



Extension Agronomy

eUpdate

06/15/2018

These e-Updates are a regular weekly item from K-State Extension Agronomy and Kathy Gehl, 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 Kathy Gehl, 785-532-3354 kgehl@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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1. Pre-harvest weed control in wheat

Recent hail storms, prolonged drought, and other problems have affected wheat stands in many areas of Kansas this year. The resulting thin stands in those areas, along with the abundant rains in late May, have caused weeds to start showing up in many wheat fields -- especially in fields not treated earlier. When broadleaf weeds are given the opportunity to grow rapidly in wheat fields because of wet weather and open canopies at the end of the growing season, these weeds flourish and often grow above the wheat canopy.

This raises several potential concerns, including harvest difficulties, dockage problems, weed seed production, and soil water depletion. No one wants to spend extra money on a below-average crop, but it may be necessary.



Figure 1. Weeds in wheat near harvest time. Photo by Dallas Peterson, K-State Research and Extension.

Unfortunately, there aren't many good options at this point in time. There are also a lot of questions about which herbicides are approved and the "use guidelines and restrictions" for pre-harvest

treatments in wheat. Listed below are the various herbicide options producers can use as pre-harvest aids in wheat. There are differences in how quickly they act to control the weeds, the interval requirement between application and grain harvest, and the level or length of control achieved. All of them will require good thorough spray coverage to be most effective.

Please note that the 2,4-D rate approved for pre-harvest weed control in wheat has been reduced to a maximum of 0.5 lb/acre, which is equal to 1 pt of a 4-lb formulation or 2/3 pt of a 6-lb material. 2,4-D also has a 14-day pre-harvest requirement.

Another herbicide that is sometimes mentioned as a possible pre-harvest treatment is paraquat.

Paraquat is not labeled for pre-harvest treatment in wheat. Application of paraquat to wheat is an illegal treatment and can result in a quarantine and destruction of the harvested grain, along with severe fines.

Product and rate	Advantages	Disadvantages	Comments
Aim EC (1 to 2 oz)	Acts quickly, usually within 3 days. Short waiting interval before harvest – 3 days.	Controls only broadleaf weeds. Regrowth of weeds may occur after 2-3 weeks or more, depending on the rate used.	Apply after wheat is mature. Always apply with 1% v/v crop oil concentrate in a minimum spray volume of 5 gal/acre for aerial application and 10 gal/acre for ground applications. Do not apply more than 2 oz of Aim during the growing season.
Dicamba (0.5 pt)	Controls many broadleaf weeds.	A waiting period of 7 days is required before harvest. Acts slowly to kill the weeds. Controls only broadleaf weeds. High potential for spray drift to susceptible crops.	Apply when the wheat is in the hard dough stage and green color is gone from the nodes of the stem. Do not use treated wheat for seed unless a germination test results in 95% or greater seed germination.
Glyphosate (1 qt of 3 lb ae/gal product, or 22 fl oz of Roundup PowerMax or WeatherMax)	Provides control of both grasses and susceptible broadleaf weeds.	Acts slowly. May take up to 2 weeks to completely kill weeds and grasses. Cannot harvest grain	Apply when wheat is in the hard dough stage (30% or less grain moisture). Consult label for

		until 7 days after application. Kochia, pigweeds, and marestail may be resistant.	recommended adjuvants. Not recommended for wheat being harvested for use as seed.
Metsulfuron (0.1 oz)	Provides control of susceptible broadleaf weeds.	Acts slowly. Cannot harvest grain until 10 days after application. Controls only susceptible broadleaf weeds. Kochia, pigweeds, and marestail may be resistant.	Apply when wheat is in the dough stage. Always apply with a nonionic surfactant at 0.25 to 0.5% v/v. Generally recommended in combination with glyphosate or 2,4-D. Do not use on soils with a pH greater than 7.9. Weeds growing under limited moisture may not be controlled. Do not use treated straw for livestock feed.
2,4-D LVE (1 pt of 4lb/gal product or 2/3 pt 6 lb/gal product)	Provides control of susceptible broadleaf weeds.	Acts slowly. Weak on kochia and wild buckwheat. Cannot harvest grain until 14 days after application.	Apply when wheat is in the hard dough stage to control large, actively growing broadleaf weeds. Weeds under drought stress may not be controlled. Do not use treated straw for livestock feed.

