

# Agriculture

## CENTRAL KANSAS EXTENSION DISTRICT NEWS

[www.centrankansas.ksu.edu](http://www.centrankansas.ksu.edu)

**January 2017**

### Upcoming Events

#### February

- 1-3** NCBA Cattlemen's Convention, Nashville, TN
- 1** 2017 K-State Sorghum School, Wichita
- 2** 2017 K-State Sorghum School, Concordia
- 7** Agronomy Coffee Shop Meetings  
10 a.m. at Mentor  
1:30 p.m. Minneapolis
- 14** K-State Winter Ranch Management Townhall, Salina
- 18** Kansas Cattle Drive, Buhler
- 21** Agronomy Coffee Shop Meetings  
10 a.m. at Mentor  
1:30 p.m. Minneapolis
- 24** CKD Mineral Supplements and Strategies, Gypsum

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**Thomas M. Maxwell**  
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Crop Production

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**K-STATE**  
Research and Extension

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## Winter Cattle Pestilence

Happy 2017! Let's begin with a pestilence. No this is not the first of seven plagues upon cattle producers. Instead, it is a long time cold weather tradition: cattle lice.

Often livestock producers associate parasite problems with warm weather and green growing grass. Lice prefer chilly winter conditions. It makes sense as they live on an animal's hair coat and feed upon its hide or its blood just under the skin. Cattle lice fall into two broad categories: biting and sucking lice. Biting lice consume hair, scabs, and skin excretions. Sucking lice penetrate an animal's hide with their mouthparts and feed upon blood. Both species can be found anywhere on a bovine body, but each tend to congregate around the head, neck, shoulders, topline, and tail. Newly hatched lice are called nits. From hatching it takes nits roughly two weeks to mature and begin laying eggs. Eggs hatch approximately 14 days after being laid on hair follicles.

Indicators of lice infection are excessive rubbing behavior, unthrifty appearance, and leaving hair on fences from scratching. These are clues, not definitive symptoms. If you suspect an animal or herd has lice move it to a chute and inspect closely. A good flashlight goes a long way in helping you become a cattle lice detective. Part the hair down to the hide in prime lice locations. A helping hand couldn't hurt to hold the flashlight, too. Lice populations of 1-5 per square inch signify low population density. 6-10 per square inch means a moderate infestation. More than 11 per square inch is a pestilence. Research shows more than 11 lice per square inch can lead to reduced average daily gains of 0.21 pounds per head per day. Lice are true parasites. Cattle nutrients are directed towards parasites before being used for

body condition or milk production. Think about the lice's share next time you feed your herd.

The good news is lice are relatively easy to control if we get proper dosage and administration. Control mechanisms are non-systemic or systemic. Non-systemic methods are external powders, dusts, or pour-ons that remain on the hair and hide and do not get absorbed within the bovine body. Effective non-systemic lice control relies on good coverage of the entire herd. If one animal fails to be treated they may serve as a vector reservoir for future herd outbreaks. Systemic products are external pour-ons and injectible products which are active within the animal's anatomy and bloodstream. Systemic products may have a residual effect of several days or more. Visit with your veterinarian to decide on a lice treatment protocol that fits your system.

It is a new year and let's take this opportunity to ensure 2017 isn't lousy. Be a keen observer of your operation and animals. Keep your eyes peeled for the scratching, rubbing, and hair loss that are key indicators of lice infestation. Don't let lice drain valuable pounds and production from your stocker cattle or cowherd. Check for lice and treat accordingly. Prevent or control lice to ensure the winter cattle pestilence does not pass your barn door posts.

*Anthony N. Ruiz, Livestock Extension Agent*

## New Publications

2017 Chemical Weed Control

Kansas Corn Management 2017

2016 Kansas Performance Test with Corn, Soybeans and Grain Sorghum

# Soybean Fertilizer Requirements in Kansas

Compared to corn, wheat, and sorghum, soybeans remove significant amounts of nutrients per bushel of grain harvested. Nutrient uptake in soybeans early in the season is relatively small. However as they grow and develop, the daily rate of nutrient uptake increases. Soybeans need an adequate nutrient supply at each developmental stage for optimum growth.

