Issue 964

K-STATE Research and Extension

Extension Agronomy

eUpdate

07/06/2023

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. Tar spot of corn is now confirmed in four counties in Kansas

Tar spot of corn, a disease caused by the fungus *Phyllachora maydis*, has now been confirmed in Doniphan (6/26), Atchison (6/30), Jefferson (6/30), and Brown (7/05) counties, Kansas (Figure 1).

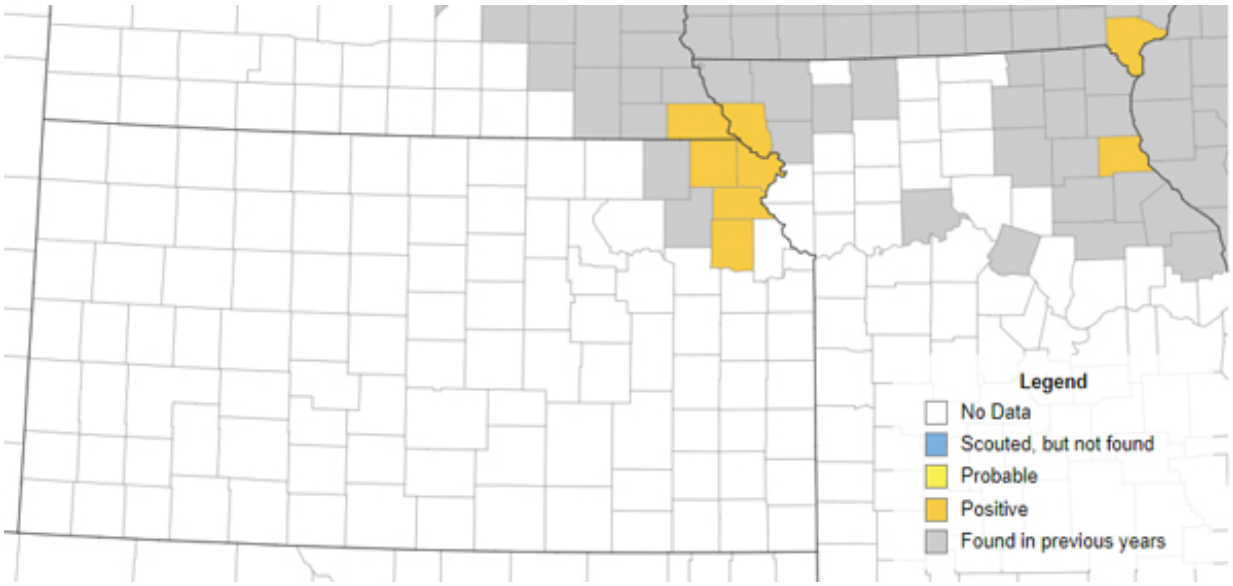

Figure 1. Tar Spot of Corn (Phyllachora maydis**) in Kansas and surrounding states in 2023.**
Source: https://corn.ipmpipe.org/tarspot/

What am I scouting for?

Tar spot develops as small, black, raised spots (circular or oval) that develop on infected plants, and may appear on one or both sides of the leaves, leaf sheaths, and husks. Spots may be found on both healthy (green) and dying (brown) tissue. Tar spot can be easily confused with insect poop, which can appear as black spots on the surface of the leaf **(**Figure 2**)**. For assistance in confirming tar spot, please contact your local county extension office or the K-State plant diagnostic clinic at https://www.plantpath.k-state.edu/extension/plant-disease-diagnostic-lab/.

