k-state extension AGRONOMY e-Updates

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## 1. Residual herbicide options for Roundup Ready soybeans

Some farmers have good reasons for wanting to apply something other than strictly glyphosate to their Roundup Ready soybeans. Producers may want to:

- Get early season control of weeds and grasses so that only one postemergence application of glyphosate is needed instead of two.

-. Provide some residual weed control before and following the postemergence glyphosate.

- Provide some assistance to glyphosate in controlling certain hard-to-control or glyphosate resistant weeds.

- Use a second herbicide mode of action to prevent or delay the development of glyphosate-resistant weeds.

In developing an alternative to the exclusive use of postemergence glyphosate treatments on Roundup Ready soybeans, it is useful to know what weeds or grasses are being targeted. Some good options for the most common weed and grass problems include:

* Pigweeds (including waterhemp and Palmer amaranth). Glyphosate-resistant waterhemp has been confirmed across the eastern part of Kansas. Glyphosate-resistant Palmer amaranth has not yet been confirmed in Kansas, but is a major problem in the southeastern U.S. For early-season pigweed control, the Valor-based herbicides (Valor SX, Valor XLT, Fierce, Gangster, Envive, and Enlite) and Authority-based herbicides (Authority First, Sonic, Authority Assist, Authority MTZ, and Spartan) can all provide very good to excellent control to supplement a postemergence glyphosate program. Prefix is another excellent “foundation” herbicide for residual pigweed control in soybeans. Intrro, Dual, Outlook, and Prowl products can also provide some early-season pigweed control, but generally aren't as effective as those previously mentioned products.

* Kochia. Kochia is a major weed problem in western areas and often can be difficult to control with glyphosate, especially as it gets bigger. In addition, several glyphosate resistant kochia populations have now been confirmed in western Kansas. Research by K-State the last couple of years indicates that several preemergence herbicides can help provide glyphosate resistance kochia, including the Valor- and Authority-based products listed above. The Kixor-containing products Sharpen and Optill may help with kochia burndown, but the Kixor rates that can be used in soybeans will not provide very much residual control. ALS-inhibiting herbicides may or may not provide kochia control because of the occurrence of ALS-resistant kochia.

* Velvetleaf. Glyphosate is not always entirely effective on velvetleaf. To assist in velvetleaf control, the Valor-based and FirstRate-based herbicides (Valor SX, Valor XLT, Fierce, Gangster, Authority First, and Sonic) are some of the most effective preplant and preemergence herbicides you can use.

* Cocklebur. The most effective preplant and preemergence herbicides to aid in cocklebur control are those that contain First Rate, Classic, or Scepter. Such products would include Authority First, Sonic, Gangster, Envive, and Valor XLT. Extreme, which is a premix of glyphosate and Pursuit, can also be used as a preplant or postemergence treatment in Roundup Ready soybeans to provide residual cocklebur control.

* Marestail. Marestail is probably the most widespread glyhphosate-resistant weed in Kansas. Marestail control in Roundup Ready soybeans should begin with a preplant burndown program that includes 2,4-D at least 1 week ahead of planting and before marestail has started to bolt. A new option for marestail control in soybeans without a preplant waiting interval is the pair of Kixor-containing products, Sharpen and OpTill. Sharpen is Kixor alone, while OpTill is a premix of Kixor and Pursuit. Both products can be used anytime before soybean emergence (cracking). To optimize marestail control with Sharpen and OpTill , spray before marestail gets too big, use an adequate spray volume to insure good spray coverage, and apply in combination with a methylated seed oil. Other residual preplant herbicides that can help with burndown and residual marestail control include FirstRate-based herbicides, such as Authority First, Sonic, or Gangster. Marestail is best controlled before soybean planting and the marestail begins to bolt. FirstRate would probably be the most effective tank-mix partner with glyphosate for postemergence marestail control in Roundup Ready soybeans.

* Morningglory. Glyphosate sometimes has trouble controlling morningglory. To help get better control, you can use either Authority-based or Valor-based herbicides preplant or preemergence.

