

The FARMACY

"Agriculture is our wisest pursuit because it will in the end contribute most to real wealth, good morals and happiness"
- Thomas Jefferson -

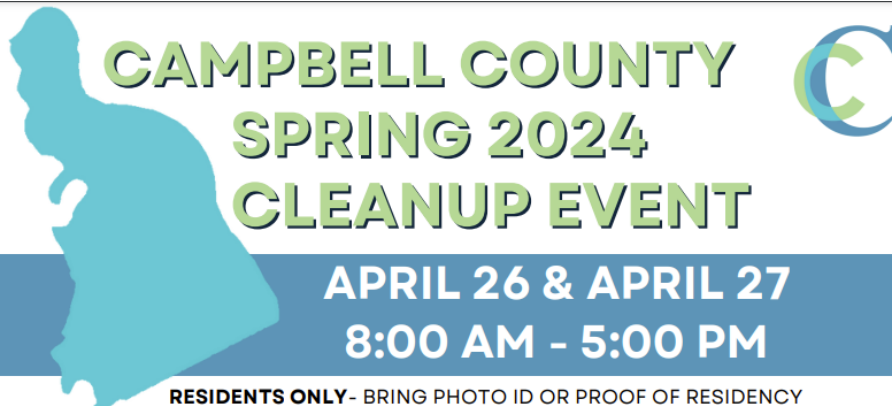
County Extension Council AG Volunteer of the Year



Harold Dawn was awarded County Extension Council AG Volunteer of the Year. His family accepted the award on his behalf.

Upcoming events:

- **MAY 6 EQUINE ESSENTIALS** — Nutrition for Different Classes of Horses and Body Condition Scoring
- **MAY 7 Farm Service Agency Workshop** — Crop Reporting, Farm Serial Numbers and Ag Districts Workshop
- **MAY 22 FORAGE FOCUS** — Weed Control in Pastures & Hay Fields
- **JUNE 3 EQUINE ESSENTIALS** — The Legal Side of Equine Businesses, Trailering Laws & Safety
- **JUNE 20 FORAGE FOCUS & Small Ruminant Field Day** — Intensive Grazing with Sheep & Goats- How to be Successful!
- **JULY 1 EQUINE ESSENTIALS** — Building your Dream Barn & Arena- Things to Consider Before you Build!
- **JULY 20 BACKROADS FARM TOUR** — Enjoy this day visiting several farms and experience local agriculture.
- **JULY 24 FORAGE FOCUS & Cattleman's Summer Round-Up** — Haylage & Haylage Equipment
- **AUG. 14 FORAGE FOCUS** — Fescue "The Wonder Grass"
- **NOV. 20 PATIM - Restricted Use Pesticide Applicator Training & Certification**
- **NOV. 26 BQCA - Beef Quality and Care Assurance Training**



**CAMPBELL COUNTY
SPRING 2024
CLEANUP EVENT**

**APRIL 26 & APRIL 27
8:00 AM - 5:00 PM**

RESIDENTS ONLY - BRING PHOTO ID OR PROOF OF RESIDENCY
PARTICIPANTS MUST UNLOAD OWN VEHICLE (LIMITED ASSISTANCE AVAILABLE)



Beware of Arsenic Poisoning!

Be sure to take your treated lumber scraps to the county clean up day or dispose in the trash! When treated lumber is burned, cattle and deer are attracted to the salt which is present in the arsenic ashes. This is deadly to cattle, deer and humans! If they consume small amounts that aren't enough to be fatal it will stay present in the muscle for up to six months, which means it could enter the food chain. Be conscious of where you are burning lumber and scrap wood to prevent arsenic poisoning! **See page 4 For drop-off locations.**

Michelle Simon

Michelle Simon
Campbell County Extension Agent
for Agriculture and Natural Resources

Not Enough to too Much...Managing Spring Grass

Chris D. Teutsch, University of Kentucky Research and Education Center at Princeton

In March we often find ourselves wringing our hands waiting for grass growth to start and a short time later our pastures are out of control! Spring can often be one of the most difficult times of the year for graziers. Grass growth goes from nonexistent to excessive in a matter of weeks and if you are properly stocked grazing livestock can have a hard time keeping up with it. The following suggestions can help you to stay in control spring growth.

- **Implement rotational grazing.** To fully utilize the spring flush of pasture growth **YOU** must be in control of grazing. In a continuous grazing system, the cows are in charge. By utilizing rotational stocking, you start to make the decisions. Implementing a rotational stocking system may be as simple as closing some gates or stringing up some polywire.
- **Start grazing before you think the pastures are ready.** One of the most common mistakes that graziers make is waiting too long to start grazing. If you wait until the first paddock is ready to graze, by the time you reach the last paddock it will be out of control. Starting early allows you to establish a “grazing wedge” (Figure 1).
- **Rotate animals rapidly.** It is important to realize that grazing pastures closely and repeatedly as they initiate growth in early spring can reduce production for the entire season. Therefore, it is important to keep animals moving rapidly through the system. The general rule is that if grass is growing rapidly then your rotation should be rapid. This will allow you to stay ahead of the grass by topping it off and keeping it in a vegetative state.

- **Do not apply spring nitrogen.** Applying nitrogen in the spring will make the problem of too much grass at once even worse. In many cases you are better off to apply nitrogen in late summer or early fall to stimulate growth for winter stockpiling.
- **Remove most productive paddocks from rotation and harvest for hay.** Graze all paddocks until the pasture growth is just about to get away from you and then remove those productive paddocks from your rotation and allow them to accumulate growth for hay harvest (Figure 2).
- **Increase stocking rate in the spring.** If it is possible, a good option for utilizing spring growth is to increase your stocking rate. This will allow you to harvest more of the available forage and convert it into a saleable product. This can be done by adding some stockers or thin cull cows to your rotation and then selling them when

pasture growth slows. If you are in a fall calving system, you are better positioned to take advantage of spring forage growth since the calves will be larger.

- **Even out seasonal distribution of forage by adding a warm-season grass.** Adding a well-adapted warm-season grass that produces the majority of its growth in July and August would allow you to concentrate grazing on your cool-season paddocks during periods of rapid growth (spring flush). After cool-season grass growth is slowed by higher temperatures in late spring and early summer, animals can be shifted in the warm-season paddocks for summer grazing.
- **Bush-hog out of control pastures.** The benefits of clipping include maintaining pastures in a vegetative state, encouraging regrowth, and controlling weeds. Clipping pastures costs money, so make

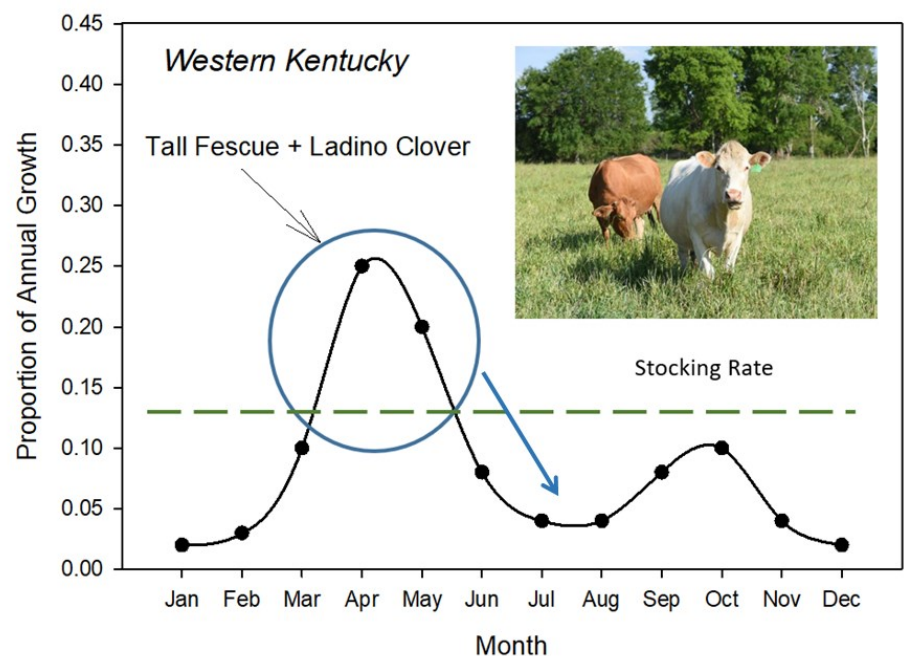


Figure 1. The “grazing wedge” simply refers to having pasture subdivisions or paddocks at varying stages of regrowth from just grazed to ready to graze.