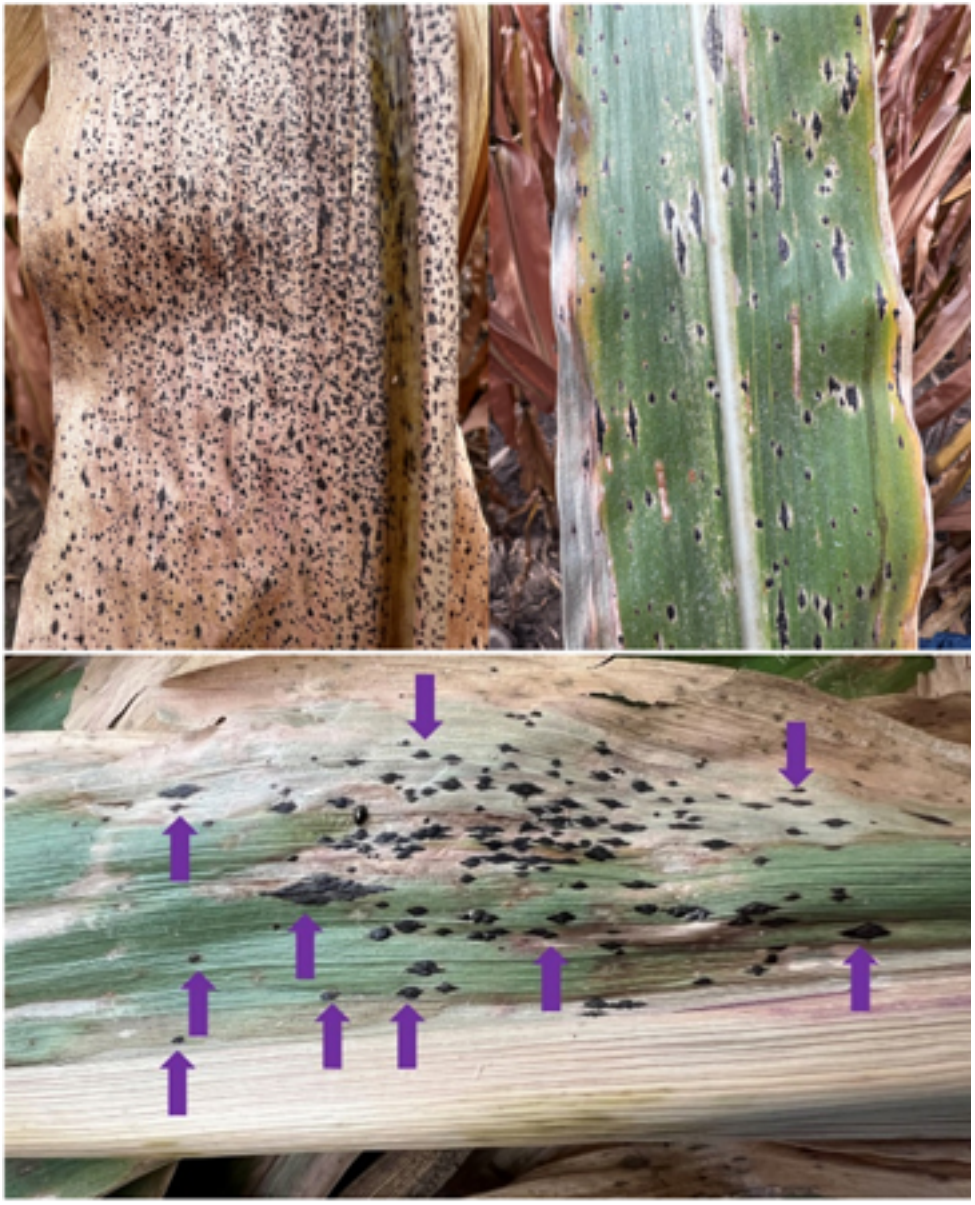

Figure 2. **Tar Spot of Corn. Purple arrows are indicating a few of the tar spot lesions. Photos courtesy of Rodrigo Onofre, Department of Plant Pathology, K-State Research and Extension.**

Is there a history of disease in this field or neighboring fields?

Tar spot overwinters on infested corn residue on the soil surface, which serves as a source of inoculum for the subsequent growing season. Spores can be dispersed by wind and rain splash and can move to nearby fields if conditions are favorable.

What growth stage is the field?

Research has shown that making an application just after first detection and at or after VT is effective if lesions are detected early. If you wait until there is significant disease in the upper canopy, then a fungicide application may be too late. Here you can find a guide for growth stages in corn: https://bookstore.ksre.ksu.edu/pubs/MF3305.pdf.

How does moisture influence disease development?

The recent rains likely helped to promote tar spot development. Additionally, irrigated corn may be at particularly high risk for yield or silage loss. Forecasted rainfall and high humidity will favor tar spot development and spread.

Should I apply a fungicide?

Fungicides are an effective tool for controlling tar spot if they are timed well. Research has shown the best return on investment from a fungicide application on corn occurs when **fungal diseases are active** in the corn canopy. A **well-timed, informed fungicide application** will be important to reduce disease severity when it is needed, and we recommend holding off until the disease is active in your field and corn is at least nearing VT/R1 (tassel/silk) or even R2 (blister). Scouting will be especially important if wet weather continues. There are several fungicides that are highly effective at controlling tar spot when applied from tassel (VT) to R2 (blister). I would recommend picking a product with multiple modes of action. The National Corn Disease Working Group has put together efficacy ratings for fungicides labeled for the control of tar spot can be found at the Crop Protection Network website, link: https://cropprotectionnetwork.org/publications/fungicide-efficacy-for-control-of-corn-diseases.

If there is high disease pressure early in the season, a second application may be warranted. Fields should be scouted 14-21 days after the first application to see if tar spot has become active again. Fungicides will not provide benefits after R5. Always consult fungicide labels for any use restrictions prior to application.

Please help us track tar spot, you can contact me (785-477-0171) directly if you suspect a field has tar spot and/or submit a sample to the K-State Plant Disease Diagnostic Lab at https://www.plantpath.k-state.edu/extension/diagnostic-lab/documents/2021_PP_DiseaseLabChecksheet.pdf.pdf. This will help us monitor the situation in the state.

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2. Palmer amaranth control in grain sorghum

When the aggressive nature of Palmer amaranth is combined with the limited post-emergence herbicide options in grain sorghum, problems often arise – even when an adequate preemergence herbicide program is used. This article covers post-emergence herbicide options for Palmer amaranth control in grain sorghum. Combinations of the herbicides listed here will generally improve control, and all of the options are most effective when applied to small (under 4 inches tall) weeds.

Figure 1. Palmer amaranth in a grain sorghum field that escaped treatment earlier in the growing season. Photo by Sarah Lancaster, K-State Research and Extension.

Atrazine can control sensitive populations of Palmer amaranth and can be combined with other herbicides to enhance effectiveness. Recommended rates range from 0.25 to 2.0 pounds of atrazine (0.5 to 4 pints). Atrazine should be applied with crop oil or surfactant to control emerged weeds. Atrazine can be applied to grain sorghum between 3-leaf and 12 inches or between 6 and 12 inches in western Kansas. Be sure to observe rate limits for your area.

Aim (carfentrazone) is a Group 14 herbicide that can be applied to grain sorghum between 4 inches and boot stage. It is less effective than some of the other herbicides in this article and requires good coverage for maximum effectiveness. Aim can be tank-mixed with atrazine, 2,4-D, dicamba, bromoxynil, and Huskie. Aim is likely to burn grain sorghum leaves, especially if applied in hot, humid weather or with crop oil. Leaf burn will also be greater if Aim is applied with bromoxynil.

2,4-D is an effective herbicide option to control Palmer amaranth. However, crop response should be expected, especially if applied in hot, humid conditions. Crop responses can include rolled leaves, lodging, and brittle stems. Grain sorghum is most tolerant of 2,4-D applications when it is 5 to 10 inches tall. Drop nozzles should be used when applying 2,4-D to grain sorghum greater than 8 inches. To reduce crop response, apply lower rates (2/3 pint) with atrazine, Aim, bromoxynil, or Huskie. Using crop oil in tank mixes with 2,4-D, will increase crop injury.

Dicamba, at the rates used in grain sorghum (0.5 pint), may be less effective on Palmer amaranth than 2,4-D. It can be applied to grain sorghum between 2 and 15 inches. Drop nozzles should be used if grain sorghum is 8 inches or taller to avoid damaging seed heads. Crop response, including rolled leaves and lodging, should be expected, especially if applied in hot, humid conditions. Dicamba can be tank-mixed with Aim, atrazine, and bromoxynil.

Bromoxynil can be applied from the 3-leaf stage through boot stage. Crop response will be less with bromoxynil than other herbicides, but bromoxynil alone will not control Palmer amaranth larger than 4-leaf. Adequate spray coverage is needed for maximum effectiveness.