High-yielding soybeans remove substantial nutrients from the soil. This should be taken into account in an overall nutrient management plan. A 40-bushel-per-acre soybean crop removes approximately 30 pounds of P<sub>2</sub>O<sub>5</sub> and 50 pounds of K<sub>2</sub>O with the grain; in addition, approximately 10 pounds of P<sub>2</sub>O<sub>5</sub> and 40 pounds of K<sub>2</sub>O can be removed with the stover.

## Nitrogen

Nitrogen is supplied to soybeans mainly by nitrogen fixation, and fertilizer nitrogen application is not recommended if the plants are well nodulated. Soybeans are heavy users of nitrogen, removing a total of 130 pounds per acre, and about 44 pounds with the stover for a 40-bushel-per-acre soybean crop. Soybeans use all the nitrogen they can fix plus nitrogen from the pool of available nitrogen in the soil. Nitrogen fertilizer application to soybean seldom results in any yield benefit, and efforts should focus on proper inoculation.

## Phosphorus

Phosphorus applications should be based on a soil test. Responses to direct phosphorus fertilization is generally consistent in soils testing very low or low in soil test phosphorus. Response to starter phosphorus fertilizer application in soybeans can occur, but it depends on several factors. The most important factor is the soil test level. Generally, warmer soils at soybean planting, compared to corn, also may contribute to typically lower response to starter fertilizers in soybeans. However, starter fertilizer in soybeans can be a good way to complement nutrients that may have been removed by high-yielding crops in the rotation like corn. Banding fertilizer at planting is an efficient application method for soybeans. Soybean seeds are easily injured by fertilizer, therefore, no direct seed contact with fertilizer is advised.

## Potassium

Soybean seeds are relatively high in potassium and removal of potassium by soybeans is greater than for other crops on a per-bushel basis when only the grain is removed. As with phosphorus, a soil test is the best index of potassium needs. Soils testing very low or low should be fertilized with potassium, either as a banded starter at planting or broadcast and incorporated. Potassium should not be placed

in contact with the soybean seed because of possible salt injury. Yield increases from potassium can be comparable to those with phosphorus under very low and low soil test levels.

## Sulfur

Sulfur is mobile in the soil (leaching is common), but fairly immobile in the plant. High soil test variability along with significant uptake by crops generates the need for proper sulfur management, especially in sandier soils and fields with several different soil types. Deficiency symptoms in soybeans are pale-green to yellow leaf color without prominent veins or necrosis in the youngest trifoliate leaves. Recent Kansas studies suggest a low probability of soybean response to sulfur application. However, sulfur removal with soybean can be significant, and more sensitive crops in the rotation such as wheat may require sulfur fertilization.

## Iron

Iron deficiency symptoms appear in irregularly shaped spots randomly distributed across a field, primarily in fields with a previous history of iron deficiency. Different annual weather patterns can make iron chlorosis more or less prevalent. Iron chlorosis also differs under different soil conditions. In general, high soil pH and high carbonates (free lime) can increase the incidence of iron deficiency. Iron fertilizer using chelated sources, and in direct contact with the seed (in-furrow) has shown significant yield responses in soils with history of iron chlorosis. If iron chlorosis has been a common problem in the past, producers should select a soybean variety tolerant to iron chlorosis. It may be beneficial to use a chelated iron in-furrow application. Foliar iron treatments seldom result in yield increase.

## Others

Zinc, manganese, and boron are other nutrients that can be limiting in soybean. The need for zinc should be determined by soil tests. Zinc fertilizer can be either banded at planting or broadcast preplant with little difference in response when applied at an adequate rate. Both organic and inorganic zinc sources (chelates and non-chelates) can be used, but chelates are considered more effective than the inorganic sources.

Nutrient removal by soybean is very high in high-yielding environments so fertilizer application rates will be high or soil test levels will drop. Regular soil testing (every 2 to 3 years) is essential for optimum nutrient management. Use a build and maintain phosphorus and potassium management system or be willing to fertilize each crop each year, including soybeans. Soybeans take advantage of residual phosphorus and potassium, but keep in mind the total nutrient needs in the rotation.

# Flintstone's Vitamins and Cattle Minerals

Maybe I'm showing my age here, but I took Flintstone's Vitamins growing up. It was a love-hate relationship. My parents told me they were candy, so I gladly lined up every night before bed to enjoy a treat. Sadly, they did not taste like any candy I've ever had before. As I grew older the web of lies continued. All to ensure I had my required daily dose of iron, zinc, calcium, and Vitamins A, C, D, & E.

