Issue 545

K-STATE Research and Extension

Extension Agronomy

eUpdate

01/22/2016

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, Jim Shroyer, Crop Production Specialist 785-532-0397 jshroyer@ksu.edu, or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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1. Kochia control in early spring

Producers should begin soon in planning their program for controlling kochia. The spread of glyphosate-resistant kochia populations throughout western Kansas, and the difficulty growers have had controlling these populations, suggest that perhaps control measure should begin prior to emergence of kochia.

Major flushes of kochia emerge in late February to early March and into April. If allowed to emerge, postemergence herbicide applications often will not provide adequate control. Incomplete control of these dense populations (Figure 1) is likely in these situations. When the kochia is glyphosate-resistant and complete herbicide coverage is not possible, results can be very poor when trying to use postemergence products to control dense populations. The dense populations may also be stressed, which reduces the effectiveness of postemergence herbicide applications.

The choice of herbicides for effective preemergence control of kochia in February and early March will vary depending on subsequent cropping intentions. Various cropping scenarios are discussed below.

Note: All charts in this article are based on data from irrigated plots at the K-State Southwest Research-Extension Center at Tribune, and with populations of kochia that are susceptible to triazines. The kochia at this site and is a mixed population of glyphosate-resistant and susceptible plants.

Figure 1. Untreated kochia seedlings amid residue. Photo by Curtis Thompson, K-State Research and Extension.

Fields going to corn or sorghum this spring

For fields that will be planted to corn and sorghum this spring, a combination of glyphosate (using a minimum of 0.75 lb ae/acre) with herbicides that have PRE and POST activity on kochia is most valuable. Tank mixing 8 to 16 oz of dicamba with 1 to 2 pints of atrazine will control existing broadleaf and grass weeds, and will provide extended preemergence control of kochia often into May as shown in Figures 2 and 3. An application of Clarity alone, shown in Figure 2, suggests that a pint provides better control than 8 oz, however a combination of atrazine and Clarity is better than Clarity alone.

The best timing for this application is late February to the first week or two of March but prior to kochia emergence. The later it gets, the more likely it is there will be some small, emerged kochia, which increases the risk of failure. If producers wait until later to apply the burndown and preemergence herbicide in the same application, the kochia will be larger and most likely will not be controlled. If that occurs, the surviving plants will go on to cause problems throughout the growing season. Note the photos of very small kochia on March 10 and March 20 of 2015 (Figures 4 and 7) and the corresponding less-than-adequate control of the small emergence kochia shown in the figures.

