Cooperative Extension Service

Hickman County Extension Office
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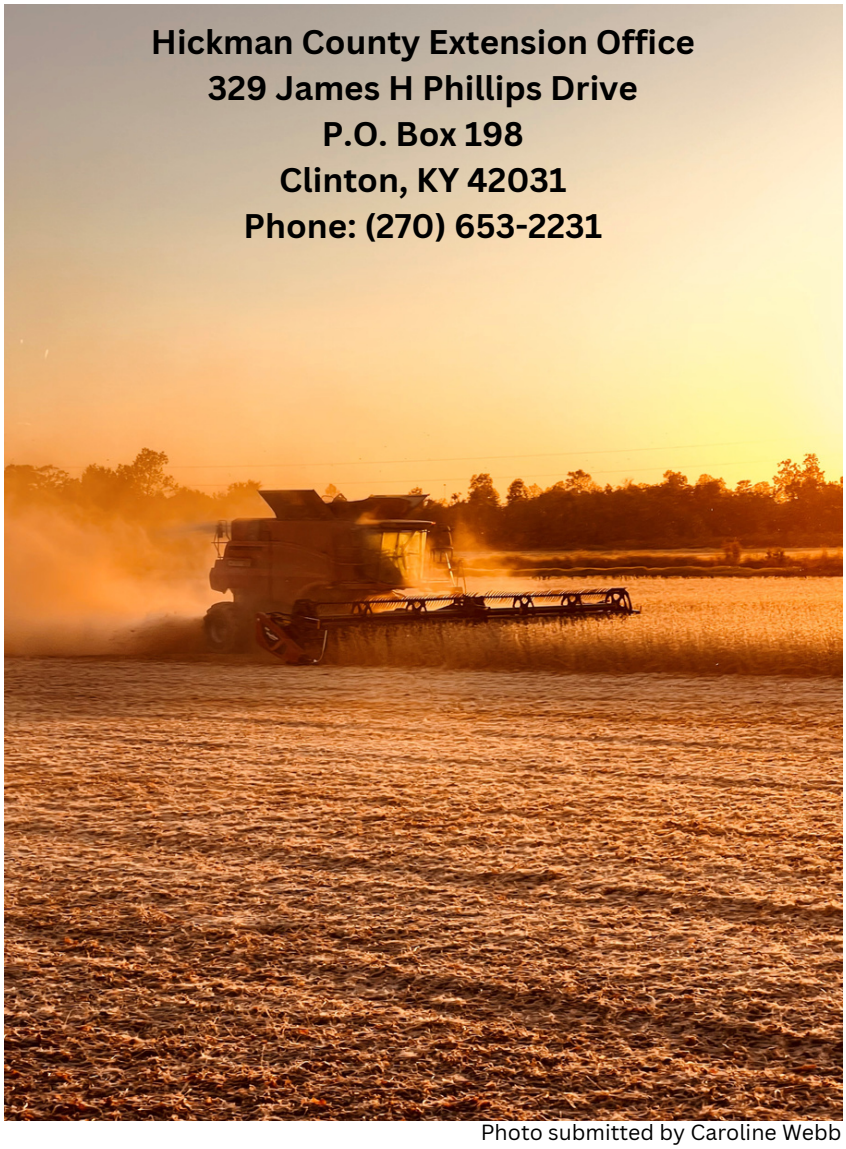

Photo submitted by Caroline Webb

Hickman County Agriculture and Natural Resources Newsletter

October/November 2023

Cooperative Extension Service

Winter Grain Meeting

WEDNESDAY
DECEMBER 13, 2023
8:00 AM

AMBERG FARMS
6299 State Route 1128
Hickman, KY 42050

Session Title	Speakers
Welcome	Local County Agent
Evolution of the Carbon Market	Dr. Jordan Shockley
Grain Market Update	Dr. Grant Gardner
Nitrogen Timing on Corn	Dr. John Grove
Red Crown Rot in Soybeans	Dr. Carl Bradley
Ultra Early Soybean Planting Dates	UKREC

Lunch is sponsored by Nutrien Ag Solutions

KY & TN Commercial Applicator Points pending

RSVP by calling your local county extension office by Friday, December 8th to ensure your free meal

Fulton - 270- 236-2351

Carlisle - 270-628-5458

Hickman - 270-653-2231

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

Lexington, KY 40506

ASC-258

Minerals Matter for Beef Cattle

Cooperative Extension Service

Katie VanValin, Jeff Lehmkuhler, and Kevin Laurent, Animal and Food Sciences, and Michelle Arnold, UK Veterinary Diagnostic Laboratory

Minerals are an essential nutrient for beef cattle. If minerals are not consumed in the diet, deficiencies can occur. At the same time, overconsumption of certain minerals can result in toxicity. Providing the proper balance of each mineral without overconsumption is necessary for optimal performance, as minerals are essential for supporting growth, reproduction, lactation, and health.

