January 2025

For The Farmer

A newsletter for grain, livestock, vegetable, and home owners

AGRICULTURE & NATURAL RESOURCES

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

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Andy Mills, Extension Agent for Agriculture & Natural Resources Education—Meade

Andy Mills

Grain Growers Meeting

MEADE COUNTY EXTENSION OFFICE

February 11th' at 9:30 AM (ES)

We will be hosting a meeting to help grain growers with production decision making.

Lunch will be provided and sponsored by:
Meade County Extension Office
and Nutrien Ag Solutions.

Topics:

9:30am—Cover Crops and Soil Fertility
Dr. Chad Lee, University of Kentucky, Grain Crops Specialist

10:30am—*Grain Marketing Outlook*
Dr. Grant Gardner, University of Kentucky, Agriculture Economist

11:30am—Lunch

12:30am—*Learning the Ins and Outs of the Carbon Market*
Dr. Jordan Shockley, University of Kentucky, Agriculture Economist

Register By calling the Extension Office at 270-422-4958 by February 4th, 2025.

Ordering Seeds for Vegetable Gardens

Kentucky Pest News

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

Spring may feel far away, but planning begins during the cold months of winter. Seed catalogs, store displays, and online retailers present a number of different options (Figure 1). However, successful production begins with the selection of the right seeds for each garden. Gardeners often have preferences towards certain cultivars or varieties, but if plant diseases have plagued plants in the past then it may be time to consider a change.

Selection of a disease tolerant or resistant cultivar is one way to prevent or limit the impact of plant diseases in the vegetable garden. A number of cultivars are labeled as tolerant, which means that while plants may become diseased, plants still yield sufficient amounts of produce. Resistant cultivars do not become diseased, and therefore produce higher yields than those that are susceptible to disease.

While no single cultivar is resistant or tolerant to all plant diseases, use of resistant cultivars can often reduce the need for additional plant disease management practices, such as fungicide sprays. Gardeners should choose cultivars that are tolerant/resistant to the diseases of greatest concern in their garden. It is advisable to keep a garden journal of cultivars that have been grown in the past, as well as a record of previous disease issues. Proper diagnosis of plant diseases is important for future disease management. If issues arise in the vegetable garden, contact a local county Extension agent for assistance.

Select a tolerant or resistant cultivar by reviewing information on websites, seed packets, or seed catalogs. Note that disease names may be abbreviated, or a coding system may be used to indicate resistance or tolerance to specific diseases. Varieties with resistance/tolerance to common vegetable disease issues are detailed below. Additional information about resistant/tolerant varieties can be found in *Vegetable Cultivars for Kentucky Gardens* (ID-133) or by contacting a local county Extension agent.

Tomato

Early blight is the most common disease of tomatoes in Kentucky, and often co-occurs with Septoria leaf spot. jTomatoes with some resistance to early blight are ‘Jasper,’ ‘Matt’s Wild Cherry,’ ‘Mountain Magic,’ and ‘Sun Gold’ (small cherry tomatoes), ‘Indigo Rose,’ ‘Plum Regal,’ and ‘Verona’ (Roma size), and ‘Defiant,’ ‘Iron Lady,’ ‘Mountain Fresh Plus,’ ‘Mountain Merit,’ and ‘Stellar’ (slicing size).

Figure 1: *Seeds can be purchased from a variety of sources. Note that inclusion in this image does not indicate endorsement of any brand. (Photo: Kim Leonberger, UK)*

Pepper

The bacterial spot pathogen causes the most common disease of peppers. There are at least ten races of the pathogen, and pepper resistance is race-specific. Commonly occurring races can vary by location, so it is recommended to choose cultivars with resistance to as many races as possible. Some suggested cultivars include: ‘Boca,’ ‘Ninja,’ ‘Outsider,’ ‘Playmaker,’ ‘Samurai,’ and ‘Tracer.’

Cucurbits (Cucumber, Squashes, Musk melon, Watermelon, Pumpkin & Zucchini)

- Many powdery mildew resistant cultivars of picklers, slicers, pumpkins, and squash are available.
- Cultivars that are less susceptible to bacterial wilt include the pickle cukes ‘Cross Country’ and ‘County Fair,’ ‘Howden’ pumpkins, and ‘Waltham Butternut’ squash. Manage cucumber beetles for best management of bacterial wilt. All watermelons have natural resistance to bacterial wilt.