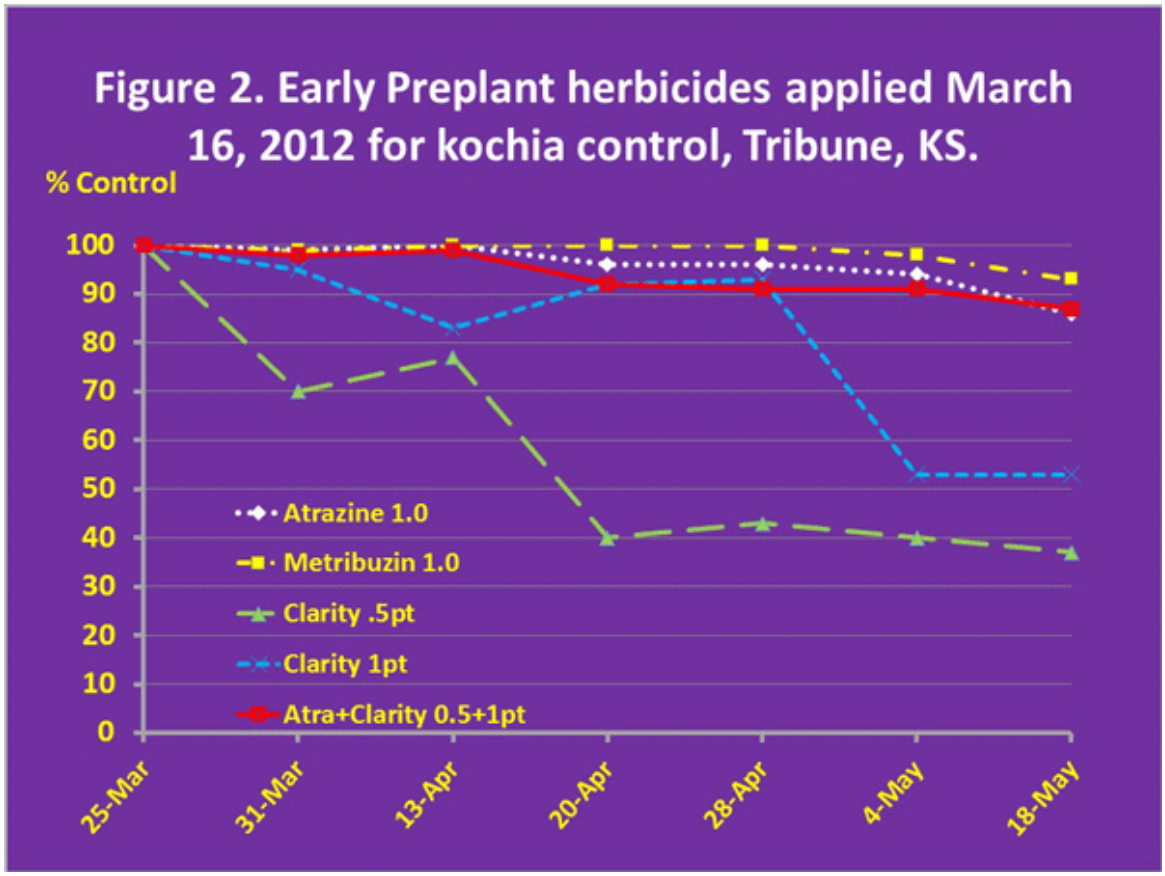


Figure 2. Early Preplant herbicides applied March 16, 2012 for kochia control, Tribune, KS.
% Control
100
90
80
70
60
50
40
30
20
10
0
Atrazine 1.0
Metribuzin 1.0
Clarity .5pt
Clarity 1pt
Atra+Clarity 0.5+1pt
25-Mar
31-Mar
13-Apr
20-Apr
28-Apr
4-May
18-May

