Early blight is caused by the fungal pathogen *Alternaria linariae*, which can infect other solanaceous hosts and some cucurbits.



Figure 1: Early blight results in the development of brown lesions with a bulls-eye pattern. (Photo: Kim Leonberger, UK)



Figure 2: Fruit affected by early blight develop brown to black lesions with concentric rings. (Photo: University of Kentucky Vegetable IPM Scouting Guide Team, UK)

Septoria Leaf Spot Facts

- Symptoms first appear as small circular lesions with tan-brown centers on older leaves (Figure 3) and lower portions of stems. Over time disease progresses up the plant to new growth. As disease spreads, leaves may begin to die back rapidly. However, individually, lesions can still be observed. During periods of high humidity, small, black reproductive structures may be seen in centers of spots. Septoria leaf spot does not affect fruit.
- Disease overwinters in plant debris left from the previous season.
- Septoria leaf spot is spread by water, such as irrigation and rain.
- Warm, wet conditions and periods of high humidity favor disease development.
- Septoria leaf spot is caused by the fungal pathogen *Septoria lycopersici*, which can also infect a wide range of solanaceous hosts.

Management

- Purchase certified disease-free seeds or transplants
- Utilize cultivars with resistance or tolerance to diseases
- Manage weeds in and near plantings, especially nightshades and other solanaceous weeds
- Rotate crops
- Increase plant spacing
- Apply mulch layer
- Remove and destroy infected plants or plant parts
- Avoid overhead watering
- Clean and sanitize tools, pots, and equipment
- Remove and destroy plant debris at the end of the season



Figure 3: Septoria leaf spot symptoms include the development of circular lesions with tan-brown centers on stems, petioles, and leaves. (Photo: Kenny Seebold, UK)

Commercial growers can find information on fungicides in the Vegetable Production Guide for Commercial Growers (ID-36) and the Southeastern U.S. Vegetable Crop Handbook (SEVEW). Homeowners should consult Home Vegetable Gardening (ID-128) for fungicide information or contact a county Extension agent for additional information and recommendations regarding fungicides.

Additional Resources

IPM Scouting Guide for Common Pests of Solanaceous Crops in Kentucky (ID-172)
Sustainable Disease Management of Solanaceous Crops in the Home Garden (PPFS-VG-21)
Home Vegetable Gardening (ID-128)
Vegetable Production Guide for Commercial Growers (ID-36)
Southeastern U.S. Vegetable Crop Handbook (SEVEW)
Managing Greenhouse & High Tunnel Environments to Reduce Plant Diseases (PPFS-GH-1)
Greenhouse Sanitation (PPFS-GH-4)

By: Kim Leonberger, Plant Pathology Extension Associate, and Nicole Gauthier, Plant Pathology Extension Specialist

Hammerhead worms have been identified in McCracken County. If you find any Hammerhead worms in your lawn or garden, put on disposable gloves before you try and pick one up. We have been told by residents, they cause a severe irritation to your skin. If you would like the worms identified, please send pictures to mary.dossett@uky.edu. To manage the worms, please read the article below.

More Hammerhead Worms

Over the last 2 years, the Extension entomology group has received multiple inquiries about strange, ribbon-like worms with hammer or moon-shaped heads. These are creatively named “hammerhead worms,” and they are predaceous flatworms that look like something made up for Star Wars. There have also been some social media posts that promote fear about hammerhead worms. These slimy weirdos are in Kentucky, but luckily, they don’t pose a huge risk to humans and there are some options if one is discovered on your property.

Identification

Hammerhead worms are land planarians, a group of flatworms. Flatworms differ from the earthworms most Kentuckians are familiar with in that they are flat and unsegmented. Earthworms on the other hand have segmented bodies; the bands that can be seen on them mark the segments.

Hammerhead worms are of a similar hue to earthworms, typically light brown or honey in color. Some of the species seen in Kentucky have varying numbers of dark stripes that run down their back. For example, *Bipalium kewense* (also known just as hammerhead flatworm) has five dark lines, while *Bipalium pennsylvanicum* or the three-lined flatworm has... three lines.

Hammerhead worms can be impressively long; some can be over 10 inches long. Aside from their size, the other thing most people notice is their weirdly shaped hammer or half-moon shaped head that gives the group their name.

What is the issue?

The two flatworms listed above are potentially invasive and definitely non-native organisms, which can have effects on Kentucky ecosystems. There are flatworms native to Kentucky; they have unfortunately been lumped in with the invaders as “bad”.

One of the potential problems with hammerhead worms is their diet. They are predaceous, feeding on snails, slugs, and earthworms. Earthworms are broadly considered beneficial organisms and so there is worry that if hammerhead worms were to fully “invade” that they may harm populations of nightcrawlers and other earthworms that provide ecosystem services by decomposing various materials in nature.



