March 2024

University of Kentucky | Martin-Gatton College of Agriculture, Food and Environment

For The Farmer

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

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

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AGRICULTURE & NATURAL RESOURCES

Forages and Fertilizers

When it's* 70ºF in February what is the best advice I can give to a farmer that produces forages? Spread your fertilizer.** ***Timing of nitrogen fertilization on our coolseason grass fields can make a big difference on yield. A good economic management practice would be to apply expensive fertilizer correctly in order to get the most out of your fertilizer (your money).

Coolseason grasses (fescue, orchardgrass, timothy, and bluegrass) roots develop in soil temperatures from 32ºF to 80ºF. Optimum soil temperatures for root development is 50ºF to 65ºF. Optimum soil temperature for shoot growth is 60ºF to 75ºF. Kentucky weather mesonet data show that our soil temperatures on average are around 50ºF by mid-March and 60ºF by the end of March. This year the soil temp is already at 50ºF. Therefore, it only makes since IN ORDER to get the most from your nitrogen fertilizer is to apply it when the grass can utilize it the most. Applying nitrogen in late February and early March gives grass a boost in root and shoot development. Research shows that the recommended amount if applied in early March, will yield 2.5 times more grass by May then non fertilized grass. Also, a larger percent of that grass will be available earlier which means grazing can begin up to two weeks earlier in fields properly fertilized in early March.

If a farmer wants to manage strictly for grass health and production, then split applications of fertilizer is recommended. Applying nitrogen in early spring, late spring and early fall would increase yield due to optimizing plant shoot and root development. Soil testing is a must and maintaining proper phosphorus and potassium levels along with a soil pH around 6.4 must be part of the fertilizer program as well.

In conclusion, fertilizer cost is one of the biggest expenses of raising any crop even grass pasture. Like any business, in order to be the most successful and profitable, efficient spending is a must. Research shows to get the most from nitrogen fertilizer applied to coolseason grasses it needs to be available to the plants in the month of March for our area. Therefore, fertilizer should be applied to our grass hay and pasture field in early March to maximize good quality yields.

Green Grass Can Fool Cattle Producers

The first green grass of spring might not be the most nutritious for cattle. By Aimee Nielson

Spring is on the horizon. Most cattle producers are ready to put the cold and snow behind them and see the pastures greening up. But University of Kentucky beef specialist Katie VanValin urges producers not to let the green grass fool them.

"The growth we see in our pastures in the early spring can be deceiving," she said. "From a nutrient standpoint, it often just won't cut it. There's just not yet enough forage available, and what is available has a high moisture content. When we turn the cows out too early, they can exert more energy searching for the next bite, and most of that mouthful ends up being water."

For spring-calving cows, this time is especially critical. Most cows are transitioning from late gestation to lactation right now, and their nutrient requirements are at their highest. VanValin said it's not a time to let cows slip into an energy deficit and lose body condition. She encourages producers to make sure cows are in good body condition before calving and then maintain their condition through breeding to ensure optimum performance.

"Research shows us that cows reproductive performance begins to decline when cows reach a body condition score of 4, so it's crucial to performance and efficiency of the herd for cows to maintain a body condition score of 5 to 6," VanValin said.

If producers turn cows out too early, it can also cause undue stress on forages, ultimately hurting the stand and creating an opportunity for weeds to invade. Instead, producers need to evaluate the forages in their pasture and let the grass growth dictate when to turn cows out as opposed to a date on the calendar.

Another problem of early green pastures is "grass tetany". Grass tetany most often occurs in older, lactating cows consuming a diet of lush green grass that is high in potassium and low in magnesium. It may also occur in cows with insufficient forage available and consequently have an insufficient intake of magnesium.

"While grass tetany commonly occurs in early spring, we also see it when feeding wheat or rye baleage, since the cereal grains are usually high in potassium and nitrogen but low in magnesium," said **UK College of Agriculture, Food and Environment** ruminant veterinarian Michelle Arnold. "In any case, affected cattle have borderline low blood magnesium concentration, and then they develop clinical signs of grass tetany when triggered by a stressor such a cold snap."

Producers can prevent it by feeding a magnesium supplement during times when conditions are right for grass tetany to occur.

"Ideally, producers will begin to supplement with free-choice, high-magnesium mineral at least 30 days prior to calving," Arnold added.

If cattle show signs of grass tetany, Arnold emphasized it is a true veterinary emergency, and they need prompt treatment. Producers should be very careful around cattle suspected of having grass tetany, as they may be quite aggressive. Prevention of this condition is much better than a cure, because survival rates are low, around 40% of affected cattle. Soil testing is always a good indicator of pasture potassium levels.