Leafy Greens

- Many lettuces have been bred for resistance to downy mildew. Consider head lettuces ‘Kweik,’ and ‘Pirat,’ green leafed lettuces ‘Black Seeded Simpson,’ and ‘Nevada,’ and red leafed lettuces ‘Galactic,’ ‘Red Zin,’ and ‘Rustica’ for their additional resistance to bacterial disease and/or white mold (drop).
- Powdery mildew-resistant lettuces include ‘Jericho’ and ‘Super Jericho’ (romaines), ‘Sandy’ (oakleaf), ‘Loma,’ ‘Red Salad Bowl,’ and ‘Skyphos’ and ‘Red Cross’ (red butterheads).
- Regal’ and ‘Samish’ spinaches are resistant to downy mildew and white rust.

Kale, collards, turnip greens, and mustards are naturally resistant/tolerant to many diseases.

Legume Vegetables (Beans & Peas)

- Many French and green beans have been bred for resistance to anthracnose, but resistance in other types of beans is unavailable.
- ‘Caprice,’ ‘Espada,’ ‘Kentucky Blue,’ ‘Romano II,’ ‘Volunteer,’ and ‘Goldkist’ are fungal leaf spot and/or rust resistant bean varieties, with additional resistance to various viral diseases (viruses are not common in KY).

‘Green Arrow,’ ‘Cascadia,’ ‘Sugar Daddy,’ and ‘Oregon Sugar Pod II’ are pea cultivars suggested for their resistance to powdery mildew, Fusarium wilt, and Verticillium wilt.

Cole Crops (Cabbage, Broccoli, Cauliflower, Kohlrabi & Brussels Sprouts)

- Black rot is the most common disease of cole crops in KY. Cabbage cultivars ‘Bilko,’ ‘Blues,’ ‘China Pride,’ ‘Blue Vantage,’ and ‘Bronco’ carry resistance to a broad range of diseases, such as downy mildew, Fusarium yellows, and/or black rot.
- Broccoli cultivars ‘Emperor,’ ‘Pinnacle,’ and ‘Green Magic’, as well as cauliflower cultivar ‘Majestic’ are resistant to downy mildew and/or black rot.

‘Grand Duke’ kohlrabi is resistant to black rot.

Biochar

Dr. John Grove, University of Kentucky & Dr. Eugenia Pena-Yewtukhiw, West Virginia University.

We're getting more questions about biochar (any char made from non-fossil biomass. Can biochar application: a) result in greater carbon (C) sequestration; b) improve soil resilience; c) raise crop yield? Biochar research has been going on for a decade. This is not our first rodeo about biochar as a soil amendment. There were many reports regarding" terra preta", black soil areas in the Amazon region containing large amounts of char, between 1995 and 2000 (Sombroek, 2003). Biochar is formed by heating/burning organic materials under low oxygen conditions. This is a form of stabilization, chemically similar to composting – easily decomposable/oxidized component compounds are lost or transformed into more stable, recalcitrant constituents.

The general characteristics of biochar vary with feedstock choice (grass, wood, poultry litter, horse muck) and pyrolysis conditions (especially temperature). Feedstock composition can determine differences in biochar surface area/porosity and salt and ash levels (Nagel et al., 2019). Generally, animal waste chars have greater ash/salt concentrations. Higher pyrolysis temperatures can result in char with greater aromatic C content; with greater resistance to mineralization (carbon dioxide release; Zimmerman et al., 2011)) and greater hydrophobicity after soil application (Oginni, 2018). Typically, biochar has a low density (can float away in moving water).

Reported biochar application rates range quite widely, between 0.5 and 20 tons/acre. Impacts on soil properties are expected and variable in nature. Ash, if present (is sometimes removed) can increase salt load, raise soil pH, and increase soil nutrient levels (primarily calcium, potassium, magnesium). In sandy soils, biochar sometimes increases water retention and in some cases it improves aggregate stability in silty and clayey soils (Nobert et al. 2016).

Compiling crop response studies, Spokas et al. (2012) found that 20, 30 and 50 percent of the studies reported negative, neutral and positive yield responses to biochar, respectively. One common generalization was that positive responses were more likely on poor, degraded soils and neutral/negative responses were more probable on average/good agricultural soils. In Kentucky, the crop response data are limited, but do support the common belief. Table 1 is taken from work done by the USDA- ARS research group at Western Kentucky University (Sistani et al., 2019).

Table 1. Three years of no-till corn grain yield from a biochar study near Bowling Green, Kentucky.

	2010			2011			2013		
	No char	with char	Fertility ave.	No char	with char	Fertility ave.	No char	with char	Fertility ave.
	bu/acre								
control	103a*	90ab	96	115a	106a	110	143bc	128c	135
fertilizer	86ab	75b	80	96a	86a	91	201a	187ab	194
litter	80b	75b	78	112a	100a	106	210a	209a	209
char ave.	90	80		108	97		185	175	

*Within any one production year, yield values fol-lowed by the same letter are not sig-nificantly different at the 95% level of confidence.

