



AGRICULTURE & NATURAL RESOURCES  
**NEWSLETTER**  
**DECEMBER 2024**

**AGENT REMARKS**

2024 is quickly winding down and this time of year brings thoughts of thanksgiving, reflection, and hope for a brighter 2025. After all, that is what we do as agriculturalists give thanks for our harvest, reflect on the outcomes, and look forward to the next season. 2024 has brought us challenges and uncertainty. In my time here in LaRue county I have realized the producers will face a challenge head on with hopes for a better future. Traditionally that is what rural communities do face the future head on. However this boldness can lead to loneliness and be difficult to manage mentally. In recent years rural communities have seen an increase in chemical dependence as well as suicide. It does not have to be this way, the holiday season can be a stressful time where people feel isolated, desperate, or alone. Rural communities have always been there to provide aid when needed. Today more than ever we need to reach out and support one another. Days are shorter, we all have busy schedules, but take the time to stop by your neighbors or send them a card, lets be there for one another this season. From all of us here at the extension office we wish you the very best holiday season. As for my family and I, we hope you have a blessed holiday and 2025 brings you joy and happiness.



**Adam Thomas**  
LaRue County Extension Agent  
for Agriculture & Natural Resources Education

**CALENDAR  
OF EVENTS**

**December 10th** - LaRue County  
Cattleman's Meeting- 7pm

**December 14<sup>th</sup>** - Winter Feeding  
Field Day- UK Research Farm,  
Princeton

**December 25<sup>th</sup>-Jan 1<sup>st</sup>**- Extension  
Office Closed for the Holidays

**January 6<sup>th</sup>-7<sup>th</sup>**- KY Fruit and  
Vegetable Conference- Bowling  
Green

**January 14<sup>th</sup>**- LaRue County  
Cattleman's Meeting- 7pm

**January 15<sup>th</sup>**- Intensive Soybean  
Management Workshop-  
Commodity Conference, Bowling  
Green

**January 16<sup>th</sup>** - KY Commodity  
Conference- Bowling Green

**January 16-17<sup>th</sup>**- KY Cattleman's  
Convention- Lexington

**January 17<sup>th</sup>** – KY Pork Producers  
Annual Meeting- Bowling Green

**January 27<sup>th</sup>** – LaRue County  
Leadership Banquet- LaRue  
County Extension

**January 28<sup>th</sup>**- Intensive Soybean  
Management Workshop- Hardin  
Co. Extension

# FORAGE TIMELY TIPS: DECEMBER

- Begin utilizing stockpiled pastures.
- Graze pastures with orchardgrass and clovers first. Save tall fescue pastures for late winter grazing.
- Using polywire, strip graze stockpiled pastures to improve Utilization. Start at the water source and allocate enough forage to for 2-3 days. Back fencing is not necessary since pastures are not regrowing this time of the year.
- Make plans to frost seed red and white clover onto closely grazed tall fescue pastures in February. Seed supplies of improved varieties may be tight.
- Begin hay feeding as stockpiled forage is used up.
- Supplement hay with commodity feeds as needed.
- Minimizing waste by utilizing ring feeders.

