



K-STATE
Research and Extension

Extension Agronomy

eUpdate

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, Agronomy eUpdate Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Dalas Peterson, Extension Agronomy State Leader and Weed Management Specialist 785-532-0405 dpeterso@ksu.edu.

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1. Considerations when buying hay for winter feeding

Hay is the most important fiber source for cattle during the winter in Kansas. As the temperatures drop and the forage growth rate slows down, we need to figure out if the stored hay on the farm is enough to feed the animals during the winter (Figure 1). Calculating the amount of hay needed is the first step to successfully keeping the animals growing. However, buying hay is crucial if the hay stocked is not enough.



Figure 1. Animals being hay fed during the winter. Photo by Bruno C. Pedreira, K-State Research and Extension.

Important considerations when buying hay

Average weight. It is very common to buy hay by the bale. However, each bale of hay has a different weight. Depending on the baler settings and the forage moisture during harvest, the bale can have a higher or lower density, which will directly affect weight. It would be great to know the average weight of the bales before buying them. A better option would be to buy hay by tonnage.

Nutritive value. Some sellers will have a lab analysis report of the hay's chemical composition (moisture, crude protein, and energy). Based on that, it is possible to calculate the feed value per ton

of forage. If a bale has 5 or 8% crude protein, the amount the protein needed to supplement the animal will be different, because the nutritional requirements need to be matched. The differences in nutritive value will affect the cattle feed cost and need to be considered before buying the hay. In years of severe drought, nutritive analysis of hays become especially important for cattle feeding and supplementation perspective.

Storage conditions. If the bales were harvested this year, storage is not a big issue, but if it has been harvested one or two years ago, you need to consider how it has been stored. Bales stored in a barn are much less subject to bad weather and, consequently, fewer losses. If the bales are in the field, favor bales stacked in pallets above those on the ground (Figure 2).

Type of hay and where you are feeding. One thing that is often overlooked in drought years when farmers are looking for *anything* to feed is what undesirable plant species you may be introducing into your operation. If you plan on feeding the hay while cattle are still on pasture, there is good chance for any “weed” species to be spread around your operation. Weeds are any undesirable plants growing in the location. Such as, if you happen to have warm-season pastures and do not want to introduce a cool-season perennial, then make sure purchased hay contains little to none of the undesirable plants.



Figure 2. Hay bales in the field. Photo by Bruno C. Pedreira, K-State Research and Extension.

This was a very dry year where most hayfields did not produce the expected yield. Additionally, hay prices have been higher than normal. Therefore, hay has been harvested everywhere and in different conditions. In years such as 2022, buying hay has been even harder so it is very important to know what are you buying in order to pay the appropriate price.

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2. After a rough start this fall, what factors influence the survival of winter canola?

Winter canola planting conditions in fall 2022 were more challenging than in recent years. Continual drought is impacting all corners of the state and in particular south-central Kansas where most canola is planted. Soil moisture in the seed zone was not present during the optimum planting window and there was no short-term forecast for precipitation. Thus, most producers chose not to plant winter canola because the risk of losing the crop was quite high. Some limited rains fell in mid-October, but then those that tried canola faced a late-emerged crop. How could dry soils and late emergence affect the winter survival of canola?

Effect of canola plant size on winter survival

Rapid and timely emergence is critical for attaining the right amount of growth before winter. Canola overwinters -- and is the most tolerant to cold temperatures -- in the rosette growth stage. At this stage, the crown (rosette) develops at the soil surface with larger, older leaves at the base and smaller, newer leaves at the center. The stem thickens but its length remains unchanged. To have the best chance at survival, a winter canola plant needs 5 to 8 true leaves, 6 to 18 inches of fall growth, a root collar diameter of ¼ to ½ inch, and an extensive root system.

On the other hand, canola that has too much top growth (typically 24 inches or more) in the fall can succumb to winterkill for a few reasons, including overuse of available soil water and nutrients, stem elongation well above the soil surface, and physical damage to the unprotected crown as winter temperatures arrive.

Planting in 2022

As mentioned above, soil moisture conditions made canola establishment challenging, if not impossible, in fall 2022. Mid-October rains fell in some areas allowing what was planted to eventually emerge, albeit a month behind optimum (Figure 1). The small amount of rain permitted minimal wetting of the upper soil profile, but canola roots would have eventually grown into dry soil. The lack of moisture kept plant growth at a minimum and below optimum. Unfortunately, colder-than-normal temperatures in mid-November took out much of the established canola because it was too small to overcome the effects of low temperatures. It was difficult to avoid the risks of delayed emergence in 2022 with soils too dry to plant under rainfed conditions. This illustrates the critical importance soil moisture plays for rapid establishment of winter canola after planting.



Figure 1. Winter canola plots were seeded into very dry soils near Norwich, KS on September 29, 2022. The photo on the left was taken November 9 following a rainfall event. The photo on the right was taken November 21 following colder-than-normal temperatures. Because of delayed emergence, the crop was not able to attain adequate growth before freezing temperatures arrived. (Photos by Cody Swinehart, producer).