Sistani et al. (2019) grew no-till corn for grain was grown on a Crider silt loam. The mixed hardwood biochar was applied once, in the spring of 2010, at a rate of 9.5 ton/acre. The poultry litter was applied annually to provide 200 lb N/acre. The fertilizer treatment consisted of annual applications of 200 lb N/acre plus additional phosphate and potash according to soil test based fertilizer recommendations (Sistani et al., 2019). The 2010 and 2011 production seasons were dry and there was little response to any of the individual treatments (Table 1). The 2013 year was much better and there was a large response to both fertilizer and poultry litter addition. Biochar addition resulted in a consistent 10 to 11 bu/acre yield reduction, regardless of the seasonal weather. Biochar did not ap-pear to have increased soil or crop resilience on this productive soil (Table 1).

In West Virginia, poultry litter biochar was added at a rate of 14 ton/acre to two reclaimed mine land sites and two marginal agricultural farm sites (Nobert et al. 2016). Six cultivars of a biofuel feed-stock species, willow, were grown. Plant growth (height) and dry matter accumulation were measured. Young plant growth in the first year was strongly positively influenced by biochar application, averaging 9.4 inches greater height regardless of the site type. Corresponding dry matter accumulation was 72% greater. Such a large beneficial response on more marginal soils is also in accord with the current general understanding.

These examples illustrate the range in plant response that might be observed with biochar amendment and should serve to caution those who expect positive benefits under all soil conditions. The range in biochar properties, combined with the range in chosen application rates, will also probably cause a range in the numerical value of any soil biological, chemical and physical property response. This will make the prediction of soil health benefit magnitude from biochar addition difficult.

Make plans now to attend the 48th Annual Kentucky Turf and Landscape Management Short Course! The Short Course will be in person February 18-20, 2025 at the Hardin County Extension Office in Elizabethtown.

The program will be two full days of comprehensive turfgrass and landscape management education and is appropriate for anyone interested in turf, including professionals, Extension agents, and homeowners. Presentations will be provided by faculty in the University of Kentucky's turfgrass program, other university programs, and industry representatives, and cover all aspects of turfgrass management for lawns, golf courses, sports fields, and other applications.

Six CEUs have been approved for each day with category specific points available in **category 3** on both Feb. 19 & 20, **category 11 (Aerial)** on Feb. 19 in Lawn and Golf tracks, and **category 10 (Demonstration and Research)** on Feb. 20 in Lawn and Golf tracks. CEUs will be requested from KY, IN, OH, and TN departments of agriculture as well as Golf Course Superintendents Association of America (GCSAA) and Professional Grounds Management Society (PGMS).

Registration is now available online for sponsors and attendees. There are 1, 2, and 3 day ticket options available.
https://kentuckypestnews.wordpress.com/2025/01/21/university-of-kentuckys-48th-annual-turf-and-landscape-short-course/

KCHC
Kentucky Crop Health Conference

9 a.m. to 3 p.m. CST, Feb. 6, 2025 - National Corvette Museum - Bowling Green, Ky.

Ticket sales close Jan. 30, 2025 - breakfast and lunch included
Conference sign-in begins at 8 a.m. CST

Scan QR Code or visit: https://kchc2025.eventbrite.com
Tickets non-refundable after January 30, 2025

Credits: CCA: 4.5 CEUs in IPM;
KY Pesticide Applicator: 3 CEUs for Category 1A & 1 CEU for Category 10

Kiersten Wise
University of Kentucky

Topic: Stay one step ahead: Tracking corn diseases in Kentucky

Wade Webster
North Dakota State University

Topic: Fueling the Future: Driving Predictive Models for Tar Spot

Carl Bradley
University of Kentucky

Topic: Research update on Red Crown Rot of Soybean

Travis Legleiter
University of Kentucky

Topic: The fight against Italian Ryegrass in Kentucky:
A persistent challenge

Justin McMechan
University of Nebraska–Lincoln

Topic: Unraveling emerging insect issues in agriculture: Impacts, challenges, and management tactics

Raul Villanueva
University of Kentucky

Topic: Management of slugs and snails through field efficacy tests in soybeans

Alyssa Essman
Ohio State University

Topic: Planting green and the influence of cover crop termination timing on weed management

Increasing Frost Seeding Success!!!

Dr. Chris D. Teutsch, Forage Extension Specialist, University of Kentucky Research and Education Center at Princeton

Frost Seeding Should Be Done Now Through February 15th.