The eighth revised edition of Nutrient Requirements for Beef Cattle, published in 2016 by the National Academies of Sciences, Engineering, and Medicine, identified 17 minerals as essential for beef cattle. Minerals are further classified into two categories based on how much is needed by the animal. Macrominerals are needed in a higher quantity (parts per hundred or percent) compared to microminerals or trace minerals (parts per million [ppm] or milligrams per kilogram [mg/kg]; Table 1).

Mineral Function

Minerals have a variety of functions in the body, but in general, they help support all tissues and major metabolic processes required to maintain beef cattle performance. Minerals play essential roles in the immune system, connective tissue and muscle, digestion, metabolism of feed, and both male and female reproduction. Further details regarding the functions of specific minerals are shown in Table 2.

As with other nutrients, such as protein and energy, performance can decrease when mineral intake is low. However, certain processes are affected more quickly than others. For example, immunity is affected before growth or fertility. As mineral intake decreases, initial losses in performance are difficult to measure and can often go unnoticed. In cases of severe mineral deficiency, symptoms develop quickly, and decreases in immunity, fertility, and growth may be noticed throughout the herd in a relatively short period of time. Grass tetany, a disorder caused by hypomagnesemia (abnormally low magnesium concentration in the blood), is an example of how quickly a deficiency can lead to a noticeable impact.

Cattle Mineral Requirements

The latest beef cattle mineral requirements are published by NASEM in the 2016 edition of Nutrient Requirements for Beef Cattle. Mineral requirements are based on peer-reviewed scientific literature and updated periodically. They are defined as the minimum concentrations of each mineral that must be consumed to prevent deficiencies. Current mineral requirements for selected classes of cattle are shown in Table 3.

Most mineral requirements are similar across classes of cattle. For example, a growing steer, mature bull, and lactating cow all have a zinc requirement of 30 ppm. Exceptions to this include calcium, phosphorus, and manganese, which have varying requirements across classes of cattle. Stressed cattle have increased mineral requirements compared to other classes, partly due to

Table 1. Essential minerals for beef cattle.

Macrominerals	
Calcium (Ca)	Phosphorous (P)
Chlorine (Cl)	Sodium (Na)
Magnesium (Mg)	Sulfur (S)
Potassium (K)	
Microminerals	
Chromium (Cr)	Manganese (Mn)
Cobalt (Co)	Molybdenum (Mo)
Copper (Cu)	Nickel (Ni)
Iodine (I)	Selenium (Se)
Iron (Fe)	Zinc (Zn)

Table 2. Functions of selected macro- and microminerals.

Mineral	Functions
Calcium	Skeletal and tooth formation, muscle function, and hormone secretion
Phosphorous	Skeletal and tooth formation, nutrient metabolism, component of DNA, and muscle growth
Magnesium	Required for growth, nutrient metabolism, and nerve and muscle function
Potassium	Nerve and muscle function, nutrient digestion and metabolism, embryonic development, and hormone secretion
Sulfur	Energy metabolism, component of certain amino acids, and rumen microbial protein synthesis
Copper	Formation of connective tissue, normal function of red blood cells, and nutrient metabolism
Zinc	Immune function, growth, reproduction, and hoof health
Manganese	Reproductive performance, growth, and immune function
Selenium	Immune function, reproduction, and growth

Spotted Lanternfly found in Kentucky!