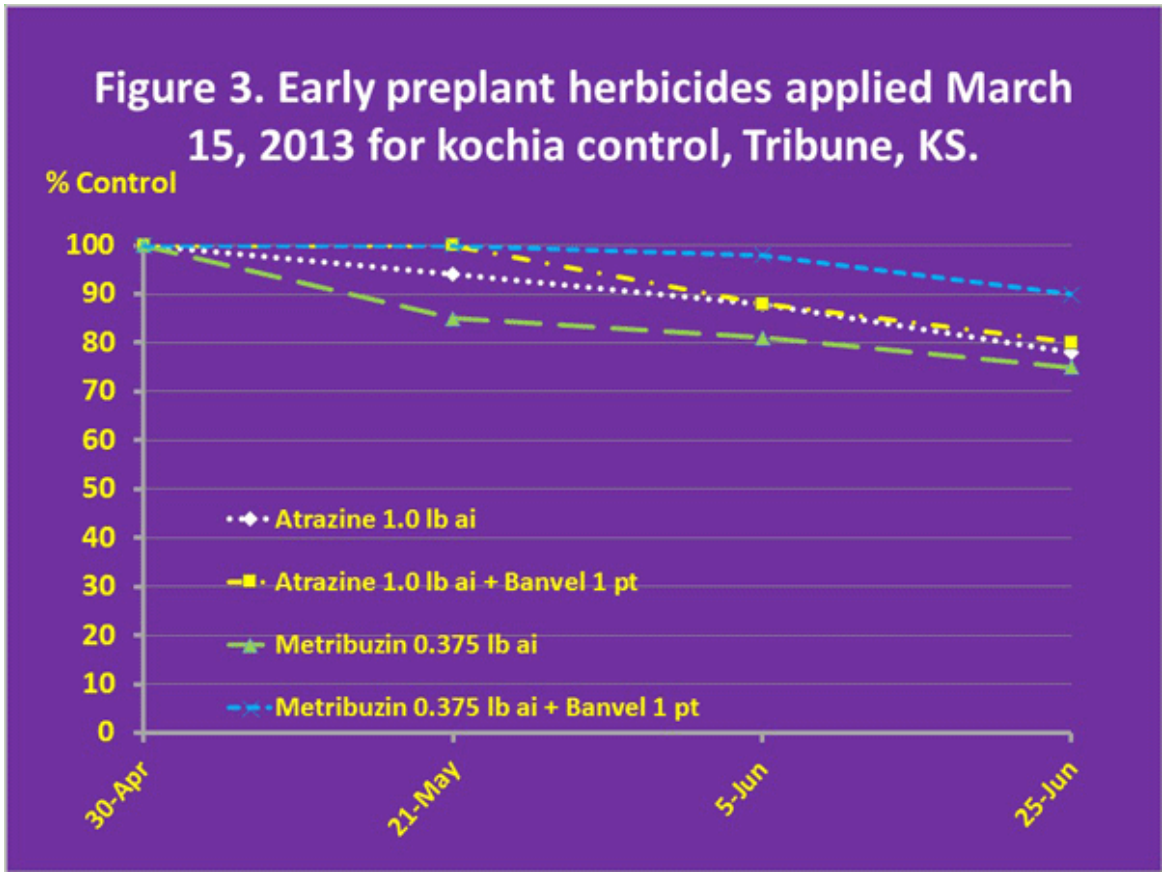


Figure 3. Early preplant herbicides applied March 15, 2013 for kochia control, Tribune, KS.
% Control
100
90
80
70
60
50
40
30
20
10
0
Atrazine 1.0 lb ai
Atrazine 1.0 lb ai + Banvel 1 pt
Metribuzin 0.375 lb ai
Metribuzin 0.375 lb ai + Banvel 1 pt
30-Apr
21-May
5-Jun
25-Jun

Figure 4. Application of herbicides was made to these kochia on March 10, 2015. Photo by Curtis Thompson, K-State Research and Extension.

Figure 5. EPP/POST herbicides applied March 10,2015 for kochia control, Tribune, KS. Kochia at cotyledon stage