It is very difficult to estimate the value of preharvest weed treatments as it will depend in part on the differences a treatment would have on harvest efficiency and dockage. It may not pay to treat wheat with lower weed densities unless harvest is delayed. If the weeds are about to set seed, a preharvest treatment can go a long way toward reducing weed problems in future years by preventing seed production.

In the coming weeks, we will address the issues of controlling weeds and volunteer wheat shortly after harvest this year. This will be important in reducing the incidence of wheat streak mosaic, which was a major problem across western Kansas in 2017.

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2. Postemergence marestail and pigweed control in soybean fields

Controlling marestail or pigweeds postemergence in soybeans is always easier when the weeds are small – less than 2 inches tall is preferable for good control. Once weeds get taller, they are often considerably more difficult to control. However, conditions are not always conducive to getting optimal postemergence weed control. The wet weather in many areas this spring may cause weeds in some fields to get larger than you intended. The following are some suggestions for controlling these weeds postemergence in soybeans.

Marestail

Marestail tend to be difficult to control even when the plants are small and in the rosette stage, but become even tougher when plants get more than 6 inches tall. That is why fall and early burndown treatments are critical to the long-term management of marestail. Unfortunately, that doesn't always happen. In addition, some marestail have developed glyphosate resistance in many areas. However, some marestail populations are still susceptible to glyphosate, and even resistant plants are not completely immune to glyphosate.



Figure 1. Growth stages of marestail from seedling, rosette, to bolting state. Photos by Dallas Peterson, K-State Research and Extension.

The most effective herbicide treatment for controlling marestail in Roundup Ready soybeans is probably a tank-mix of glyphosate plus FirstRate. The combination of the two herbicides seems to work better than either herbicide alone, even on resistant plants. It is important to use the full labeled rates of glyphosate and recommended adjuvants, including ammonium sulfate, to optimize control and help minimize the risk of developing more resistance. Other tank-mixes to consider with glyphosate for controlling marestail would include Classic and Synchrony herbicides. Unfortunately, some marestail may also be ALS resistant, in which case FirstRate, Classic, and Synchrony would also be fairly ineffective. This just further emphasizes the importance of early spring weed control.

If Xtend soybeans are planted, Xtendimax, FeXapan, or Engenia should be some of the most effective herbicides for postemergence control of marestail in soybeans. Remember that Xtendimax, FeXapan and Engenia can only be applied to Xtend soybeans.

Another option to control marestail in soybean is to plant Liberty Link soybeans and use Liberty herbicide. It is important to remember that Liberty can only be applied postemergence on Liberty Link soybeans.

Waterhemp and Palmer amaranth



Figure 2. Glyphosate-resistant Palmer amaranth escapes in soybeans. Photo by Dallas Peterson, K-State Research and Extension.

If preemergence herbicides weren't applied or didn't get activated in a timely manner, early-emerging waterhemp or Palmer amaranth may not have been controlled and can grow rapidly. Flexstar, Cobra, Marvel, and Ultra Blazer can be fairly effective for controlling small pigweed, but are less effective as the pigweed gets larger, especially Palmer amaranth. Some waterhemp and Palmer amaranth also may have developed resistance to this class of herbicides, but size still seems to be a factor, even on resistant populations. These herbicides also provide some residual weed control, so tank-mixes of these herbicides with glyphosate should be applied within 3 weeks after planting to optimize performance. Producers may try to cut the rates of these herbicides to reduce soybean injury. However, lower rates of these burner herbicides still cause similar soybean burn symptoms and weed control is often reduced.

Pursuit and Harmony were once fairly effective for pigweed control and can still provide good control of susceptible populations, but many fields now have ALS-resistant waterhemp and Palmer amaranth.