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## BEEF TIMELY TIPS

*Dr. Les Anderson, Beef Extension Professor, University of Kentucky*

- Be sure that weaned heifer calves are on a feeding program that will enable them reach about 65% of their mature weight before the start of the breeding season. Rations should be balanced to achieve gains sufficient to get heifers from their current weight to that “target” weight.
- Body condition is important, plan an adequate winter program for cows to be at least body condition score 5 (carrying enough flesh to cover the ribs) before the calving and breeding season. This will help them to breed early in the spring. Thin cows should be fed to regain body condition prior to winter. Don’t let cows lose weight/condition. Supplementation will most likely be needed. Find low-cost supplemental feeds to meet the nutrient needs of cattle.
- Divide the herd into groups for winter feeding - weaned heifer calves - first-calf heifers, second-calvers and thin mature cows - the remainder of the dry cows which are in good body condition - herd sires
- Begin feeding the lowest quality forage to dry cows which are in good condition during early winter and save the best hay for calving time or for weaned calves.
  - Order and number ear tags for next year’s calf crop this winter. It is also a good time to catch up on freeze branding and replacing lost ear tags. Fall Calving Herd
  - Get breeding supplies together, if using estrous synchronization and/or A.I
  - Have Breeding Soundness Evaluation (BSE) performed on bulls (even if you used them this spring).
  - The fall breeding season starts. Breeding can best be accomplished on stockpiled fescue pasture; otherwise, cows with calves should be fed 25-30 pounds of good quality hay or its equivalent. Supplement with grain, if needed, and minimize hay waste. **DON’T ALLOW THESE COWS TO LOSE BODY CONDITION PRIOR TO OR DURING THE BREEDING SEASON.** It is easy to wait too long to start winter feeding. Don’t do it unless you have stockpiled fescue.
  - Nutrition level of cows during the first 30 days after conception is critical. Pay attention.
  - Observe performance of bulls during breeding season. Watch cows for return to estrus, if you see several in heat, try to determine the cause and consider changing bulls. General
  - Complete soil testing pasture to check for fertility and pH.
  - Consider putting down geotextile fabric and covering with gravel in feeding areas before you begin hay feeding to minimize waste of expensive hay. Or, perhaps, construct concrete feeding pads for winter feeding areas.
  - Monitor body condition and increase feed, if needed, for all classes of cattle.



## UK BEEF MANAGEMENT WEBINAR SERIES

Registration is necessary, however, if you received this email directly from Darrh Bullock then you are already registered. If you received this from another source, or have not registered previously, then please send an email to [dbullock@uky.edu](mailto:dbullock@uky.edu) with Beef Webinar in the subject line and your name and county in the message. You will receive the direct link with a password the morning of each meeting. This invitation will directly link you to the site and you will be asked for the password which can be found just below the link. Each session will be recorded and posted for later viewing. **All meeting times are 8:00pm ET/7:00pm CT.**

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December 10, 2024

**Winter Feeding Strategies to Extend Short Hay Supplies** – Lawton Stewart, Professor, University of Georgia

January 14, 2025

**Important Traits for Bull Selection in Kentucky** – Matt Spangler, Professor, University of Nebraska

February 11, 2025

**Marketing Opportunities for the Spring** – Kenny Burdine, Professor, and Kevin Laurent, Extension Specialist, University of Kentucky

March 11, 2025

**Preparing for a Successful Spring Breeding Season** – Les Anderson, Extension Professor, University of Kentucky

April 8, 2025

**Health Update and Internal Parasite Field Study Results** – Michelle Arnold, Extension Veterinarian, and Jeff Lehmkuhler, Extension Professor, University of Kentucky

## WINTER ANNUALS & WINTER FEEDING FIELD DAY

**WINTER ANNUALS AND WINTER FEEDING FIELD DAY**

**Saturday, December 14, 2024**  
University of Kentucky Research and Education Center  
10:00 a.m. - 12:00 p.m.  
348 University Drive, Princeton, KY 42445

Topics include:

- Winter hay feeding strategies
  - Bale grazing
  - Strip grazing stockpile
  - Hay feeders
- Simplifying winter nutrition
- Stockpiling fescue
- Frost seeding
- Planting and grazing winter annuals
- FREE LUNCH included!

This event is FREE to attend. Please register for a headcount for FREE lunch.

\*Please follow signage once arriving at the Research & Education Center

Tickets can be found at <https://2024winterfeeding.eventbrite.com>

## 2025 KY FRUIT & VEGETABLE CONFERENCE

**2025 KENTUCKY FRUIT & VEGETABLE CONFERENCE**

Jan. 6th-7th, 2025  
Pre-conference events Jan. 5th

Marriott Lexington Griffin Gate  
Lexington, Kentucky



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Reasonable accommodation of disability may be available with prior notice. Program information may be made available in languages other than English.

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Equal Opportunity Office, Martin-Gatton College of Agriculture, Food and Environment, University of Kentucky, Room S-105, Agriculture Science Building, North Lexington, Kentucky 40546, the UK Office of Institutional Equity and Equal Opportunity, 13 Main Building, University of Kentucky, Lexington, KY 40506-0032 or US Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410.

# KY FARM LAUNCH

## Beginning Farmer Training Program



**Applications due February 1**

**KY Farm Launch**  
**Beginning Farmer Training Program**

Launch into your farming journey with accelerated, hands-on farm training, business planning, and customized mentorship

Applications are open now for our 9-month, in-person training program that prepares beginning farmers for sustainable, commercial production.