Figure 1: Hammerhead worms are slimy, legless, predatory worms most noted for their hammer or half-moon-shaped heads. They feed on earthworms, snails, and slugs. (Photo © Jean-Lou Justine, Leigh Winsor, Delphine Gey, Pierre Gros, and Jessica Thévenot)

Finally, hammerhead worms do pose a slight medical and veterinary concern. Some species produce tetrodotoxins, which are potent and most famously associated with pufferfish. That being said, encountering or even accidentally making skin-to-worm contact won't automatically kill you. Being aware of what these flatworms are and exercising caution around them is recommended. People should avoid handling or holding hammerhead worms. If you touch any, wash your hands afterwards. Hammerhead worms are also potential hosts for rat lungworms, as are snails and slugs. Humans can acquire this parasite by consuming undercooked or raw snails, slugs, freshwater shrimp, crabs, and frogs. Because of the toxin and possible parasites, if you were considering it, **definitely do not eat** hammerhead worms!

Are they in Kentucky?

The short answer is yes, these have been found in the state. Between 2020 and 2023, samples were confirmed from Letcher, Calloway, Pulaski, Fayette, Marshall, Boyd, Casey, and Whitley Counties. In 2024, images and samples have been brought in from Allen, Jefferson, and Russel Counties as well.

This suggests a possibly wide distribution in the state. While hammerhead worms aren't "actionable pests," (as in they don't have government actions associated with them), Kentuckians can help us keep track of these worms if they would like to e-mail photos and a location. Hammerhead worms are most likely to be found in warm, damp environments. They might be spotted under rocks and logs or in leaf litter. Sightings of hammerhead worms may increase on rainy days, particularly if the rainy day occurs after a dry period.

Management

There isn't a true management tactic for these. No sprays or baits can be applied to prevent or control them. There are some things that can be done to kill an individual worm that is discovered.

First, don't try to physically destroy or cut up the worms. Segmenting them can result in reproduction. Part of their body does naturally "fall off" and turn into a new individual, so don't help them with that process. Salting them, like you would a snail or slug, will destroy them. Do be cautious about not getting salt in the soil around your plants. Spritzing the hammerhead worm with vinegar or citrus oil can also kill it. If you need to isolate the treatment, you can pick up the hammerhead worm with tweezers or gloved hands, and put it in a sealable bag; then apply salt or vinegar.

By Jonathan L. Larson, Entomology Extension Specialist



Figure 2: UK Entomology has received multiple reports of hammerhead worms in Kentucky. People should exercise caution around them and avoid handling with bare hands if at all possible. They may be found in damp areas and appear more frequently after a rain. (Photo: Whitney Cranshaw, Colorado State University, Bugwood.org)



Photo's taken by
Mary Dossett
in McCracken County
on June 11th, 2024



Center Rot of Onion

Center rot is a common bacterial rot disease of onions in Kentucky. The disease occurs in commercial and homegrown production. Center rot results in decay, which makes onions unusable. Disease is more severe during periods of wet, humid conditions. Preventative disease management practices are critical for disease prevention.

Center Rot Facts

- Symptoms appear as small, white lesions on leaves that, over time, expand and develop a yellow halo (Figure 1). Lesions spread down the neck to reach the bulb and result in layers of the bulb becoming discolored and rotted (Figure 2).
- Disease may be introduced via transplants, sets, seeds, weeds, or through contaminated soil.
- Center rot is spread by water, such as irrigation and rain.
- Hail events, along with wet, warm conditions and periods of high humidity, favor disease development.
- Center rot is caused by the bacterial pathogens *Pantoea ananatis*, *P. agglomerans*, and *P. allii*.



Figure 1: Symptoms of center rot begin as small, white lesions on leaves. (Photo: Howard F. Schwartz, Colorado State University, Bugwood.org)



Figure 2: Diseased bulb scales may become discolored and rot. (Photo: Howard F. Schwartz, Colorado State University, Bugwood.org)

Management

- Purchase certified disease-free seeds or transplants and sets
- Manage weeds in and near plantings
- Rotate crops
- Increase plant spacing
- Remove and destroy infected plants or plant parts
- Avoid overhead watering
- Clean and sanitize tools, pots, and equipment
- Harvest early and remove foliage to prevent disease progression into bulbs
- Remove and destroy plant debris and discarded bulbs at the end of the season

Commercial growers can find information on fungicides in the Vegetable Production Guide for Commercial Growers (ID-36) and the Southeastern U.S. Vegetable Crop Handbook (SEVEW). Homeowners should consult Home Vegetable Gardening (ID-128) for fungicide information or contact a county Extension agent for additional information and recommendations regarding fungicides.