"The bottom line here is, don't let spring fever set in early and turn your cows out on a pasture that doesn't meet all the nutritional needs of your herd," VanValin said. "Continue to evaluate body condition score and let that guide your management decisions during the transition to spring."

Poison Hemlock – A Growing Concern

Dr. J. D. Green, UK Extension Weed Scientist, Kentucky Forage News

Poison hemlock (*Conium maculatum*) has become widespread throughout most of Kentucky. Although this plant is often seen along roadways, fence rows, and other non-cropland sites, it has expanded out into grazed pasture lands and hay fields. It has also become an increasing concern in residential locations when it is observed in areas that are not frequently mowed such as vacant and abandoned lots. The concern not only stems from its invasive nature, but the fact that it is one of the most toxic plants in the world. Throughout history, the toxicity of poison hemlock is well known for accidental deaths of humans and other animals.

Description– 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 or late winter forming a cluster of leaves that are arranged as a rosette on the ground (Figure 1). The individual leaves are shiny green and triangular in appearance. Although poison hemlock is most noticeable in late May and June during the flowering stage of growth, the vegetative growth stage is readily observed during the cooler months of the year (Figure 2) with its parsley-like leaves which are highly dissected or fern-like.

As the plant begins to send up flower stalks in the spring, 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 creates a taproot and grows upwards to about 6 to 8 feet tall. At maturity the plant is erect, often with multi-branched stems (Figure 3). Poison hemlock has hollow stems which are smooth with purple spots randomly seen along the stem and on leaf petioles. There are no hairs on the plant 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 can be associated with areas having adequate moisture throughout the year, as well as, drier environments.

Toxicity – The risk of exposure to poison hemlock toxicity is primarily through ingestion. Just small amounts of ingestion can result in possible death to all mammals. The principal toxin in poison hemlock is coniine and a few other toxic alkaloids, which are present in all parts of the plant, including the seeds and roots. A well known case of human toxicity was the death of Socrates, a Greek philosopher, who was sentenced to death in 399 BC by ingestion of a poison hemlock potion. There have been some concerns expressed that toxicity such as dermal reactions may occur by simply being in proximity of poison hemlock plants. However, it is unlikely that most people will experience skin rashes who come in direct contact with poison hemlock as opposed to exposure to other plants such as wild parsnip or other potentially toxic plants within the carrot plant family Apiaceae.

If consumed, all classes of livestock are known to be affected by poison hemlock. Cattle, horses, and goats are considered to be the most susceptible domestic animals although other animals can be affected as well. Symptoms of poisoning can occur rapidly anywhere within 30 minutes to 2 hours depending on the animal, quantity consumed, and other factors. Initial symptoms can include nervousness, trembling, muscular weakness and loss of coordination, dilation of pupils, coma, and eventually death from respiratory paralysis. Lethal doses for cattle are considered to be in the range of 0.2 to 0.5% of the animal's body weight. Poison hemlock is also known to cause fetal deformation when pregnant animals consume the plant.

Fortunately, most animals tend to avoid grazing poison hemlock if other forage is readily available. However, animals may be more prone to consume green plants during the late winter and early spring when other forage species are more limited. Toxicity may be somewhat reduced in dried plants, but the potential for toxicity still exists, particularly when a sufficient quantity is consumed in dried hay. Therefore, extreme caution should be considered before feeding animals hay known to contain large quantities of poison hemlock. Also, animals may be attracted to consume poison hemlock when plants are treated with a herbicide.

Figure 1. Poison hemlock rosette. (photo by JD Green)

Figure 2. Poison hemlock plants growing along a fence line in late December. (photo by JD Green)

Figure 3. Mature poison hemlock plant. (photo by JD Green)

Control -The principle strategy for poison hemlock control is to prevent seed production, which can be a challenge since a fully mature plant is capable of producing over 35,000 new seeds. Once plants have produced flowers it is generally too late to utilize herbicide control methods. Whereas, mechanical control efforts (where it is feasible), such as mowing or cutting down individual plants should be initiated just before peak flower production to avoid or reduce the amount of new seed being produced.