* Crabgrass and other small seed grasses. Glyphosate usually gives good control of most grasses, but producers may want to apply a foundation herbicide to control grasses early, then make just one postemergence glyphosate application later. Prefix, Fierce, Intrro, Dual II Magnum, Outlook, and Prowl H2O can all provide good early season grass and pigweed control ahead of Roundup Ready soybeans. Of these, Prefix and Fierce generally provides the best pigweed control, and Prowl H20 the least. Warrant is a new herbicide from Monsanto that can be applied as a postemergence tank-mix partner with glyphosate for residual grass and pigweed control. However, Warrant will not control emerged weeds, so it would not be effective for postemergence control of glyphosate-resistant waterhemp or Palmer amaranth.

-- Dallas Peterson, Weed Management Specialist
dpeterso@ksu.edu

2. Weed of the Month: Henbit

One of the most common cool-season broadleaf weeds in Kansas is henbit (*Lamium amplexicaule*). It can be a problem in wheat and canola, as well as in fields that will be planted to row crops in the early spring. Henbit generally is not very competitive with a good stand of wheat under good growing conditions, but severe infestations can reduce yields with thin wheat stands, dry conditions, and marginal fertility levels. Henbit is relatively easy to control with herbicides in the fall, but gets progressively more difficult to control after it blooms, which often occurs in March.

Henbit is a member of the mint family. Henbit is a winter annual species that usually germinates in the fall and blooms in early spring. However, it can also germinate during the winter and early spring if dry weather prevails in the fall.

One characteristic of the mint family, including henbit, is that they have square stems. However, unlike many of the mint-family relatives, henbit does not have a strong or distinctive odor. This introduced native of Europe and the Mediterranean reaches a height of 4 to 14 inches, but is generally low growing. It is thought to have arrived in the United States via lawn seed during the 1920's.

The plant has two types of leaves. The lower leaves have petioles (stems) and are not associated with the flowers, while the upper leaves are sessile (not stemmed) and located just below the flower clusters. Both leaf types are similar in shape, being somewhat rounded, incised, and opposite. Under a hand lens, the flower bracts are very hairy. The zygomorphic flowers are small, usually purple, and to the novice would appear to resemble a very small orchid.

**Henbit seedling. Photos by Dallas Peterson, K-State Research and Extension.**

**Flowering henbit.**

The seeds are egg-shaped, 3-angled, smooth, and tan to olive in color. The seeds are consumed by some species of birds. Henbit spreads from field to field by way of seed dissemination, aided by animals or humans and their equipment.

The best way of controlling henbit depends on the situation.

*Wheat*. Henbit can be a problem in wheat nearly every year if not controlled throughout the crop rotation cycle. The best approach to controlling henbit in wheat is to apply a residual herbicide in the fall, after the henbit plants have emerged.

Huskie and sulfonylurea herbicides such as Finesse, Ally, Amber, Rave, and PowerFlex can provide excellent control of henbit when applied in the fall. These herbicides can also provide good henbit control during the winter, assuming you have proper conditions for application. Products such as Finesse that have excellent soil activity can be applied in the winter when wheat and henbit are dormant. Most of the other products will be most effective when plants are actively growing and during a period of mild weather.

Spring herbicide applications generally are less effective than fall treatments. Timing and conditions are critical to achieving good control. Spring applications generally are most effective soon after greenup before henbit starts to flower, and during periods of mild weather. Once weeds begin to flower and wheat starts to develop more canopy, herbicide performance often decreases dramatically.

*Corn and other row crops*. It is often a good idea to control henbit and other winter annual broadleaf weeds in the fall prior to planting a row crop the following spring. If not treated in the fall, spring treatments should be applied before henbit starts to bloom in the spring to achieve good control and maximize benefits.

A fall tank-mix of 2,4-D with atrazine, prior to planting corn or sorghum in the spring, will normally provide very good control of henbit, as well as common dandelion, marestail, and prickly lettuce. A number of different herbicides can be applied in the fall prior to planting

soybeans for control of henbit and other winter annual weeds. Most fall treatments are generally tank-mixed with a low volatile 2,4-D to maximize performance. Glyphosate and 2,4-D can provide excellent henbit control when applied in the fall, and also will control winter annual grass weeds. While it is always important to manage herbicide drift, herbicide applications made after fall frost have less potential for drift problems.

If fall treatments control the winter annuals right up to planting spring row crops, then at planting time only a light preplant tillage or a preemerge grass and broadleaf herbicide application with glyphosate or paraquat will be needed to catch newly emerged henbit and other weeds. Soils will be warmer and easier to plant where henbit and other winter weeds are controlled in fall.

