

NIKKI'S NEWSLETTER

Marshall County's Agriculture & Natural Resources Update



Cooperative Extension
University of Kentucky
Marshall County
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Benton, KY 42025
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May is almost here and due to the amount of great early May programs coming up, I wanted to get this newsletter out to you all a little early. I hope this makes it to everyone in a timely manner. The postal process seems to get longer every time. The May **Lunch Break Gardening** Program is on the 3rd and the topic is hummingbird gardens, June's lesson will be rain barrels, the UK **Wheat Field Day** is on May 9th (page 3), and the **Small Ruminant Field Day** is on May 2nd (RSVP required.) The SRFD will be a great program. I applied for a grant from the KY Sheep and Goat Development Office and was awarded funds to buy participants hoof trimming kits! The Kits will be FREE for registered participants. Call 270-527-3285 to register.

Another great opportunity to not only learn but shop is the **2023 Marshall Master Gardener Plant Sale**. The sale will be in what was previously the Central Church Of Christ. If you leave the Extension Office and take a left to head towards Mayfield on Mayfield Hwy, the church is the next building on your left. Signs will guide you the day of the sale. The sale will be bigger and better than ever! (See page 2 for details.)

Grain Growers Beware!

There has been a lot of mixed data going around that is inspiring growers to purchase nitrogen fixing bacteria products. I want to make sure that you also have access to unbiased research based information on these products as well. Researchers from 10 different Universities, including our neighbors to the north in Illinois, and our neighbors to the west in Missouri, found no statistical, nor financial advantage, to these products in MANY years of research. If only 2 out of 61 trials (mostly on corn) were positive, these products don't look appealing to me. I would re-allocate those funds to lime and fertilizer based on UK soil test recommendations which are proven to provide what your crop needs. See the summary from their research publication below. Unfortunately, I have not been able to locate the publication online yet but I can also send full copies of the report if you would like to read further.

"Sixty-one site years of N rate trials with and without the use of biological N fixing products were conducted in corn, spring wheat, sugar beet and canola in 10 states within the North Central Region of the U.S. Of the 61 site-years, 59 site-years had no yield increase with use of the product over N rate alone. Two site-years in corn had yield increases due to product use over the N rates alone. Given the low rate of positive benefits to the use of these products, growers should be skeptical of products that claim to provide a symbiotic/non-symbiotic N-fixation for the purpose of allowing a farmer to decrease fertilizer N rate. It is good for farmers to be curious; however, the wise grower needs to test products of interest on their own farm in a replicated manner and search for un-biased data on product performance before using them on whole fields. A recently published primer on how one might conduct on-farm research is provided in Thompson et al., 2022"
(Excerpt from publication SF2080: Performance of Selected Commercially Available Asymbiotic N- fixing Products in the North Central Region)

Wheat Freeze Update (4/10/23)

Good news to start out your week! The UK Agronomists have scouted several areas across the state, talked to several agents (including myself), received many pictures of heads and have seen very little damage to the wheat crop. EVERY field walked has had less than 5% damage to plants with the vast majority closer to 1%. This may be contrary to other reports. Some reports say upwards of 20% damage, which we (Extension Agents and Specialists) have not validated anywhere in the state to this point. We have observed more damage to stems, roughly 1-2 inches above soil surface, that are brittle or slightly "mushy" than anything else. With that being said, make sure to monitor those fields the closer we get to harvest for increased lodging. The good news is that wheat is very resilient, and we do not expect a significant increase in lodging due to this freeze event. If you still suspect freeze damage in your field, let me know and we will gladly come help you scout fields!

Beef Calendars

They are finally in! I normally hand these out at my winter beef meetings and have no clue why UK is so late this year but there are still many months to enjoy them. Pick one up today!

-Nikki Rhein

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Marshall Master Gardener Association's 7th Annual Plant Sale Fundraiser



For Sale!

Affordable trees, shrubs, vines, vegetables, fruit, herbs, bulbs, seeds, annuals, perennials, succulents, houseplants, compost, planters, books & more!



New Location!