As an adult I realize the importance of vitamins and minerals. Around the world many human and animal health issues are related to diet and the resulting nutrients one's diet does or does not provide. Cattle, like humans, are able to produce a few of the required vitamins, but most vitamins and minerals have to be ingested for proper utilization. Napoleon Bonaparte wasn't kidding when he famously stated, "An army marches on its stomach."

Plants take up nutrients for growth and reproduction with their roots. Minerals must be absorbed from soil that has been dissolved by water. This is why drought decreases forage production. It is not that the minerals are not present, instead the minerals are not plant available. Periods of reduced plant growth can create mineral deficiencies for grazing animals. Drought naturally comes to mind. Winter is also a time where cattle are more likely to be mineral deficient.

Livestock managers are tasked with supplying cattle with adequate nutrients to grow and reproduce, but not so much

as to be wasteful or excessively costly. This applies during the growing and dormant seasons, on pasture, and in a feed pen. Appropriate mineral supplementation is a moving target 365 days a year. Should you feed mineral year round? Is timely, variable mineral supplementation best? Can minerals be incorporated into an on-farm feed ration? It depends.

These questions will be addressed by K-State Southwest Area Beef Systems Specialist, Dr. Justin Waggoner, on Friday, February 24th at 10:00 am in Gypsum, Kansas at the Community Center located at 521 Maple Street. Dr. Waggoner is a central Kansas native and has his degrees in livestock nutrition. There is no fee to attend this event. No meal will be served, but plenty of hot, strong coffee will be available. Afterwards, anyone interested can join us for lunch next door at the Exit 14 Grill for a delicious meal on your own dime.

As livestock prices have receded from record highs production costs are on the forefront of cattle raisers minds. Savvy producers strive to make wise decisions and optimize input cost with returns on investments. Mineral supplementation is a prime target to implement best cost management practices instead of low cost decisions. Join us on February 24th at 10:00 am in Gypsum to learn more about cattle mineral needs and supplementation strategies. To RSVP call 785-392-2147 or email [anruiz@ksu.edu](mailto:anruiz@ksu.edu).

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## 2017 K-State Sorghum Production Schools

### **Feb. 1st – Wichita**

Sedgwick Co. Extension Center  
7001 W 21st St N  
Zach Simon, Sedgwick Co. Extension  
[zsimon@ksu.edu](mailto:zsimon@ksu.edu), 316-660-0100

### **Feb. 2nd – Concordia**

Cloud County Community College  
2221 Campus Drive  
Kim Kohls, River Valley Extension District  
[kclarson@ksu.edu](mailto:kclarson@ksu.edu), 785-243-8185

Lunch will be provided courtesy of Kansas Grain Sorghum Commission. There is no cost to attend, but participants are asked to pre-register by Jan. 27. Online registration is available at <http://bit.ly/KSSORGHUMSchools>

You can also preregister by emailing or calling the nearest local Research and Extension office for the location you plan to attend.

### **Schedule**

**8:30 a.m.** Registration, coffee

**9:00 a.m.** Program Begins

**12:00 p.m.** Lunch

*Sponsored by Kansas Grain Sorghum Commission*

**2:30 p.m.** Adjourn

### **Topics**

- Sorghum for Risk Management
- Planting Management
- Nutrient and Soil Fertility Management
- Insect Management
- Disease Management
- Weed Control Strategies

# K-State's Winter Ranch Management Series Set for January and February

***The seminar series in early 2017 will highlight successful strategies for enhancing beef producer profits***

MANHATTAN, Kan. – With lower expected revenues from the sale of calves in 2017 compared to 2014-15 prices many producers are looking for ways to improve their operation's profit potential. With that in mind, the 2017 Kansas State University Winter Ranch Management series of meetings will include comments from extension educators on profit-enhancing strategies.

The meetings will also feature a popular town-hall style question-and-answer session between Kansas' cattle producers and extension specialists. The Winter Ranch Management Seminar series runs in January and early February.

The series has a history of being a successful stretch of meetings, which are hosted throughout the state of Kansas, said Bob Weaber, K-State Research and Extension cow/calf specialist. Weaber, along with other state, district and local extension staff, will take part in the series to help answer producers' questions. The specialists will answer a wide range of questions on beef cattle issues including animal health, nutrition, management, genetics and reproduction.