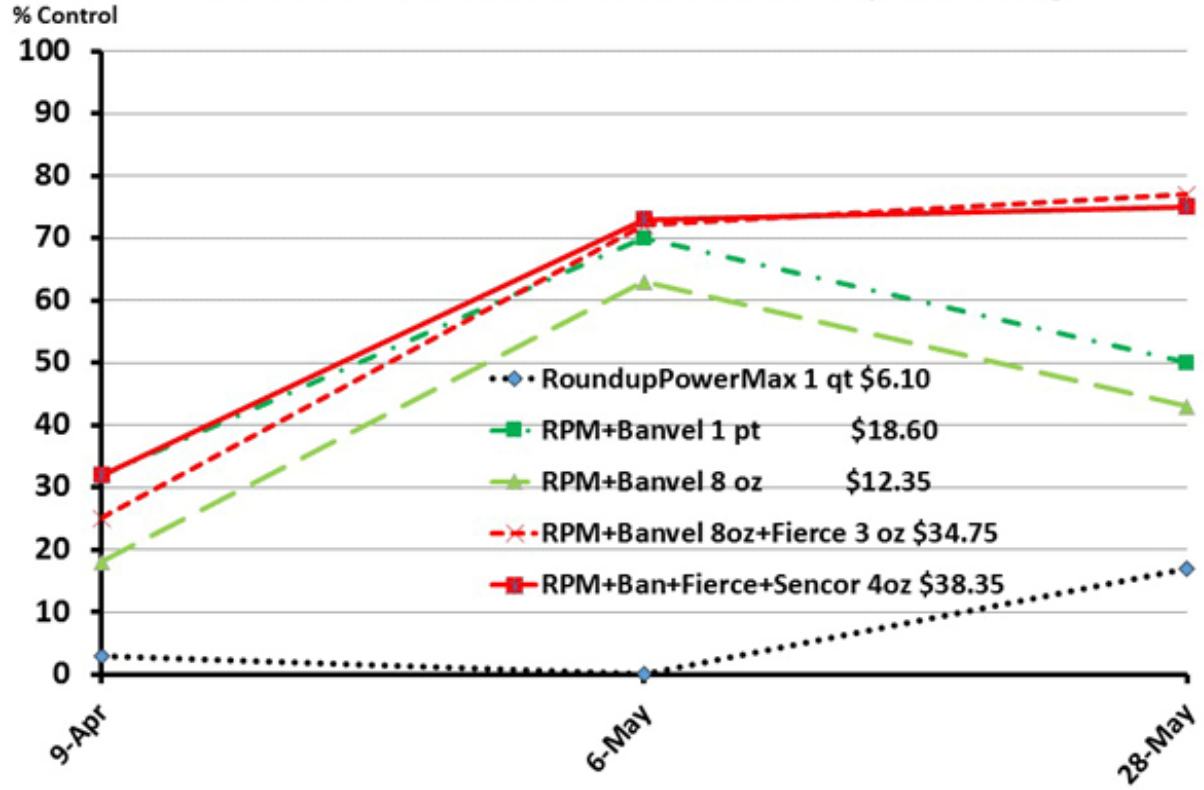


Figure 6. EPP/POST herbicides applied March 10,2015 for kochia control, Tribune, KS. Kochia at cotyledon stage