Additional Resources

Home Vegetable Gardening (ID-128)
Vegetable Production Guide for Commercial Growers (ID-36)
Southeastern U.S. Vegetable Crop Handbook (SEVEW)

By: Kim Leonberger, Plant Pathology Extension Associate, and Nicole Gauthier, Plant Pathology Extension Specialist

Phomopsis Twig Blight & Stem Canker of Blueberry

Phomopsis twig blight and stem canker is becoming more common in Kentucky blueberry. Stressed plants are more susceptible to this disease, and reports are often associated with fields that have a history of Phytophthora root rot or severe abiotic disorder such as winter injury or high pH.

Phomopsis Disease Facts

- Symptoms first appear in spring as blighted twigs that result in flower bud loss (Figure 1). Necrotic, reddish-brown lesions may develop around blighted areas and spread downward. Wilting and flagging is observed as stems die (Figure 2). Girdling cankers can often be observed lower on stems. Leaf spots can also occur on foliage, and fruit may ripen prematurely or rot.
- Disease is favored by warm, moist periods. Plants damaged by freezing temperatures or stressed by poor planting sites are more susceptible to disease.
- Caused by the fungus *Phomopsis vaccinii*.
- The pathogen survives winter in dead or infected twigs.



Figure 1: Symptoms first appear as blighted twigs. (Photo: Annemiek Schilder, Michigan State University)



Figure 2: Infected plants exhibit wilting and flagging as stems die. (Photo: Mary Ann Hansen, VPI, Bugwood.org)

Management Options

- Select resistant cultivars such as 'Bluetta' and 'Elliott'
- Prune out infected twigs by cutting a minimum of 6 inches below infected tissue. Discard cuttings; never leave them in the field.
- Avoid planting sites prone to frosts.
- Maintain plant health with proper fertilization, irrigation, and weed management.
- Avoid wounding stems.
- Fungicides may be applied preventatively (before infection) beginning at bud break and continuing through full bloom for plantings with high infection risk. Homeowners may use fungicides that contain the active ingredients captan or propiconazole. Contact a county Extension agent for more information on fungicide use.
- Fungicides do not cure Phomopsis tip blight.

Additional Information

Fruit, Orchard, and Vineyard Sanitation (PPFS-GEN-05)

Blueberry Cankers & Twig Blights (PPFS-FR-S-10)

Midwest Blueberry Production Guide (ID-210)

Disease and Insect Control Programs for Homegrown Fruit in Kentucky (ID-21)

Backyard Berry Disease, Pest, and Cultural Practices Calendar (PPFS-FR-S-25)

Commercial Fruit Pest Management Guide (ID-232)

By Kim Leonberger, Plant Pathology Extension Associate, and Nicole Gauthier, Plant Pathology Extension Specialist

Keeping Birds Away from Ripening Small Fruits

Source: Delia Scott, Department of Horticulture Extension Associate

Birds that feed on ripening small fruit can be a problem for homeowners with plantings of blueberries, raspberries, blackberries, gooseberries, currants and grapes.

There are multiple techniques that may be effective in keeping birds away, depending on bird populations and other available foods. These include using bird scare balloons with large eyes on the sides, placing rubber snakes or owls around plants, hanging aluminum pie pans or old CDs that blow in the breeze, or using reflective tape over and around the plants. These techniques are more effective if used before the bird problem develops. Birds will eventually become accustomed to scare devices, so repositioning them frequently is necessary.

Another effective technique controlling bird feeding is the use of exclusion netting. There are many types of netting available, from fine-meshed netting that also excludes insects to large-meshed netting designed exclusively for bird control. Using a structure is often recommended to keep the netting off the plants, as well as to make harvesting more enjoyable. Photos of bird netting setups and structures can be found at https://www.uky.edu/hort/bird_netting_pics on the UK Horticulture Department website.

Once birds have found fruit, it is difficult to discourage them from continued feeding. Birds will eat fruit long before it is considered ripe, so be sure to apply nets or use scare tactics before fruit begins to color.

Garden Mum Production: Diseases and Nutritional Disorders (PPFS-OR-H-02)

