

AGRICULTURE & NATURAL RESOURCES

AUGUST/SEPTEMBER NEWSLETTER

IMPORTANT DATES

- August 8th: Cattlemen's Meeting at Tollesboro Fairgrounds at 7 p.m.
- August 12th: BQCA at 5 p.m.
- August 15-25: Kentucky State Fair
- September 1: East KY Hay Contest Sign-up Deadline
- September 2: Office Closed (Labor Day)
- September 5th: BQCA at 9 a.m.
- September 17th at 5:30 p.m.

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Lewis County
Cooperative
Extension
284 2nd Street
Vanceburg, KY
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Needing CAIP Educational Hour?

If you chose the large animal investment area you must have an up to date BQCA (Beef Quality Care Assurance). This does NOT count towards educational component

Cooperative Extension Service

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

MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Educational programs of Kentucky Cooperative Extension serve all people regardless of economic or social status and will not discriminate on the basis of race, color, ethnic origin, national origin, creed, religion, political belief, sex, sexual orientation, gender identity, gender expression, pregnancy, marital status, genetic information, age, veteran status, physical or mental disability or reprisal or retaliation for prior civil rights activity. Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English. University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.

Lexington, KY 40506



Disabilities
accommodated
with prior notification.

2024 CAIP

- Implementation of tiered system
 - I.B.3. "Agricultural Development Funds contributed to the CAIP cannot exceed the percent match denoted in the Investment Area Guidelines."*
- ***Each of the 11 Investment Areas have revisions** with the implementation of this new system. Please review each Investment Area Guidelines for all revisions.
- **Purpose:**
 - The KADB strives to incentivize new and innovative practices to move KY agriculture forward.
- **How it Works:**
 - Each eligible item in CAIP has been given a cost-reimbursement percentage (75%, 50%, or 25%) denoted in each Investment Area Guidelines* in **red**.
 - When a producer submits their receipts, the amount they can receive for reimbursement will depend on the item they purchased.
 - **Example:** A producer purchases a bull and submits receipts for vaccines. The bull is only eligible for 50% of the total cost, up to the county maximum limit. The vaccines are only eligible for 25% of the total cost, up to the county maximum limit.

COUNTY AGRICULTURAL INVESTMENT PROGRAM (CAIP) Guidelines

2024 CAIP Standard Guidelines
Ag Diversification
AgTech & Leadership Development
Large Animal
Standard EPDs (updated 1/30/2023)
Small Animal
Farm Infrastructure
Fencing & On Farm Water
Forage & Grain Improvement
CAIP Forage Seedlist
Innovative Ag Systems
On Farm Energy
Poultry and Other Fowl
Value Added Marketing

**For More
information
please visit
this website**



<https://www.kyagr.com/agpolicy/2024-Program-Guidelines-and-Applications.html>

Upcoming Educational Hours



SAVE THE DATE

BULL VALUE ASSESSMENT PROGRAM

OCTOBER 8TH & OCTOBER 12TH

MORE DETAILS TO COME!

 Cooperative Extension Service

Beef Quality Care & Assurance Training (BQCA Training)

****Required for Large Animal CAIP Investment Area****

Monday, August 12th at 5 p.m.
Thursday, September 5th at 9 a.m.
Tuesday, September 17th at 5:30 p.m.

Lewis County Extension Office
284 2nd Street., Vanceburg

Call the office to RSVP at 606-796-2732

\$5-check only written out to KBN

September is FREE



 **Farm School For Women**

SAVE THE DATE

October 3rd
October 10
October 17
October 24

Cooperative Extension Service

Agriculture and Natural Resources
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4-H Youth Development
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University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.



Disabilities accommodated with prior notification.