Huskie (pyrasulfutole+bromoxynil) is most effective when mixed with atrazine (up to 1 pound). When used alone, it can be applied between 3-leaf and 30 inches and should be applied with HSOC (high surfactant oil concentrate) or AMS + NIS. Huskie will cause leaf burn (Figure 2), which can be greater in fields where mesotrione was applied pre-emergence. As needed, Huskie plus atrazine may be tank-mixed with phenoxy broadleaf herbicides such as 2,4-D or dicamba.

Figure 2. An example of leaf burn caused by a post-emergence application of Huskie. Note that the large Palmer amaranth plants were not controlled by this tank-mix of Huskie and atrazine. Photo by Sarah Lancaster, K-State Research and Extension.

Additional information can be found in the *2023 Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland, K-State publication SRP-1176* - https://bookstore.ksre.ksu.edu/pubs/SRP1176.pdf

The use of trade names is for clarity to readers and does not imply endorsement of a particular product, nor does exclusion imply non-approval. Always consult the herbicide label for the most current use

requirements.

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3. Dicamba injury on soybeans - now what?

Even though the cutoff date for applying dicamba over the top of soybeans passed last week, there is still some conversation about dicamba applications. Questions have been coming into Weed Science Specialist, Sarah Lancaster, about off-target movement of dicamba to sensitive soybeans. There has been considerable research on this topic in recent years, and this article summarizes some of the work conducted in Kansas.

Before presenting the data, readers should remember that dicamba is used in several cropping systems including range and pasture, fallow, and corn, in addition to Xtend soybeans, so the herbicide could come from any of those areas. Also, there are other types of herbicides that can cause leaf malformations. Be sure to consider the other herbicides applied in or near your soybeans. You can review herbicide injury symptoms in C715 "Herbicide Mode of Action".

Particle versus vapor drift

One other bit of background information is to consider the two types of off-target movement with regard to dicamba: particle drift and vapor drift. **Particle drift** occurs when droplets of the herbicide are blown away from the application site. Crop response to particle drift will be most severe near the source of the drift because a greater herbicide dose is delivered to the sensitive plants. **Vapor drift** occurs when the herbicide moves as a cloud of very fine particles. Vapor drift results in relatively less crop response, but the effects can be observed at greater distances from the source of the drift.

Summary of results from simulated dicamba drift research

Research studies were conducted in Manhattan and Ottawa in 2018 and 2019. There were two studies at each location. The objective of the first study was to compare the response of soybean varieties to simulated dicamba drift at 1/100th of the labeled rate (Figure 1). The objective of the second study was to determine soybean response to multiple exposures of simulated dicamba drift. Three dicamba rates were included in this study, but only the 1/100th rate will be discussed here. Soybean varieties and application timings are listed in the figures and tables. As expected, the environment played an important role in both the observed injury and soybean yield. When statistically necessary, the data are presented for each location.

Figure 1. Leaf cupping and crinkling two weeks after soybean exposure to 1/100th of a field-use rate of dicamba at V3 growth stage. Photo by T. Meyeres, K-State Research and Extension.

Figure 2 shows soybean injury four weeks after application to four soybean varieties. There were few differences among soybean varieties, but applications made at R1 caused greater injury than applications made at V3.

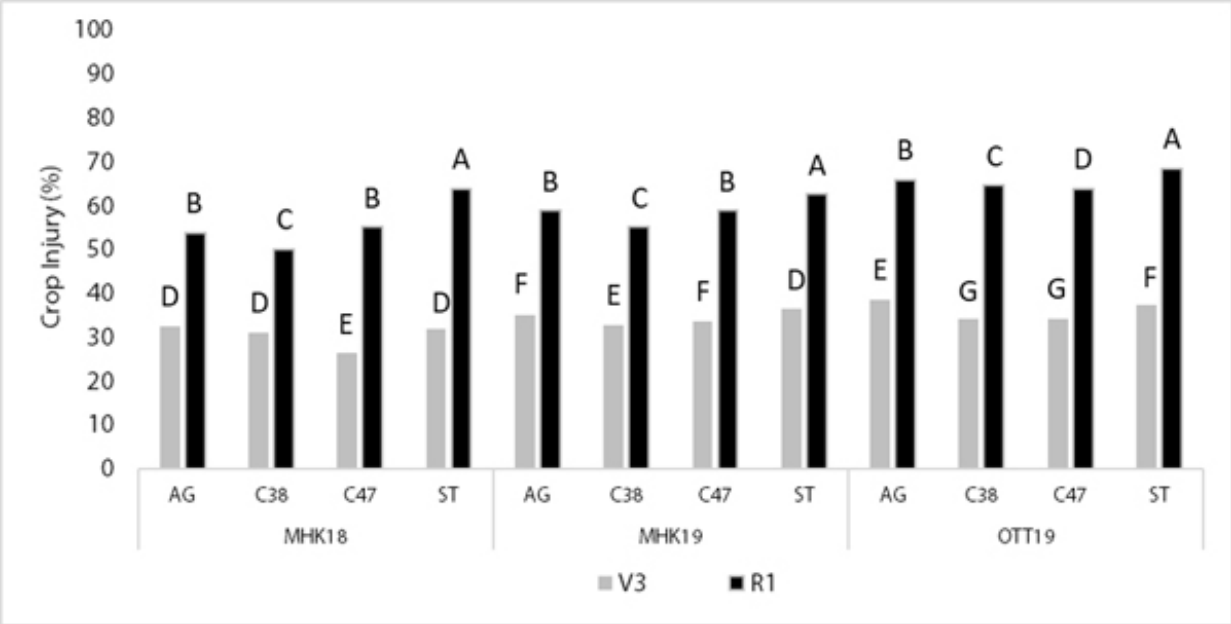

Figure 2. Soybean injury observed four weeks after application of 0.022 fl. oz of XtendiMax to four varieties (AG4135, CR3841, CR4748, and ST40B) at V3 or R1 growth stage.

The differences between application timings were even greater and could be combined across locations when injury evaluations were made at soybean senescence (Figure 3).