**Interested?**  
Visit our website for more details & apply:  
<https://bfrdp.ca.uky.edu/>



**Martin-Gatton College of Agriculture, Food and Environment**

**KCARD**  
Kentucky Center for Agriculture and Rural Development

**Kentucky SHEEP & GOAT DEVELOPMENT OFFICE**

## 2025 WINTER WHEAT MEETING



**2025**  
**WINTER WHEAT MEETING**

**February 4, 2025**  
**Bruce Convention Center**  
**Hopkinsville, KY 42240**  
**9am-3pm central**  
**Registration 8:30 ct**

*CCA and Pesticide Credits pending.*

- What are We Learning From YEN in KY? - Phil Needham
- Herbicide Residual Application Timing for Ryegrass Control - Dr. Travis Legleiter
- On-farm Grain Fumigation Options - Josh Wilhelm
- Dealing with DON: Management of Fusarium Head Blight and DON in Wheat - Dr. Carl Bradley
- How Nitrogen and Sulfur Fertility Influences Wheat Grain Yield and Protein Content - Dr. Edwin Ritchey
- Current Wheat Crop Update - Dr. Chad Lee
- Wheat Varieties Tolerance to Metribuzin and Opportunities to Improve Italian Ryegrass Management - Dr. Samuel Revolinski
- Overview of Kentucky Wheat Yield Contest 2015-2024 - Dr. Mohammad Shamim



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

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Lexington, KY 40506



Disability accommodations with prior notification.

# 2025 KCA CONVENTION



**JANUARY 15-17 • OWENSBORO**

**Early Bird Registration** (October 21 - December 13) \$60  
**Registration** (After December 13) = \$85

Event	Cost		Number Attending	Totals
<b>Full Registration</b> (Includes Trade Show and Business Meetings)	\$60	X		=
<b>Trade Show Only</b>	\$25	X		=
<b>Junior Registration</b> (21 years or younger)	\$25	X		=

**FRIDAY, JANUARY 17**

Evening Banquet	\$70	X		=
choose one			Steak	Chicken
Banquet Preferred Seating (Table of 10)	\$720	X	<input type="checkbox"/>	<input type="checkbox"/>
Ladies Program	\$50	X		=
<b>Total Amount Due</b>				

Names as they should appear on badges.  
**Please only one family or individual per registration form.**

NAME	NAME
NAME	NAME
ADDRESS	CITY, STATE ZIP CODE
COUNTY (Required)	PHONE
EMAIL	
CREDIT CARD TYPE	CREDIT CARD NO.
EXPIRATION DATE	SIGNATURE

**REGISTER BEFORE DECEMBER 13** and be entered to win one of two **\$50 CABELA'S GIFT CARDS**

**Mail to:** KCA Convention Registration  
 176 Pasadena Drive Lexington, Kentucky 40503  
**Or Fax:** (859) 260-2060

**WEDNESDAY, JANUARY 15**

10:00-5:00	Trade Show Move-In
3:00	KCA Foundation Meeting
4:00	KCA Executive Committee Meeting
6:00	KCA Leadership Dinner (Invitation Only)

**THURSDAY, JANUARY 16**

7:00-6:00	Registration Hours
7:00-10:00	Trade Show Move-In
9:00-11:30	Beef Efficiency Conference
10:00	Trade Show Opens
11:30	Welcome Lunch
1:30-3:30	Opening General Business Session
6:00	Trade Show Closes

**FRIDAY, JANUARY 17**

6:30-5:00	Registration Hours
7:00-9:00	County President Breakfast (Invitation Only)
8:00	Trade Show Opens
10:00-11:00	Regional Meetings
11:00	KCA Concessions Lunch in the Trade Show
12:30-2:00	Closing Business Session
2:00	Trade Show Closes
2:00	KJCA Officer Meeting (Current KJCA Board Members Only)
2:15	KJCA Annual Membership Meeting & KJCA Board of Director Elections
2:30-4:30	Forages at KCA
2:30-3:30	Ladies Program
3:00	KJCA Reception
5:00-6:00	KCA Leadership Alumni & Past President's Reception (Invitation Only)
6:00	Evening Banquet