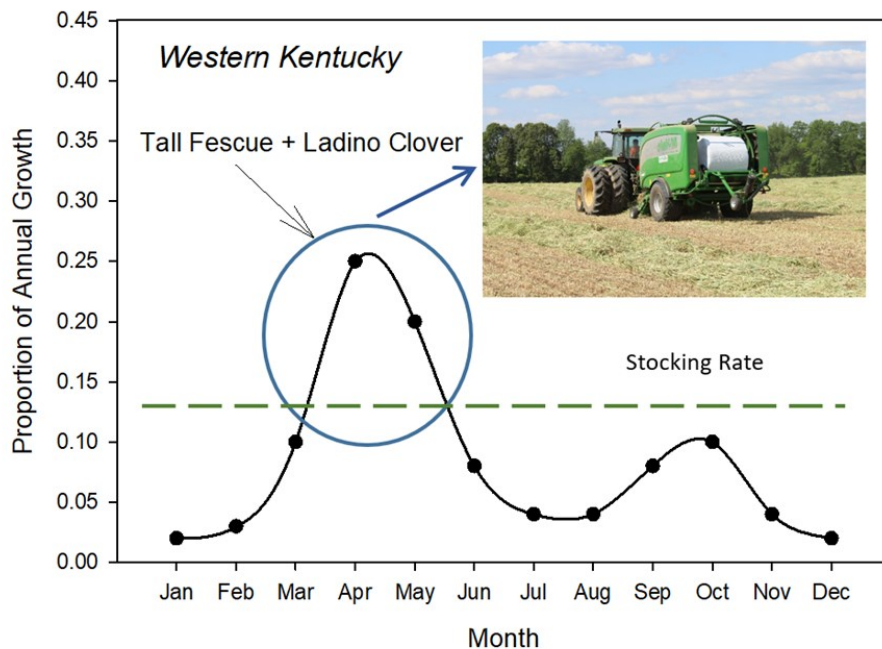


Figure 2. In the spring during periods of rapid growth, some paddocks can be removed from the rotation and harvested for conserved forage. Cutting at the late boot or early head stage will optimized yield and forage quality.

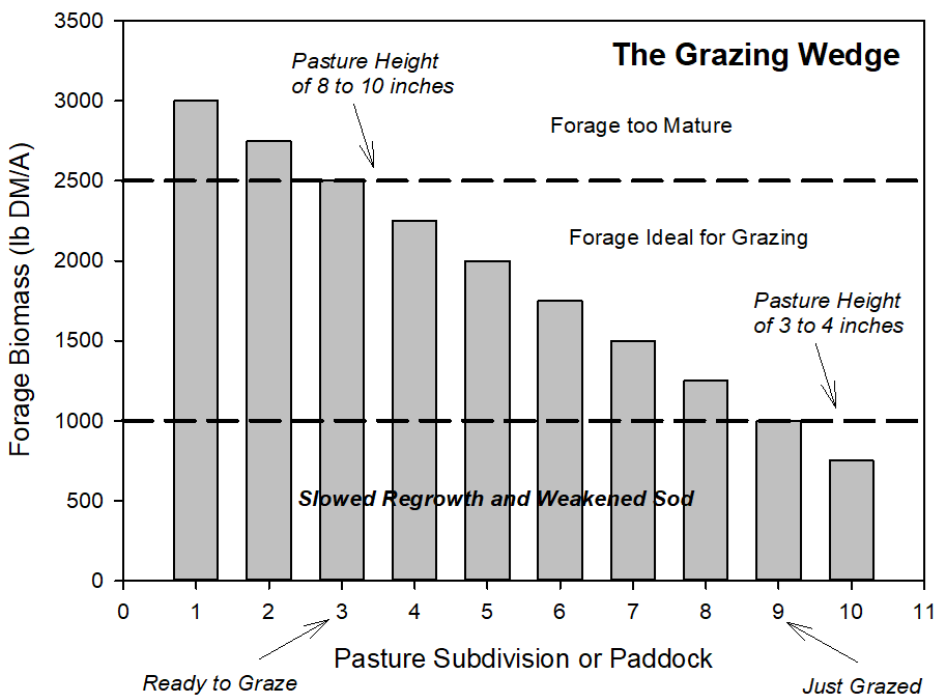


Figure 3. Excess growth in the spring could also be stockpiled for grazing during the summer months. This is accomplished by removing some paddocks from the rotation and allowing growth to accumulate during late spring and early summer. It is important to remember that only about the one-half of the available biomass should be grazed. The remaining residue will protect plant crowns from high temperatures and reduce soil moisture loss during the summer months.

sure that the primary reason for bush-hogging is pasture management, not aesthetics.

- **Stockpile out of control pastures for summer grazing.**

Although forage quality decreases as the plant matures, the quality of spring stockpiled pasture is sufficient for dry cows and in some cases can result in reasonable gains on growing animals (Figure 3) during the summer months. This is especially true if using novel endophyte tall fescue and the pastures were clipped at the early boot stage to promote vegetative regrowth. This could be a cost-effective and simple way to provide additional grazing during the summer months.

When it comes to grazing operations, there is not one size that fits all. What works for you may not work for your neighbor. The key is figuring out what works on your farm and implementing it in a timely manner. Hopefully one or more of the above tips will help you deal with the “quandary of spring grass”!

For more information on grazing management contact your local extension agent or visit <http://www.uky.edu/Ag/Forage/> and <https://www.youtube.com/c/KYForages>

How do I contact KY legislators?

Prefer to call and leave a message? You can always do that on the legislative message line at **1-800-372-7181**. Don't be silent when it matters most; let your elected officials know what you think!

How to properly manage the damage caused by brown marmorated stink bugs

Source: Jonathan Larson, UK Extension Entomologist

As their name implies, brown marmorated stink bugs are not just stinky—they can seriously harm crops. You must take action to keep this pest away, regardless of the size of your field or garden.

Although brown marmorated stink bugs have long been present in the eastern part of the state, since 2019 they have started appearing in more counties in Western Kentucky. This invasive species resembles native stink bugs in appearance, but it has a gray belly, and a brown, mottled top along with white bands on its antennae.

These stink bugs will consume any crop. Sweet corn, eggplant, peppers and tomatoes are a few of their favorite foods. They also prey on ornamental trees like redbuds and field crops like soybeans. Their feeding discolors crops, turns their insides corky, and—most importantly—makes them inedible.

Home and commercial growers should take prompt action to control brown marmorated stink bugs because of their capacity to quickly decimate crops.