If you have attended a meeting since October 2, 2023 give me a call. Any Cattlemen's Meeting, UK Cooperative Extension Meetings should qualify

ADDITIONAL OPPORTUNITIES:

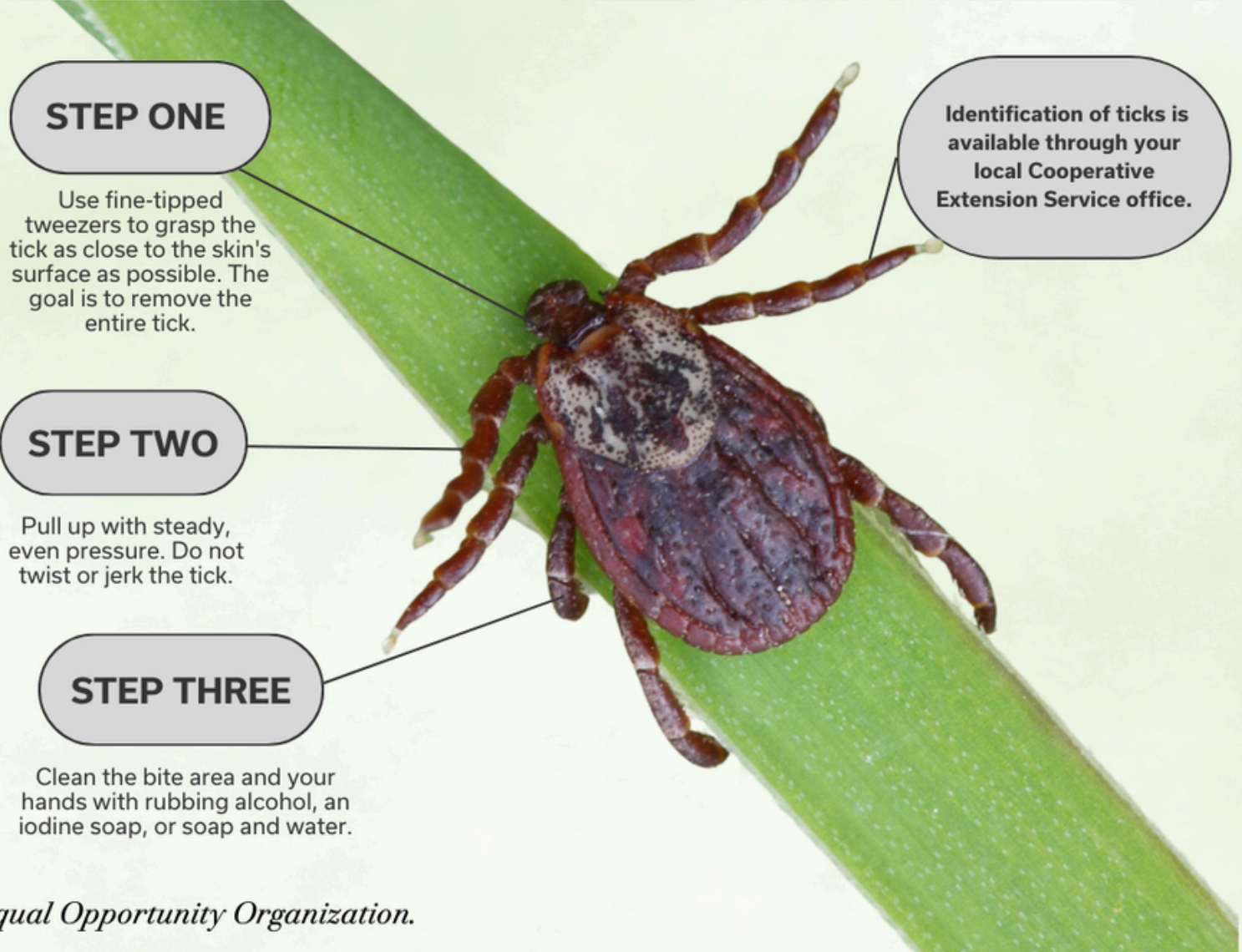
Contact: (606) 796-2732 or Kennedy.perkins@uky.edu

DON'T MISS OUT!

UK Cooperative Extension Service

HOW TO REMOVE A TICK SAFELY

UK Cooperative Extension Publication ENTFACT-618



An Equal Opportunity Organization.

