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Optimizing Fertilizer Use for Kentucky Crops

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

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.

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 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.

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 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 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.

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. By conducting regular soil tests and following crop-specific nutrient recommendations, growers can optimize their fertilizer applications. 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.

More info can be found at the University of Kentucky Martin-Gatton College of Agriculture, Food and Environment recommendation publication <https://www2.ca.uky.edu/agcomm/pubs/AGR/AGR1/AGR1.pdf>. For more information on fertilizing crops and soil health, contact the Carter County office of the University of Kentucky Cooperative Extension Service. *Educational programs of the Cooperative Extension Service 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 expressions, pregnancy, marital status, genetic information, age, veteran status, or physical or mental disability.*

Upcoming Events:

- The **Grayson Farmer's Market** is open on Saturdays from 9:00 AM until noon and on Thursdays from 2:00-6:00 PM. The market is located in the shed behind the Extension Office. The **Olive Hill Farmer's Market** is located in the Save-a-Lot parking lot and is open on Saturdays and Wednesdays at 8:00 AM and Mondays at 3:00 PM until sell out each day. There will be a pop-up market on the first Tuesday of the month in the Friendship & Chapel House parking lot from 6:00-8:00 PM.
- **Grayson Farmer's Market Kid's Day** (Thursday, July 18th from 2:00-3:30) & **Olive Hill Farmer's Market Kid's Day** (Monday, July 29th from 3:00-4:30) - Youth are invited to the Farmer's Market for fun activities and for Kid's Bucks to be spent at the market.
- **Hike & Learn** – Friday, August 2nd at 9:00 AM – Grayson Lake State Park Lick Falls Overlook Trail
- **Little Sandy Beekeepers Meeting** – Tuesday, August 6th at 6:30 PM- Speaker: Chris Palmer, Dadant Manager; Topic: Varroa Mite Control & Preparing for Winter