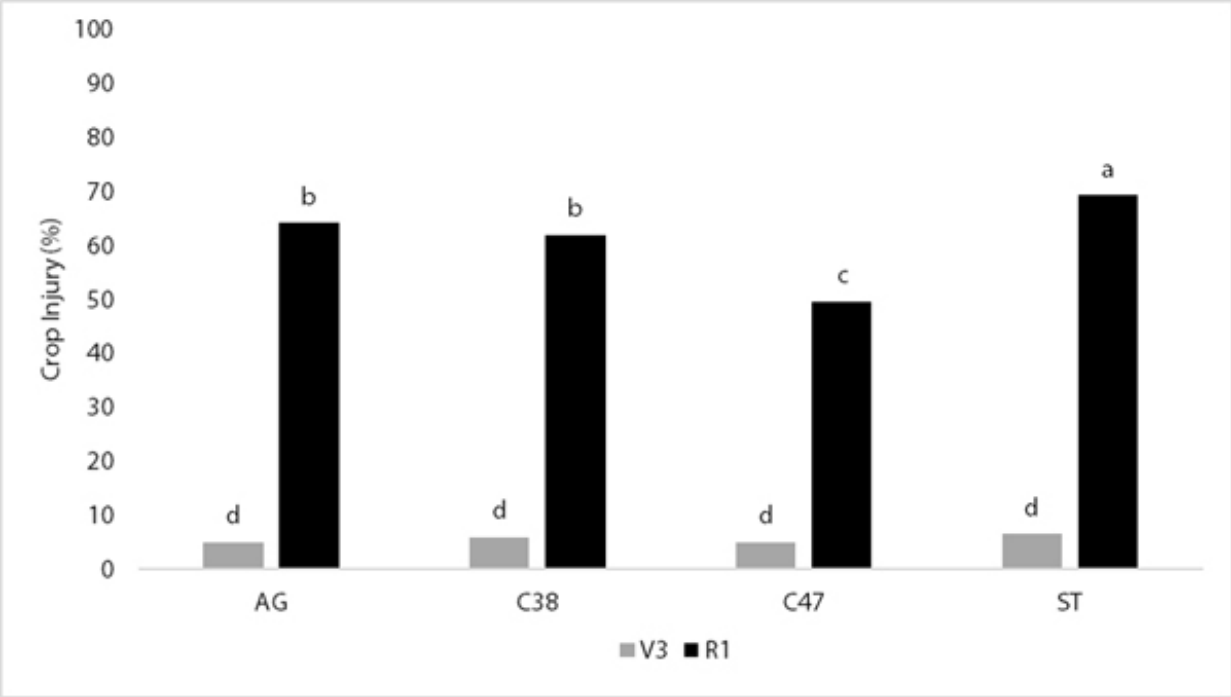

Figure 3. Soybean injury observed at soybean senescence (R7) following application of 0.022 fl. oz of XtendiMax to four varieties (AG4135, CR3841, CR4748, and ST40B) at V3 or R1 growth stage.

Injury at soybean senescence was associated with reduced yield. Yield following application at R1 was less than the nontreated check for all varieties (Figure 4). CR3841 and ST40B yielded less when dicamba was applied at R1 compared to V3.

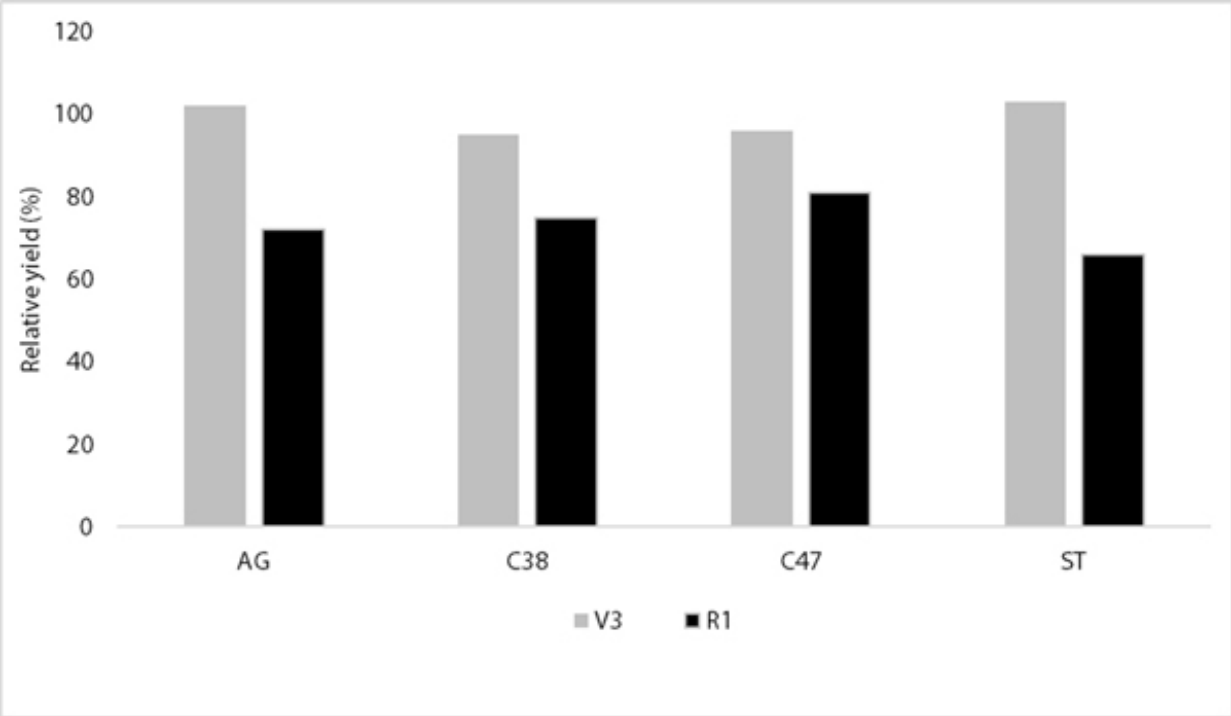

Figure 4. Soybean yield following application of 0.022 fl. oz of XtendiMax to four varieties (AG4135, CR3841, CR4748, and ST40B) at V3 or R1 growth stage.