University of Kentucky

College of Agriculture

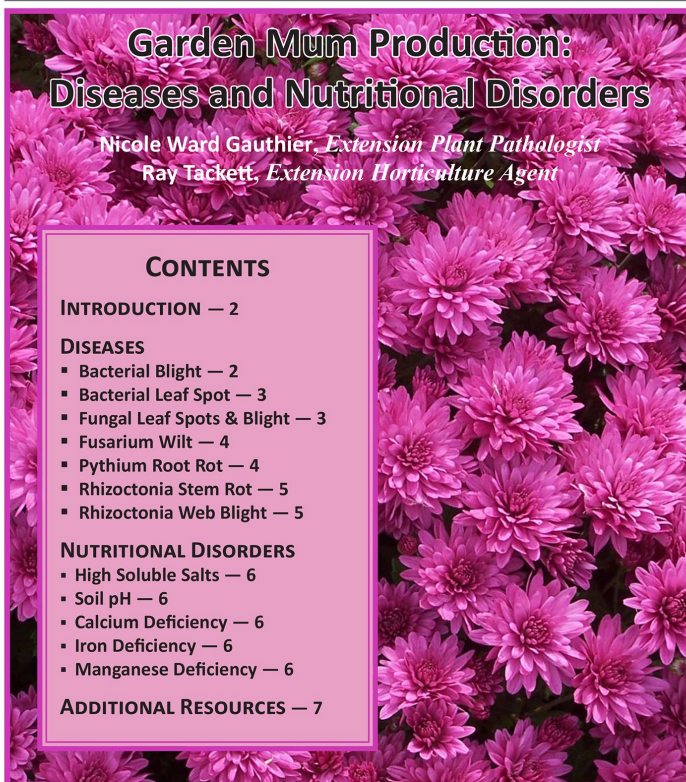
Plant Pathology Extension



COOPERATIVE EXTENSION SERVICE
UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Plant Pathology Fact Sheet

PPFS-OR-H-10



Many Kentucky vegetable and greenhouse producers are including fall chrysanthemum production in their operations. Garden mums are usually planted in June and sold in September when fall color is in demand. Unfortunately, diseases and nutritional disorders can cut into producer profits when plants become unsaleable.

This publication discusses the most common diseases affecting garden mums in Kentucky, including information on management practices. Several nutritional disorders are also discussed.

Garden Mum Production: Diseases and Nutritional Disorders (PPFS-OR-H-10) is available online.

For additional publications on ornamental plant diseases, visit the UK Plant Pathology Extension Publications webpage.

**By Cheryl Kaiser, Plant Pathology Extension Support,
and Nicole Gauthier, Plant Pathology Extension
Specialist**



Bermudagrass Control for Kentucky Lawns

Jason Vaughn, Beth Wilson, and Andy Rideout, Cooperative Extension Service, and Kenneth Clayton, Plant and Soil Sciences

Bermudagrass (*Cynodon dactylon*), a warm-season perennial grass, increasingly has become a problem in Kentucky cool-season turfgrass. Over much of the lower Southeastern United States, bermudagrass is the king of the turfgrasses. Celebrated for its aggressive growth habit, quick recovery, and ability to tolerate low mowing heights, bermudagrass can be found everywhere from high-end golf courses and prestigious sports stadiums to home lawns.

When bermudagrass is introduced into a cool-season lawn, it can be a highly invasive weed. As a warm-season grass with a fast growth rate, bermudagrass is often able to outcompete cool-season grasses during the heat of the summer. Bermudagrass, which spreads aggressively by aboveground and belowground stems, can choke out desirable grasses and spread each season. Another problem with bermudagrass is that as temperatures begin to drop in the fall, it becomes dormant, turning a broom-straw brown color, which stands in stark contrast to the green color of cool-season turfgrass (Figure 1). Finally, bermudagrass frequently spreads into landscape beds, tree mulch rings, and even across concrete, causing more complex weed control scenarios (Figure 2). For more information on the biology of bermudagrass, please see UK Extension publication [AGR-216: Turfgrasses of Kentucky](#).

Cultural Control

The first part of controlling bermudagrass in Kentucky's cool-season lawns is using cultural practices. The goal of any cultural control practice is to make the environment less suitable for a particular pest. Due to the aggressive growth and ability to adapt, bermudagrass control will fail without manipulating the environment to favor the desirable cool-season grasses. The use of herbicides alone is not recommended for management of this weed.

The most important step in creating an environment where cool-season grasses are competitive is to raise the mower height to 4 inches or greater. Since bermudagrass thrives in full sun, a tall, dense lawn can capture sunlight and shade out the bermudagrass. Research shows that mowing heights of 4 inches can decrease the spread of bermudagrass in cool-season lawns.

Additionally, fertilizing with nitrogen in the late summer to early fall favors cool-season grasses as the bermudagrass enters dormancy and is not actively growing. Avoid applying fertilizers while the bermudagrass is green and actively growing to reduce competition with the desired cool-season grasses. With high nitrogen availability and temperatures above 80°F, bermudagrass can out-compete cool-season turfgrasses during the heat of Kentucky summers.



Figure 1. The broom-straw brown color of bermudagrass stands in stark contrast to the cool-season grasses in the winter.

