



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. Soil considerations for onsite wastewater systems

When selecting a new home site, the first two questions should be about water:

1. *What is the drinking water source?*
2. *Where is the wastewater going to go?*

This article focuses on the second question and the most important factors in choosing the location for a new wastewater system, or finding a new site if an existing system fails.

The first step in this process is to contact the local environmental health department. You will need to secure a permit and the staff can fill you in on the local regulations such as the “setbacks” or distances that wastewater systems must be from other features (i.e. property lines, water wells, etc.).

Second, a site and soil evaluation is needed. Ask the local environmental health staff about how this procedure works in their area—some environmental health departments do the soil evaluations themselves, and in some areas this might be performed by a consulting soil scientist.

This comprehensive site and soil evaluation is the key component affecting selection, design, and long-term performance of an onsite wastewater system. A septic tank, followed by a soil dispersal system (often referred to as a lateral field), is the most commonly used onsite wastewater system in Kansas and throughout the nation. Although effluent from a septic tank may be clear, it is still sewage. It is odorous and contains nutrients, disease-causing organisms, and dissolved organic material. The soil must provide the additional treatment required. An effectively operating soil dispersal, or absorption, field treats the septic tank effluent as it enters the soil and percolates downward. The soil is the most important component of the wastewater dispersal field. The soil properties determine appropriate treatment systems, the design loading rate, and the size of the dispersal field. When a building site has difficult or less desirable soils, the cost of the system is usually higher.

The most important soil properties are soil depth, soil texture (sand, silt, and clay content), and the soil structure.

- **Soil depth:** Features that would limit a soil profile include bedrock or very gravelly layers at a shallow depth, or a high-water table. The state of Kansas requires a minimum of 4 feet of separation distance from the bottom of a dispersal field trench and a water table. That 4 feet of separation is the minimum, and it’s needed so that the soil can act as a natural filter to treat the wastewater.
- **Soil texture:** An ideal soil for a lateral system would have some sand, some silt, and some clay. If you have too much clay, water will not be able to infiltrate fast enough and could pond to the soil surface. This can be overcome by increasing the size of the absorption field, which requires more space and adds cost. Another solution for clayey soils is a wastewater pond (also called a lagoon) and is a common type of septic system in Kansas. Lagoons require space, a fence, and checking with the local health department, homeowner’s association, etc. to determine if they are allowed in that area. When soils are very sandy, the effluent could move too rapidly into the soil profile. There are some parts of the state, like central Kansas, where there are sandy soils and high water tables. In this scenario, above-ground wastewater mounds are often constructed to increase the separation distance between the bottom of the

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wastewater absorption field and the water table.

- **Soil structure:** Lateral fields should be constructed in natural soil profiles. Man-made soils almost never work because they do not contain soil structure (Figure 1) and will compact with time, with the addition of water, and whenever they are trafficked. The stronger the soil structure, the faster wastewater will move into the soil, thus a smaller footprint of the wastewater system.

Blocky



Prismatic



Figure 1. Examples of two types of soil structure: blocky and prismatic. Other types of soil structure include granular and platy (not shown). Photos provided by DeAnn Presley, K-State Research and Extension.

In summary, soils can provide excellent wastewater treatment and it is one of the ecosystem services that soils provide for humankind. Identifying the most suitable soil on the property will save money and lead to the best long-term onsite wastewater system performance.

For more detailed information, see the KSRE publication "Site and Soil Evaluation for Onsite Wastewater Systems" at <https://www.bookstore.ksre.ksu.edu/pubs/MF2645.pdf>

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2. Updated for 2019 - Kansas Sorghum Management publication

A newly revised K-State Research and Extension publication, *Kansas Sorghum Management 2019*, is now available and can be accessed online at: <https://www.bookstore.ksre.ksu.edu/pubs/MF3046.pdf>

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Kansas Sorghum Management 2019

MF3046

Crop Production

This publication helps producers manage their sorghum crop as efficiently and profitably as possible under Kansas growing conditions. Recommendations should be considered as guidelines and must be tailored to situations based on the cropping system, soils, and weed populations encountered in that field.

This comprehensive guide is written specifically for Kansas and includes valuable, up-to-date information on:

- Tillage and rotations
- Hybrid selection
- Planting practices including:
 - Row widths
 - Seeding rates
 - Yield estimation
- Rate of dry down before harvest
- Weed management
- Irrigation management
- Fertilizer requirements
- Diseases
- Insects
- Pre-harvest desiccants

Contributors to the 2019 version of this publication include:

- Ignacio Ciampitti, Crop Production and Cropping Systems
- Dorivar Ruiz Diaz, Soil Fertility and Nutrient Management
- Doug Jardine, Plant Pathology
- Dallas Peterson, Weed Science
- Marshall Hay, Weed Science
- Jeff Whitworth, Entomology
- Danny Rogers, Agricultural Engineering

3. 2018 Kansas Performance Tests with Corn Hybrids report now available

The *2018 Kansas Performance Tests with Corn Hybrids* report is now online and in print form. In this report, you will find a review of the 2018 corn crop, with a detailed discussion summarizing the statewide growing conditions and impacts from diseases and insects. More importantly, the results of the 2018 corn hybrid performance tests are also shown. Corn performance tests are conducted each year by the Kansas Agricultural Experiment Station. The results from these tests provide producers, extension agents, and industry professionals with unbiased agronomic information on many of the corn hybrids marketed in Kansas.