Figure 5 shows soybean injury four weeks after soybeans were treated with one, two, or three dicamba applications. Any treatment that included an application at R1 or R3 resulted in greater injury that an application at V3 only, which was 9% to 17%. Injury following application at R1 or R3 was 12% to 37% and injury following two applications ranged from 19% to 58%. Injury observed following three applications was 40% to 58% and was statistically similar to applications at R1 followed by R3. Similar trends were observed when soybean injury was evaluated at senescence.

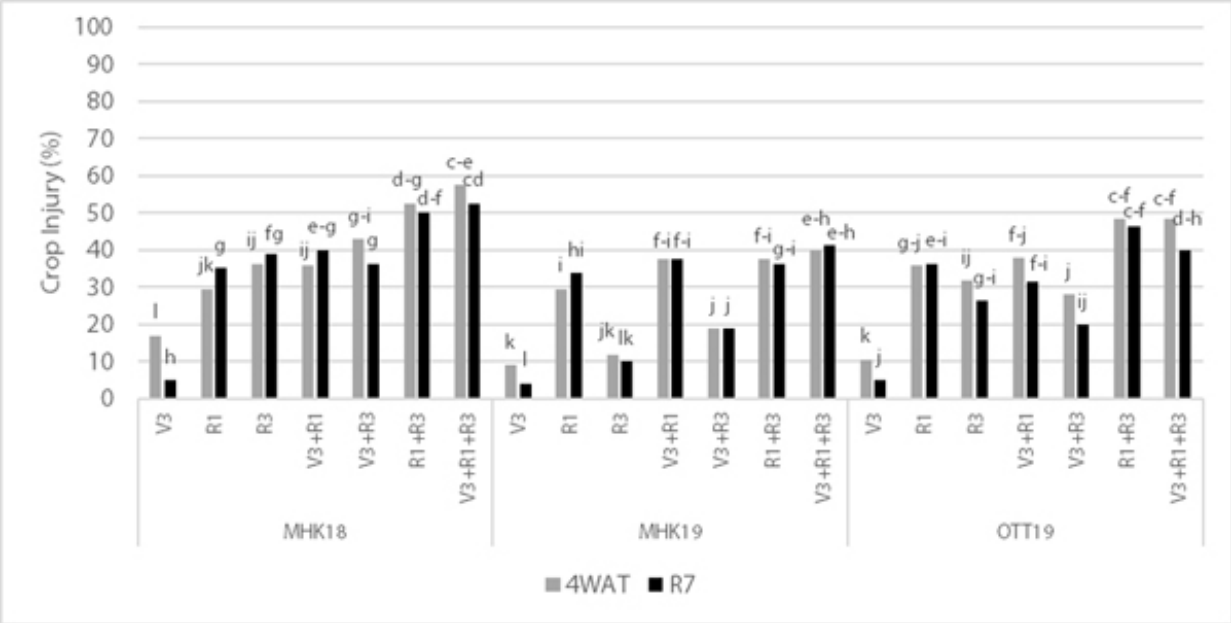

Figure 5. Soybean injury following one, two, or three applications of 0.022 fl. oz of XtendiMax to CR3841 at V3, R1, or R3 growth stage.

The greatest yield reductions occurred in treatments that included an application at R1 (Figure 6).

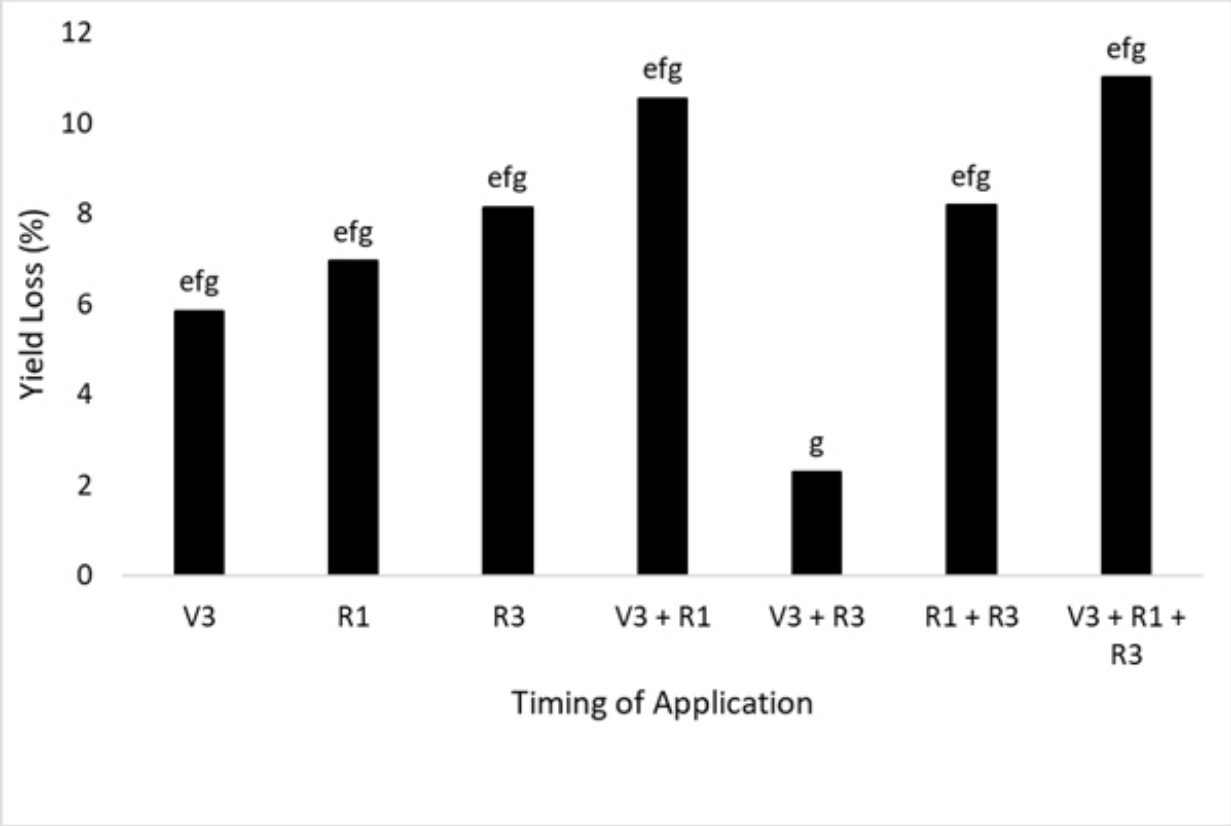

Figure 6. Soybean yield following one, two, or three applications of 0.022 fl. oz of XtendiMax to CR3841 at V3, R1, or R3 growth stage.