Here are some quick tips:

- They smell strongly, so you don't want to smash them. Even if you inadvertently crush them, their odor will keep other stink bugs away from your crops. To eliminate them in large quantities, you can sweep them off plants and place them in buckets of soapy water.
- When stink bugs are small, homeowners can control them with insecticidal soap; for larger stink bugs, use products containing pyrethroids. You can also utilize physical exclusion techniques like netting or row covers to keep the stink bugs out of your yard. When using row

covers, timing is crucial because you don't want to use them to impede pollination.

- Since the brown marmorated stink bug most frequently infiltrates along field edges, commercial producers should concentrate their monitoring efforts there. In these circumstances, pyrethroid products can also be helpful.
- Throughout the summer, stink bugs will most likely produce two generations, so keep a careful eye on your crops. Early summer is when the first generation will

emerge, and late summer or early fall is when the second generation does.

- Brown marmorated stink bugs may begin to appear in your home as the weather cools off and they seek cover from the elements. Toward the end of August, they can also begin to cluster on the exterior of homes. If homeowners spot these stinkbug parties, they can spray them with soapy water and kill them before they end up inside.

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LOCATION	ACCEPTED ITEMS
Campbell County Police Department 8774 Constable Drive, Alexandria	Furniture & Mattresses Trash & Debris Yard Waste
Frederick's Landing KY 9-AA Highway, Wilder	
Pendery Park 4113 Williams Lane, Melbourne	
Campbell County Transportation Center 1175 Racetrack Road, Alexandria	Furniture & Mattresses Trash & Debris Yard Waste Appliances (Freon OK) Batteries (Vehicle & rechargeable only) Electronics (Limit 1 TV per vehicle) Propane Tanks Scrap Metal (Remove all fluids) Tires (Limit 8 Tires; Rims OK)

NOT ACCEPTED

Paint, Liquids, Junk Vehicles, Hazardous Waste,
Fluorescent Bulbs, Dirt, Concrete, Rocks



Producing 100 Bushels/acre Soybeans - What Does it Take?

Dr. Dennis Egli UK Professor Emeritus (859) 218-0753 degli@uly.edu

Producer reports of 100-bushel soybean yields are getting more common, especially among yield contest winners. These reports raise the question – what does it take to produce 100-bushel yields? What can a producer do to reach this yield level? One suggestion is to just have patience. Soybean yields have been increasing steadily since the 1930's and it seems reasonable to expect them to continue increasing in the future unless climate change puts the kibosh on yield growth. In 1982 I wrote an article for the 'Soybean News' entitled 'Why don't 50-bushel beans make 70?'. In 1982 the average state yield in Kentucky was 31.5 bushels/acre; it was 55 bushels /acre in 2023, a 75% increase. Seventy-bushel yields that I fantasized about in 1982 are now common. In fact, average state yields in some states are approaching 70-bushels/acre (Illinois reached 65-bushels/acre in 2021).

Fifty-bushel yields were bragging yields in 1982, but no one brags about them today. Yield growth, a result of better varieties and improved management practices, continuously pushes yields higher, so eventually 100-bushel yields will be common. Just have patience and you will eventually see 100bushel yields on your farm. If you are not a patient type, you could speed up progress in Kentucky by moving to Union County. Union County has the highest soybean yields of any county in Kentucky. The average yield in Union County (2003 – 2022) was 52.6 bushels/acre, nearly 3.0 bushels above the next highest county (Davies) and a whopping 15 bushels above the two lowest yielding counties (Marshall and McCrackin). So, 100-

bushel yields will probably be common in Union County before they appear regularly in other counties.

Union County's advantage is largely a result of better soils that store more water than most soils in other counties. Water is especially important when shooting for exceptionally high yields. Water stored in the soil reservoir serves as a buffer between the intermittent rainfall and the continuous, unrelating use by the crop. The larger the reservoir, the longer the crop can grow unstressed without rain. A large reservoir also reduces year-to-year variation in yield, which in Marshall and McCracken counties was roughly twice that of Union County when measured by the coefficient of variation (CV=26 and 14%, respectively).

What other options are available if you lack patience and do not want to move to Union County? Since it is unlikely that you can get 100-bushel yields if the crop experiences water stress, you may want to invest in an irrigation system. It is possible, but not likely, that the rainfall in any given year will be adequate and perfectly distributed so that the soybean crop is never stressed. Irrigation can fill in the rainfall gaps and minimize water stress. If irrigation is not possible, you can always polish up your rain dance and hope for the best. Once water is taken care of, the rest is just a matter of doing a good job applying the best management practices that we normally use to produce soybean.

As usual, the best management practices start with selecting a good high-yielding variety with a strong package of disease resistance, followed by planting early, getting

an adequate stand and controlling weeds, diseases and insects. Planting on fertile soil with the appropriate pH and adequate levels of P and K is essential. One thing that, in my opinion, is very clear – there are no unique management tricks, no silver bullets, that will produce 100-bushel soybean yields. We all know that applying the best management practices to a crop with plenty of water will not necessarily produce 100-bushel yields. Why not? That is a good question without, in my opinion, a good answer. We could blame it on temperature and solar radiation levels, the uncontrollable aspects of the environment, but that is not very satisfying or useful. The bottom line is - no one knows for sure how to reliably produce 100-bushel soybean yields year after year.

Another important question is – does it make any sense to strive for 100 bushel yields? We must not forget that, in the final analysis, the bottom line is more important than super-high yields. Spending money on additional inputs to chase the high yield rabbit may not be a profitable strategy. One hundred-bushel soybean yields will be more common as time passes and improvement in varieties and management practices continue to drive yields upward. In other words, it is just a matter of time unless or when climate change puts the brakes on yield growth. Chasing record high yield may not be the best road to riches. Realism is probably the best approach for managing soybean yields as stated by writer W.A. Ward (1921 – 1994) – “the pessimist complains about the wind, the optimist expects it to change, and the realist adjusts the sails”.

Act Now to Control Poison Hemlock

Dr. J. D. Green, Extension Weed Scientist, Dr. Megan Romano, UKVDL Toxicologist,
Dr. Michelle Arnold, Ruminant Extension Veterinarian

During the early summer, the presence of poison hemlock (*Conium maculatum*) is more evident. Although this plant is often seen along roadways, abandoned lots, fencerows, and other non-cropland sites, in recent years it has expanded out into grazed

pasture lands and hay fields. Poison hemlock is toxic to a wide variety of animals including man, birds, wildlife, cattle, sheep, goats, pigs, and horses. It contains several neurotoxic piperidine alkaloids; the two major ones are coniine (major alkaloid in the mature plant and seed) and the more toxic gamma-coniceine (predominate in green, vegetative growth). These alkaloids cause muscle paralysis by acting as a neuromuscular blocking agent, resulting in two major effects: 1) rapid, sometimes fatal effects on the nervous system and 2) they are teratogenic agents, meaning they are known to cause birth defects when consumed during certain times of gestation. Cattle seldom choose to eat poison hemlock unless no other forage is available or it is incorporated in hay, silage, or the seeds in grain. A commonly asked question is how much plant material must be consumed by cattle to kill them. Unfortunately, the answer is not clear cut as there is considerable variation in the toxic alkaloid content of the plant depending on its stage of growth, season, moisture,



With temps reaching the 60's its a good time to apply 2,4-D ester to poison hemlock.

temperature, time of day, and geographic region. Cattle have died by eating 0.2-0.5% of their body weight in green hemlock.



Figure 1. Poison hemlock rosette.