We have more space than ever! The sale will be at the future home of the Marshall County Extension Office (previously the Central Church of Christ)



FREE!

Gardening advice at the "Ask a Master Gardener Table," Door Prizes, Educational Publications, & Chia Pet Activity at the kids corner!

Saturday, May 20th
8:00am - noon
Cash or Check Only

NEW LOCATION
2081 Mayfield Hwy.
Benton, KY 42025

(Formerly the Central Church of Christ)

Contact the Marshall County Extension Office for more information

📞 270-527-3285

✉️ marshall.ext@uky.edu

💻 marshall.ca.uky.edu/horticulture

Cooperative Extension Service
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LEXINGTON, KY 40546



2023 WHEAT FIELD DAY

TOPICS INCLUDE:

Drone Regulations, Applications, and Economics

Dr. Josh Jackson & Dr. Tim Stombaugh
UK Extension Agriculture Engineers

Wheat Market Outlook

Dr. Grant Gardner
New UK Extension Marketing Specialist

UKY Oat and Rye Breeding

Dr. Lauren Brzozowski
New UK Small Grains Breeder

Wheat vs Weather: A Reoccurring Battle

Kinsey Hamby
UK PSS Graduate Student

Management of Fusarium Head Blight

Dr. Carl Bradley
UK Extension Pathologist

Wheat Agronomics

Conner Raymond
UK Grain Crops Extension Associate

Variety Trial Walk Through

Dr. Dave Van Sanford & Bill Bruening
UK Wheat Breeder & Researcher Specialist

Sustainable Management of Wheat for the Presence of Natural Enemies in Grain & Soybeans

Dr. Raul Villanueva
UK Extension Entomologist

May 9, 2023

UKREC Farm

**1205 Hopkinsville Rd,
Princeton KY 42445**

**9am – noon (Central time)
Registration: 8 am**



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

Wheat Science

Lunch sponsored by:



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Microgreens



Johnnie Davis, Marshall Master Gardener

They are tiny, tasty and trendy. Microgreens are also described as cute, but what are they? Not sprouts; not baby greens, but greens with fully developed cotyledon (first) leaves.

Anyone can grow microgreens in a kitchen window or greenhouse with a shallow pan and 3 inches of clean soil or a sheet of coconut coir. Seeds that you plant will need 4 or 5 hours of light daily within a temperature range of 65 to 75 degrees. Use only herb and vegetable seeds that are labeled for microgreens and have not been coated. Sow the seeds very thickly.

The best seeds to use are: Cabbage, broccoli, kale, radish, mustard, beets,

carrots, chard, basil, cilantro, dill, fennel, parsley, kohlrabi and arugula.

Once planted, microgreens can be harvested in 10 to 14 days. Harvest once cotyledons are fully developed, or true leaves are just beginning to emerge. Larger seeds may take longer. During that time, they should be misted every day. The final product is harvested by clipping them with a pair of clean scissors. The shelf life on microgreens is short, so plan to use them quickly after cutting. The greens should be 2 or 3 inches tall.

An advantage of microgreens is that they can be grown all year, making them a valuable recipe ingredient. They are enjoyed because they appeal to the senses, but they are valued because of their nutrient density. Past research on microgreens confirms them to be high in micronutrients, trace minerals, antioxidants, and vitamin C, K, and E. According to the USDA, the microgreen plant may contain as much as 40 times the nutrients as the mature plant. In recent years, extensive research has begun to determine if microgreens are a practical food source in space. They are also being considered for playing a role in diets that are tailored for specific diseases. Use microgreens as a garnish for soups or desserts; or as an ingredient on sandwiches and in salads.



MASTER GARDENER LIBRARY LESSONS

CULINARY HERBS

**Join Master Gardener
Johnnie Davis for a free
gardening workshop!**

**Learn how to grow,
preserve & use
culinary herbs!**

**Two chances to attend!
Marshall County Public Library Branches:**

**Hardin on June 14th from 10-11:00am
Calvert City on June 21st from 10-11:00am**



Cooperative Extension Service
Agriculture and Natural Resources
Family and Consumer Science
4-H Youth Development
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Marshall County
Public Library
Something for Everyone
(270) 527-9969

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Disabilities
accommodated
with prior notification

Parasite Problems Returning in Cattle Due to Dewormer Resistance?