Take home message

What does all of this mean for a field of damaged soybeans? If a single dicamba drift event occurred during vegetative growth stages, the field is at less risk for yield loss. However, yield reductions should be expected if the drift event occurs near the time of flowering. Yield reductions will be greater if multiple drift events occur, especially if they occur during reproductive growth stages.

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4. Soil Management: On-site wastewater treatment systems

When central sewers are not available, households, businesses, and institutions with indoor plumbing must use an onsite wastewater treatment and dispersal system. For new home builders in rural areas in particular, selecting the location of the onsite wastewater system is not often the first thing they think about. It is important to give that some consideration early in the planning process. The location, size of the home, and type of system can vary greatly in cost. The simplest onsite systems are septic tanks — laterals (Figure 1-left) and lagoon ponds (Figure 1-right). With proper design, good construction, and regular maintenance, onsite wastewater systems can effectively eliminate most health and environmental threats caused by pollutants in wastewater.

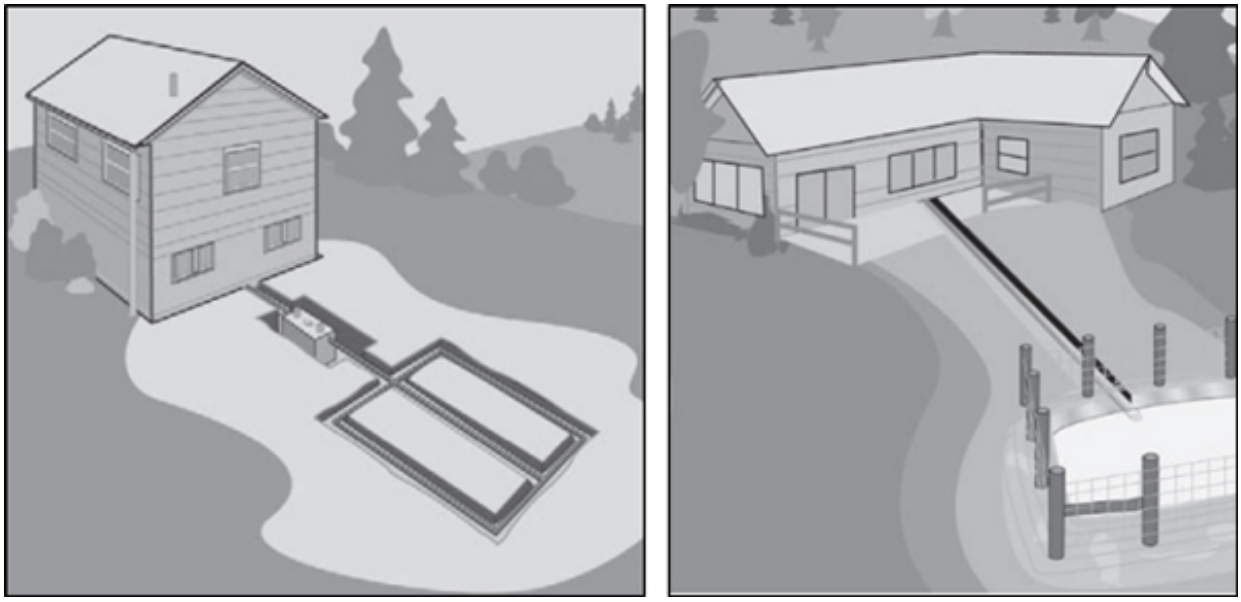

Figure 1. Rural home with a septic system: septic tank and soil dispersal field (left image) and a rural home with a lagoon pond system. Graphics from K-State Research and Extension.

Site Requirements

Underground septic systems with a drainfield for wastewater dispersal are common and preferred onsite sewage systems. It is essential to match the type of treatment and dispersal system to the soil properties in the drainfield. Fine-textured soils with high clay are often not well-suited for traditional soil dispersal. Instead, a lagoon may be viable when the code permits it, and there is adequate area. Because of soil and/or site limitations, a feasible onsite system may not be possible on all lots. For this reason, it is preferable to have an onsite soil evaluation done by a qualified person before obtaining a permit to install a wastewater system.

Each onsite system must be designed specifically for the flow and site conditions. What may be suitable for one location might not fit the needs at a different site. The area required by a typical

system for a three-bedroom home could range from 2,000 square feet for a tank and lateral field to over 6,000 square feet for a lagoon. No part of an onsite system (septic tank, dispersal field, lagoon, or other component) should be placed on an easement or in an area subject to flooding. In order to avoid possible backup or failure, all underground septic system components must be correctly designed for the maximum flow of wastewater expected during a defined time period, usually three days. A surface system (lagoon) should not be subject to backup by high wastewater flow, so it is usually designed for average flow.

Septic Tank

A septic tank is a buried, watertight container made of durable material — such as concrete, plastic, or fiberglass — that is strong enough to withstand soil forces and resistant to corrosion or decay. The tank slows wastewater flow, allowing solids to settle or float to the top. The solids are stored in the tank where they can decompose. The clarified liquid protects the soil dispersal field from potential clogging and early failure. The septic tank wastewater, though mostly clear, is sewage and contains dissolved organics, microbes, and pathogens. The wastewater flows to the dispersal field where it is absorbed and treated as it percolates through the soil.

Inspection ports, access manholes, and risers from the tank to the surface serve three important purposes:

1. Provide easy access to check the condition of the tees and sludge depth in the tank.
2. Allow access to the tank for inspection, maintenance, and removal of solids.
3. Allow quick identification of the tank's location. Regular inspection and periodic pumping of the septic tank will ensure long-term, efficient functioning of the septic system.