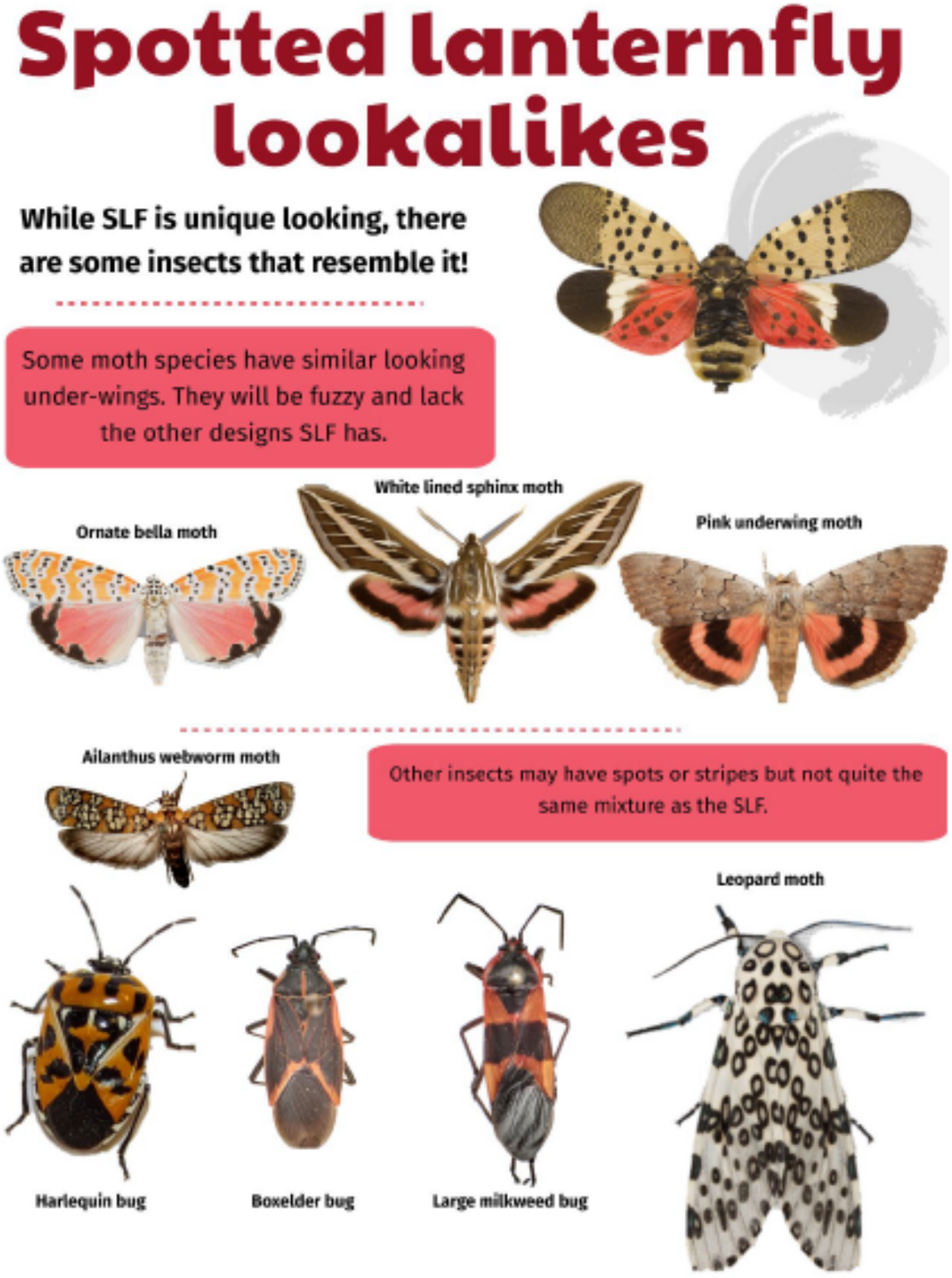

Figure 9: There are numerous insects that can be misidentified as SLF upon first glance. Some of these are moths that share similar coloration, others are true bugs with similar markings.

Revenue Insurance Payment Scenarios for Corn and Soybeans

October 31st marks the end of the harvest price discovery period for revenue protection crop insurance policies. The harvest price is used to calculate crop insurance indemnity payments and is the average December corn and November soybeans futures settlement prices during October. The projected price is released earlier in the year and uses the same methods during February. The 2023 harvest prices for corn and soybeans are $4.88 and $12.84, respectively. The corn harvest price fell 17% below the February projected price ($5.91), whereas the soybean harvest price fell 7% below the projected price ($13.76). Using the projected and harvest price, we can look at the impacts of 2023 farm yield loss on indemnity payments. We find that due to the larger price change between the projected and harvest price, indemnities are more likely to trigger for corn than soybeans.