In northern Kansas, mid-September rains set the stage for favorable stand establishment. Where canola was seeded on time near Manhattan and Belleville, occasional showers have allowed for adequate fall growth. However, the crop has taken on a wintery appearance as cold temperatures in November have bleached many leaves (Figure 2). Low temperatures near Manhattan dropped below freezing for 12 consecutive nights starting November 10, reaching a low of 14°F. Although the crop had started the winter acclimation process, it was not completely hardened before the cold stretch. Even so, the majority of the crowns (rosettes) of the plants remain firm and green, indicating good tolerance to the cold thus far. It will be interesting to see if additional cold weather this winter leads to winter stand loss.



Figure 2. Canola plots near Manhattan, KS on December 6, 2022. These plants are showing symptoms from cold temperatures during mid-November. Photo by Mike Stamm, K-State Research and Extension.

For producers concerned about cold temperature effects this time of year, visit canola fields about five days after the hardest freeze event. Look for bleached (whitened) leaves, wilted plants, and dead plants (dry and brown). Plant loss will be the biggest concern on canola with 2 or fewer true leaves prior to the freeze event. Canola that emerged late because of too little soil moisture will be at the greatest risk for cold temperature losses.

In next week's e-Update, we will explore other factors that affect winter survival and discuss some current research on the topic.

For additional information on canola production, please refer to the recently revised "Great Plain Canola Production Handbook" available through K-State Research and Extension.

<https://www.bookstore.ksre.ksu.edu/pubs/MF2734.pdf>

For more information about canola growth and development stages, please consult the K-State Canola Growth and Development poster: <https://www.bookstore.ksre.ksu.edu/pubs/MF3236.pdf>

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3. Registration is open for the 2023 Kansas Corn Schools

The Department of Agronomy and K-State Research and Extension, in partnership with Kansas Corn, are planning to host several Corn Schools in 2023. Registration is now open for the Corn Schools, which will be held in four locations starting on Jan. 12. An online session is also scheduled for Feb. 2.

Agendas will vary depending on the location of the school with topics ranging from production practices, weed and disease management to farm policy, markets, and cost-return.

Each school is free to attend and lunch will be provided for the in-person schools. Each in-person school will begin at 8:30 am with registration and morning refreshments. The program will start at 9:00 am and wrap-up at 1:00 pm. The online session on Feb. 2 will run from 6:00 to 8:00 pm using the Zoom online platform.

Please register online at <https://kscorn.com/cornschool/>. Agendas for each school will also be posted soon. Continuing education credits have been applied for.

January 12 – Oakley

Buffalo Bill Center
3083 US-83
Oakley, KS 67748

January 13 - Salina

Great Plains Manufacturing Conference Center
1569 E North St.
Salina, KS 67401

January 19 – Mayetta

Prairie Band Casino
12305 150th Rd.
Mayetta, KS 66509

January 20 – Parsons

KSU Southeast Research and Extension Center
25092 Ness Rd
Parsons, KS 67357

February 2 – Virtual

You must register in order to receive the Zoom link.



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4. Winter Forage Conference: Drought survival, recovery, and success - Dec. 15



The Kansas Forage and Grassland Council and Kansas State University are teaming up to host their Annual Winter Forage Conference: Drought Survival, Recovery, and Success, on Thursday, December 15, in Great Bend, Kansas. The meeting will be held at the Burnside Room, 1214 Stone Street, and will run from 9:00 a.m. to 3:00 p.m., with a meal included.

This year's conference features a great mix of university and industry presentations, with sessions covering range weed control, cattle markets, drones, soil fertility, alfalfa management, and tips for building a resilient business. Featured industry partners include Forage Genetics and Star Seed.

Tentative Agenda

- Weed Control – Keith Harmony
- Cattle Market Update – Glynn Tonsor
- Drones, Not Tomorrow's Fantasy – Trent Page
- Soil Fertility – Lucas Haag
- Alfalfa Management Decisions – Jerry Gano
- "Plan B" Ranch: Building a Resilient Business – Kevin Wiltse

"Our presenters are some of the leading experts in Kansas, with a wealth of knowledge and experience," said Dale Helwig Black, KSFGC President. "And we have a great mix of Industry Partners presenting at the conference. Companies with a long history and great forage expertise, like Forage Genetics and Star Seed," said Mark Nelson, KSFGC Executive Secretary.

The event is free for current KSFGC members and \$45 for non-members (which includes your KSFGC membership and lunch). To renew your membership or join KSFGC prior to the meeting, go to https://www.afgc.org/restricted-content/?amo_redirect_to=https://www.afgc.org/member-center/, or you can join at the door.

For more information, **to RSVP for the meal count**, or inquire about a vendor table, contact the

Cottonwood Extension District Barton County Extension Office at 620-793-1910.