If Xtend soybeans were planted, the new dicamba products Xtendimax, Engenia, and FeXapan again are an option to help control broadleaf weeds, including the pigweeds. However, just as with other

postemergence pigweed treatments, the pigweeds need to be less than 3 to 4 inches tall to achieve optimal control.

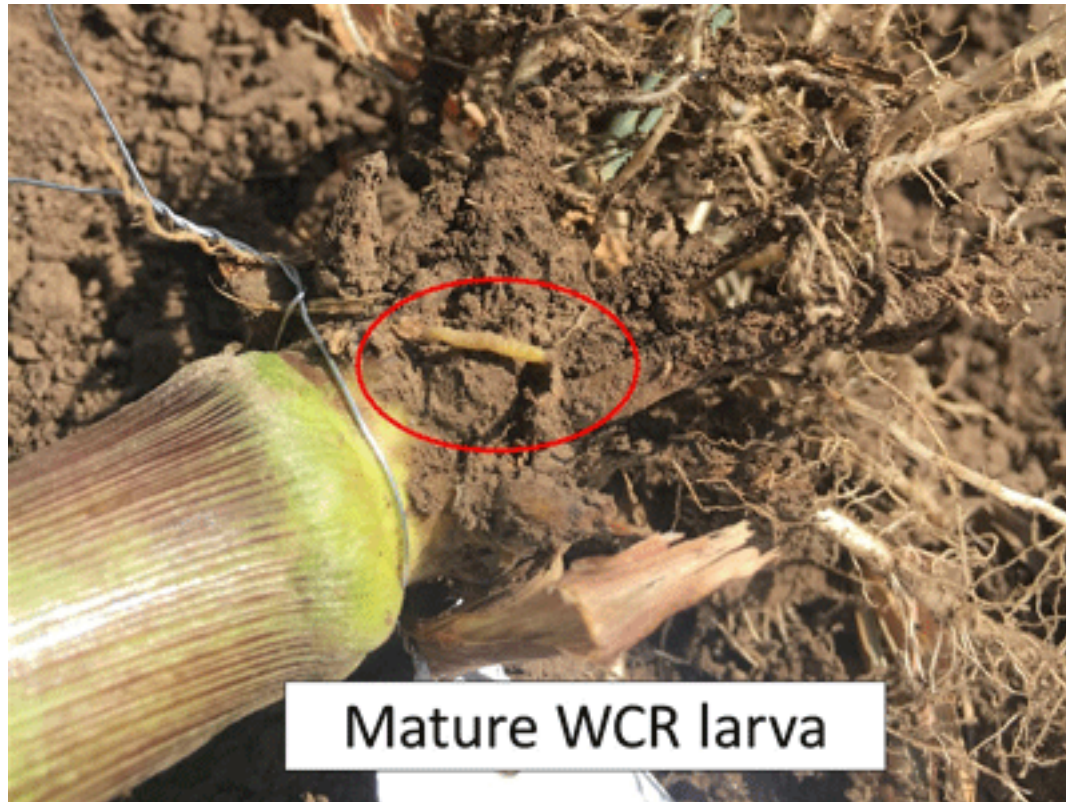
Likewise, Liberty herbicide can be used in Liberty Link soybeans to help control small pigweeds. Liberty is also most effective on smaller weeds and generally requires higher spray volumes to achieve good coverage and weed control. A sequential application of Liberty 7 to 10 days after the first application may be required for good control, especially on larger plants.

Residual herbicides such as Zidua, Anthem Maxx, Outlook, Dual Magnum, and Warrant can also be added to any of the previously mentioned postemergence herbicides to provide some extended residual control of pigweeds. This may be especially helpful if a good rate of residual herbicide was not used earlier or with heavy pigweed pressure.

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3. Update on corn rootworm activity in Kansas

The first western corn rootworm (WCR) adults were observed on June 12 in north central Kansas. There are still larvae feeding on roots but most are/have pupated and adults are emerging from soil.