Soil Dispersal Field

The dispersal field absorbs, filters, and treats the wastewater, making it suitable for re-entry into the groundwater. Dispersal laterals are typically 1.5 to 3 feet wide and the top is approximately a foot below the surface. In Kansas, at least 4 feet of suitable, aerated soil is required beneath the bottom of the lateral. This depth helps ensure adequate treatment (or purification) before wastewater reaches a limiting condition such as bedrock, impervious soil, groundwater, or seasonally saturated soil.

Septic permits usually require a depth of 6 feet of suitable soil above the limiting condition to allow the construction of dispersal laterals and ensure adequate treatment. Minimum standards require the dispersal field to be at least 50 feet from any surface water or well and at least 25 feet from the house and property lines. Greater separation distances from wells and surface water are recommended, and some county codes require these.

Septic system construction is limited by steep slopes, greater than 25 percent. Slopes less than 15 percent are preferred for easier construction of the dispersal field. The size of the dispersal field depends on the amount of wastewater flow, the site conditions, and the local code. The number and length of laterals are often determined by a county health or environmental department official.

Lagoons

In areas of Kansas with slowly permeable, high clay soils, a lagoon may be best suited for an onsite wastewater system. A lagoon treats the waste, and the wastewater evaporates or slowly seeps into

the soil. Lagoons are simple in design, easy to construct, and, when correctly managed, have little or no odor. However, protective fencing is essential to avoid accidental drowning and disease transmission, especially for children, the elderly, and pets.

Not every site is suitable for a lagoon, however. Lagoons require a soil with a depth of at least 7 feet to bedrock and some homeowner associations may not allow them, despite the fact that they are a very effective solution, particularly for very clayey soils.

To determine the best option for the home site, contact the county or city health department. All health departments have environmental specialists who work with homeowners in evaluating the soil and make recommendations on system locations. When soil, site, or code requirements are not the most suitable for a basic system, an alternative system may be a better option. Alternative systems include components that give higher levels of pretreatment and usually involve different methods of soil dispersal.

More information about on-site wastewater systems is available in publications from K-State Research and Extension, including:

Onsite Wastewater Systems — Overview

Site and Soil Evaluation for Onsite Wastewater Systems

Selecting an Onsite Wastewater or Septic System

Septic Tank Maintenance – A key to longer system life

Why Do Onsite Wastewater (Septic) Systems Fail?

Stay tuned for next week's eUpdate which will feature an article on tips to implement to avoid wastewater system failure.

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5. Germination testing for wheat seed: At home and professional seed laboratory

Some producers may be anxious this year to find out the germination percent of the wheat they harvest, to see if it will make suitable seed. If they do a home germination test too soon after harvest, they may be shocked at the low germination percentage – unless the test is done correctly. That's because wheat has a post-harvest dormancy requirement (some varieties more so than others). Even high-quality seed will not germinate at its maximum capacity right after harvest in most cases. This post-harvest dormancy is important to help decrease the chances of pre-harvest sprouting in case harvest is delayed due to weather conditions or other reasons.

To get around that, for the first several weeks after harvest, it's important to make sure the wheat is pre-chilled before taking a germination test. Any reputable seed lab will do that on a routine basis. Producers testing their seed at home should also pre-chill the wheat by planting it and putting it in the refrigerator at about 40 degrees for 5 days. If the seed is not pre-chilled, producers should wait a month and a half after harvest before testing for germination.

There is some difference among varieties regarding how long their post-harvest dormancy requirement is – so much so that some varieties are more prone to pre-harvest sprouting. Hard white wheat varieties with poor sprouting tolerance, for example, have almost no summer dormancy requirement. They will germinate almost as soon as the seed is harvested. Other varieties have a relatively long summer dormancy requirement, and may not germinate well for five or six weeks after harvest unless the seed is pre-chilled. By Labor Day, all varieties will have lost their summer dormancy and should germinate unless the seed is defective in some way.

If there is any question about the viability of the seed, it is well worth the cost to have the seed tested for germination by a professional seed laboratory. This is especially true in areas where there was freeze damage, severe drought or heat stresses during grain filling, a rain delay at harvest, or wheat head scab.

Professional lab testing

Having your seed professionally tested for germination is always a good practice, but with the severe drought and heat stress on the wheat crop in many areas this year, it is highly recommended.

To have an official germination test on the seed, send a two-pound sample to:

Kansas Crop Improvement Association
2000 Kimball Ave.
Manhattan, KS 66502

A germination test for non-members of KCIA will cost $20.00 and a sample submittal form can be printed off from the KCIA website: www.kscrop.org/seed-lab.html

Other seed quality tests are also available and are listed on the submittal form. A companion article in this eUpdate discusses the Accelerated Aging test that can help identify weak seed lots beyond the standard germination test.

Home testing: Doing it correctly

If producers want to test their seed for germination at home, it needs to be done correctly to be of value.

- Place two moistened paper towels (on top of each other) on a flat surface. The towels should not have free water in them.
- Arrange fifty (50) seeds on the towels leaving approximately an inch border around the edges.
- Place two more moistened towels over the seeds.
- Make a ½ to ¾ inch fold at the bottom of the four paper towels. This will keep the seed from falling out.
- Starting on one side, loosely roll the paper towels toward the other side (like rolling up a rug) and place a rubber band around the roll(s).

Place the roll in a plastic bag. Seal, but not completely, so as to keep moisture in but still allow some air into the bag.

For newly harvested seed:

- Place the bag upright in the refrigerator for 5 days and then remove and place it upright at room temperature for an additional 5 to 7 days.
- Remove the sample from the bag and unroll the towels.
- Count and record the number of healthy seedlings (adequate root and shoot development and NOT overtaken by disease.)

For carryover seed, or after September 1:

- Place the bag upright at room temperature for 5 to 7 days.
- Remove the sample from the bag and unroll the towels.
- Count and record the number of healthy seedlings (adequate root and shoot development and NOT overtaken by disease).

To calculate the germination percentage: divide the number of healthy seedlings by the number of seeds tested and multiply by 100.