-- Dallas Peterson, Weed Management Specialist
dpeterso@ksu.edu

-- Curtis Thompson, Weed Management Specialist
cthompso@ksu.edu

## 3. New Agronomist-In-Charge at North Central Kansas Experiment Fields

Randall Nelson is the new Agronomist-In-Charge at the North Central Kansas Experiment Fields at Belleville and Scandia. Nelson grew up on a dryland farm in northeast Colorado. The main crops on that farm were wheat and safflower.

He received his B.S. from Colorado State University. He received his M.S. from North Carolina State University. The subject of his Master's thesis was "Remote sensing for site-specific plant growth regulator applications in cotton." His Ph.D. research from Texas Tech University was titled "Tillage practices to enhance rainfall capture and infiltration in dryland cropping systems."

Nelson has several special research interests, including:

- -Soil and water conservation in irrigated and dryland cropping systems
- -Development and application of simulation models for cropping systems research
- -Site-specific management
- -Economic impacts of alternative management systems

When not working, Nelson enjoys hunting, fishing, skiing, and mountain biking.

Nelson can be contacted at 785-335-2836 or jrnelson@ksu.edu.

-- Steve Watson, Agronomy e-Update Editor
swatson@ksu.edu

## 4. North Central Kansas Experiment Fields Winter Update

You can meet the new Agronomist-In-Charge of the North Central Kansas Experiment Fields, Randall Nelson, at the Winter Update on Feb. 1. The update will last from 9:30 a.m. to noon, and will be held at the Scandia Community Building.

In addition to being introduced to Nelson, topics at the update will include:

* Micronutrient Management for Corn and Soybean
* Managing Herbicide Resistant Weeds
* Potential Research for the NCK Experiment Fields

Lunch will be served at the conclusion of the meeting. If you plan to attend, please RSVP by January 27 to Randall Nelson, 785-335-2836, or: jrnelson@ksu.edu.

-- Steve Watson, Agronomy e-Update Editor
swatson@ksu.edu

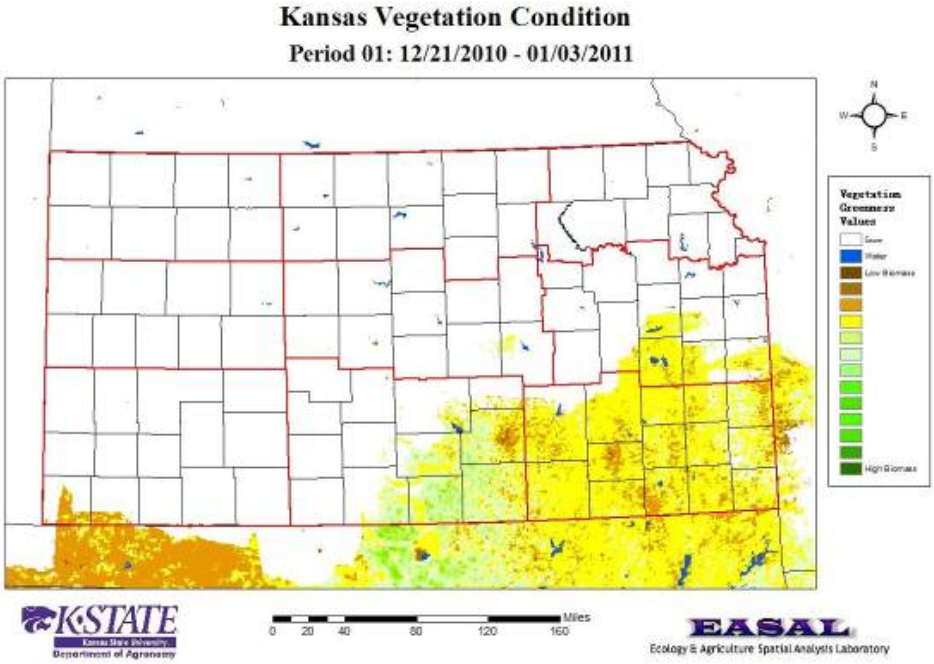
5. Comparative Vegetation Condition Report: December 21 – January 3

K-State's Ecology and Agriculture Spatial Analysis Laboratory (EASAL) produces weekly Vegetation Condition Report maps. These maps can be a valuable tool for making crop selection and marketing decisions.