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

Dewormers (anthelmintics), when given correctly, are not killing intestinal parasites of cattle as they used to. Although new drug “classes” entered the market from the 1950s to the 1980s, it has now been over 40 years since ivermectin was introduced in 1981. Basically ‘we have what we have’ which is 3 major chemical classes or families of dewormers known as the Benzimidazoles (SafeGuard® & Panacur®/Valbazen®/Synanthic®), the Macrocyclic Lactones or MLs (Ivomec®/ Cydectin®/ Eprinex® & LongRange®/Dectomax®/generic ivermectins) and the Imidazothiazoles/ Tetrahydropyrimidines (Rumatel®/ Strongid®/ Prohibit® or Levasol®). These dewormers are gradually losing effectiveness against livestock parasites with no new products on the horizon to replace them.

“Anthelmintic resistance” is the phrase used for the ability of a parasite to survive treatment with a lethal dose of chemical dewormer because of a change in the genetic makeup (mutation) in the parasite. Only the parasites that survive after deworming will go on to reproduce and may pass a copy of their newly formed “resistance gene” to their offspring. But this is only half of the story. For fully resistant parasites to develop, both parents must pass a copy of this “bad” gene to the offspring. These resistant genes build up slowly but steadily in the parasite population, especially from repeated use of dewormers over many years, and they do not revert to susceptibility. Resistant worms are not more aggressive or deadly; they simply survive in higher numbers after deworming, resulting in production loss and disease in the most susceptible animals.

Consequences of high parasite burdens are mostly seen in younger animals, especially weaned calves and replacement heifers, since adult cattle develop an immunity to the effects of parasites. Although most infections in cattle are a combination of several different worm species, generally all gastrointestinal parasites cause anorexia and reduce the animal’s ability to efficiently convert forage to milk and muscle. The number one sign of a parasite problem is lower than expected production, including less than genetic potential rate of gain, feed conversion, growth, and reproduction. This is potentially costing producers due to reduced weaning weights, delayed puberty, decreased fertility and pregnancy rates, reduced feed efficiency and immune suppression in young cattle, especially those ages 2 years and younger. As exposure to parasites increases with age, the bovine immune system reduces worm infections and suppresses worm egg production. This immunity to parasites is a moderately heritable trait. Unfortunately, the dependence on chemical dewormers has allowed selection of bulls and replacement females with high production numbers but has ignored any potential genetic contribution to fighting parasites. Additionally, chemical deworming has allowed continued husbandry and pasture management factors that keep worm burdens high. As an example, overstocking a pasture results in more feces, more worm eggs and larvae after egg hatching, shorter grass and more parasites in animals forced to graze near manure piles. Young, growing animals are at highest risk due to lack of previous exposure to parasites and a naïve immune system.

How is it possible to know if dewormer resistance is a problem in a herd? The best way to test is a Fecal Egg Count Reduction Test (FECRT) based on the knowledge that dead worms don’t lay eggs. This test basically involves taking fecal samples from 20 random animals within a production group (cows, calves, or replacement heifers) at the time of deworming and sending them to a laboratory for a fecal egg count (FEC). Fecal samples are collected again from the same production group 14 days later and those samples are sent to the same laboratory for a second FEC. The second samples do not have to be collected from the same individual animals but do need to be from the same group collected previously. If the dewormer worked effectively, there should be at least a 90% reduction in the average or mean number of eggs from the first sample to the second sample. “Resistance” is present when the correct delivery of the correct dose of the dewormer to a healthy animal fails to produce at least a 90% reduction in the number of parasite eggs. It is important to understand that a decrease in “anthelmintic effectiveness” or “treatment failure” may be for reasons other than genetic or heritable resistance in the parasite population. Many factors can cause smaller than expected reductions in fecal egg count numbers including underdosing dewormers from errors in weight estimation, dosing equipment not calibrated correctly and/or not working properly, applying pour-ons to the hair of an animal rather than skin, use of expired products, and errors in sample collection and shipment, just to name a few.