FREE!
HAY TESTING

2024
EAST KENTUCKY
HAY CONTEST
SIGN UP EVEN IF YOU THINK YOUR HAY ISN'T THAT GOOD!

UK Cooperative Extension Service

TESTING PROVIDES: NUTRITIONAL VALUE OF HAY & HAYLAGE; RATIONS; & CAN RESULT IN: REDUCED FEED COSTS, INCREASED ANIMAL PERFORMANCE, & INFORMATION TO IMPROVE FORAGE STANDS



USE THE QR CODE OR CALL: (606) 796-2732 TO SIGN-UP

DEADLINE TO SIGN-UP IS 9/1/24

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

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University of Kentucky, Kentucky State University, U.S. Department of Agriculture, and Kentucky Counties, Cooperating.
Lexington, KY 40506



Managing Nitrates and Prussic Acid in Forages

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

Nitrates can accumulate to toxic levels in commonly grown forages. This most often occurs when heavy nitrogen fertilization is followed by drought. Nitrates are taken up by the plant, but not utilized since plant growth is restricted by the drought. Any factor that slows plant growth in combination with heavy nitrogen fertilization can result in nitrate accumulation. Some plants tend to accumulate nitrates at greater rate; these include, but are not limited to commonly used summer annual grasses, corn, crabgrass, small grains, annual ryegrass, bermudagrass, Johnsongrass, tall fescue, and some annual and perennial weeds commonly found in pastures and hayfields.

In contrast to nitrates, prussic acid or hydrogen cyanide can be formed in commonly used sorghum species such as forage sorghum, sorghum-sudangrass hybrids, sudangrass, and Johnsongrass. Under normal conditions these forages contain little free cyanide. However, when freezing, drought stress, wilting, or mechanical injury damages plant tissue, an enzymatic reaction occurs and free cyanide is produced. Being aware of the factors that can result in accumulation of nitrates or the formation of

prussic acid and using alternative forages during these periods will reduce chances of livestock losses.

Table 1. Nitrate levels in forages^a.

Nitrate Concentration ^b		Forage Status	Comments
---%---	---ppm---		
0-0.25	0-2,500	SAFE	Generally considered safe.
0.25-0.5	2,500-5,000	CAUTION	Generally safe for cattle. Be cautious with pregnant and young animals when nitrate concentrations approach 5,000 ppm and dilute with other feeds.
0.5-1.0	5,000-10,000	DANGER	Dilute with other feeds and introduce slowly. Consider options to reduce nitrate in fresh forage (ensiling, delayed harvest, other). Limit to a maximum of 50% of the total dry matter in pregnant animals.
Over 1.0	Over 10,000	TOXIC	Very dangerous; can cause acute nitrate poisoning and death in cattle. Do not feed.

^aAdapted from ID-217, Forage-related Disorders in Cattle: Nitrate Poisoning.
^bNitrate concentration is expressed as NO₃⁻. To convert these values to NO₃-N multiply by 0.23

Nitrates

In cattle, nitrate is converted to nitrite in the rumen, and the nitrite is absorbed into the blood stream. Nitrite interferes with the blood's ability to carry oxygen. Symptoms of nitrate poisoning include trembling, staggering, rapid and labored breathing, rapid pulse, frequent urination followed by collapse, coma, and death. The onset of symptoms and death is rapid and usually occurs within one to two hours. Most often, animals are simply found dead. In animals affected by nitrate poisoning, the blood will take on a brownish chocolate color, giving the non-pigmented skin and mucus membranes a muddy brown color.

The following practices can help to reduce nitrate accumulation in forages and manage the risk associated with feeding high nitrate forages:

- Split nitrogen applications. Applying smaller applications of nitrogen throughout the growing season will reduce the risk of nitrate accumulation in forages.
- Delay harvest or grazing after a drought ending rain. Nitrates are often the highest just after plant growth resumes. Grazing or harvesting should be delayed for 7 days after a drought ending rain.
- Raise cutting or grazing height. Nitrates tend to accumulate at higher concentrations near the base of the plant. Raising your cutting or grazing height from 2-4 inches to 6-8 inches can significantly reduce nitrate concentrations in the forage tissue that is being conserved or ingested. For corn silage and forage sorghum, raising the cutting height even more (12-16 inches) can help avoid high levels of nitrates.
- Test all suspect forages. All forages that may contain high levels of nitrates should be tested at a qualified lab. Several labs are listed at end of this article.
- Segregate all forages high in nitrates. Once identified, forages high in nitrates should be clearly marked and separated from low nitrate forages if possible.
- Harvest forage as silage if possible. Ensiling high nitrate forage can reduce nitrates by 40 to 60%. Silage should be tested before feeding to confirm nitrate levels.
- Nitrates are stable in hay. Nitrates do NOT decrease over time in dry hay. This means that you can kill livestock months or even years later. If you suspect nitrates in your hay, make sure to test it.
- Avoid feeding high nitrate forage to susceptible animals. Feeding high nitrate forage to animals that are in poor condition and under stress, or are pregnant, lactating, or sick is especially risky and should be avoided.
- Limit the intake of high nitrate forages. Guidelines for feeding high nitrate forages can be found in Table 1. The best way to feed high nitrate forages is in a total mixed ration. This reduces the animal's ability to select individual components. If feeding a total mixed ration is not possible, then limit access to the high nitrate hay in a manner that allows livestock to consume 50% or less of their total daily dry matter requirement. A high energy supplement that is balanced for the ration should be fed PRIOR to hay feeding. Simply unrolling one bale of low nitrate hay and one bale of high nitrate hay is NOT an adequate way to feed high nitrate hay.
- Supply free access to clean, nitrate-free water. In addition to clean water, make sure to provide access to high quality mineral and vitamin supplement.

Prussic Acid

A potential problem with sorghum, sudangrass, sorghum-sudangrass hybrids, and naturally occurring Johnsongrass is prussic acid or cyanide poisoning. Under normal conditions these forages contain little free cyanide. However, when plant tissue is damaged by freezing, drought or mechanical injury, an enzymatic reaction occurs, and free cyanide is produced. If forage is ingested during this period, cyanide is readily absorbed into the bloodstream where it interferes with normal cellular respiration. Symptoms of cyanide poisoning are like nitrate poisoning and include labored breathing, excitement, gasping, convulsions, weakness, prostration and death. The onset of symptoms and death is very rapid, occurring in minutes to several hours. In contrast to nitrate poisoning, the blood of animals affected by cyanide poisoning is fully oxygenated and bright cherry red in color.

Note: Pearl millet, corn, crabgrass and most other commonly used forages DO NOT form prussic acid.

In most situations, Sorghum species (including Johnsongrass) pose little danger to grazing animals when properly managed. The following guidelines will help to reduce the risk of prussic acid poisoning:

- Avoid grazing young plants and new growth. Young plants or regrowth after grazing contain higher concentrations of prussic acid and should not be grazed until plants have reached a height of 20-30 inches.
- Avoid grazing drought stressed plants. Drought stressed plants should not be grazed until growth has resumed after a drought breaking rainfall (usually 7 days).
- Avoid grazing frosted plants. Plants that have been frosted should not be grazed for 7-14 days or until the leaves are dead and dried out. Early frost may only affect certain portions of field, so additional frosts may result in toxic forage in other areas of the field.
- Make sure hay is properly cured before baling. Cyanide does escape from plant tissue; therefore hay that has been properly cured is safe to feed. Properly ensiled forage is also safe to feed.
- Feed green chop in timely manner. If the green chop is allowed to wilt or heat, cyanide is released, and the forage becomes toxic.

- Feed good quality hay or silage BEFORE grazing questionable forages. Never turn hungry animals into questionable forage. Filling animals up with a good quality dry hay or silage before giving them free access to questionable forage can reduce rapid consumption of large quantities of potentially toxic forage.
- Use tester animals to evaluate questionable forages. It may be advisable to allow several lower value animals to graze or consume questionable forage before allowing the entire herd to graze potentially toxic forage.

For more information on managing nitrates and prussic acid in forages contact your local extension office or veterinarian. Additional information about nitrate and prussic acid poisoning can be found in the following references:

Arnold, M. and M. Romano. 2022. ID-217, Forage-related Disorders in Cattle: Nitrate Poisoning. UK Cooperative Extension Service, Lexington.