Poison hemlock is classified as a biennial that reproduces only by seed. It is capable, however, of completing its lifecycle as a winter annual in Kentucky if it germinates during the fall months. New plants emerge in the fall as a cluster of leaves that form a rosette which remains green throughout the winter in a semi-dormant state. It is most noticeable at this stage of growth in late fall through early spring with its parsley-like leaves which are highly dissected or fern-like with leaf petioles that have purple spotting

and no hairs (**Figure 1**). The individual leaves are shiny green and triangular in appearance.

After resuming active growth in late winter, they form larger rosettes. As the plant begins to send up flower stalks, the leaves are alternately arranged on the main stem. Each individual leaf is

pinnately compound with several pairs of leaflets that appear along opposite sides of the main petiole. As the plant matures, poison hemlock can grow upwards to about 6 to 8 feet tall (**Figure 2**). At maturity the plant is erect, often with multi-branched stems, and forms a deep taproot. The hollow stems are smooth with purple spots randomly seen along the lower stem that helps distinguish it from other plants similar in appearance. The flowers, when mature, are white and form a series of compound umbels (an umbrella-shaped cluster of small flowers) at the end of each terminal stalk. Poison hemlock foliage has an unpleasant mouse urine-like odor, detectable when near the plant or when a stem or leaf is crushed. Although this weed is often associated with areas that have moist soil conditions, it can also survive in dry sites.

Fortunately, most animals avoid grazing poison hemlock if other forage is readily available. However, animals are more likely to consume green plants during the late winter and early spring when other forage species are limited or when dry

lotted or starving animals gain access to an overgrown field. All parts of the plant, including the seeds, contain the toxic alkaloids coniine and gamma-coniceine. Gamma-coniceine is more toxic than coniine and is at its highest concentration in early growth. As the plant matures, gamma-coniceine undergoes chemical reduction to the less toxic alkaloid coniine. Seeds and dried plant material contain the highest concentrations of coniine. Although toxicity is reduced Figure 1. Poison hemlock rosette. Figure 2. Mature poison hemlock plants growing in hayfield. during drying due to volatility of coniine, animals will eat much more dried poison hemlock than fresh because palatability is greatly improved.



Figure 2. Mature poison hemlock plants growing in hayfield.

Seeds are highly toxic and can be a source of poisoning when they contaminate cereal grains fed to livestock. Therefore, avoid feeding animals hay or grain known to contain poison hemlock.

Symptoms of acute poisoning can occur rapidly after ingestion of plant material anywhere within 30 minutes to 2 hours depending on the animal species, quantity consumed, and stage of plant growth. Initially the

affected animal may develop nervousness, salivation, tearing, frequent urination, and signs of abdominal pain. There may be a detectable mousy odor to the breath and urine. Symptoms progress to muscle tremors, incoordination, and weakness, difficulty breathing, and death can result within hours due to respiratory failure. If acute poisoning does not progress to collapse and death, signs can begin to improve within several hours, with full recovery in as few as 6-8 hours.

Diagnosis is based on history of plant ingestion, clinical signs, and chemical analysis for presence of alkaloids in rumen contents. Activated charcoal may help bind alkaloids if administered prior to onset of signs. Avoid exciting or stressing symptomatic animals, as that may exacerbate symptoms and result in death. Poisoning is prevented by providing sufficient, good-quality forage and preventing livestock exposure. Public health is a concern when dealing with poisoned animals because of the possibility of alkaloid residues in meat. Elimination of plant toxicants through the milk is a minor route of excretion but may

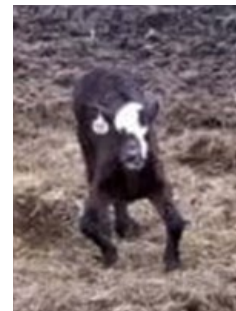


Figure 3: Limb deformity due to ingestion of poison hemlock during 1st trimester of pregnancy. Photo courtesy of Levi Berg, (Nov. 2018)

be important when consumed by a calf or a human. More importantly, people have been accidentally poisoned when they confused poison hemlock for plants such as parsley, wild carrot, or wild anise.

Although acute poisoning is a primary concern, an equally serious problem is subacute intoxication of pregnant livestock that results in congenital birth defects. These defects are caused by inhibition of fetal movement by the plant toxin during critical fetal development. In cattle, the susceptible period of pregnancy is 40 to 100 days while in swine, sheep, and goats the susceptible period of gestation is 30 to 60 days. Defects possible include severe limb deformities (**Figure 3**), joint rigidity, rib cage anomalies,

(continued on page 8)



The Downs Family, Rugged Cross Farm, brought one of their dairy goats to the 4-H Cloverbud program to teach kids about how milk is processed and that it comes from dairy animals... not the grocery store!

Act Now to Control Poison Hemlock

(continued from page 7)



Figure 4. Poison hemlock growing along fence line in December.

production which can be a challenge since a fully mature plant can produce 35,000 – 40,000 new seeds. It is too late to utilize herbicide control methods after plants

herbicides is generally when plants are in the younger rosette stages of growth in late October/ early November or February/ early March when daytime temperatures reach the 60°s. Make note of areas heavily infested with poison hemlock (**Figure 4**) and begin to look there for emergence of new plants in the fall. Herbicide products containing 2,4-D, dicamba+2,4-D (e.g. Weedmaster, Brash, Rifle-D, etc.), and aminopyralid (e.g. DuraCor, GrazonNext) are the preferred choices for obtaining effective control. Effectiveness of chemical control can decrease as plants begin to elongate and become more mature. When using herbicidal control methods on larger plants, it is important to remove animals from treated areas since animals are more likely to graze poison hemlock plants following herbicide treatment.

vertebral curvature, and cleft palate. Diagnosis of plant-induced congenital defects is only through known exposure during gestation since the alkaloids are long gone once the calf is born.

The principal strategy for poison hemlock control is to prevent seed

have produced flowers. Therefore, mechanical control efforts (if feasible) such as mowing or cutting down individual plants should be initiated just before peak flower production to avoid or reduce the number of new seeds produced. The best time for control using



We've partnered with the Kentucky Heritage Council to inform you about the **2024 Kentucky Heritage Farms Program** which is now accepting applications for those interested.

The Kentucky Heritage Farm Program has been dedicated to preserving the rich history and legacy of our state's historic farms and ranches. With a deep-rooted commitment to recognizing the hard work and dedication of farming families, the program has continued to honor those who have passionately maintained their ancestral lands for generations.

To be eligible for recognition, a farm must meet the following criteria:

- Comprise at least 40 acres of active farmland.
- Have been owned and operated by the same family for a minimum of 100 years.
- Feature a structure that is over 50 years old.

If you're a farm that meets the above criteria, you can receive an official certificate signed by both the Governor and State Historic Preservation Officer along with a Kentucky Historic Farm sign to display on your property.

For more information, and to see if you qualify, visit the Kentucky Heritage Farms website <https://heritage.ky.gov/historic-places/Pages/Heritage-Farms.aspx> or contact Matt Yagle, at matthew.yagle@ky.gov



Impact of March 19 Temperatures on Kentucky's Wheat Crop

Carrie Knott

Across Kentucky almost all of the wheat crop has jointed (Feekes 6) and much of it has developed at least two nodes (Feekes 7). When temperatures dropped into the teens and low 20's (°F) overnight March 19 (**Table 1**), we once again find ourselves asking the question: Will the low temperatures a couple of nights ago damage this year's wheat crop?

For wheat fields that are Feekes 5 or less advanced, these temperatures should not harm the wheat. The growing point was still below the soil surface and well protected by the soil temperatures.

For wheat fields that were at Feekes 6 or later, damage may be possible. The national rule of thumb is that wheat at this growth stage is damaged when temperatures are 24°F or less for 2 or more hours. Although there are certainly more factors that contribute to severity of freeze damage than simply duration of a threshold temperature (many of which we are investigating), this is still the most widely accepted condition to 'trigger' a need to scout fields for damage.