How can we slow the development of resistance to dewormers? First and foremost, we must understand the parasite prevalence (the proportion of cattle with a large parasite load in each time period) in KY cattle in order to properly direct research and extension interventions to lessen the effect of parasites on health and production. Secondly, we have to examine the current level of resistance to dewormers through FECRTs performed throughout the Commonwealth. Finally, it is important to identify the predominant types of gastrointestinal parasites in our cattle to correctly interpret the FEC. Most of the major parasites in cattle are classified as “strongyles” and their eggs are basically indistinguishable. Weaned calves up to 12-18 months of age are mostly affected by two strongyle species, Cooperia and Haemonchus, both of which produce huge numbers of eggs. Around 2 years of age, cattle develop resistance to Cooperia and Haemonchus but another strongyle, Ostertagia, a more pathogenic parasite predominates yet it does not produce many eggs. A PCR is now available to identify the parasite genus and species as there are concerns that climate change, intensive livestock management and dewormer resistance issues have fundamentally changed our picture of “expected” parasite burdens in production classes of cattle. To accomplish these three tasks, UK Extension faculty and agents, in conjunction with KBN and Merck Animal Health, have launched a parasite study that is set to begin in the Spring of 2023 in beef cow/calf and stocker operations in KY.

Reducing unnecessary treatment with dewormers, making sure the dewormers used are effective, and making sure deworming is performed correctly all contribute to fewer resistant genes in parasites. In addition, environmental management will help create safer pastures and lessen the need for chemical dewormers.

Bait Registered under Section 24(c) to Manage Slugs & Snails on Soybeans in KY



Figure 1. Snail feeding on a soybean cotyledon (Photo: Raul Villanueva, UK)

James Mitchell (U. of Arkansas)

Slugs & Snails

During the last couple of years, slugs and snails have become serious pests of soybeans in many areas of the North Central U.S., including Kentucky, Illinois, Indiana, Ohio, and West Virginia. These mollusks feed on germinating seeds until the V0 to V4 growth stages of soybean plants. Typically, cotyledons (Figure 1) and unifoliate leaves are damaged; however, when the apical meristem is destroyed, the plant growth is totally thwarted causing plant death (Figure 2). Outbreaks of mollusks can reduce plant densities, and there is no rescue treatment when this occurs. Replanting is the only option for commercial soybean farmers when damage to plant stands is severe. However, if farmers scout in the spring, they can use metaldehyde baits as a preventative control management practice.

Metaldehyde Baits & Scouting

Recently, Deadline® M-Ps™ (metaldehyde) was registered in Kentucky to be used in soybeans under FIFRA 24(c) special local needs (SLN). Although there is no threshold for slugs, scouting should be conducted before spreading the metaldehyde baits. Scouting for mollusks may be conducted after rains and on foggy days with cool temperatures in order find slugs or snails early in the morning, or scout just before or after sunset. The applications of baits should follow the manufacturer's directions.



The EPA SLN label for Deadline® M-Ps™ is located here.

Parasite Resistance

(Continued from page 5)

Environmental management to reduce exposure of the host animal is central to parasite control. The following list of practices will help create safer pastures with lower worm numbers and result in less need for anthelmintic (dewormer) treatment:

1. Stocking rate is exceptionally important, as overgrazing forces consumption of forage close to the soil surface where the larvae are concentrated. Most larvae never migrate higher than 4-6 inches on forage.
2. Clipping pastures, tilling and reseeding, or removing a cutting of hay will decrease existing worm burdens.
3. Exposure to ultraviolet light (sunshine) kills larvae, so removal of extensive overgrowth of pasture or heavy thatch is recommended.
4. Pasture rotation provides nutritious forage for growth and development but is usually not rested an adequate length of time to decrease the level of worm contamination. Allowing calves to creep graze in clean pastures ahead of adults in a rotational grazing situation will minimize the exposure of the most susceptible animals.
5. Areas of highest risk are those where animals congregate, such as watering troughs, shady areas, or sheltered areas, because manure buildup and high moisture are conducive to larvae survival.
6. Grazing after the dew dries in the morning decreases consumption of larvae from pasture, since moisture is necessary for larval movement up a blade of grass.
7. If practical, cattle and small ruminants can be grazed together or alternately, where each consumes the parasites of the other. This reduces available infective larvae for the preferred host species.