**HOLIDAY INN**  
[bit.ly/4cFwv10](http://bit.ly/4cFwv10)  
**270-683-1111**  
 Group Code: **KCA**  
 available until:  
 12/24/24

**HAMPTON INN**  
**270-685-2005**  
 Group Code: **KCA**  
 available until:  
 12/15/24

**COURTYARD BY MARRIOTT**  
**270-685-4140**  
 Group Code: **KCA**  
 available until:  
 12/29/24



# TESTING AVAILABLE

## Free Soybean Cyst Nematode Testing

If you are interested in taking and receiving information on Soybean Cyst Nematode in your fields, contact the LaRue County Extension Service, 270-358-3401.

**Soil Fertility and Hay/Forage Testing Services are still available.**

## TAR SPOT

Tar spot, first confirmed on corn in Kentucky in 2021, has not yet impacted corn yields in the Commonwealth. However, this is a disease that warrants monitoring. It is important for growers to alert their county Extension agent if tar spot is observed in their fields in 2025. This will aid in documenting disease distribution in the state.

This publication, first issued in January of this year, has been recently revised to reflect the 2024 growing season and what has been learned.

# Tar spot

Facts about the disease in Kentucky

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

Kiersten Wise  
Extension Plant Pathologist  
PPFS-AG-C-13-IG

- Tar spot, caused by the fungus *Phyllachora maydis*, is an important corn disease in the northern corn belt
- It was first confirmed in Kentucky in 2021. Blue counties on the map indicate confirmed tar spot as of 2024
- The disease has not yet impacted yield in Kentucky, but detection is critical

Tar spot develops rapidly when temperatures average 64-73° F over 30 days or more. Temperatures above 73° F slow tar spot development. Tar spot is slow to develop when relative humidity is high (over 90%)

Symptoms and signs of tar spot may not appear for several weeks after infection

Fungicide applications to manage tar spot should occur between tasseling silking (VT-R1) through milk stage (R3). Late applications (R5 or dent) are not needed for tar spot management in Kentucky

Tar spot signs include raised, black fungal structures on the leaf tissue

**Fungicides applied at tasseling/silking (VT/R1) in Kentucky for other foliar diseases like southern rust, will also manage tar spot if needed**

**If you think you have tar spot:**

- Call your County Agent! They know the steps to get an accurate diagnosis
- Reporting the disease helps us monitor impact

For more information see: Webster et al., 2023. Tar Spot Prediction in Corn: The Weather Matters. Crop Protection Network. doi.org/10.31274/cob-20231220-1

Research on tar spot in Kentucky supported by:  
USDA-ARS Agreement ID 58-0206-0-188

November 2024  
Reviewers:  
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Cheryl Kaiser, Extension Plant Pathology Support

Photos: Kiersten Wise, University of Kentucky

NPMTI | kycorn GROWERS ASSOCIATION

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# KY COMMODITY CONFERENCE

Thursday, January 16, 2025

HOLIDAY INN UNIVERSITY PLAZA & SLOAN CONVENTION CENTER  
1021 Wilkinson Trace • Bowling Green, KY 42103 Phone: 270.745.0088

**AGENDA** *All times are CST*

7:00 a.m. **Early Riser Session**

**Dr. Guilherme Anghinoni (Brazilian Agriculture)**

Sponsored by AgriGold and Franklin Grain



8:00 a.m. **Registration & Trade Show Opens**

Welcome with coffee and donuts sponsored by FMC

9:30 a.m. **Marketing Session**

**Bill Biedermann (co-founder of AgMarket.Net)**

Sponsored by Syngenta



11 a.m. **Lunch & Keynote**

**Andrew Pritchard (Nutrien Operational Meteorologist)**

**Remarks from Kentucky Ag Commissioner Jonathan Shell**

Sponsored by Bayer Crop Science and Farm Credit Mid-America



1:00 p.m. **Ky. Soybean Association Annual Meeting**

2:00 p.m. **Ky. Corn Growers Association Annual Meeting, and Council Report**

3:00 p.m. **Ky. Small Grain Growers Association Annual Meeting, and Council Report**

Snacks sponsored by Stine

Coffee Break sponsored by Kentucky Pork Producers

3:45 p.m. **Deep Dive into Sustainable Aviation Fuel**

**Paul Bertels (Farmgate Insights Senior Consultant)**

6:00 p.m. **Grower Appreciation Reception**

Sponsored by Corteva and Ohio Valley Insurance

6:30 p.m. **Awards Celebration** - Sponsored by Pioneer and H&R AgriPower

Attendance at the Kentucky Commodity Conference is free of charge to farmers, thanks to the generosity of our sponsors. Registration is required so that organizers can plan for adequate seating and meals.