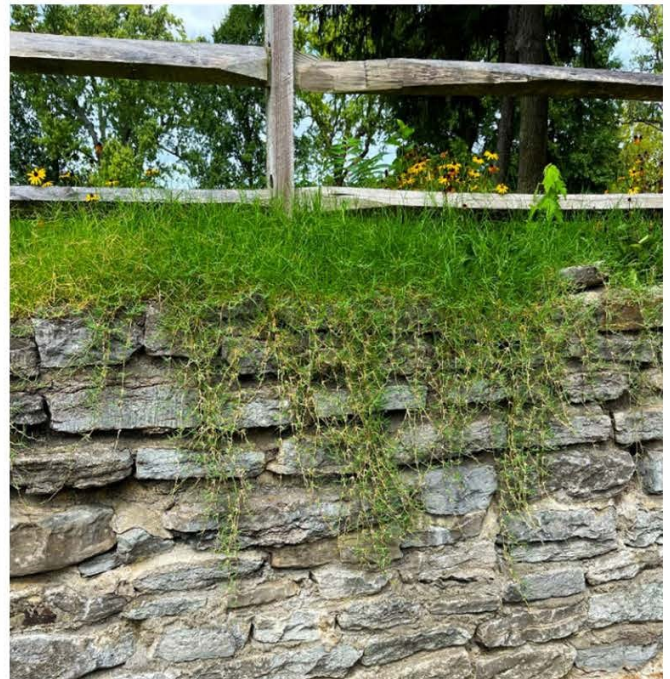


Figure 2. The aggressive growth of bermudagrass is demonstrated in a flower bed overtaken by the grass and 4-foot-long stolons growing over the landscape wall.



Figure 3. Typical bleaching of bermudagrass after an application of topramezone or mesotrione. Tank mixing triclopyr may reduce the bleaching and increase control of bermudagrass.

Chemical Control

There are a limited number of chemical control options available for the removal of bermudagrass from cool-season lawns. Complete control of bermudagrass even with the most effective herbicides may take several applications over multiple growing seasons. When applying herbicides, it is important to read the label closely on all products before use to ensure turfgrass safety, for example, fluazifop (Fusilade II) is labeled for applications to tall fescue (*Festuca arundinacea*) but not Kentucky bluegrass (*Poa pratensis*). You must use the product according to the label, it is the law. Table 1 includes a list of possible chemical controls for use in cool-season lawns. It should be noted that both mesotrione and topramezone are herbicides that cause bleaching symptoms (Figure 3). While this bleaching does not reduce the efficacy of the herbicide, in the short term it is unattractive. This bleaching may be reduced by mixing triclopyr with either mesotrione or topramezone.

Nonselective Control

The herbicides presented in Table 1 outline the chemical management options for bermudagrass. The simplest method would be the use of a non-selective herbicide such as glyphosate. Applications must be made when bermudagrass is actively growing, approximately May-September in Kentucky. If adequate rainfall promoting growth has not occurred around the time of the herbicide application, supplementary irrigation should be applied. You may irrigate before the herbicide is sprayed but must wait approximately 24 hours after the herbicide application before applying additional irrigation. A second application of glyphosate should be applied three to four weeks later once the grass starts to green up and grow again. Glyphosate will kill all grass types that have been sprayed, therefore areas that have been treated must be reestablished with sod or seed to prevent new weeds from taking over the bare ground.

Table 1. Always make applications in accordance with the labels—it is the law.

| Product | Rate | Timing | Comments |
|---|--------------------|--------------------------------------|--|
| Glyphosate (Ranger Pro) | 5 qts/A | May-September | Requires a minimum of 2 treatments. This is a nonselective herbicide and will kill all grasses on which it is sprayed. |
| Topramezone (Pylex) + Triclopyr (Turflon Ester Ultra) | 1 oz/A + 32 oz/A | August-September | 3 treatments, may cause bleaching |
| Mesotrione (Tenacity) + Triclopyr | 4 oz/A + 32 oz/A | May-June | 3-4 treatments, may cause bleaching |
| Fenoxaprop (Acclaim Extra) + Triclopyr | 28 oz/A + 32 oz/A | May-June or August-September | 3 treatments |
| Fluazifop (Fusilade II) + Triclopyr | 5-6 oz/A + 32 oz/A | 50% green up and late August-October | Label states: "Do not apply to tall fescue during the summer" |

When using selective herbicides, ensure that the herbicide, rates, and timing you apply are safe on the grass species and growth stage of your desired species. Do not exceed maximum yearly applications of any one product. The use of specific names of commercial products does not constitute an endorsement of those products or approval of those to the exclusion of other suitable products.

Selective Control

When nonselective herbicide control from glyphosate is not an option, certain selective herbicides are available to remove bermudagrass without killing the desired species. These selective options work best when used at specific times. The following describes the selective herbicides included in Table 1, giving specific recommendations.

Topramezone + triclopyr is more effective when sprayed in the fall as opposed to spring and summer applications. This combination should be applied three times in the fall leading up to a first frost with 3-4 weeks in between each application.

Mesotrione + triclopyr requires three applications three weeks apart with the initial application taking place in the late spring to early summer. This combination can be used in conjunction with the above described topramezone + triclopyr applications to help stop the spread of the bermudagrass in the summer. Mesotrione + triclopyr provides additional control since the maximum use rates of topramezone can be met with fall applications alone.

For suppression of bermudagrass with fenoxaprop, applications with triclopyr should be made every 4-5 weeks. Applications should be initiated when the bermudagrass begins to actively grow, typically early May in Kentucky. Do not make more than five applications per season.