Michelle Arnold and Cynthia Gaskill. 2022. ID-220, Cyanide Poisoning in Ruminants. UK Cooperative Extension Service, Lexington



Cucumber, Corn, and Bean Salsa

2-3 large cucumbers	½ cup fresh whole kernel corn, cooked
2 tomatoes	1 ounce package dry ranch dressing mix
1 yellow bell pepper	⅓ cup cider vinegar
1 small red onion	2 tablespoons sugar, optional
¼ cup chopped fresh cilantro	
½ cup black beans	

Wash all vegetables. Finely **chop** cucumbers, tomatoes, pepper, and onion. **Combine** in a large mixing bowl with chopped cilantro. **Drain** and rinse beans and add to chopped vegetables. **Add** corn. If using canned corn instead of fresh, **drain** off liquid prior to adding to vegetables.

In a small bowl, mix together ranch

dressing packet, vinegar, and sugar. **Pour** dressing over vegetables and mix well. **Serve** immediately or refrigerate until chilled.

Yield: Makes 20, ½ cup servings.

Nutrition Analysis: 50 calories, 0 g fat, 130 mg sodium, 7 g carbohydrates, 2 g fiber, 70% Daily Value of vitamin C and 6% Daily Value of vitamin A

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



Kentucky Cucumber

SEASON: June to September.

NUTRITION FACTS: Cucumbers are naturally high in water; a one-half cup serving contains only 7 calories.

SELECTION: Choose firm, fully green cucumbers with no yellowing or soft spots. Cucumbers suitable for slicing and eating are 6 to 9 inches long with small, white spines on the surface that rub off easily. Pickling cucumbers are smaller and have black spines on the surface.

STORAGE: Store unwashed cucumbers in the refrigerator for up to a week. Sliced cucumbers should be tightly wrapped and refrigerated for up to 3 days.

Source: www.fruitandveggiesmatter.gov

PREPARATION: Wash under cool, running water to remove visible dirt. You may want to remove the seeds in mature cucumbers by cutting lengthwise and scooping seeds from the center with a spoon.

FOR PICKLING: Follow recipe instructions. Four pounds of cucumbers yield 5 to 6 pints of pickles.

CUCUMBER

Kentucky Proud Project

County Extension Agents for Family and Consumer Science
University of Kentucky, Nutrition
and Food Science students

May 2010

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COOPERATIVE
EXTENSION
SERVICE



Bacterial Spot & Bacterial Speck on Tomato

Bacterial spot and speck are common diseases of backyard and commercial tomatoes in Kentucky. Both diseases look similar, and differentiating between these diseases can be challenging. Leaves, stems, and fruit may become infected, resulting in reduced fruit quality or yield losses. Preventative practices are critical for disease management to avoid damage and losses.

Bacterial Spot & Speck Facts

Bacterial spot begins as small, circular, brown spots on leaves (Figure 1), often with a wet or greasy appearance. Over time, spots may merge resulting in large, blighted areas. In severe cases, defoliation may occur. Small lesions may form on green fruit and appear as raised blisters or scabs (Figure 2).

Bacterial speck may affect leaves, stems, and fruit. Leaf lesions are small, circular, and brown and often surrounded by a yellow border (Figure 3). Lesions spread and come together, resulting in large dead areas. Defoliation may occur in severe cases. Small, sunken specks may develop on green fruit.

Conditions for infection are different for each disease. Bacterial spot disease favors warm, humid, or rainy conditions, while bacterial speck is more likely to occur during periods of cool, wet weather.

Both bacterial spot and speck can be introduced via infected seeds or transplants. Pathogens can overwinter in infected crop debris from the previous season.

Both bacterial spot and speck pathogens are spread by water such as irrigation or rain.

Bacterial spot is caused by the bacterial pathogen *Xanthomonas campestris* pv. *vesicatoria*, and bacterial speck is caused by the bacterial pathogen *Pseudomonas syringae* pv. *tomato*.

Management

Plant pathogen-free seed and transplants.

Disinfect tools and implements.