# INTENSIVE SOYBEAN MANAGEMENT WORKSHOP

**Wednesday, January 15**  
**Sloan Convention Center**  
**Bowling Green**  
**Registration: 11:30 a.m.**  
**Lunch: noon**  
**Concludes: 4:30**



**Tuesday, January 28**  
**Ky. Soybean Office Princeton**  
**1000 U.S. Hwy 62 W**  
**Wednesday, January 29**  
**Extension Office Etown**  
**111 Opportunity Way**  
**Registration: 8:30 a.m.**  
**Workshop at 9 a.m.**  
**Concludes with lunch**



This session features Jeff Kazin, co-founder of Agris Academy, and will focus on managing risk. Agris Academy provides world class education opportunities to farmers that give them the skill to merchandise, manage risk, and increase the profitability of their production with confidence.

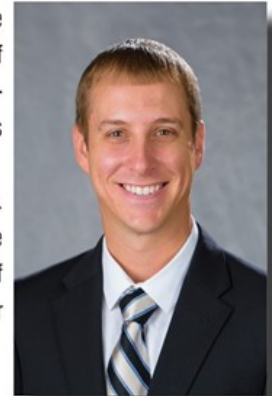
AgrisAcademy LLC is not a broker or an advisor but a company dedicated to educating and consulting in world class risk management skills. Their goal is to produce long-term and REPEATABLE results for your operation. At AgrisAcademy, they understand the significant divergence between what farmers are told they need to be effective marketers of their production and what they really need. Having been farmers and 50+ year veterans of a major grain and processing company, Agris' co-founders have seen growers miss millions of dollars in opportunities, not from speculating on markets, but from not using the correct tools for the situation.

They have learned the tricks of the trade, and they know that their ability to simplify and provide relevant examples, combined with your desire to improve, will allow you and critical members of your team to learn and grow. Agris believes that farmers spend too much time focused on events and data that they cannot control. Reallocation of precious time to learning a lifetime skill will help you secure the competitiveness of your operation today, and for many generations to come.



These sessions feature University of Kentucky Ag Economist Dr. Jordan Shockley, who will share how farmers can take advantage of some of the programs offering premiums (along with potential pitfalls to watch out for in that space.)

Dr. Shockley will be joined by Dr. Laura Lindsey from The Ohio State University. Dr. Lindsey's portion of the program will center around her extensive work with biologicals.



Lindsey headed up a Science for Success multi-state study in 2022 and 2023, in which the Science for Success team focused on biologicals that claim to support plant health and growth. These biologicals, often classified as inoculants or biostimulants, target improved nitrogen fixation, increased nutrient uptake or use efficiency, stimulated root growth and similar functions. Dr. Lindsey will share the results and implications of this large-scale study.

Scan here to register for the Bowling Green Workshop



PRESENTED BY



Scan here to register for Princeton and Elizabethtown Workshops



# KEY CHANGES IN THE 2024 IRS PUBLICATION 225

*Kara Schlinke, Kentucky Farm Business Analysis Specialist*

Farmers face unique tax challenges due to the specific nature of their work, including income fluctuations, capital expenses, and the need for specialized deductions. The IRS regularly updates its guidelines to help farmers navigate these complexities. For 2024, several important changes to **IRS Publication 225, "Farmer's Tax Guide"** may have significant implications for farm tax filings. These changes cover a range of topics, from depreciation rules to revised credit opportunities, and each may impact farmers' ability to manage their tax liabilities effectively.

## 1. Increased Section 179 Deduction Limits

The Section 179 deduction, which allows farmers to deduct the cost of qualifying property (such as machinery and equipment) in the year it is placed in service, has seen an increase in limits for 2024.