None of the corn sampled in north central Kansas has tasseled or started silking yet. Thus, these adult western corn rootworms are feeding on leaf tissue in the early morning or early evening and resting in shady places during the hottest part of the day.



The photo below is a great example of WCR larval root pruning compared to a non-infested root system.



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4. Great Plains Grazing to host beef cattle producer conference on June 28-29

Great Plains Grazing will host “Adapting Grazing Management for Future Needs”, a conference aimed for beef cattle producers across Kansas, Oklahoma, and Texas. The conference is scheduled for June 28-29, 2018 at the Grand Casino Hotel and Resort in Shawnee, Oklahoma.

Almost five years ago, a team of nearly 50 scientists from Kansas State University, the University of Oklahoma, Oklahoma State University, Tarleton State University, the Noble Research Institute, and the USDA Agricultural Research Service (ARS) began collaboration to increase the resiliency of beef cattle operations on grazing lands and wheat pastures under changing climate, land use, and markets across the Southern Great Plains. As the [Great Plains Grazing project](#) nears its completion, cattle producers across the region are invited to attend a conference tailored specifically to help producers manage their operations more effectively.

Registration for the conference is free and will include lunch and dinner on June 28, breakfast on June 29, and a lunch to conclude the event.

The event kicks off with registration at 10:30 a.m. on June 28. A buffet lunch will begin at 11:30 a.m. with opening remarks to start at 12:30 p.m. The conference will feature 5 sessions over the two days. The topics and speakers include:

- **The Impact of Grazing Animals on Methane Emissions**
 - Field scale methane emissions from grazing systems – Rick Todd, USDA-ARS
 - The role of enteric methane on climate change – Andy Cole, Retired USDA-ARS
 - Methanotrophic bacteria and their potential role in the methane cycle – Brekke Munks, USDA-ARS
- **Grazing Management Impacts on Resilience and Productivity**
 - Rotational grazing – Walt Fick, K-State
 - Moderate continuous stocking – Laura Goodman, OSU
 - Patch burning – Corey Moffet, USDA-ARS
 - Grazing cover crops in the Southern Plains – Jaymelynn Farney, K-State
- **Dynamic Grazing Management**
 - Dynamic forage management using field measurements – Alex Rocateli, OSU
 - Forecasting forage production with soil moisture estimates – Sonisa Sharma, USDA-ARS
 - Matching cows to forage resources – David Lalman, OSU
- **Weather, Climate, and Cattle**
 - Dynamics in weather and climate change – Jeff Basara, Univ. of Oklahoma
 - Utilizing the cattle comfort advisor – Wes Lee, Oklahoma Mesonet
- **Sustainable Beef Production**
 - Consumer perspectives – Bailey Norwood, OSU
 - Industry perspectives – Sara Place, National Cattlemen’s Beef Association

All beef cattle producers in the region are encouraged to attend this conference. Registration for the event is free. Interested individuals are encouraged to register online by June 22 at <http://bit.ly/GrazCAPCon>

For more information about the conference, contact Jason Warren at Jason.warren@okstate.edu or 405-744-1721 or visit the Great Plains Grazing website at www.greatplainsgrazing.org.

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ADAPTING GRAZING MANAGEMENT FOR FUTURE NEEDS

WHEN
JUNE 28-29, 2018

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RESILIENCE AND PRODUCTIVITY

Walt Fick, KSU
Laura Goodman, OSU
Corey Moffet, USDA
Jaymelynn Farney, KSU

DYNAMIC GRAZING MANAGEMENT TOOLS

Jeff Basara, OU
Alex Rocateli, OSU
Sonisa Sharma, USDA
David Lalman, OSU
Wes Lee, OK Mesonet

METHANE EMISSIONS

Rick Todd, USDA
Andy Cole, Retired USDA
Brekke Munks, USDA

SUSTAINABLE BEEF PRODUCTION

Bailey Norwood, OSU
Sara Place, NCBA

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