Manage weeds in and near plantings.

Avoid overhead irrigation and working with plants when leaves are wet.

Increase plant spacing.

Promptly remove and destroy diseased plant material.

Rotate with non-host crops.

Destroy crop residues after harvest.

Deep plow to bury residual inoculum.



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

Additional Resources

Bacterial Spot of Pepper & Tomato (PPFS-VG-17)

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

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

Home Vegetable Gardening (ID-128)

Vegetable Production Guide for Commercial Growers (ID-36)

Southeastern U.S. Vegetable Crop Handbook (SEVEW)



2024 Intermediate Grazing School
September 25 & 26, 2024 - Versailles, KY



Kentucky Master Grazer
Educational Program

Register Here or Scan QR Code:

<https://www.eventbrite.com/e/intermediate-grazing-school-tickets-943745988657?aff=oddtcreator>

Optimizing Fertilizer Use for Kentucky Crops

<https://exclusives.ca.uky.edu/2024/anr/optimizing-fertilizer-use-kentucky-crops-0>

Source: John Grove, Department of Plant and Soil Sciences professor

Proper fertilizer usage is essential for achieving high crop yields and farm profitability while maintaining soil health.

The Importance of Soil Testing

Soil testing is the foundation of effective nutrient management. The process involves collecting soil cores from 15-20 locations within a field/field area, to a specific depth. This method ensures that the samples are representative of the entire area, providing more accurate data on nutrient levels and soil pH.

Lime Application for Soil Health

Producers should apply lime based on soil test results to ensure that the soil pH is within the optimal range for their crops. By adjusting the soil pH, lime application can enhance nutrient uptake and improve overall soil health.

Fertilizer Recommendations for Various Crops

Different crops have varying nutrient requirements, and it is important to tailor fertilizer applications accordingly. Here are some specific recommendations for major crops grown in Kentucky:

Corn

Corn requires significant amounts of nitrogen, phosphorus and potassium for optimal growth. Soil testing can determine the exact nutrient needs, but general guidelines suggest applying nitrogen in split applications: a portion at planting and the remainder during the growing season. Phosphorus and potassium should be applied before/at planting, based on soil test results, to ensure adequate nutrition throughout the growing period.

Soybeans

Soybean, being a legume, can fix atmospheric nitrogen through a symbiotic relationship with a soil bacterial species. However, the crop still requires adequate phosphorus and potassium. Soil tests help determine appropriate application rates for these nutrients. Phosphorus and potassium for soybean should also be applied before/at planting.

Wheat

Wheat benefits from nitrogen, phosphorus and potassium applications. Sufficient wheat nitrogen nutrition may benefit from multiple splits: a small amount at planting, followed by additional applications just prior to/during tillering and another at early stem elongation. Phosphorus and potassium should be applied according to soil test results, before/at planting.

Tobacco

Tobacco has high nutrient demands, particularly for nitrogen and potassium. Nitrogen should be applied in split applications: a portion at planting and the remainder during the growing season. Potassium is critical for tobacco quality and should be applied according to soil test recommendations. Adequate phosphorus is also necessary, and both phosphorus and potassium are applied before/at planting, based on soil test results.

Benefits of Proper Fertilizer Usage

Following these fertilizer recommendations offers several benefits to farmers:

- 1. Improved Crop Yields: By providing crops with the right nutrients at the right times, farmers can achieve higher yields and a better-quality product.**
- 2. Enhanced Soil Health: Proper nutrient management maintains soil fertility, ensuring long-term productivity.**
- 3. Cost Efficiency: Applying fertilizers based on soil test results prevents both under and over application, optimizing yields and input costs while minimizing environmental impacts.**
- 4. Sustainable Practices: Efficient fertilizer use supports sustainable farming by optimizing resource use and preserving soil quality for future generations.**

Effective fertilizer use is crucial for successful crop production. Growers can optimize their fertilizer applications by conducting regular soil tests and following crop-specific nutrient recommendations. This approach not only enhances crop yields and soil health but also promotes sustainable farming practices. With careful management, producers can achieve productive and sustainable agricultural systems.