West KY Small Ruminant Field Day

From forages to feet! Join us for an afternoon of on farm speeches and demonstrations on topics relating to profitable sheep and goat production.

Hoof Trimming Demonstration

Join Extension Agent Miranda Rudolph as she demonstrates proper hoof trimming techniques and explains what to look for when caring for your stock's hooves!

Pasture Walk

Follow Dr. Megan Taylor as she leads you on a pasture walk while discussing the best ways to renovate and maintain healthy pastures for your small ruminants!

Increasing Efficiencies

Listen in as Agent and Owner of Chadwick Sheep Company, Matt Chadwick, as he shares tips on how to increase feed and reproduction efficiency!

May 2nd

3:30 pm

Chadwick Sheep Company
761 Kirksey Almo Rd
Murray, KY 42071

(Rain Reschedule Date: May 4th)

Participants will receive hoof trimming kits graciously provided by:



KY Sheep & Goat
CHECK-OFF

Space is limited! Must RSVP by calling (270) 527-3285

This program is a collaborative effort brought to you by the Marshall, Calloway, Graves and McCracken County Extension Offices.

Country Ham and Broccoli Grits



Ingredients:

1 tablespoon olive oil
1 pound fresh broccoli florets
½ cup minced onion
¾ teaspoon crushed red pepper flakes
2 cloves minced garlic
4 cups 1% milk
1 cup uncooked quick grits
1 cup 2%, shredded cheddar cheese
6 ounces country ham, cut into ½ inch pieces
1 large egg, beaten
Salt and pepper to taste

Directions:

Preheat oven to 375°F. Coat 13x9x2 inch baking dish with cooking spray. Heat olive oil in a frying pan. Sauté broccoli, onion, garlic and red pepper flakes until vegetables are tender. About 5 minutes. Set aside.

Heat milk to a boil in a large saucepan. Slowly, whisk in grits. Reduce heat and stir continuously until thickened. Reserve 2 tablespoons of the cheese.

Remove from heat, stir in ham, broccoli mixture, cheese, egg, salt and pepper. Mix until well blended. Pour into prepared baking dish.

Sprinkle with reserved cheese. Bake, uncovered for 30 minutes, or until top is set and lightly puffed.

Yield:

16, ½ cup servings

Nutritional Analysis: 120 calories, 3.5 g fat, 1 g saturated fat, 25 mg cholesterol, 370 mg sodium, 13 g carbohydrate, 1 g fiber, 4 g sugar, & 9 g protein

Kentucky Broccoli

SEASON: May through early July, October through mid-November.

NUTRITION FACTS: Broccoli is a good source of vitamin A, vitamin C, and phytochemicals, all of which have health benefits.

SELECTION: Choose tender, young, dark green stalks with tightly closed buds. One-and-a-half pounds of broccoli will yield 4 half-cup servings.

STORAGE: Store broccoli, unwashed, for not more than 3 to 5 days, in a perforated plastic bag in the refrigerator. Wash broccoli just before using.

PREPARATION: Wash broccoli under cold running water. Trim the leaves and peel the stalk.

To steam: Place on a rack above boiling water and steam 6 to 8 minutes. Drain and rinse with cold water.

Source: www.fruitsandveggiesmatter.gov

To boil: Place in a saucepan with 1 inch of boiling water and ½ teaspoon salt. Cover and cook 5-7 minutes.

To microwave: Place broccoli in a microwave-safe dish. Add 1 inch of water and cover with a glass lid or plastic wrap. Microwave 3 to 4 minutes or until crisp-tender.

KENTUCKY BROCCOLI

Kentucky Proud Project

County Extension Agents for Family and Consumer Sciences

University of Kentucky, Dietetics and Human Nutrition students

March 2013

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For more information go to:

<http://marshall.ca.uky.edu/AgNaturalResources>
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