As an overall strategy, make note of areas known to contain populations of poison hemlock and begin to look for emergence of new plants in the fall and during the winter months. Throughout the fall (October/November) or early spring (late February/March) is the best time of year for herbicide treatment. Herbicide products containing 2,4-D can be effective when applied to actively growing plants that are still in the younger rosette stage of growth. As plant rosettes become more mature, premixtures of products containing dicamba + 2,4-D (eg. Weedmaster, Brash, Rifle-D, etc.), triclopyr + 2,4-D (eg. Crossbow, Crossroad, etc.), or aminopyralid (eg. Duracor, etc.) are needed for best results. Always consult product labels for approved sites of application and for precautions that should be considered when applying herbicides.

Xtendimax, Engenia, and Tavium Availability in Kentucky for 2024

Corn & Soybean News
February 2024
Volume 6, Issue 02

The United States District Court of Arizona vacated the 2020 Xtendimax, Engenia, and Tavium labels for use in dicamba-resistant soybean on Feb. 6, 2024. This order left the availability of the three products for the 2024 season in limbo for approximately a week. On Feb. 14, 2024 the EPA responded to the court ruling with an Existing Stocks Order allowing the sale and distribution of existing stocks of Xtendimax, Engenia, and Tavium. What does this all mean for the 2024 growing season and the use of these products? The following information is my interpretation of the EPA Existing Stocks Order and how it may affect Kentucky soybean growers in 2024. If you are in doubt about how to use a product in 2024 or how this order affects you, please refer to the EPA order or the products label, website, or representative. You can find the official EPA Existing Stocks Order at this link: https://www.epa.gov/system/files/documents/2024-02/dicamba-notice-existing-stocksorder_02142024.pdf

The order indicates that the sale and distribution of Xtendimax, Engenia, and Tavium will be allowed by persons other than the registrants until May 31, 2024 in Kentucky. “Persons other than registrants” would include co-ops, local dealers, and commercial distributors. Only product that was in possession of the “other persons” on or before the February 6 court ruling can be sold or distributed. While a majority of products were already in possession of these “other persons” or “in the channel”, not all product was at this stage on February 6 and thus a full supply availability is highly unlikely to occur.

Furthermore, the order allows for the use or application of these three products by both private and commercial applicators in dicamba-resistant soybean fields until June 30, 2024 in Kentucky. This date aligns with the already established cutoff date for Kentucky.

Lastly, and most importantly, ALL APPLICATIONS OF XTENDIMAX, ENGENIA, AND TAVIUM MUST STILL FOLLOW THE RESTRICTIONS IMPLEMENTED ON THE MOST RECENT LABELS INLCUDING THE MANDATORY ANNUAL TRAINING.

Frequently asked questions and scenarios are described below:

- Will there be a shortage of Xtendimax, Engenia, or Tavium? Yes, there will be less supply available in 2024 than will be needed for Kentucky soybean acres. As mentioned above a large majority of Xtendimax, Engenia, and Tavium was likely already in the channel on February 6. Though there certainly was supply of these products that had not reached the “other persons” by that date and thus a shortage is very likely. Farmers and applicators should make plans now for the potential of a shortage. See the below comments on potential alternatives.
- • Can a custom applicator still apply Xtendimax, Engenia, or Tavium to a farmer’s dicambaresistant soybean field? Commercial applicators will be allowed to apply Xtendimax, Engenia, or Tavium to a farmers dicamba-resistant soybean field until June 30, 2024 in Kentucky. Commercial applicators can apply product that was within their possession or that was in the channel prior to the February 6th ruling.
- • Can a farmer spray Xtendimax, Engenia, or Tavium that they have already purchased to their dicamba-resistant soybean fields: Yes, a farmer can apply any product in their possession prior to Feb 6, 2024 to their dicamba-resistant soybean fields until June 30, 2024.
- • Can a farmer still buy Xtendimax, Engenia, or Tavium to spray on their dicamba-resistant soybean fields: Yes, a farmer can still buy these products from co-ops, dealers, or distributors who were in possession of the product prior to February 6, 2024. The farmer must purchase the product by May 31, 2024 and apply it prior to June 30, 2024. I would encourage farmers to make these purchases sooner rather than later due to the potential shortage; it is very likely product will no longer be available by the May 31 purchase cutoff.
- • It is June 15, 2024 and a farmer who is applying product to their own acres realizes they do not have enough Xtendimax, Engenia, or Tavium for all of their dicamba-resistant soybean acres. Will they be able to buy more to use on the remaining acreage? No. Sales and distribution of Xtendimax, Engenia, and Tavium will conclude on May 31, 2024. In this scenario, the farmer has two options: 1. Hire a custom applicator that has extra Xtendimax, Engenia, or Tavium on hand to apply to the remaining acres, or 2. Seek alternative herbicides for weed control in those fields. See the next question and Tables 1 and 2 for alternative herbicides.
- • A farmer is worried they will not be able to get enough Xtendimax, Engenia, or Tavium to use on their dicamba-resistant soybean fields. Will they be allowed to use other dicamba formulations on dicamba resistant soybean? No! Only Xtendimax, Engenia, and Tavium are allowed for use on dicamba-resistant soybean. If you are concerned about not having enough dicamba for your dicamba resistant soybean fields I would encourage you to seek alternative postemergence herbicide options in those systems, such as glufosinate. Additionally, you should consider which fields would benefit the most from dicamba and/or glufosinate applications based on weed spectrum. Our research has shown that the use of dicamba and glufosinate in these soybean systems is most valuable on fields with waterhemp or Palmer amaranth infestations, while alternative products can be used on fields without these problematic weeds. See Table 1 and 2 for more information. Additional product information weed control efficacy tables can also be found in AGR-6 (https://www2.ca.uky.edu/agcomm/pubs/agr/agr6/agr6.pdf)
- • Is the annual training to apply Xtendimax, Engenia, or Tavium still required in 2024? Yes. • Does this affect other dicamba formulations or generic dicamba products? No, the vacatur and Existing Stocks Order only applies to Xtendimax, Engenia, and Tavium. All other dicamba products that are labeled for use in corn, pastures, and other crops are not affected by these rulings and orders.
- • Can a generic dicamba formulation be applied for spring burndown prior to dicambaresistant soybean planting? Yes, BUT you must wait for the labeled replant interval which is typically 30 days and 1 inch of rain. If you wish to plant immediately after burndown you must use Xtendimax, Engenia, or Tavium.
- • Will we have Xtendimax, Engenia, or Tavium for use in 2025 and beyond? The current Existing Stocks Order only applies to the 2024 soybean growing season. It is still to be determined what will happen in future years as the registrants and EPA assess their next steps with these three products.

