

UPCOMING EVENTS

MARCH 2ND; 7:30 AM: AG COUNCIL MEETING; EXTENSION OFFICE

MARCH 7TH; 6 PM: TOBACCO GAP TRAINING; GARRARD CO. EXT. OFFICE

MARCH 9TH; 11AM-2PM: LABOR CONSIDERATIONS FOR KY FARMERS; EXTENSION OFFICE

MARCH 22ND; 6 PM: SMALL RUMINANT WORKSHOP; RUSSELL CO. EXT. OFFICE; **CAIP APPROVED**

MARCH 22ND; 6PM: ADAPTING YOUR NUTRIENT MANAGEMENT PLAN FOR FERTILIZER PRICES WITH DR. JOSH MCGRATH; HAL ROGERS TRAINING CENTER; **CAIP APPROVED**

MARCH 28TH; 6 PM: ESTATE PLANNING WORKSHOP; HAL ROGERS TRAINING CENTER; **CAIP APPROVED**

APRIL 6TH; 7:30 AM: AG COUNCIL MEETING; EXTENSION OFFICE

APRIL 11TH; 6 PM: ESTATE PLANNING WORKSHOP; HAL ROGERS TRAINING CENTER; **CAIP APPROVED**

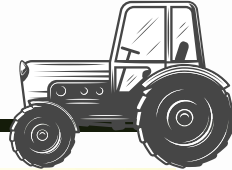
APRIL 12TH; 6 PM: LIVESTOCK FENCING PROGRAM; MCQUEARY CO. EXT. OFFICE; **CAIP APPROVED**

APRIL 18TH; 6 PM: ESTATE PLANNING WORKSHOP; HAL ROGERS TRAINING CENTER; **CAIP APPROVED**

MARCH 2022

AGRICULTURE NEWSLETTER PULASKI COUNTY

T.J. ADKINS, AGENT



Always RSVP 606-679-6361



Notice:

It is very important that any program or event you wish to attend that you call in and reserve your spot. This helps with event changes and notification as well as having enough materials and food for everyone who wishes to attend. Thank you so much in advance.



Calcium or Lime? Which raises soil pH.

ARTICLE FROM KYGRAINS.COM

Soils become acidic for different reasons, but the primary reason in Kentucky's production agriculture is nitrogen (N) fertilizer application. Managing soil pH is a crucial part of your crop production program and can be monitored with regular soil sampling and testing. With the soil test report, you know the active acidity (water or salt pH) and the buffer pH (Sikora buffer) values that guide the rate of liming material needed to adjust soil pH to the range desired for a given crop. Soil testing is important for soilpH management.

By definition, an acidic soil has a higher concentration of hydrogen ions (H^+) than hydroxyl ions (OH^-) in the soil solution. However, a soil pH of ~ 6.5 is considered ideal for Kentucky row crops. Liming agents such as ag lime, pelletized lime, and other materials that consume hydrogen ions (acidity) are used to raise soil pH in agricultural fields. Ag lime consists of either calcitic ($CaCO_3$) or dolomitic ($CaMg(CO_3)_2$) limestone, in a range of particle sizes, and is bulk spread over the soil to neutralize soil acidity. Pelletized lime is typically calcitic limestone and consists of smaller particles that are pressed into a "pellet" and held together using a chemical binding agent. This reduces dust and improves spreading performance.

Below is the generalized acid neutralizing reaction using calcitic limestone.

The reaction shows that acidity (H^+) is consumed by carboxyl ions (CO_3^{2-}) to form water (H_2O) and carbon di-oxide (CO_2). Although calcium (Ca^{2+}) is often thought to be the cause of soil pH change with limestone addition, Ca^{2+} actually has nothing to do with the neutralizing reaction. An example of this is shown below, when gyp-sum ($CaSO_4$) is applied to the soil.