The importance of legumes in pastures has long been recognized. They bring nitrogen into grassland ecosystems via symbiotic nitrogen fixation, improve forage quality and animal performance, and dilute the toxic effects of the endophyte found in tall fescue. It is estimated that commonly used pasture legumes will fix between 50 and 200 lb nitrogen per acre per year. Frost seeding clover and in some cases annual lespedeza is a simple and effective way to reintroduce legumes back into pastures. The following suggestions will help to enhance the success of frost seedings.

Soil test and adjust fertility. In order for pasture renovation to be successful proper soil fertility is required. Lime and fertilize pastures according to soil test results. Lime should be applied six months prior to renovation if possible.

Suppress sod and decrease residue. The existing sod must be suppressed and plant residue reduced prior to seeding. The reduction in plant residue facilitates good soil-seed contact by opening the sod up and allowing the seed to reach the soil surface. This can be accomplished by hard grazing in late fall and early winter.

Broadcast seed on proper date. Frost seeding legumes back into pastures is best accomplished in late winter to early spring (February 1 and early March 1). Frost seeding is accomplished by simply broadcasting the seed onto the soil surface and allowing the freezing and thawing cycles to incorporate the seed into the soil. Since frost seeding depends on the freezing and thawing cycles to incorporate the seed into the soil, it is especially that it is done on-time. *Prior planning and preparation are important so that seeding can be done in a timely manner*.

Ensure good soil-seed contact. Good soil-seed contact is required for germination and emergence of frost seeded clover. One way to increase soil-seed contact is to drag pastures as you broadcast the seed or just after. This disturbs a small amount of soil enhancing soil-seed contact.

Use varieties that have been tested in Kentucky. Choose varieties that have been tested in Kentucky and have performed well over multiple years and locations. Use either certified or proprietary seed to ensure high germination, seed genetics, and low noxious weed content. Cheap, low quality seed often cost more in the end due to lower production, decreased persistence, and thin stands.

Use correct seeding rate. In Kentucky, a good mixture for frost seeding is 6-8 lb medium red clover and 1-2 lb of ladino or grazing white clover. Due to its low productivity, do NOT use common or Dutch white clover. In some cases, 10-15 lb of annual lespedeza per acre can be mixed with the red and white clover. Calibrate your seeder prior to planting (see box on calibrating forage seeding equipment).

Inoculate Legume Seed. Always use pre-inoculated legume seed or inoculate it with the proper strain of nitrogen fixing bacteria prior to seeding. This is relatively inexpensive insurance that efficient nitrogen fixation will take place.

Check seed distribution pattern. When using a spinner type spreader/seeder make sure and check you spreading pattern. In many cases small seeded forages are not thrown as far as fertilizer. This can result is strips of clover in your pastures rather than a uniform stand. Also check your seed distribution pattern. Single disk spinners often throw more seed to one side if not correctly adjusted.

Control Post-Seeding Competition. Failure to control post-seeding competition is one of the most common causes of stand failures. Clip or graze the existing vegetation to a height just above the developing seedlings. This must be done in a timely manner to ensure that the competing vegetation does not get ahead of the seedlings.

Forage Seeder Calibration at a Glance

Planting too much seed increases establishment costs.

Planting too little seed results in thin stands, increased weeds, and lower yields.

Seeding charts can vary greatly from actual seeding rate.

Seeders should be calibrated under field conditions whenever possible.

The area covered and amount of seed dispensed must be known for calibration.

Seeding rate = amount of seed ÷ area covered

Area covered (acres) = seeder width (ft) x distance traveled (ft) ÷ 43,560

Determining amount of seed (always tare scale for weighing container):

Collection: Seed is collected for a known area.

Difference: The difference between the original amount of seed in the seeder and the amount remaining for a known area.

Run out: Seeder is run until known quantity of seed runs out and area is determined. This is the least precise method.

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SWEET & SPICY BRUSSEL SPROUTS

http://kyproud.com/recipes/

Ingredients:

1 pound (2 cups) Brussels sprouts
1 tablespoon olive oil
1/2 teaspoon sea salt
1 teaspoon garlic powder
1 teaspoon fresh cracked black pepper
1 teaspoon red pepper flakes
-- Drizzle:
1/2 teaspoon hot sauce
1 tablespoon honey

Yield: 4, 1/2 cup servings

Directions:

Preheat oven to 400 degrees F. **Wash** Brussels sprouts, remove outer leaves and **cut** each sprout in half. **Mix** olive oil, sea salt, garlic powder, black pepper and red pepper flakes in a medium sized bowl. **Add** Brussels sprouts to the mixture and stir to coat evenly. **Mix** the hot sauce and honey in a small bowl and set aside. **Place** Brussels sprouts on a greased baking sheet. **Bake** 30 minutes or until tender. **Drizzle** hot sauce mixture over top of cooked Brussels sprouts.