When scouting for freeze damage in wheat, it is important to remember

County	Minimum Air Temperature (°F)	Relative Humidity at Minimum Air Temperature (%)	Average Relative Humidity when Air Temperature ≤24°F (%)	Duration of Temperatures ≤24°F (hours)	Duration of Temperatures ≤32°F (hours)
Boone	26.2	75.5	-	0.0	13.8
Campbell	24.5	67.1	-	0.0	12.2

Table 1: Minimum air temperatures, relative humidity at minimum air temperature, average relative humidity when air temperature 24°F or less, and duration that air temperatures were 24°F or less and 32°F or less for all available KY Mesonet sites overnight March 18 to early morning hours of March 19. Data obtained from KY Mesonet <http://www.kymesonet.org/>.

that a minimum of four to five days of good growing conditions (high temperatures exceeding 40°F) are needed before damage becomes visible. In reality, waiting a full week to ten days generally makes it easiest to see freeze damage. Therefore, Tuesday March 26 would be the ideal time to begin scouting fields for freeze damage.

Even if freeze damage is found, this does not immediately indicate that final grain yield will be impacted. Wheat has a tremendous ability to redistribute its resources to living tillers and therefore compensate for primary stems and tillers that may be lost in the freeze. This can result in little to no yield impact. If damage is found, refer to **Figure 1** and [AGR-253: Identifying Damage and Estimating Yield Reductions](#)

[following a Spring Freeze in Winter Wheat](#) to help determine potential yield reductions based upon estimated damage observed in the field.

For a visual guide to identify freeze damage refer to [AGR-253: Identifying Damage and Estimating Yield Reductions following a Spring Freeze in Winter Wheat](#).

There are also videos demonstrating how to assess freeze damage at different growth stages: jointing (<https://www.youtube.com/watch?app=desktop&v=oaPiOU-s-Ro>), flowering (<https://youtu.be/uODUgEa23bE>) and during grain fill (<https://youtu.be/OhcqjeilE8s>).

Growth Stage	Feekes	Zadoks	Temp. Injury can Occur (≥ 2 hrs)	Primary Symptoms	Visual Damage	Estimated Yield Effect (% Reduction)
Stem Elongation	4 to 9	30 to 39	24°F	<ul style="list-style-type: none"> • Death of growing point • Leaf burning and yellowing • Lesions, splitting, bending of stems • Odor 	Minor	0
					Moderate	0 – 10
					Severe	0 – 20
Boot	10	40 to 49	28°F	<ul style="list-style-type: none"> • Floret sterility • Spike trapped in boot • Damage to stems and peduncles • Leaf discoloration 	Minor	0 – 20
					Moderate	n/a
					Severe	n/a
Heading	10.1 to 10.5	50 to 58	30°F	<ul style="list-style-type: none"> • Floret sterility • Bleached or white awns or spikes • Damage to stems and peduncles • Leaf discoloration 	Minor	0 – 20
					Moderate	0 – 45
					Severe	30 – 50
Flowering	10.5.1 to 10.5.3	60 to 68	30°F	<ul style="list-style-type: none"> • Floret sterility • Bleached or white awns or spikes • Damage to stems and peduncles • Leaf discoloration 	Minor	n/a
					Moderate	n/a
					Severe	60 – 85

Source: Knott, 2020. <https://access.onlinelibrary.wiley.com/doi/10.1002/cft2.20080>

Figure 1: Estimated yield loss following spring freezes at different growth stages

Optimizing Baleage Quality: A guide for Kentucky Forage Producers

Source: Jimmy Henning, plant and soil science professor

Round-baled silage has emerged as a preferred method for preserving high-quality forage in Kentucky, offering numerous advantages for livestock feeding. However, this technique presents unique challenges. Notably, achieving the ideal moisture content (MC) of 40-60% and ensuring the forage is adequately oxygen-free when wrapped in plastic.



A fermentation report helps producers evaluate the quality of their baleage and assess potential feeding risks. Poorly fermented baleage can lead to clostridial bacterial growth, and even botulism.

Here are some ways to optimize your baleage quality:

- **pH and its Importance:** Ensiling lowers bale pH through the production of lactic acid. A pH of 5.0 or lower inhibits clostridial bacteria growth. The target pH varies with forage type and moisture content. For example, legume baleage is stable at a higher pH than grasses.
- **Moisture Content and Dry Matter:** Achieving a MC within the 40-60% range is essential for effective fermentation. The sweet spot for fermentation is between 50-60% MC, fostering robust lactic acid production and maintaining a pH below 5.0, thereby inhibiting harmful clostridial bacteria. Baleage with

MC lower than 50% may have restricted lactic acid production and elevated pH levels, potentially affecting fermentation. However, bales kept anaerobic by at least six layers of UV-resistant plastic can remain valuable feed, even if not fully fermented.

- **Crude Protein:** The forage's crude protein content, determined by its nitrogen content multiplied by 6.25, is a key indicator of fermentation potential. Early-cut forages, which usually have higher crude protein levels, also possess more fermentable carbohydrates, crucial for a successful fermentation process.
- **Lactic and Acetic Acids:** Lactic acid, the primary product of anaerobic fermentation, is pivotal in reducing pH and stabilizing baleage. Desired lactic acid levels are above 3% on a dry matter basis. However, levels often fall below this target, especially when MC is under 50%. These lower levels are not overly concerning if

the bales are wrapped in plastic which remains intact until feeding. Acetic acid, vital for preventing yeast and mold growth once bales are exposed to oxygen, should ideally be between 1-4% (DM basis). Excessive acetic acid may signal issues like high moisture content or clostridial fermentations.

- **Propionic and Butyric Acids:** These acids should be minimized, with propionic

acid below 1% and butyric acid under 0.5% (DM basis). Elevated levels indicate possible fermentation problems, such as insufficient sugars for fermentation or secondary fermentation by clostridial bacteria, potentially affecting livestock health.

- **Ammonia and Ash Content:** Ammonia, measured as a percentage of total nitrogen or as a crude protein equivalent, indicates the extent of clostridial fermentation. Ammonia-N levels exceeding 15% suggest significant clostridial activity. Ash content can reveal soil contamination; levels above 11% often mean dirt intrusion, a primary pathway for clostridial bacteria into baleage.
- **Physical Observation:** Evaluating baleage's physical attributes, such as odor, bale shape and effluent presence, is also crucial. A pleasant smell, the absence of seepage and intact plastic wrapping are good indicators of successful fermentation.

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Seven Elements Your Farmers' Market Website Should Include to Attract Consumers

In today's digital age, where 87 percent of consumers turn to Google to discover and assess local businesses (Paget, 2023), it's evident that such an online presence as a website plays a pivotal role in shaping consumer purchase decisions. The process mirrors this trend when seeking information about a local farmers' market: potential visitors will likely "Google it" and then carefully assess the market's website. The website experience becomes a decisive factor, influencing consumers' choices on whether to make the trip or explore alternatives. Like businesses, farmers' markets need to recognize the profound impact of their online representation, understanding that consumers' evaluations of farmer's markets often begin with a visit to their digital storefronts.

Having evaluated small business, agribusiness, non-profit, and personal brand websites for more than a decade through the Bricks-to-Clicks Marketing Program, it is apparent that specific elements are crucial in persuading consumers to engage. For farmers' markets, where 8,720 establishments in the U.S. connect growers directly with consumers, the importance of a well-designed website becomes even more pronounced.