The reaction shows that hydrogen ions ($2H^+$) are still present after dissolving the added gypsum because gypsum is a simple salt. The dissolved sulfate (SO_4^{2-}) present is not a base and cannot react with, and neutralize, the acid hydrogen ions ($2H^+$) in the reaction. The same is true for other salts, such as calcium chloride ($CaCl_2$) or calcium nitrate ($Ca(NO_3)_2$), where there is no liming ability in either product - as shown in the following re-action for $CaCl_2$.

In short, hydroxides (OH^-), oxides (O^{2-}) and carbonate (CO_3^{2-}) ions are required to neutralize H^+ ions, effectively raising soil pH. Calcium (Ca^{2+}) and magnesium (Mg^{2+}) ions have nothing to do with soil pH change.

The effectiveness of limestone is determined by the purity of the material, referred to as the calcium carbonate equivalence (CCE), and the particle size of the material. The smaller the particle size of limestone the more quickly it will react with the soil when applied. The combination of particle size and CCE is used to calculate the relative neutralizing value (RNV) of the product in the following equation.

$$RNV (\%) = CCE/100 \times [0.5 \times (\% \text{ passing } 10 \text{ mesh} + \% \text{ passing } 50 \text{ mesh})]$$

Now that we have a basic understanding of how acidic soils are neutralized, we will share the preliminary findings of a liming study being conducted across the state. The objectives of this study were to compare the effectiveness of liquid calcium, pelletized lime and agricultural lime in raising soil pH in both the laboratory and the field.

The experiment was conducted at 16 locations across the state in forage production fields (pastures or hay-fields). The target soil pH for site selection used for this experiment was 6.0, but this target was not always met. Once the site was identified, plots (5 ft by 5 ft) were established, an initial soil sample was collected, and treatments were applied. Treatments included an untreated check, liquid calcium (Advanced-Cal, AgriTec International) at 5 gallon per acre, pelletized lime (RNV of 83) at 2.4 ton/A, and agricultural (ag) lime (RNV of 77) at 2.6 ton/A. The rate of lime used at all locations was 2 ton/A with an RNV of 100 and both pelletized and ag lime rates were adjusted upward according to their RNV values. Soil samples were collected again, later in the season, typically when the producer harvested hay 2 to 3 months later. A laboratory soil incubation study was conducted in conjunction with the field study. Soil with an initial pH of 5.2 was incubated in specimen cups and maintained at 80% water-filled pore space. Treatments equal to those used in the field study were applied and mixed into the soil in the cups. Soil pH was then measured at 1 and 3 months of incubation (Table 1 – first three columns).

The soil samples from the field study sites were collected approximately three months after treatments were applied. The average pH prior to treatment application was determined and then determined again on the samples taken later (Table 1 – fourth column). This data shows that there was little to no change in soil pH in the untreated check and liquid calcium (Advanced-Cal, AgriTec International) treatments in the laboratory incubation (Table 1).

In the field, both these treatments actually resulted in a decrease in soil pH, relative to the initial field soil pH. Both pelletized and ag limes caused a positive change in field soil pH, between 0.30 and 0.40 pH units. Similar trends were observed in the laboratory study, which shows that pelletized and ag lime amended soils exhibited increased soil pH with time while the check and liquid calcium treated soils did not. The soil pH changes with time show the natural progression of soil pH decline when liming agents are not used and soil pH increase when high quality liming agents are used.

Both pelletized lime and ag lime have increased soil pH during the measurement time frame in these experiments. Both are effective liming agents. The liquid calcium product has not raised soil pH and is not an effective liming agent. This comes back to the liming reactions shown above. There must be something present to consume the soil acidity, such as carbonate, hydroxyl or oxide, and the liquid calcium product has none of these. The pH of the liquid calcium product was measured in-the-jug and found to be 4.5, which means that this product would actually lower the pH of most field soil if a large quantity were applied. Fortunately, a 5 gallon/A use rate is not enough to alter soil pH one way or the other in most any agricultural field.