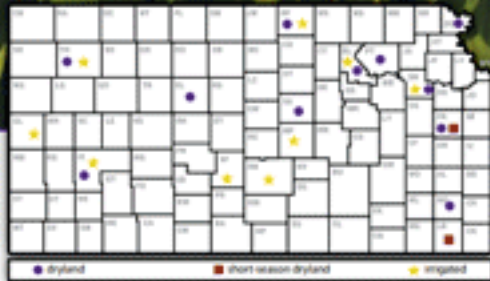
Producers and crop consultants can use this resource to help select corn hybrids for their operation by checking for varieties that show a consistently good performance in their region.

The online version of the corn hybrid performance test results can be found at:

<https://www.bookstore.ksre.ksu.edu/pubs/SRP1136.pdf>. Paper copies can be ordered from the K-State Research and Extension Bookstore at www.bookstore.ksre.ksu.edu/.

2018 Kansas Performance Tests with

Corn Hybrids



Report of Progress 1145



Kansas State University Agricultural Experiment Station and Cooperative Extension Service

4. Prescribed burning workshops scheduled for 2019

Several prescribed burning workshops have been scheduled for the months of February and March, with more in the planning stages. Partners involved include K-State Research & Extension, Kansas Forest Service, USDA-NRCS, USDA-FSA, Kansas Conservation Districts, Department of Wildlife, Parks & Tourism, the National Weather Service, Local Fire Departments and Emergency Management Personnel, Pheasants Forever, The Wildlife Society – Kansas Chapter, and Great Plains Fire Science Exchange.

Each workshop lasts about 4-5 hours and includes topics on reasons for burning, regulations, weather considerations, liability, burn contractors, equipment and crew, hazards, fuels, firebreaks, fire types and behavior, ignition techniques, and burn plans.

Contact Walt Fick at 785-532-7223 or whfick@ksu.edu if you have any questions regarding a prescribed burning workshop. Be sure to contact the host to register for a workshop.

Date	County/City	Host/ Contact	Agency	Phone	e-mail
Feb. 14	Riley/ Manhattan	Aubrey Evans	CD		aubrey.evans@ks.nacdnet.net
Feb. 20	Russell/ Russell	Clint Laflin	KSRE	785-483-3157	cllaflin@ksu.edu
Feb. 21	Wilson/ Fredonia	Pamela Walker	CD	620-378-2866	pamela.walker@ks.nacdnet.net
Feb. 25	Washington/ Barnes	Brett Melton	KSRE	785-243-8185	bmelton@ksu.edu
Feb. 27	Cowley/ Winfield	Elizabeth Espino	KSRE	620-221-5450	eespino@ksu.edu
Feb. 28	Lincoln/ Sylvan Grove	Barrett Simon	KSRE	785-378-3174	barrett8@ksu.edu
Mar. 1	Atchison/ Effingham	Tiffany Hoffman	CD	913-833-5740 ext 333	Tiffany.Hoffman@ks.nacdnet.net
Mar. 6	Franklin/ Ottawa	Keri Harris	CD	785-241-7201	frco.conservation@gmail.com
Mar. 8	Logan/Oakley	Dana Charles	CD	785-672-3841	dana.charles@ks.nacdnet.net

5. K-State Pre-Plant Corn Schools - February 2019

The Department of Agronomy and K-State Research and Extension, in partnership with Kansas Corn, are planning to host three Corn Pre-Plant Schools in 2019. These schools are designed to provide in-depth training for corn producers across Kansas with targeted information for each location.

Each school is free to attend and will have lunch provided thanks to support provided by Pioneer. A range of topics will be covered and vary by location including: corn management, high-yielding corn factors, weed control, soil fertility and nutrient management, soil health considerations, insect management, corn market and policy perspectives, and grower panel discussion.

Pre-Plant Corn Schools

- **February 11 – Parsons**

Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
Southeast Research and Extension Center, 25092 Ness Road, Parsons

- **February 13 – Hesston**

Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
Dyck Arboretum of the Plains, 177 W Hickory Street, Hesston

- **February 15 – Garden City**

Registration begins at 7:45 am, program from 8:30 am – 1:00 pm
Pioneer Garden City Research Station, 1455 East Parallel Road, Garden City

To register for any of the schools, please go online at <https://kscom.com/CornSchool/>. Pre-registration is still open! Please try to register one week prior to the event you wish to attend.

CCA and CEU credits have been applied for. Additional local sponsors include Ag Risk Solutions and the Andersons.

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6. Don't miss the K-State Sorghum Schools scheduled for early February

A series of three K-State Sorghum Production Schools will be offered in early February to provide in-depth training targeted for sorghum producers and key-stakeholders. The schools are sponsored by Kansas Grain Sorghum Commission.



The final dates and locations have been set focusing with Schools across the state. Each school will start with registration at 8:30 a.m. and welcome remarks at 9:00 a.m. The program will adjourn at 1:30 p.m. for all the schools.

- **February 5, Tuesday - Garden City**
The Golf Club at Southwind
77 Grandview Dr.
Contact: Jennifer Stoss - jstoss@ksu.edu
- **February 6, Wednesday - Hays**
K-State Agricultural Research Center
1232 240th Ave.
Contact: Stacy Campbell - scampbel@ksu.edu
- **February 7, Thursday - Salina**
Saline County Expo Center
4-H Building
900 Greeley
Contact: Carl Garten - cgarten@ksu.edu

The schools will cover a number of issues facing sorghum growers including: risk management, marketing opportunities, weed control, crop production practices, nutrient management and soil fertility, and insect management. CCA/CEU credits have been applied for at all locations.

Lunch will be provided, courtesy of the Kansas Grain Sorghum Commission. There is no cost to attend, but participants are asked to pre-register by **January 29 if possible**. Online registration is available at K-State Sorghum Schools (<http://bit.ly/KSUSorghum>) or by emailing/calling the nearest local K-State Research and Extension office nearest the location participants plan to attend.

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