According to the USDA's Agricultural Marketing Service, the total annual sales at farmers' markets are estimated at \$1 billion. This raises a critical question: could growers increase sales if farmers' market websites were more effective at attracting consumers? A compelling online presence could be the key to unlocking more significant sales potential for growers and farmers' market organizers. Here are seven

elements a farmers' market website should include to attract customers.

Element One

An effective website should include an easy-to-understand tagline. Look at this example from Elgin, Texas: <https://www.elginfarmersmarket.com/>. The tagline is "Buy Local, Eat Fresh." The purpose of the tagline is to communicate the value of buying at the market quickly. With this tagline, it's easy to understand that buying local, fresh food is the main message.

According to the USDA's Agricultural Marketing Service, the total annual sales at farmers' markets are estimated at \$1 billion.

Element Two

Visually display the success customers will experience when they visit your market. What are the benefits of visiting your farmers' market? If access to fresh food is essential, use high-quality images showing people interacting with growers to entice customers to visit. Look at this example from Wichita Falls, Texas: <https://farmersmarketwichitafalls.com/>. It's easy to see many consumers enjoying their experience. The same applies to this example from San Francisco, California: <https://www.ferrybuildingmarketplace.com/farmers-market/>. The ideal visual display also includes images of

happy, smiling people enjoying the market.

Element Three

Provide bite-sized categories to explain the products sold at your farmers' market. Retake a look at the San Francisco, California site: <https://www.ferrybuildingmarketplace.com/farmers-market/>. Scroll down, and you'll see bite-sized examples of what's available at their market, including Tuesdays and Saturdays. For a farmers' market, it's more straightforward to communicate what happens each day of the week when the market is open. But the main thing is to be clear about the products sold at the market in easy-to-understand terms. Otherwise, consumers get confused, and they won't visit the market.

Element Four

Showcase when your farmers' market is open. Every farmers' market is different regarding the days and hours it is open, which means clearly communicating available days and hours is critical to success. This information should appear in the header section of your farmers' market website. The header is the first section of website content. Look at this example from Starkville, Mississippi: <https://starkville.org/things-to-do/starkville-community-market/>. The website header displays when the farmers' market is open clearly and concisely.

Element Five

Use call-to-action buttons to engage consumers and vendors. When consumers visit a farmers' market website, it is critical to call them to action to show the experience they can have. For example, a clear call to action button in the header section of the website might be "Plan Your

(continued on page 12)

Seven Elements Your Farmers' Market Website Should Include to Attract Consumers

(continued from page 11)

Visit” or “Virtual Tour.” The virtual tour button could provide a short, high-quality video showing consumers enjoying their visit at a farmers’ market. The Plan Your Visit button could list vendors, upcoming events, lodging, restaurants, and more. The idea is to invite consumers to take a step toward planning a visit to their local farmers’ market.



A call-to-action button should also be present so vendors can easily apply to sell at the market. A simple button could be labeled “Become A Vendor.” This button could lead growers to an online application to sell at the market. A website programmer could easily build a website to feature both buttons side-by-side in the header of a farmers’ market website. Here is an example of a local food business in Tennessee that uses a two-button design in its website header: <https://brownbagnow.com>.

Element Six

Build an email list. An effective farmers’ market website should also help build an email list that a farmers’ market manager could use throughout the year to promote upcoming market activities. Lead generators often appear on websites to capture visitor email addresses. A lead generator is content offered freely on websites to encourage consumers to share their email addresses to download the content. Building an email list requires

presenting an effective lead generator to pique consumer curiosity and promote downloading free content. The idea is to offer consumers enough value in the free content that they want to exchange their email addresses for access.

A practical method of offering a lead generator on a website is to activate a site’s pop-up feature. When a consumer visits a farmers’ market website, a pop-up could be made to appear after a specified amount of time (usually 5-10 seconds) and offer access to the lead generator. If the consumer provides an email address, she gains immediate access to the lead generator.

As for creating lead generators, many options exist. A market could offer a coupon for 10% off any item or access to a monthly newsletter update of market vendors and seasonal activities. Also, some farmers’ markets may want to develop a free PDF document with the main benefits or attractions available for immediate download.

Here is a list of three potential lead generators for the Starkville Farmers’ Market in Mississippi, but each of these could be adapted for any farmers’ market. These include:

- **Win a Bounty Bag of Fresh Delights: Download Now and Enter Our Drawing for a Chance to Taste Starkville’s Farmers’ Market.**

- **Craving Local Delights? Here**

- **Are 5 Things You Need to Know About Starkville’s Farmers’ Market.**

- **Sip, Shop, and Savor: 3 Reasons Starkville’s Market Is a Culinary Haven.**

Element Seven

Keep them in the loop. If a lead generator does its job, a farmers’ market will gain access to new email addresses. The problem is most may do this part and fail to remember to engage with these new email subscribers during the year. Instead, develop a set of automated emails explaining the market’s main attractions, seasonal activities, entertainment, and food options throughout the year. Include some emails featuring testimonials. Here are five automated emails that can keep your farmers’ market customers informed:

- **Deliver the lead generator.** Send a short email and give consumers the lead generator you

promised. Keep it short and sweet.

- **Feature why your market is unique.** Send a short email about the main reason your market is unique. Your tagline on your website should summarize this, but in this email, explain the details of it. People want to know “why” they should visit one market versus others.
- **Explain seasonal activities.** Send a short email explaining the seasonal activities you deliver at the market. Include one testimonial in this email as well.
- **The behind-the-scenes tour.** Send a short email this time that includes a short video of a farmers’ market manager working with vendors at the market, welcoming visitors, and so on. Make this a guided tour featuring the farmers’ market manager as the spokesperson.
- **Feature three testimonials.** Send a short email to three people who have given you positive testimonials about why they love visiting the market. These can be quotes or videos.

Seven Elements Checklist

Use this list to evaluate if your farmers’ market website is prepared to attract customers.

- Does your website have an easy -to-understand tagline?
- Does your website visually display the success customers will experience when they visit the market?
- Does your website provide bite-sized categories to explain the products sold at the market?
- Does your website showcase when the market is open?

- Does your website feature call-to-action buttons to engage consumers (e.g., Plan Your Visit, Virtual Tour) and producers (e.g., Become A Vendor)?
- Does your website offer a lead generator to build your email list?
- Do you deliver automated emails after consumers download your lead generator to keep them in the loop?

In the era of digital search, farmers’ markets must recognize that the first impression is often a digital one. That’s why it’s imperative for farmer’s markets to understand the pivotal role websites play in shaping perceptions and driving engagement. Remember: A click on a farmers’ market website is the modern-day visit, and a well-crafted farmers’ market website serves as the virtual gateway to the vibrant world of fresh, locally produced foods, connecting growers with a broader consumer audience eager to embrace

sustainable living. By effectively integrating these seven elements, your farmers’ market website can showcase the diverse range of locally sourced products available, helping attract more consumers and increase grower and market revenues.

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Barnes, James. “Seven Elements Your Farmers’ Market Website Should Include to Attract Consumers.” Southern Ag Today 4 (3.5). January 19, 2024. Permalink



Donnie and Dawn Orth were recognized at the NKHN Annual Meeting for their Hours Logged Horseback Riding.

Ag Weather Update

Matt Dixon, Meteorologist, UK Ag Weather Center

Meteorological winter is officially in the rearview mirror! Looking at the data, if you thought it was a warm one, you're correct! Overall, it was the 8th warmest winter in Kentucky history (data back to 1895), bookended by the 11th warmest December and 4th warmest February ever recorded. We weren't alone either. Looking at the map below of statewide temperature ranks, absent from the southeast, nearly everyone across the U.S. landed in the top-10, which resulted in the warmest winter ever recorded for the continental United States.