Another factor to consider is the cost of the products. Prices vary from location to location and should always be checked prior to making any decision on input purchases. In western Kentucky at the time this study was initiated ag lime was roughly \$15 per ton or less. There is an additional delivery/spreading fee associated with this. Pelletized lime was between \$200 and \$300 per ton and still has an associated spreading fee. We purchased the liquid calcium for approximately \$30 per gallon with a recommended use rate of 2-4 gallons per acre. Ignoring application fees, this works out to about \$30/A for ag lime, \$400-600/A for pelletized lime and \$60-120/A for liquid calcium. An advanced degree in mathematics is not needed to determine which is the better route to go when trying to neutralize soil acidity, especially when one of the products doesn't actually raise soil pH.

In closing, there are many products on the market that make great claims. Some even work. However, when a person is deciding on the best way to lime a production field there are two primary questions that need to be answered. Does the product work? What does it cost? Pricing the proven products will go a long way towards making good agronomic and economic decisions for soil pH management.



Adapting Your Nutrient Management Plan for Fertilizer Prices

March 22nd at 6 pm

Hal Rogers Training Center
180 Oak Leaf Lane
Somerset, KY

Presented by: Dr. John McGrath

Please RSVP; Spots limited: 606-679-6361



Estate Transitioning/Planning for Farms

April 11th & 18th; March 28th
6:00 p.m.

Hal Rogers Training Center

- March 28 **Dr. Steve Isaacs—Farm Transition—Transferring Property to the Next Generation**
- April 11 **Dr. Nicole Huff—What You Need to Know about Estate Planning**
- April 18 **Molly Hardy—Real Estate & Legal Questions To be announced—Planning for a Sound Financial Future**

2022 Beginner Bee School

MARCH 26, 2022
9AM TO 4:30PM

PULASKI CO EXTENSION OFFICE, 28 PARKWAY DR, SOMERSET KY 42503

Speakers include:

- Tammy Potter -- Kentucky State Apiarist
- Laura Rogers -- KSU Area Agent
- Phil Craft -- Former State Apiarist, educator and consultant
- Lake Cumberland Beekeepers

Topics covered:

- Honey bee biology
- Equipment, woodenware, extractors, safety
- Hive management
- Pests, diseases, and predators
- Q & A time

\$20 per person

Register and pay online by scanning the QR code



You will receive lunch and a binder of information



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

LABOR CONSIDERATIONS for Kentucky Farmers

Lunch Provided

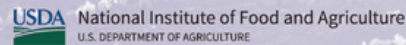
MARCH 9, 2022
11AM - 2PM

This session will provide an overview of the available labor options that a farm may utilize and discuss the legal and liability implications of each choice. Participants will receive a basic overview of regulations, required documents and record-keeping. Resources and follow-up education opportunities will be available.

RSVP to Natalie Gupton,

Natalie@AgSafe.org or Call 606-307-7723

28 Parkway Drive, Somerset, KY 42503



Pulaski County

University of Kentucky
College of Agriculture,
Food and Environment

This material is based upon work supported by USDA/NIFA under Award Number 2018-70027-26085



Tobacco Gap Training

Garrard County Extension Office
March 7th at 6 pm

Call For RSVP
859-792-3026

Livestock Fencing Program

Electric Fencing Systems With Dr. Morgan Hayes

Gate & Panel Selection With Kayla Maddox



April 12th, 2022 6:30pm Eastern
McCreary County Extension Office
SCC-McCreary Center Room 153-154

Cooperative Extension Service
Agriculture and Natural Resources
Forest and Conservation Systems
4-H Youth Development
Community and Economic Development

McCreary County Extension Office
141 College Street, Box 141
Whitley City, KY 42683



Tracie Goodwin, ANR/4H Agent
McCreary County Extension
141 College Street, Box 141
Whitley City, KY 42683

**CAIP
SIGN
UP**



Act Quickly!!!

Deadline March 11th!!!!

MONEY FOR FARM
IMPROVEMENTS AVAILABLE...