**What changed?** The maximum Section 179 deduction has risen to **\$1,170,000** in 2024, up from **\$1,160,000** in 2023. The deduction limit begins to phase out after **\$2.89 million** of qualifying property is purchased, which has also increased slightly from the previous year.

Farmers who invest in new equipment or capital improvements can immediately deduct a larger portion of the expense, improving cash flow and potentially reducing taxable income for the year. This benefit is especially helpful for farmers who make substantial investments in machinery or structures to maintain or grow their operations.

## 2. Changes to Bonus Depreciation

Farmers can take advantage of bonus depreciation to recover the cost of certain property faster than regular depreciation schedules would allow. However, the bonus depreciation rate is set to phase down starting in 2023.

**What changed?** The bonus depreciation rate for **2024** is set at **80%**, down from the previous 100% in 2022 and 2023. This gradual reduction continues over the next few years, with the rate expected to drop to **60% in 2025** and eventually phase out by 2027.

While farmers can still benefit from accelerated depreciation, the reduced rate means that they will be able to deduct less of their property's cost in the first year. This could result in higher tax liabilities in future years if large purchases are made.

## 3. Revised Eligibility for Qualified Business Income Deduction (QBI)

The **Qualified Business Income (QBI) deduction** allows farmers who operate as pass-through entities (such as sole proprietors, partnerships, or S corporations) to deduct up to 20% of their qualified business income.

**What changed?** There are updates regarding the ability to claim the QBI deduction, particularly for farmers who have income from both agricultural and non-agricultural

activities. The IRS has clarified that farmers engaged in farming activities may still claim the full deduction if their taxable income falls below certain thresholds.

This revision is important for farmers who also have income from other sources, as it can help them maintain

## 4. Updates to Farm Income Averaging Rules

Farm income averaging allows farmers to spread out their income from a particularly good year over a period of three years, potentially lowering their overall tax liability.

**What changed?** For 2024, the income averaging rules have been refined to ensure more farmers can benefit from this strategy, particularly those who have fluctuating income due to weather patterns or market conditions.

## KEY CHANGES IN THE 2024 IRS PUBLICATION 225 *continued*

Income averaging can be especially beneficial for farmers who experience significant year-to-year income swings. By averaging high earnings over several years, farmers can reduce their taxable income in years with higher-than-usual profits, lowering their effective tax rate.

### 5. Revisions to Farm Vehicle Deduction Rules

Farmers often use vehicles for both personal and business purposes, and the IRS provides specific rules for deducting expenses related to farm vehicles.

**What changed?** The IRS has clarified which types of vehicles qualify for deductions and has updated the calculation methods for business use versus personal use of farm vehicles.

Farmers should review their records carefully to ensure they are claiming only the business portion of vehicle expenses. The IRS has also updated the per-mile rate and the limits for depreciation on certain farm vehicles, meaning that farmers who own or lease vehicles may need to adjust their deductions accordingly.

### 6. Expanded Opportunities for Conservation Incentives and Credits

The IRS continues to encourage environmentally friendly practices through conservation incentives and credits.

**What changed?** New rules make it easier for farmers to claim deductions for conservation efforts, such as implementing soil and water conservation methods, or using renewable energy sources in their farming operations.

Farmers investing in sustainable practices can access additional tax savings, which can offset the costs of these investments. This is particularly relevant for farmers seeking to adopt new technologies or practices aimed at reducing their carbon footprint or improving soil health.

### 7. Clarification of Farm Income Reporting

In recent years, the IRS has been tightening its rules around how farmers report income, particularly in relation to cash accounting versus accrual accounting.

**What changed?** The IRS has provided clearer guidelines on when farmers should report income and expenses under cash basis accounting versus accrual basis accounting.

Farmers who use cash basis accounting (which is often more beneficial for tax purposes) will need to ensure they're accurately reporting income in the year it is received and expenses in the year they are paid. The IRS has also updated rules on reporting crop insurance proceeds and disaster relief payments, which should be closely tracked to avoid errors in reporting.

### 8. Changes to Self-Employment Tax (SE Tax) Exemptions

Farmers are subject to self-employment taxes on their net earnings from farming, but there are certain exemptions available.

**What changed?** There have been updates to the self-employment tax exemption for certain farm workers and farm owners, particularly in cases where farm income is low or where specific income thresholds are not met.