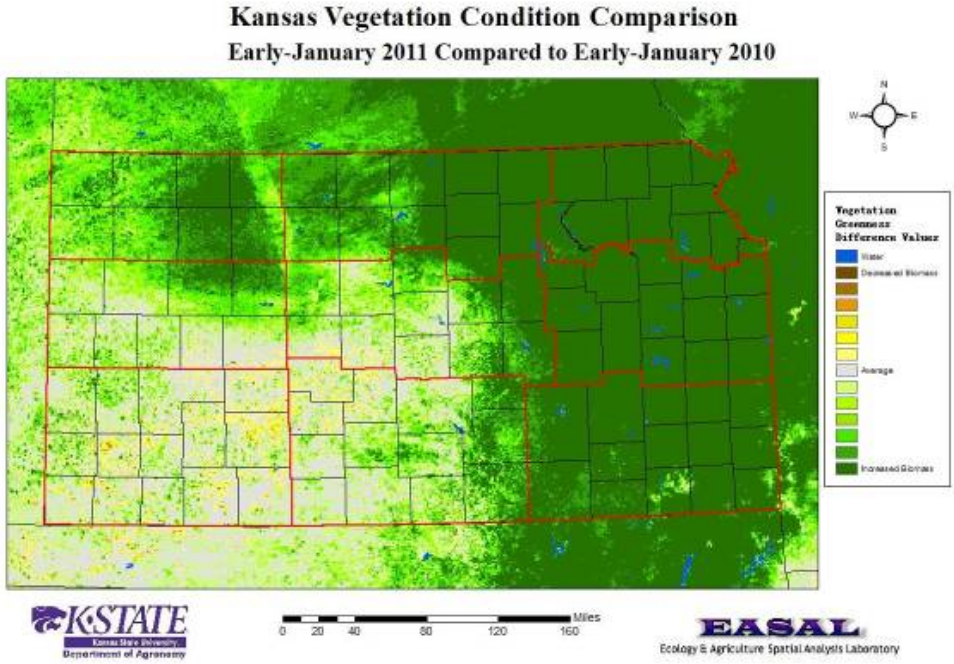
Two short videos of Dr. Kevin Price explaining the development of these maps can be viewed on YouTube at:
http://www.youtube.com/watch?v=CRP3Y5NIggw
http://www.youtube.com/watch?v=tUdOK94efxc

The objective of these reports is to provide users with a means of assessing the relative condition of crops and grassland. The maps can be used to assess current plant growth rates, as well as comparisons to the previous year and relative to the 21-year average. The report is used by individual farmers and ranchers, the commodities market, and political leaders for assessing factors such as production potential and drought impact across their state.

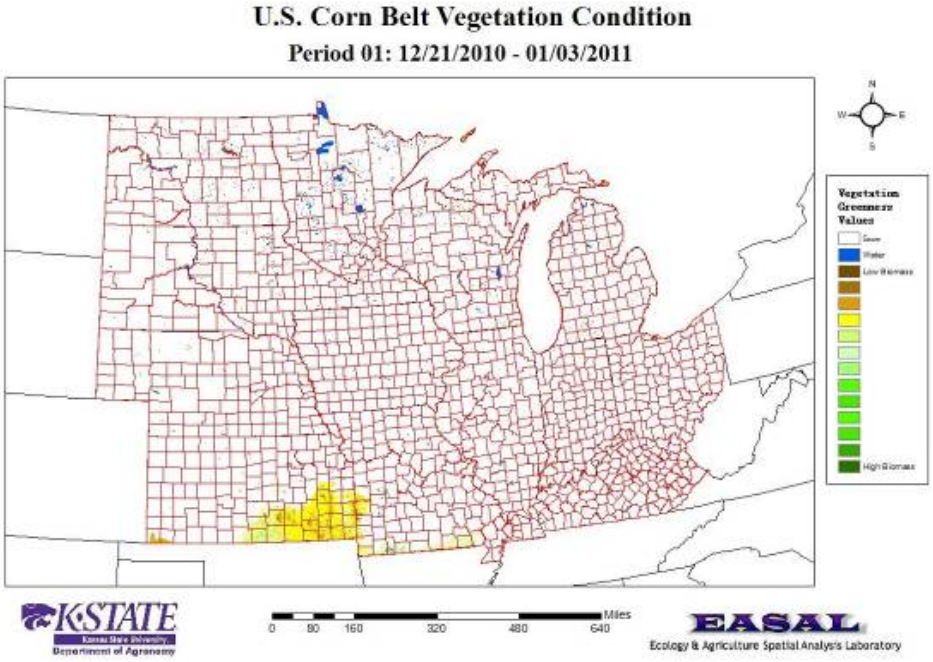
The maps below show the current vegetation conditions in Kansas, the Corn Belt, and the continental U.S, with Knapp's comments:



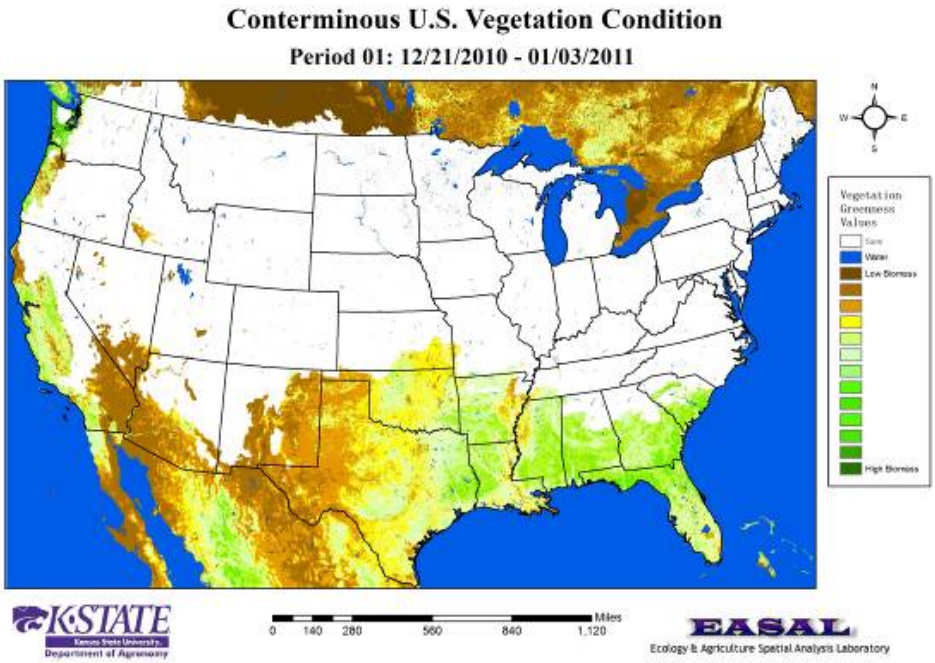

**Map 1. The Vegetation Condition Report for Kansas for December 21 – January 3 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the light snow and ice that occurred during the Christmas and New Year's period masked the expanding dry conditions. In southeast Kansas the moisture came mostly as rain, with Cherokee County locations seeing as much as 1.23 inches on Dec. 31.**




**Map 2. Compared to last year at this time, this year's Vegetation Condition Report for December 21 – January 3 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the snow and ice cover was much less this year than last year. Thus the northern areas, as well as the eastern half of the state show much greener than last year. Basically, any areas where there is photosynthetically active vegetation this year will show greener than what was seen at the same time in 2010.**




**Map 3. The Vegetation Condition Report for the Corn Belt for December 21 – January 3 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows, again, the widespread snow and ice that were features of the Holiday weekends.**




**Map 4. The Vegetation Condition Report for the U.S. for December 21 – January 3 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that snow and ice were seen as far south as northern Alabama, Georgia and South Carolina. The colder weather has also decreased the amount of photosynthetically active biomass in the southern regions of the U.S.**

-- Mary Knapp, State Climatologist
mknapp@ksu.edu

-- Kevin Price, Agronomy and Geography, Remote Sensing, Natural Resources, GIS
kpprice@ksu.edu

-- Nan An, Graduate Research Assistant, Ecology & Agriculture Spatial Analysis Laboratory (EASAL)
nanan@ksu.edu

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, or Jim Shroyer, Research and Extension Crop Production Specialist and State Extension Agronomy Leader 785-532-0397 jshroyer@ksu.edu