These warm winters have been nothing new to the Bluegrass State. In fact, seven of the past ten winter seasons have run above normal in Kentucky. The more eye-opening stat is that all seven are among the top-20 warmest winters ever recorded. Six of the those are in the top-10 (table above)! Bottom-line, our climate is definitely trending warmer. As I've been telling folks in presentations across the state, we all need to take a step back and think about how warmer winters will impact your own operation in the future. We're all weather nerds, but we need to be climate nerds, too, and think long-term!

Head start to the 2024 Growing Season

The warm winter has led to a head start on the 2024 growing season as trees are blooming, grass is growing, and unfortunately... I already spotted a mosquito on my arm last week! How far along are we? One way to track vegetative or pest development is by calculating heat units or, in other words, growing degree days (GDDs). Just

Rank	Year	Avg.	Normal	Dep.
1	1931-1932	44.2	36.9	7.3
2	2022-2023	42	36.9	5.1
3	2016-2017	41.4	36.9	4.5
4	1948-1949	41	36.9	4.1
5	1949-1950	40.8	36.9	3.9
6	2019-2020	40.7	36.9	3.8
7	2011-2012	40.3	36.9	3.4
8	2023-2024	40.2	36.9	3.3
9	1997-1998	39.9	36.9	3
9	1998-1999	39.9	36.9	3
10	2015-2016	39.7	36.9	2.8

Data Courtesy: Midwestern Regional Climate Center cli-MATE toolkit: <https://mrcc.purdue.edu/CLIMATE/>

like last year, we've been accumulating GDDs at a very rapid pace in 2024. The base temperature required for growth will vary among different crops, but in the graph below, I used a base temperature of 32 when calculating GDDs.

As of March 12th, Bowling Green has accumulated 934 GDDs. Only two years have exceeded this number at this point in the season over the past decade, 2017 and 2023. In other words, it makes a lot of sense that we're seeing so much growth. This is just one example across the state, but everyone is ultimately in the same boat.

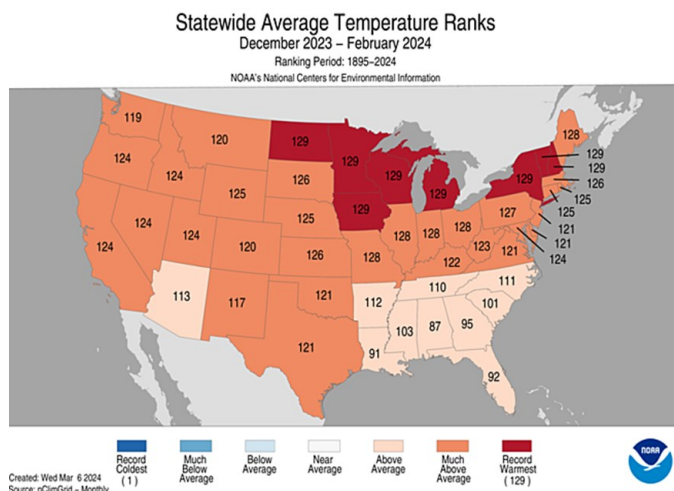
While it's nice to see vegetation coming to life early in March, it's not necessarily a good thing. For one,

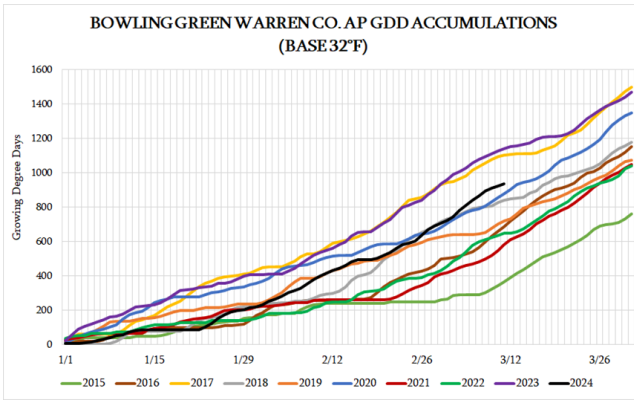
this leaves a lengthy period of susceptibility as frost and freezing temperatures will surely come back into the picture. Unfortunately, this will be the case next week. More info below.

Secondly, pests are starting to make their 2024 debut. Eastern Tent Caterpillars are the latest addition to the list. Alfalfa Weevil will also be here before you know it... maybe already. Below is a look at the latest map of GDD accumulations

across the state (base temperature of 48 for development of this pest). As Dr. Bessin (UK Extension Entomology Specialist) scouting is recommended once your county hits 190 degree days. Some counties in Western and South-Central are approaching or already surpassed this threshold. Many more will exceed this threshold today after getting into the 70s. In addition, Dr. Bessin lists some tips on delaying and preventing pesticide resistance for this particular pest.

One last downside of the early spring temperatures is the return of crabgrass and spring weeds. Soil temperatures are running well above normal for this time of year, leading to crabgrass getting ever so closer to germination. Recently, I talked with Kenneth Clayton, a UK Extension Associate in Turfgrass. He mentioned that while germination will start when 2-inch soil temperatures get to 57-64 degrees, it's best to go ahead and spread your pre-emergent herbicide





Kenneth talked about this subject and controlling other spring weeds in a podcast with Warren County's Horticultural Extension Agent, Kristin Hildabrand. Check it out, here. In addition, you can also read Extension pub, AGR-272 (Preemergence Herbicides for Kentucky Lawns), for more

now, to give it time to get worked into the soil. You ultimately want to have it down when you see a 5-day average soil temperature between 50 and 55 degrees. This data can

information.

Forecasts and Outlooks

Our warmth from February has carried over into the month of March. As of 4 PM Eastern on March 13th, we are currently sitting in the low to mid 70s across the state, about 15 degrees above normal for this time of year! Will the warmth continue?

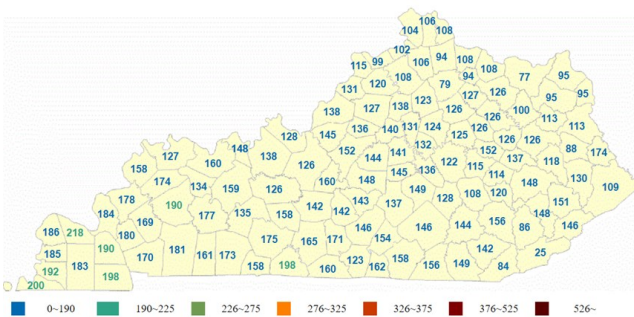
Looking ahead, we peak tomorrow (3/14) with highs in the mid to upper 70s. Then we start going in the downward direction. It all starts with our next rain-maker, set to arrive tomorrow and Friday. In terms of total accumulations, models still

haven't quite come together for this system, but it looks like a decent bet the highest totals will be across the southern half of the state where a half to one inch is on the table. Some severe weather will also be possible, mainly for Western KY, where the Storm Prediction Center currently has a slight risk (highest threat = damaging winds).

Behind a cold front, we see temperatures return to seasonable norms this weekend with highs in the middle 50s to low 60s. The downward trajectory continues into next week when we'll likely see below-normal temperatures in place. This is very much highlighted in the 6-10 day outlook below. We'll see highs struggle in the 40s at times and lows bottom out in the 20s (coldest on Tuesday morning). Upper teens will even be in play for some of those valley locations across Eastern KY. Again, normal highs for this time of year run in the middle 50s to low 60s, while lows average in the middle to upper 30s. Outside of the cooler temperatures, we're looking at a mainly dry forecast.