Farmers who qualify for these exemptions could see a reduction in their self-employment tax liability. It's important to review income levels and farm ownership structure to ensure any available exemptions are applied.

By understanding these changes, farmers can better position themselves to take full advantage of available tax-saving opportunities. You should consult with a tax professional to ensure they're applying these new guidelines correctly and maximizing their benefits under the latest tax rules.



# THE SOIL CALCIUM TO MAGNESIUM RATIO: *Not a Factor in Choosing Your Ag Lime Source*

*Dr. John Grove, UK Agronomy/Soils Research & Extension*

Fall is a good time to take soil samples. Fields that need soil pH adjustment (usually need some ag lime to raise pH) are identified. Soils are usually dry and easier to get over with spreaders that are heavy with lime. And every fall I get questions about whether the grower should use calcitic or dolomitic ag lime. The short answer is: Doesn't matter – not much of a lime quality factor.

Ag lime quality depends on the calcium carbonate equivalence (CCE) and the fineness of the particles that make up the lime. The CCE value rises somewhat as the amount of magnesium carbonate in the material rises (only takes 84 pounds of  $MgCO_3$  to neutralize the same amount of acidity as 100 pounds of  $CaCO_3$  will neutralize). The CCE is much more strongly related to the quantity of impurities (non-carbonate rock) in the lime, falling rapidly as impurity level rises. Ag lime particle fineness is also strongly related to lime quality – the finer the particles, the higher the quality. When these two quality factors are taken together, the ag lime's relative neutralizing value (RNV) is determined and is used to effectively compare among different ag lime materials from different sources when choosing which ag lime to purchase.

So, why the question about the calcium to magnesium ratio? Most of the time, the grower's soil test report is the culprit. Most soil test reports give results for plant available calcium and magnesium in at least two of three ways: mass basis (pounds Ca or Mg/acre, ppm Ca or Mg); charge basis (meq Ca or Mg/100 g soil); and/or charge proportion basis (% Ca or Mg charge on the soil cation exchange capacity-CEC). Many labs then calculate the calcium to magnesium ratio (charge ratio of Ca to Mg on soil CEC). When the ratio is 'high' the soil test lab might recommend dolomitic lime be used – when the ratio is 'low' the lab recommends calcitic lime. The recommendation causes a problem when the grower learns that the recommended type of lime is not locally available – transportation costs become a significant issue.

The problem is that the soil Ca/Mg ratio has no value as a predictor of crop response. This has been shown in many studies, but one of the best (McLean et al. 1983) looked at six years of corn, soybean, wheat and alfalfa yield response to 18 different (2.3 to 26.8) Ca/Mg ratios. The authors tabulated the soil Ca/Mg ratios for the 5 highest, and 5 lowest, yields among the 18 different treatments, for each crop (Table 1). Given the large degree of overlap, there was no relationship between soil Ca/Mg ratio and the yield of any of these crops. In fact, for soybean, the range in soil Ca/Mg ratios for the 5 highest yielding treatments was entirely contained in the range in soil Ca/Mg ratios for the 5 lowest yielding treatments.

So, if your soil test report calls for a lime application, feel free to apply a local source of good quality ag lime, whether calcitic or dolomitic. The soil Ca/Mg ratio should have no impact on your lime source choice.

Reference:

McLean, E.O., R.C. Hartwig, D.J. Eckert, and G.B. Triplett. 1983. Basic cation saturation ratios as a basis for fertilizing and liming agronomic crops. II. Field studies. *Agronomy Journal* 75:635-639.

LaRue County

PO Box 210, 807 Old Elizabethtown Road

Hodgenville, KY 42748-0210

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## **BOBBY MCDOWELL AWARD OF EXCELLENCE**

If you would like to nominate an individual or group for the annual Bobby McDowell Award of Excellence for leadership or community service, nominations are due by **January 10.**

**2025.** Nomination forms are available at the Extension Office or on our website,

[https://larue.ca.uky.edu/sites/larue.ca.uky.edu/files/B%20M%20Award%20of%20Excell%20Nominee%20Form%20for%20Jan%202025\\_0.pdf](https://larue.ca.uky.edu/sites/larue.ca.uky.edu/files/B%20M%20Award%20of%20Excell%20Nominee%20Form%20for%20Jan%202025_0.pdf).