"Over the past few months we've received quite a few questions from producers looking for profit tips and tools," Weaber said. "The Winter Ranch Management series provides another great opportunity for state and local

specialists to take our expertise out in the country for a series of impactful face-to-face meetings."

Some of the hot topics Weaber predicts are: winter feeding and cow management; bull buying and selection strategies; preparation for calving and breeding season; and vaccination and animal health issues such as the new Veterinary Feed Directive.

"Early in the year is always a great time for producers, when the weather is bad and after they get chores done, to sit back, think and plan for the coming year, the calves that will be born in the spring and how they might manage those," he said. "Certainly it is a good time of year to think about opportunities to reduce costs and enhance revenue streams."

2017 Winter Ranch Management locations and contacts include:

## **Salina**

**Tuesday, Feb. 14, 2017**

11:00 a.m. – 3:15 p.m.

Salina K-State Polytechnic Conference Center  
2310 Centennial Drive  
Salina, KS 67401

\$15 per person

RSVP by Feb. 7, 2017 to: Anthony Ruiz  
785-392-2147 or [anruiz@ksu.edu](mailto:anruiz@ksu.edu)

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## Spring Pea/Oats Cover Crop Effective in K-State Trial

A K-State cover crop trial at Manhattan, KS in spring 2015 showed how effective a good stand of cover crops can be in reducing weed problems. In the trial, the cover crop was a mixture of spring peas and oats.

At the time the cover crop mixture was terminated in mid-May, it was evident that the Palmer amaranth, a problem weed in Kansas and other states, was much larger in the field without a cover crop than in the field with the cover crop mixture.

The Palmer amaranth present in both fields still needed to be controlled before soybeans were planted, but it was easier to control them in the cover crop field where the

Palmer amaranth plants were smaller. Many of these Palmer amaranth were glyphosate-resistant, so some would have survived a glyphosate-only termination method in either field. There was a better chance of control with a glyphosate-plus-residual treatment.

Also, the cover crop residue remaining on the surface and the subsequent soybean crop that was no-till planted into that residue provided further weed suppression.

So, in the field with the cover crop, there were fewer Palmer amaranth plants and the plants were smaller, easier to control, and smothered by the cover crop after terminating.



# Grazing Risk Management Workshop

Availability of forage and the risk of drought are always a concern as producers make grazing and forage plans for the coming year. With 18 million acres devoted to pasture and perennial forages across Kansas, livestock producers take plenty of risks as they aim for both profitability and for maintaining the long-term productivity of their grazing and haying lands.

In preparation for the 2017 grazing season, K-State Research and Extension is providing a series of workshops across Kansas to discuss range management concepts and risk management strategies.

Range management concepts discussed will include stocking rates, a variety of grazing configurations, and monitoring rainfall and forage productivity. Understanding the relationships between timing of rainfall, pasture composition (warm-season vs. cool-season), and forage output are keys to making grazing management decisions through the season. Development of a drought plan, stocking adjustments, and other practices that alleviate the impact of drought will also be discussed.

The workshop will also cover a new risk management tool for grazing and hay lands, called Pasture, Rangeland, and Forage (PRF) coverage. PRF is a relatively new crop insurance product which uses a grid-based area concept along with a rainfall index as its key coverage features. The analysis will also discuss how PRF coverage compares with protection provided by the Livestock Forage Disaster Program (LFP), based on the Drought Monitor and provided through the Farm Service Agency.

## **Minneapolis**

**March 15, 2017**

12 – 4 p.m.

Ottawa County Courthouse  
Basement Meeting Room  
307 N. Concord  
Minneapolis, KS

\$15 per person

RSVP to: Anthony Ruiz  
785-392-2147 or [anruiz@ksu.edu](mailto:anruiz@ksu.edu)

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## Ag Lease and Cash Rental Rate Information

Ag Lease 101 helps both land owners and land operators learn about alternative lease arrangements and includes sample written lease agreements for several alternatives. Ag Lease 101 was created by and maintained by the North Central Farm Management Extension Committee.

Go to [www.aglease101.org](http://www.aglease101.org) for ag leasing information and ag lease forms for cash, cropshare and pasture leases. The lease agreements are “form fillable” which is a nice improvement over the paper form that are available in our Extension office.