Lastly, fluazifop + triclopyr may be used for control of bermudagrass. This combination is acceptable for use in tall fescue lawns but not Kentucky bluegrass lawns. Applications should be made in the spring at approximately 50% green up and then applied again in the fall while the bermudagrass is still green. Additional applications may be made at 28-day intervals.

Conclusion

While certain cultivars of bermudagrass may be grown successfully as a desired species throughout the South, the aggressive growth of bermudagrass makes it a difficult weed to manage when it invades stands of cool-season turfgrass. Mowing height is the first line of defense. Bermudagrass is not tolerant of shade, therefore a tall (> 4 inches) and thick lawn can shade the bermudagrass leaf blades in spring and early summer, shifting the environment favorably to the desirable grasses. Proper timing of fertilization can also shift conditions to favor our cool-season turfgrass. Proper cultural controls are critical to controlling bermudagrass in cool-season lawns.

Bermudagrass control is difficult and requires an investment of time and money and a willingness to change management practices. While the methods discussed here will have limited success when used in isolation, a combination of control methods is the best path forward in winning the war against bermudagrass.

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Lexington, KY 40506 Issued 05-2024



Disabilities
accommodated
with prior notification.

Tomato Spotted Wilt Virus

Tomato spotted wilt virus (TSWV) can impact numerous vegetable crops in Kentucky. Beans, cucumbers, eggplants, lettuces, peppers, potatoes, and tomatoes, in addition to more than 150 other plant species, may become infected. Homegrown and commercial vegetables may become diseased, with plants produced in greenhouses and high tunnels often being more severely affected. Once plants become infected, no management strategies are available, thus preventative measures are critical to avoid losses.

Tomato Spotted Wilt Virus Facts

- Symptoms may vary depending on the plant species affected. However, common symptoms include ringspots (Figure 1), lesions, bronzing, stunting, and wilting. Leaves and stems may also show symptoms. Fruit can become infected, and may exhibit mottling (Figure 2), ringspots, and irregular growth. While only portions of plants may show symptoms, all plant parts are infected, including those that appear free of disease.
- TSWV is transmitted by multiple species of thrips, which introduce viral particles during feeding. Symptoms may not develop for 2 to 4 weeks after infection has occurred.
- Tomato spotted wilt virus is caused by a viral pathogen.



Figure 1: TSWV infected plants may exhibit a variety of symptoms, including ringspots on leaves. (Photo: Paul Bachi, UK)



Figure 2: Fruit of TSWV infected plants may exhibit mottling. (Photo: Paul Bachi, UK)

Management

Identification of TSWV is challenging. If TSWV is suspected, contact a local county Extension office for additional information and guidance on sample submission and disease identification.

There are no chemical management options for virus diseases, including TSWV. Infected plants should be removed immediately and destroyed. Preventative practices are critical to limit infection and spread.

- Purchase certified disease-free seeds or transplants
- Utilize TSWV resistant cultivars
- Manage weeds in and near plantings
- Manage thrips populations to limit the potential for disease introduction
- Remove and destroy infected plants (roots, stems, leaves, flowers, fruit) once disease has been confirmed

Additional Resources

IPM Scouting Guide for Common Problems of High Tunnel and Greenhouse Crops in Kentucky (ID-235)

IPM Scouting Guide for Common Problems of Solanaceous Crops in Kentucky (ID-172)

Sustainable Disease Management of Solanaceous Crops in the Home Garden (PPFS-VG-21)

Home Vegetable Gardening (ID-128)

Vegetable Production Guide for Commercial Growers (ID-36)

By: Kim Leonberger, Plant Pathology Extension Associate, and Nicole Gauthier, Plant Pathology Extension Specialist

Earwigs: Hungry Bugs with Weird Butts

If you have noticed any odd damage to your flowers or garden plants this summer, you may have been victim to earwig feeding. Earwigs are odd-looking insects that feed on a wide variety of food, but in the summer, they can become a cryptic garden pest as well. Other times of the year, earwigs can be encountered in piles of firewood, in mulch beds, and even in the home. Wherever they are found, they often startle people and their name hints at some of their creepy past. Luckily, there are several ways to get a handle on these entomological oddities

Earwig Basics

The name “earwig” refers to a small order of insects that have the scientific name of “Dermaptera,” which translates to “skin wing.” Earwigs tend to be flattened, dark in color, and are most famous for their cerci –the pincher-like organs at the rear of their body. Male earwigs have curved cerci, whereas females have straighter cerci .

In Kentucky, people mostly encounter the European earwig. This species is about half an inch long and has a dark red-brown color. Like other earwigs, it has short leathery covers that protect the folded-up membranous wings. These softer wings are folded-up, origami style, and when unfurled they are vaguely ear-shaped. European earwigs are not strong fliers, though.



