



Number 124  
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<b>1. Effect of cold temperatures on unemerged wheat</b>	<b>1</b>
<b>2. Winter/spring options for winter annual broadleaf control in wheat</b>	<b>1</b>
<b>3. New Southeast Area Extension Crops and Soils Specialist</b>	<b>3</b>

### 1. Effect of cold temperatures on unemerged wheat

In some areas of Kansas, wheat has not yet emerged. Will the cold weather we've had in December and January kill this wheat and prevent any chance of it making a stand later this winter? It's possible, but unlikely.

If the seed had germinated but not yet emerged, and if soil temperatures at seeding depth reached single digits, then that seed may be damaged. In that situation, full emergence later this winter or spring is unlikely. But in most cases so far, soil temperatures have not been that cold in Kansas because soils have been wet and there has been snow cover

If the seed has not yet germinated or started to swell, it will not be damaged by cold soil temperatures.

One of the most serious concerns on fields where the wheat has not yet emerged is the potential for blowing later this winter or early spring. Blowing will not only result in erosion losses from the fields in question, but can also cause damage to young emerged wheat plants in other fields.

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### 2. Winter/spring options for winter annual broadleaf control in wheat

There are several herbicide options for controlling winter annual broadleaf weeds in wheat. Generally, fall applications will provide the best control of winter annual weeds with any herbicide, as long as the weeds have emerged. The majority of winter annual

weeds usually will emerge in the fall, although you can still have some emergence in the spring, especially if precipitation after planting is limited in the fall. However, winter annual weeds that emerge in the spring often are not very competitive with the crop, assuming that you have a decent crop.

Some herbicides can work well even when applied during the dormant part of the season, while others perform best if the crop and weeds are actively growing. The key difference relates to the degree of soil activity provided by the herbicide. Herbicides that have good residual activity, such as Glean, Finesse, Amber, and Rave can generally be applied in January and February when plants aren't actively growing and still provide good weed control, assuming you have proper conditions for the application. Most other herbicides, which depend more on foliar uptake, will not work nearly as well during the mid-winter months, when the wheat and weeds aren't actively growing, as compared to a fall or early spring application.

Spring herbicide applications can be effective for winter annual broadleaf weed control as well, but timing and weather conditions are critical to achieve good control. Spring applications generally are most effective soon after green-up when weeds are still in the rosette stage of growth, and during periods of mild weather. Once weeds begin to bolt and wheat starts to develop more canopy, herbicide performance often decreases dramatically.

Another important consideration with herbicide application timing is crop tolerance at different application timings. For example, 2,4-D should not be applied in the fall or until wheat is fully tillered in the spring. On the other hand, any herbicide containing dicamba can be applied after wheat has 2 leaves, but should not be applied once the wheat gets close to jointing in the spring. Herbicides containing dicamba include Banvel, Clarity, Rave, and Agility SG.

There has been some discussion about wheat tolerance to herbicides, especially when applied with fertilizer carrier. The best advice regarding crop safety with herbicide-fertilizer combinations and application timing is to follow the label guidelines. We generally see very minimal crop injury and no yield loss from topdress fertilizer/residual herbicide applications during the winter months. However, these combinations can often cause considerable burn to the wheat if applied when the crop is actively growing and with warmer weather. The foliar burn is generally temporary in nature and the wheat usually will recover if good growing conditions persist.

Research at Hays several years ago found as much as 47% injury to the wheat 4 days after treatment following a late March treatment of Amber plus 2,4-D, but wheat recovered and yields were not reduced. However, research in Nebraska did show some yield loss from Ally plus 2,4-D applications with fertilizer applied in late April to more advanced wheat and with moisture stress conditions. Crop injury with herbicide-fertilizer combinations will depend on the total amount of fertilizer applied, dilution with water, and the addition of surfactant. Again the herbicide label provides the best guidelines regarding if, when, and how herbicides can be applied with fertilizer.

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### 3. New Southeast Area Extension Crops and Soils Specialist

Doug Shoup is the new Southeast Area Extension Crops and Soils Specialist, as of January 14. Doug is based in the Southeast Area Extension office in Chanute.

A native of Osage County, Doug got his B.S. in Agronomy at K-State. He then received his M.S. and Ph.D. in weed science at K-State, working under Kassim Al-Khatib. His research at K-State focused on the herbicide resistance of common waterhemp populations.

After getting his Ph.D. in 2006, Doug worked for Monsanto for two years in St. Louis. While there, he worked on developing high-yield biotech traits for soybean.

Doug's office phone number in Chanute is 620-431-1530. His email address is [dshoup@ksu.edu](mailto:dshoup@ksu.edu).

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update 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 Steve Watson, 785-532-7105 [swatson@ksu.edu](mailto:swatson@ksu.edu), or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 [jshroyer@ksu.edu](mailto:jshroyer@ksu.edu)