For information on cash rental rates, there is information available on the [AgManager.info](http://AgManager.info) website. One publication is titled, “2016 Kansas County Level Cash Rents for Non-Irrigated Cropland” and contains estimated cash rental rates based on current commodity prices and input costs for 2013 through 2016. These cash rent estimates are by county and are updated each year by K-State ag economists. Another source of information put out by the National Agricultural Statistics Service has cash rental rates for 2016 irrigated cropland, non-irrigated cropland and pasture by county in Kansas. This is survey data collected by NASS.

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### **Upcoming Events, continued**

#### **March**

- 3** K-State Cattlemen’s Day, Manhattan
- 11** CKD 4-H Beef Weigh-In, Salina and Wells
- 15** Grazing Risk Management Workshop, Minneapolis
- 28-30** Farm Show
- 28-30** Mid-America Farm Expo, Salina

#### **April**

- 8** CKD Classic Beef Cattle Show, Salina

WEDNESDAY, FEBRUARY 14, 2017



K-State  
Cattlemen's  
Winter Ranch  
Management  
Town Hall



11:00 AM LUNCH, 12:15 PM TALKS START

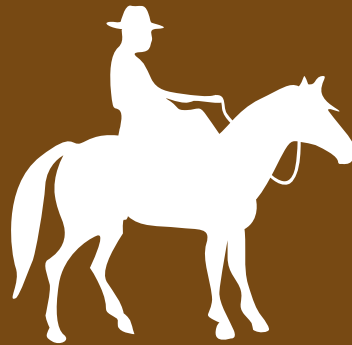
K-STATE POLYTECHNIC, COLLEGE  
CONFERENCE CENTER  
2310 CENTINNEL DRIVE, SALINA, KS



**\$15 PER PERSON**



TO RSVP 785-392-2147 OR [ANRUIZ@KSU.EDU](mailto:ANRUIZ@KSU.EDU)



# Grazing Risk Management

DR. WALT FICK - PASTURE MANAGEMENT

DR. MONTE VANDEVEER - PASTURE,  
RANGE, & FORAGE INSURANCE

11 AM - 4 PM

MARCH 15, 2017

MINNEAPOLIS, KS

OTTAWA COUNTY COURTHOUSE  
BASEMENT MEETING ROOM  
307 N. CONCORD



\$15 PER PERSON

RSVP 785-392-2147  
OR ANRUIZ@KSU.EDU

**Central Kansas Extension District**

300 W. Ash, Room 111

PO Box 5040

Salina, KS 67402-5040

Address Service Requested

## Agronomy “Coffee Shop” Meetings

The Central Kansas Extension District will be hosting a series of three Agronomy “Coffee Shop” meetings during January and February on topics of interest to area farmers. I hope you will mark these dates on your calendar and plan on joining us for some coffee and cookies in an informal setting and pick up some good information you can use in your farming operation. The morning meetings will be in Mentor and the afternoon meetings in Minneapolis.

### **Monday, January 23, 2017**

**Speaker:** Dorivar Ruiz-Diaz, soil fertility specialist

**10:00 a.m.** Mentor Fire Station, Mentor, KS

**1:30 p.m.** Ottawa County Courthouse basement, Minneapolis, KS

**Topics:** Soil fertility and fertilizer considerations with low commodity prices; using sensors to improve nitrogen efficiency in wheat; variable rate liming and fertilizer applications; your questions on soil fertility and fertilizer recommendations.

### **Tuesday, February 7, 2017**

**Speaker:** Jeff Whitworth, crop entomologist

**10:00 a.m.** Mentor Fire Station, Mentor, KS

**1:30 p.m.** Ottawa County Courthouse basement, Minneapolis, KS

**Topics:** What we learned about Sugar Cane Aphid in sorghum in 2016; review of 2016 crop insect problems and control recommendations in wheat, row crops and alfalfa; your questions and observations on crop insect problems.

### **Tuesday, February 21, 2017**

**Speaker:** Dallas Peterson, weed management specialist

**10:00 a.m.** Mentor Fire Station, Mentor, KS

**1:30 p.m.** Ottawa County Courthouse basement, Minneapolis, KS

**Topics:** Herbicide update for row crops and wheat- what’s new; dealing with ongoing herbicide resistance issues; new herbicide traits in row crops; your questions and observations on weed control in 2016- what worked and what didn’t work.