Figure 1: Male earwigs have a pronounced curve to their cerci (upper image), while female cerci are straighter and closer together (lower image) (Photos: David Cappaert, Bugwood.org).



Figure 2: Earwig wings are tightly folded when not in use. When they are unfurled, they have an ear-like shape and are shimmering. (Photo: Whitney Cranshaw, Bugwood.org).

Earwigs are omnivores and scavengers. The European earwig will feed on plant leaves, flowers, and fruits, as well as preying upon aphids and consuming rotting plant and animal material. They like to hide in tight, moist areas and go through incomplete metamorphosis. Females overwinter in an underground home that she builds in the autumn. While there, she will lay a clutch of eggs that she tends to through the cold months until they hatch in the spring. They display maternal behaviors, tending to the young until they mature.

Earwig Myths

Earwigs are known to have superstition and folklore that surrounds them. The name earwig is thought to derive from an Old English word “earwicg” that means “ear creature” or “ear beetle.” Other European nations also have a name that refers to the earwig as something that wants to invade the human ear. Even more sinister, some have believed that this insect deliberately wants to bore through the ear canal and try to get to the brain. It’s unknown how this superstition came to be; there have been instances where earwigs have been found in human ears, but they don’t appear to seek them out for shelter, nor have they ever actually been recorded to consume brains. Sorry, sci-fi and horror fans.

Real World Earwig Problems

In reality, earwigs are more of a problem when in the garden, rather than digging through your earwax. There are always some earwigs around; they can be in tree hollows, under paving stones, hiding under potted plants, and in wood piles. In these situations, they will feed on dead insects, prey on some small species, and scavenge food from all over. Unfortunately, they will also feed on plants like cabbage, beets, potatoes, and cucumbers. They can also feed on ornamental plants like roses, marigolds, and dahlias.

Earwigs will chew through leaves and blooms, leaving behind irregularly shaped holes. This can superficially resemble slug, snail, or caterpillar damage. Snails and slugs would also leave behind a shimmering trail or slime after they have fed, and caterpillars also tend to leave behind tell-tale frass or webbing (though not always). Earwigs come, eat, and leave without leaving behind much evidence. Unfortunately, this is a case of proving a problem through negative data; you have to look for the absence of these other signs to try and confirm an earwig problem. If earwigs are suspected, come back to the damaged plant at night to try and catch them in the act to confirm the problem.



Figure 3: Earwigs chew irregularly shaped holes in leaves and flowers of multiple cultivated plants. It’s easiest to confirm an earwig problem by checking the plant at night and finding them as they feed. (Photo: Whitney Cranshaw, Bugwood.org).

Management

Deterrence

There are ways to deter earwigs from making holes in all your plants.

1. Opening up an ornamental area to increase air flow and sunlight infiltration can scare away earwig populations.
2. Using a thinner layer of mulch in gardens and flower beds reduces harborage for them.
3. Garden sanitation to remove old plant debris may also remove hiding spots.

Traps

Some gardeners use to confirm the presence of earwigs and to suppress them.

1. Traps can be as simple as loose newspapers or cardboard laid in the garden. Earwigs will hide in/under these during the day and then the whole paper or cardboard can be picked up and disposed of.
2. Alternatively, using a sour cream container or tuna can, a baited trap can be constructed. In the evening, place the cans in the ground near damaged plants and fill the bottom with fish oil or vegetable oil with bacon grease to lure earwigs in. Some may drown but the traps can also be emptied into soapy water to kill any surviving earwigs.

Chemical Management

Finally,

1. Applications of residual insecticides can kill earwigs as they damage plants. Bifenthrin, cyhalothrin, permethrin, and deltamethrin are all possible choices.
2. Baits for slugs that contain spinosad can also be considered for earwig control and would offer less hazard to non-target organisms.

By Jonathan L. Larson, Entomology Extension Specialist



Blackberry Peach Crumble

- | | |
|---|---|
| 2 cups fresh blackberries | ½ cup all-purpose flour |
| 2 cups peeled and sliced fresh peaches or 1 (16 ounce) bag frozen peach slices, thawed | ½ cup chopped blanched almonds, (optional) |
| 1 teaspoon grated lemon peel | ¼ teaspoon salt |
| 2 tablespoons cornstarch | 6 tablespoons butter, cut into pieces |
| ½ cup , plus ½ cup packed brown sugar | |

Combine blackberries, peaches, lemon peel, cornstarch and $\frac{1}{2}$ cup brown sugar in a large bowl.

Pour ingredients into a lightly greased 8 inch baking dish.

Mix together flour, almonds, salt, and remaining $\frac{1}{2}$ cup brown sugar. With pastry blender or two knives, cut in the butter until the mixture resembles coarse meal.

Sprinkle flour mixture over fruit.

Bake in a pre-heated 400° F oven for 30 minutes.