Revenue Insurance

Two of the largest crop insurance policies are revenue protection (RP) and revenue protection with a harvest price exclusion (RP-HPE). RP, the more expensive product, allows the producer to "roll the dice" twice on price, meaning that if the harvest price is higher than the projected price, the indemnity payments adjust by using the higher harvest price in the revenue guarantee. RP-HPE only allows the producer to "roll the dice" once and calculates indemnities using the formula,

$$\textit{Indemnity} = \textit{Revenue Guarantee} - (\textit{Harvest Price} \times \textit{Yield}) \text{ .}$$

The revenue guarantee is calculated using the formula:

$$\textit{Revenue Guarantee} = \textit{Coverage Level} \times \textit{Projected Price} \times \textit{APH} \text{ ,}$$

where APH is the "Actual Production History" for the operation. For example, corn insured with an 85% coverage level and APH of 180 bu/acre would result in a revenue guarantee of 0.85 x $5.91 x 180 = $904/acre. If the farm yield is 160 bu/acre, the indemnity would be $904 - (4.88 x 160) or $123.20/acre (Figure 1). No indemnity is received if the farm yield multiplied by the harvest price exceeds the revenue guarantee. Since the harvest price is lower than the projected price in 2023, both RP and RP-HPE will trigger the same indemnity payments.

Indemnities: Corn

With corn prices falling 17%, a 2023 RP policy with an 85% coverage level will trigger indemnity payments with farm yields slightly higher than APH. Assuming an APH of 180 bu/acre, indemnities will trigger at 185.3 bu/acre. Figure 1 indicates corn indemnity payments/acre increase as coverage level increases and farm yields decrease. Due to the large drop in harvest price, indemnity payments of $12.66/acre are triggered with a coverage level of 70% and a farm yield of 150 bu/acre. As of October 12th, USDA-NASS (2023) had Kentucky average corn yields at 183 bu/acre.

Indemnities: Soybeans

Since the soybean price only fell 7%, only farm yields lower than APH will trigger indemnity payments, regardless of coverage level. Figure 2 displays soybean indemnity payments as coverage level and farm yield change. For example, at an 85% coverage level, APH of 55 bu/acre, and a farm yield of 45 bu/acre, indemnity payments would be $65.48. As of October 13th, USDA-NASS (2023) had average Kentucky soybean yields at 54 bu/acre.

UPCOMING EVENTS

2023 Fall Crop Protection Webinar #4
Dr. Villanueva
November 30, 2023

2024 Winter Wheat Meeting
February 1, 2024

Kentucky Crop Health Conference
February 8, 2024

Italian Ryegrass Control Field Tour
March 28, 2024

Wheat Field Day
May 14, 2024

Pest Management Field Day - IPM Grain Crops
June 23, 2024

Corn, Soybean & Tobacco Field Day
July 23, 2024

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

LEXINGTON, KY 40546

PLAN. EAT. MOVE.

College of Agriculture, Food and Environment

Slow Cooker Venison Enchiladas

Servings:6Serving Size:1 enchilada slice

Ingredients:

1 ground venison (may substitute elk or beef)
½ cup chopped green pepper
1 cup chopped onion
1 can (16 ounces) low sodium pinot or kidney beans, drained and rinsed
1 can (15 ounces) low sodium black beans, drained and rinsed
1 can (10 ounces) no-sodium diced tomatoes with green chilies, undrained
1/3 cup water
½ teaspoon cumin
¾ teaspoon chili powder
¼ teaspoon pepper
6 corn tortillas
1 cup colby jack cheese, shredded

Directions:

In a large skillet, cook meat, green pepper, and onion until meat is browned. Add the beans, tomatoes, water, cumin, chili powder, and pepper, and bring to a boil. Reduce heat, cover, and simmer for 15 minutes. In a slow cooker, layer 1/3 of meat mixture, 2 tortillas and 1/3 cup of cheese. Repeat the layers 3 times. Cover and cook on low for 5 to 7 hours.

Source: Adapted from: “Fish & Game Cookbook” Bonnie Scott. 2013.
Nutrition Facts per Serving: 370 calories, 8g total fat, 4g saturated fat, 80mg cholesterol, 350mg sodium, 39g total carbohydrate, 10g dietary fiber, 3g total sugars, 31 g protein, 15% DV calcium, 35% DV iron, 15% DV potassium

For more information follow us at
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Cooperative Extension Service
Agent for Agriculture and Natural Resources

College of Agriculture,
Food and Environment
Cooperative Extension Service

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University of Kentucky
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