Continued.....

Table 1. Postemergence herbicide programs with and without the inclusion of dicamba in Xtend Flex soybean and their influence on waterhemp control 3 weeks after the late post application. Note that programs that exclude dicamba or glufosinate in either of the two postemergence applications resulted in less than acceptable control of waterhemp indicating the necessity of dicamba and glufosinate for waterhemp control.

Early Post Treatment	Late Post Treatment	% Visual Waterhemp Control[a]
Untreated		0 C
Xtendimax -22 fl oz + Roundup PwrMax3 – 30 fl oz Dual II Magnum – 1.33 pt	Liberty – 32 fl oz + Roundup PwrMax3 – 30 fl oz	96 A
Xtendimax – 22 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	93 A
Liberty – 30 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 A
Prefix -2.33 pt + Select Max – 12 fl oz	Liberty – 32 fl oz	58 B
Prefix – 2.33 pt + Select Max – 12 fl oz/a	Cobra – 12.5 fl oz + Assure II – 10 fl oz	10 C

[a] Means within a column followed by a different letter are statistically different. Tukey HSD α=0.05

Table 2. Postemergence herbicide programs with and without the inclusion of dicamba in Xtend Flex soybean and their influence on giant ragweed, morning glory, smooth pigweed, and foxtail control 3 weeks after the late post application. Note that programs that exclude dicamba and/or glufosinate in either of the two postemergence applications resulted in equivalent control to those receiving dicamba and/or glufosinate indicating alternatives are available in the absence of dicamba and/or glufosinate.

Early Post Treatment	Late Post Treatment	Giant Ragweed	Morningglory, Smooth Pigweed, & Giant Foxtail
Untreated		0 b	0 b
Xtendimax -22 fl oz + Roundup PwrMax3 – 30 fl oz Dual II Magnum – 1.33 pt	Liberty – 32 fl oz + Roundup PwrMax3 – 30 fl oz	100 a	100 a
Xtendimax – 22 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 a	100 a
Liberty – 30 fl oz + Select Max – 12 fl oz + Dual II Magnum – 1.33 pt	Liberty – 32 fl oz	100 a	100 a
Prefix -2.33 pt + Pursuit – 4 fl oz	Liberty – 32 fl oz + Select Max – 12 fl oz	94 a	100 a
Prefix – 2.33 pt + Select Max – 12 fl oz/a + FirstRate – 0.3 oz/a	Cobra – 12.5 fl oz + Pursuit – 4 lf oz	94 a	100 a

[a] Means within a column followed by a different letter are statistically different. Tukey HSD α=0.05

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Cow-Calf Profitability Conference

Cow-Calf Profitability Conferences are one day, intensive seminars focusing on key topics for beef producers. Conferences are funded by the Kentucky Agricultural Development Fund through the Kentucky Beef Network and delivered by UK Agricultural Economics' Kenny Burdine, Greg Halich and Jonathan Shepherd.