KADF
KENTUCKY AGRICULTURAL
DEVELOPMENT FUND

Pulaski County
Conservation District
45 Eagle Creek Dr. Ste.102
Somerset, KY 42503
606-678-4842 ext.3

COUNTY AGRICULTURAL
INVESTMENT PROGRAM (CAIP)

Applications will be available for Pulaski County's CAIP to assist farmers in making important on-farm investments.

Application Period:

February 18 – March 11, 2022

No applications will be accepted after March 11, 2022.

Application Availability:

Pulaski County Conservation District
Monday – Friday (8 a.m. – 4:30 p.m.)

For More Information:

Contact Nancy Carver at 606-678-4842 ext.3

All applications are scored, based on the scoring criteria set by the Kentucky Agricultural Development Board.



Tri-County Livestock Education Series

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Winter Hay Feeding - Dr. Steve Higgins
January 25th at 6:00pm EST
Hal Rogers Regional Fire Training Center
Somerset

Cattle Handling Facilities - Dr. Morgan Hayes
February 22nd at 6:00pm EST
Central KY Ag Education Center
Liberty, KY
BQCA Certification Offered

Small Ruminant Handling Facilities - Dr. Beth Johnson
March 22nd at 6:00pm EST
Russell County Fairgrounds
Russell Springs, KY

All demonstration equipment will be provided by Tarter Farm & Ranch Equipment.

T.J. Adkins
Pulaski County
606-679-6361

Jonathan Oakes
Russell County
270-866-4477

Kelsey Woodrum
Casey County
606-787-7384



****COMING SOON****

App to extend University of Kentucky beef resources, connect farmers

Beef specialists from the University of Kentucky College of Agriculture, Food and Environment and the University of Tennessee created a mobile app called X10D to modernize the way farmers and universities share information.

For more information, visit <https://x10d.org/>. The app will be available on Apple and Android platforms. Other partners include the Kentucky Cattlemen's Association, Kentucky Beef Network and the Kentucky Department of Agriculture.

Manage. Connect. Learn.

X10D is an information hub connecting you to your business, reliable information, and other cattle producers.





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

Agriculture and Natural Resources

Pulaski County Extension Office

P.O. Box 720

Somerset, KY 42502

Phone: 606-679-6361

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 PERMIT #5

*Shake
 it UP*

Broccoli and Beef Stir-Fry

*Open
 APPETIT*

1 pound lean beef
 steak, sliced diagonally
 across the grain into
 thin strips

1 tablespoon plus ½
 cup stir-fry sauce

1 clove minced garlic

4 tablespoons canola
 oil, divided

1 medium red onion,
 cut into ½ inch dice

1 sweet red pepper, cut
 into ½ inch dice

1 medium yellow

squash, cut into ¼ inch
 slices

2 cups fresh broccoli
 florets

1 cup cauliflower florets

½ teaspoon crushed
 red pepper flakes

1. Combine 1 tablespoon
 stir-fry sauce and minced
 garlic in a bowl. **Add** the
 beef strips. Let stand 15
 minutes.

2. Heat 1 tablespoon canola
 oil in a large skillet or wok.

3. Add beef and stir fry for
 one minute. **Remove**
 beef from skillet.

4. Heat the remaining 3
 tablespoons canola oil in
 the skillet or wok. **Add**
 vegetables. **Stir-fry** for
 four minutes or until veg-
 etables are crisp-tender.

5. Return beef to skillet.

6. Add the remaining ½
 cup stir-fry sauce and red
 pepper flakes. **Cook** and

stir 1 to 2 minutes longer,
 until heated through.

Yield: 8, 1 cup servings
Nutrition Analysis: 180
 calories; 10 g fat; 1.5 g saturated
 fat; 0 g trans fat; 25 mg
 cholesterol; 630 mg sodium; 9 g
 carbohydrate; 2 g fiber; 3 g sugar;
 15 g protein.

90% recommended allowance for
 vitamin C.



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