Example: 42 healthy seedlings X 100 = 84% germination

50 seeds tested

This may be repeated more times for each sample in order to obtain more accurate results, testing up to 400 seeds. If the seed will be treated with a fungicide seed treatment prior to planting, the test should be performed after the seed treatment is applied because it can increase the germination percentage.

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6. Accelerated Aging test helps identify weak wheat seed

Beyond the standard germination test, most professional seed testing labs offer an Accelerated Aging (AA) test that will test the seed for anticipated emergence vigor. Information on standard germination testing is presented in a companion article in this eUpdate issue.

Figure 1. Wheat seed should be tested for germination. Photo by Kansas Wheat.

This test is very capable of identifying weak seed lots where there are issues with Fusarium head scab; heating in the bin; smaller, development-stressed seeds; or more than a year old.

Briefly, in an AA test, the seed is subjected to a high temperature (106 degrees F) and high moisture stress for 72 hours before planting. This accelerates the aging process of the seed. The resulting seedlings are then counted the same as with a standard germination test. The weak seed in the population will be pushed beyond the capability of germinating into a normal seedling.

When to test: Because seed vigor will only decline over time, testing close to planting time will give the best prediction of field performance. However, if there are questions about whether there has been stress-related physiological damage to the seed, it might be best to have the AA test done shortly after harvest before investing in storage, cleaning, and seed treatments.

What the results mean: Ideally the AA score should be relatively close to the standard germination score. This would mean the seed lot has the greatest capability of emerging under a wide array of field conditions. While high vigor seed will be more forgiving, it is noteworthy that much of the

crop's ultimate success also depends on management practices, such as how the seed is planted, depth of planting, whether the soil gets crusted over by a hard rain before emergence, and other factors beyond seed quality. Even high-vigor seed lots may not produce satisfactory stands if field conditions are extreme.

If the seed has an AA germination score considerably lower than the standard germination test, this indicates the seed has reduced vigor and is more at risk when planted. Reduced vigor seed lots may still be planted and are capable of producing adequate stands. However, producers must pay extra attention to planting conditions and planting rates. This seed will likely benefit from the protection of a fungicide seed treatment.

The real point is that knowing seed quality is critical and producers need not necessarily dump low-vigor seed, nor is high-vigor seed guaranteed to make a stand under any conditions. Management practices play a big role in how well the seed performs. Producers just have to pay extra attention to their management practices and have a little extra good luck on their side if they plant seed with low AA scores.

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7. Kansas River Valley Experiment Field Fall Field Day- August 8

All interested individuals are invited to attend the **2023 Kansas River Valley Experiment Field Day** on **Tuesday, August 8, at 5:00 p.m**. The event will be held at the Rossville Experiment Field (1 mile east of Rossville on Hwy 24, south side of the road).

This is a free event and pre-registration is requested for the catered BBQ meal. To register, please call Kaci Beck at the Shawnee County Extension office at 785-232-0062 ext. 100 by 5:00 pm on Monday, August 7. Commercial pesticide applicator and CCA credits have been approved.

Topics and speakers:

Strategies to Maximize Agronomic and Economic Nitrogen Use – Dorivar Ruiz Diaz

Integrating Cover Crops in Weed Control – Sarah Lancaster

Management of Corn and Soybean to Maximize Yield – Ignacio Ciampitti

Updates on Fungicide Application in Row Crops – Rodrigo Onofre

Kansas State Research & Extension
KSU Agronomy

Kansas River Valley Experiment Field
2023 Fall Field Day

Tuesday, August 8 - 5:00 p.m. Sharp!

Rossville Field — 1 Mile East of Rossville
On U.S. Highway 24 on the South Side of the Road

Strategies to Maximize Agronomic & Economic Nitrogen Use
Dr. Dorivar Ruiz Diaz

Integrating Cover Crops in Weed Control
Dr. Sarah Lancaster

Management of Corn & Soybean to Maximize Yield
Dr. Ignacio Ciampitti

Updates on Fungicide Application in Row Crops
Dr. Rodrigo Onofre

To pre-register for this event and for the catered BBQ meal, call Kaci Beck at the Shawnee County Extension Office at 785-232-0062 ext 100, by 5:00 p.m. on Monday, August 7.

CCA and Commercial Pesticide Applicator Credits have been applied for.

8. K-State East Central Experiment Field Fall Field Day, August 16

All interested individuals are invited to attend the **2023 East Central Experiment Field Day** on **Wednesday, August 16, at 9:00 a.m**. The event will be held at the Ottawa Experiment Field (From I-35 at Ottawa proceed south 1.7 miles on 59 Hwy, go east 1 mile, and south 0.75 mile).

This is a free event and no pre-registration is required. Registration will begin at 9 am with coffee and doughnuts provided. The program will start at 9:30 am. There will be a lunch at noon after the conclusion of the program. Commercial pesticide applicator and CCA credits have been approved.

Topics and speakers:

Strategies to Maximize Agronomic and Economic Nitrogen Use – Dorivar Ruiz Diaz

Integrating Cover Crops in Weed Control – Sarah Lancaster

Management of Corn and Soybean to Maximize Yield – Ana Carcedo

Updates on Fungicide Application in Row Crops – Eric Adee

Please contact the East-Central Research Station at 785-242-5616 at least two days prior to this event if accommodations are needed for persons with disabilities or special requirements.

Kansas State Research & Extension

KSU Agronomy Ottawa Field Day

Wednesday, August 16th, 2023

East-Central Experiment Field

Ottawa, KS

From I-35 at Ottawa: South 1.7 miles on 59 Hwy, East 1.0 mile, South 0.75 mile

9:00..... Registration, coffee, and doughnuts

9:30..... Program begins

Strategies to Maximize Agronomic & Economic Nitrogen Use
Dr. Dorivar Ruiz Diaz

Integrating Cover Crops in Weed Control
Dr. Sarah Lancaster

Management of Corn & Soybean to Maximize Yield
Dr. Ana Carcedo

Updates on Fungicide Application in Row Crops
Dr. Eric Adee

12:00..... Lunch

CCA and Commercial Pesticide Applicator Credits have approved. Please contact the East-Central Research Station at 785-242-5616 at least two days prior to this event if accommodations are needed for persons with disabilities or special requirements.

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