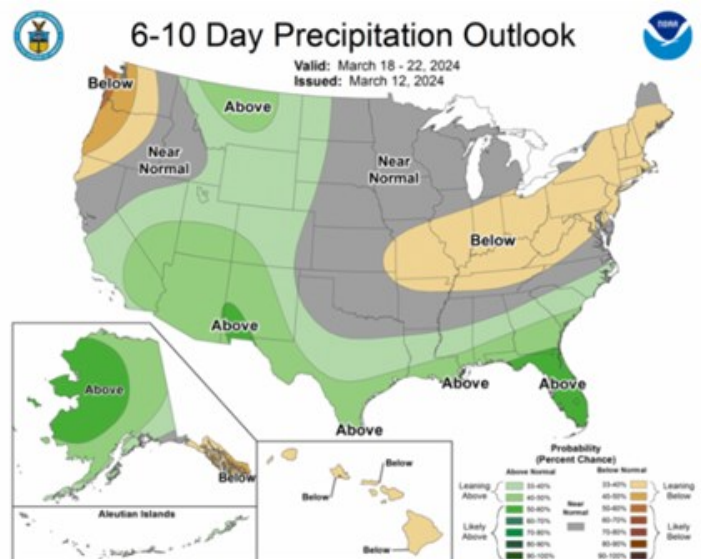
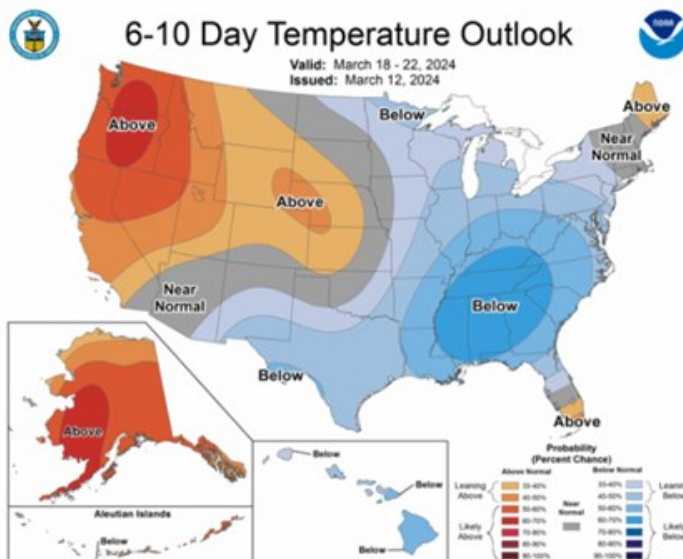
Accumulated Degree Days for Alfalfa Weevil

Count from 01/01/2024, end in 03/12/2024



be checked out for a location close to you through the Kentucky Mesonet. I just looked up the data for Fayette, and let's just say... I better get the spreader out!

70s. Then we start going in the downward direction. It all starts with our next rain-maker, set to arrive tomorrow and Friday. In terms of total accumulations, models still





OVEN FRIED FISH FILLETS

Servings: 4 Serving Size: 4 ounces



Ingredients:

- 1 pound fish fillets
- 2 tablespoons lemon juice
- 2 tablespoons vegetable oil
- ¼ cup shredded parmesan cheese
- ¼ teaspoon dill weed
- ¼ teaspoon salt
- ¼ teaspoon pepper
- 2 cups cornflake-type cereal, crushed

Directions:

Preheat oven to 350 degrees Fahrenheit. Grease a 13×9 baking dish. Cut fillets into serving pieces, if necessary. In a small bowl, combine lemon juice and vegetable oil. In a separate small bowl, mix Parmesan cheese, dill weed, salt, and pepper. Dip each fillet into lemon juice mixture. Lay in baking dish, sprinkle with cheese mixture, and coat with crushed cereal. Bake uncovered for 20 to 30 minutes or until fish flakes easily.

Nutrition facts per serving:

200 calories; 6g total fat; 1g saturated fat; 0g trans fat; 80mg cholesterol; 330mg sodium; 12g carbohydrate; 0g fiber; 1g sugars; 0g added sugars; 24g protein; 6% Daily Value of Vitamin D; 8% Daily Value of Calcium; 35% Daily Value of Iron; 10% Daily value of Potassium

Source: Adapted from "Fish and Game Cookbook" by Bonnie Scott, Copyright 2013, Bonnie Scott

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UK Cooperative Extension Service, and the Master Grazer Program**

This program is designed for producers and agricultural professionals to learn the newest fencing methods and sound fencing construction through a combination of classroom and hands-on learning

WHEN: April 23-Morehead, KY
April 25-Mayfield, KY

WHERE: Derrickson Agricultural Complex
Richardson Arena
25 MSU Farm Drive
Morehead, KY 40351

Graves County Extension Office
4200 State Route 45 N
Mayfield, KY 42066



COST: \$35/participant -- includes notebook, refreshments, safety glasses, hearing protection, and catered lunch

Registration DEADLINE: 2 weeks prior to workshop

ONLINE Registration with Credit Card:

____ Morehead, KY <https://Spring24FencingMorehead.eventbrite.com>

____ Mayfield, KY <https://Spring24FencingGraves.eventbrite.com>



Registration by U.S. Mail: Caroline Roper
UK Research and Education Center
P.O. Box 469
Princeton, KY 42445

Name: _____

Street: _____

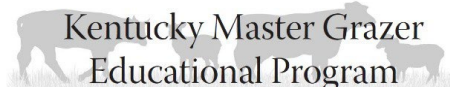
City: _____ State: _____ Zip code: _____

Email: _____ Cell Phone: _____

Number of participants _____ x \$35 per participant = _____ **Total Cost**



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2024 Kentucky Fencing Schools

For more information contact Caroline Roper at 270-704-2254 or Caroline.Roper@uky.edu

2024 Kentucky Fencing School Agenda



- 7:30 Registration and Refreshments**
- 8:15 Welcome and Overview of the Day – *Chris Teutsch, UK***
- 8:30 Fencing Types and Costs - *Morgan Hayes, UK***
- 9:00 Fence Construction Basics – *Eric Miller and Payton Rushing, Stay-Tuff***
- Perimeter fences vs. cross fences
 - Fencing options on rented farms
 - Proper brace construction
 - Line posts and fence construction
- 9:45 Break – visit with sponsors and presenters**
- 10:15 Electric Fencing Basics - *Jeremy McGill, Gallagher***
- Proper energizer selection and grounding
 - Proper high tensile fence construction and wire insulation
 - Electric offset wires for non-electric fences
 - Underground wires and jumper wires
- 11:00 Innovations in Fencing Technologies - *Josh Jackson, UK***
- Wireless fences, fence monitoring, fence mapping
- 11:30 Overview of Kentucky Fence Law - *Clint Quarles, KDA***
- 12:15 Catered Lunch - visit with sponsors and presenters**
- 1:00 Hands-on Fence Building**
- Safety, fence layout, and post driving demo - *Jody Watson and Tucker LaForce, ACI*
 - H-brace construction - *Jeremy McGill, Gallagher & Eric Miller and Payton Rushing, Stay-Tuff*
 - Knot tying, splices, and insulator installation - *Jeremy McGill, Gallagher & Eric Miller and Payton Rushing, Stay-Tuff*
 - Installation of Stay-Tuff Fixed Knot Fence - *Eric Miller and Payton Rushing, Stay-Tuff*
 - Installation of High Tensile Fencing - *Jeremy McGill, Gallagher*
- 4:30 Questions, Survey and Wrap-up**