Cool 10 minutes prior to serving.

Yield: 8, $\frac{1}{2}$ cup servings

Nutritional Analysis: 270 calories, 14 g fat, 25 mg cholesterol, 135 mg sodium, 35 g carbohydrate, 2 g protein, 3 g fiber. Without almonds: 220 calories, 9 g fat, 25 mg cholesterol, 135 mg sodium, 35 g carbohydrate, 2 g protein, 3 g fiber.

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



2024 TOOLBOX GARDEN SERIES



McCracken County Extension Service

2025 New Holt Road Paducah, KY 42001

(270) 554-9520

Jan 2: Flower Arranging *RSVP*

Feb 6: Electric Canning

Mar 5: Honey Bees

Apr 2: Homesteading

May 7: Perennial Cut Flowers

Jun 4: Garrett Farms (on-site) *RSVP*

Jul 2: Fairy Garden *RSVP*

Aug 6: Fall Asters

Sep 3: Hydrangea

Oct 1: Tulips

Nov 6: Wreath Making *RSVP*

**FIRST TUESDAY
OF EACH
MONTH
5 - 6 P.M.**

**November session will
be on a Wednesday**

Cooperative Extension Service

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

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, 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 mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability 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



Kentucky Extension Master Gardener Program 2024

 Cooperative
Extension Service



Kentucky Extension
Master Gardener

Mary Dossett

Mary Dossett,
Horticulture Agent

WHERE? DATES? TIME?

Classes are held on Thursday evenings at the
McCracken County Cooperative Extension Service
August 1st to October 31st
5:00p.m. to 6:30p.m.

What does the program require?

- 1) a one-time **\$100.00 registration fee** to cover materials used and given in class.
- 2) Submitting information for **background check**.
- 3) Reading assignments and homework questions covering key ideas in horticulture.
- 4) Volunteer hours of 40 the first year, then 40 each year thereafter.
- 5) Written exam.

What does the program provide?

The Master Gardener training program provides more than 40 hours of classroom and hands-on instruction in horticulture and related areas.

Class instructors include Extension specialists, agents and other guest speakers.

Class topics include:

Botany
Entomology
Plant Pathology
Soils and Fertility
Volunteering
Pesticide use and safety

Plus sections from:

Annuals and Perennials
Fruit Production
Tree and Shrub Care
Landscape Design
Lawn Care
Native Plants

HOW DO I ENROLL?

By calling (270) 554-9520

Cooperative Extension Service

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

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

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Disabilities
accommodated
with prior notification.

WHAT IS THE MASTER GARDENER PROGRAM?

The Extension Master Gardener program provides horticulture training in exchange for volunteer work. The program is a great way to gain horticultural knowledge and share your expertise in your community.

You will meet other gardeners, share gardening experiences, get connected to community, and be associated with a well-respected national program.

The Extension Master Gardener program is offered through local Cooperative Extension Service offices. Cooperative Extension is an outreach unit of Kentucky's Land-Grant universities—the University of Kentucky and Kentucky State University.

The Cooperative Extension Service and Extension Master Gardeners use and provide research-based recommendations to clients.

2024 Master Gardener Training Schedule 5:00 p.m. to 6:30 p.m.

- Aug 1, Orientation / Weed Management
- Aug 8, Botany / MG Plant Swap
- Aug 15, Plant ID / Plant Propagation
- Aug 22, Home Fruit
- Aug 29, Woody Ornamentals
- Sept 5, Pesticides and Safety / IPM
- Sept 12, Entomology
- Sept 19, Plant Pathology
- Sept 26, Annual and Perennial Flowers
- Oct 3, Soils and Fertility
- Oct 10, Vegetables and Composting
- Oct 17, VPM / Wildlife
- Oct 24, Lawn Care
- Oct 31, Review and Final Exam



McCracken County Master Gardener Association

Once you've enrolled in Master Gardener training you may choose to join the *McCracken County Master Gardener Association*.

Association members share gardening knowledge, present and attend educational seminars, tour gardens & horticulture businesses and work together on volunteer projects.

Master Gardeners meet at 6:00 p.m. on the first Tuesday of each month.

Annual dues are \$15.00, payable January 1st–March 30th.

While training to become a Master Gardener, you are welcome to sit in the monthly meetings to see if you are interested in joining the association.

Commonly Ask Questions

What qualifications do I need to become a McCracken County Master Gardener Association member?

You would need to be someone who:

Loves gardening!

Wants to help and teach others.

Likes to give back to the community.

Completes the Master Gardener Class.

Completes the yearly volunteer hour requirements.

And likes to have a lot of fun!

HOW DO I ENROLL IN THE MASTER GARDENER PROGRAM?

By calling the McCracken County Cooperative Extension Service
2025 New Holt Road
Paducah, KY 42001
(270) 554-9520

If you have additional questions ask for Mary Dossett, Agent for Horticulture.