Tuesday
March 12th, 2024

9:00 am – 4:00 pm

Hardin County
Extension Office
111 Opportunity Way
Elizabethtown, KY 42701

Topics

- Key Profit Drivers
- Managing Hay Production Costs
- Breeding Stock Depreciation
- Reducing Fertilizer Use
- Keys to Cow Herd Management
- Tax Management Strategies
- Bale Grazing & Stocking Rates

Call/text
270-765-4121
to RSVP

Doors open at
8:00 AM
$10 for lunch

Martin-Gatton
College of Agriculture,
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KENTUCKY BEEF NETWORK

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DEVELOPMENT FUND

GRASS TETANY

Early spring is the primary time that farmers experience problems and loss of livestock to the forage related disorder known as grass tetany, grass staggers, lactation tetany, or hypomagnesemia. Grass tetany is a metabolic disorder caused by reduced magnesium (Mg) levels in the animal's blood. High levels of Nitrogen (N) and Potassium (K) in the soil can increase the risk of grass tetany. It generally effects older, lactating cows but is also seen in dry cows, young cows, and, in rare cases, growing calves. Young cool-season grasses and small grains are commonly associated with this disorder. Grass tetany is most frequent in the spring but may occur in the fall and winter when these forages start growing rapidly or when cereal grain forages are fed.

"Grass tetany is a metabolic disorder caused by reduced magnesium levels in the animal's blood"

Symptoms may consist of nervousness, lack of coordination, muscular spasms, staggering, convulsions, coma, and death. If there is a suspicion of grass tetany, a veterinarian should be called immediately.

Feeding high magnesium or high "Mag" mineral supplements, containing magnesium oxide, is the preferred method to reduce the occurrence of grass tetany. High "Mag" mineral mixes are available at most feed stores. Producers can also mix their own by adding the appropriate amount of magnesium oxide to another supplement or feed where the intake is controlled, i.e. feeding in or with 1 to 2 lbs. of corn or other by-product. Livestock should be fed this supplement starting in December or January and continued until spring time when temperatures are consistently above 60°F. To provide adequate amounts, 20 g of magnesium must be provided and consumed daily. Free-choice minerals should contain 12 % to 15% magnesium (from magnesium oxide) and cattle need to consume 4 ounces of the mineral. It is important to monitor intake to be sure cattle are consuming adequate amounts each day to provide protection against grass tetany. Lactation doubles Mg need and early plants do not take up Mg fast enough to provide adequate amounts.

The season for grass tetany is around the corner. To reduce health problems and loss of livestock to this disease, it is important to provide a quality, "high Mag" mineral or magnesium oxide containing supplement. Ask your county agent, veterinarian, or nutritionist for more information on supplementing Mg during periods of high risk.

Meade County Cattlemen's Drill

Rental Rate for members is $30/day plus $6/acre with a 3 consecutive day maximum.

$100 clean out fee (if not cleaned out when returned)

Drill is Housed and Maintained by Tommy Pike, 270-945-5501.

It can be scheduled easily through the Meade County Cattlemen's

FaceBook page at:

https:mcca.youcanbook.me

University of Kentucky | Martin-Gatton College of Agriculture, Food and Environment

Meade County Cooperative Extension Service
1041 Old Ekron Rd
Brandenburg, KY 40108

BONE-IN PORK CHOPS WITH APPLE AND ONIONS

2 Kentucky Proud pork chops, bone-in
Salt and pepper, to taste
1 tbsp olive oil
1 Kentucky Proud apple, sliced
1 Kentucky Proud onion, sliced
1 cup chicken stock or apple cider, to deglaze

Pat the pork chops dry with paper towels and season well with salt and pepper. Heat olive oil in a large skillet on high heat and brown the pork chops well, about 3-4 minutes per side. At this point, the pork chops will be well-browned, but not cooked all the way through. Transfer chops to a separate platter.

Add the apple and onion to the pan and cook until softened and nicely caramelized. Deglaze the pan with chicken stock or apple cider. Nestle the pock chops back into the pan and bring the mixture to a simmer. Simmer until pork chops are cooked through and season with salt and pepper.

Add butter to the sauce at the last minute for extra richness, if desired.