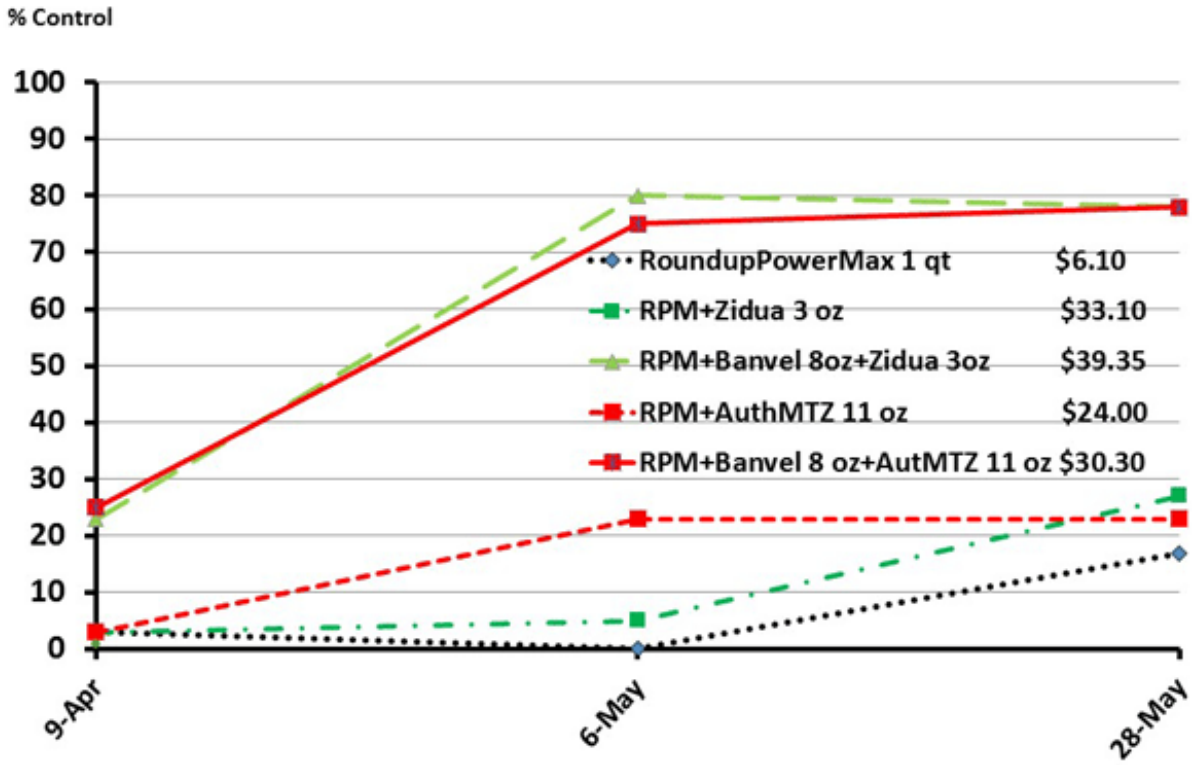
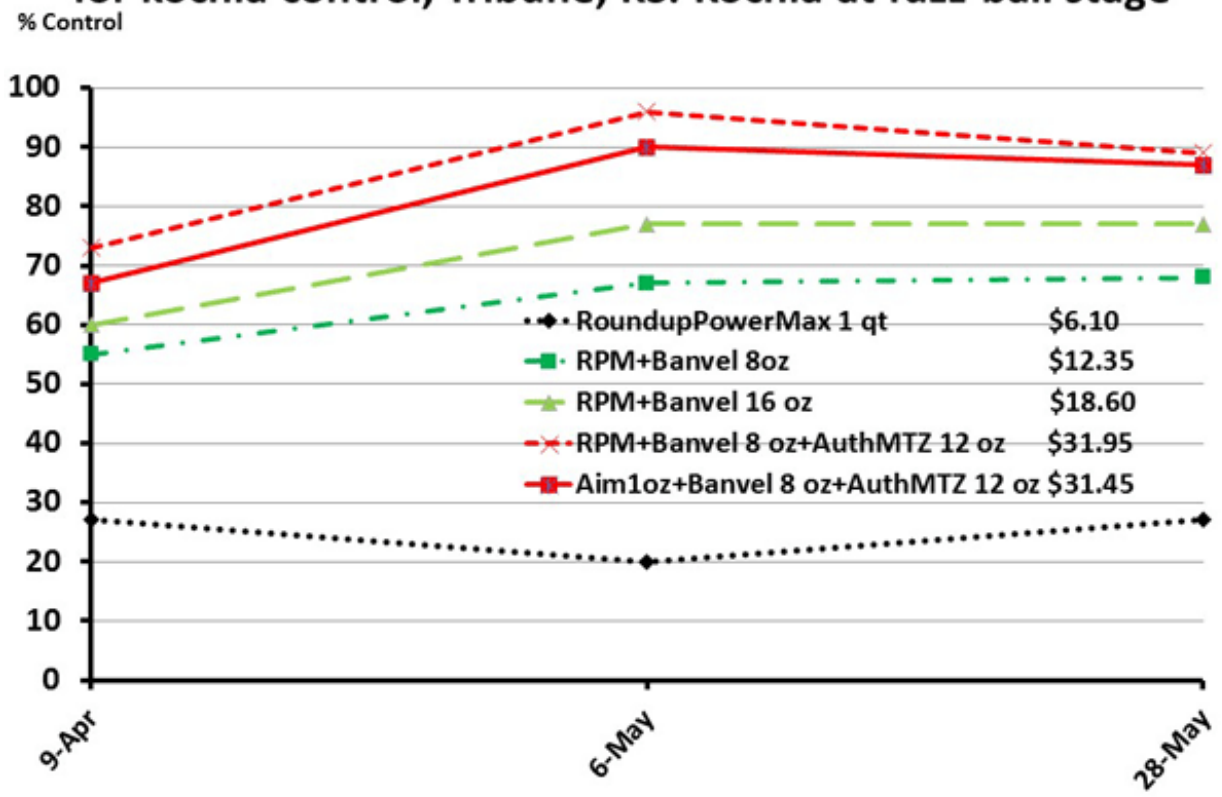


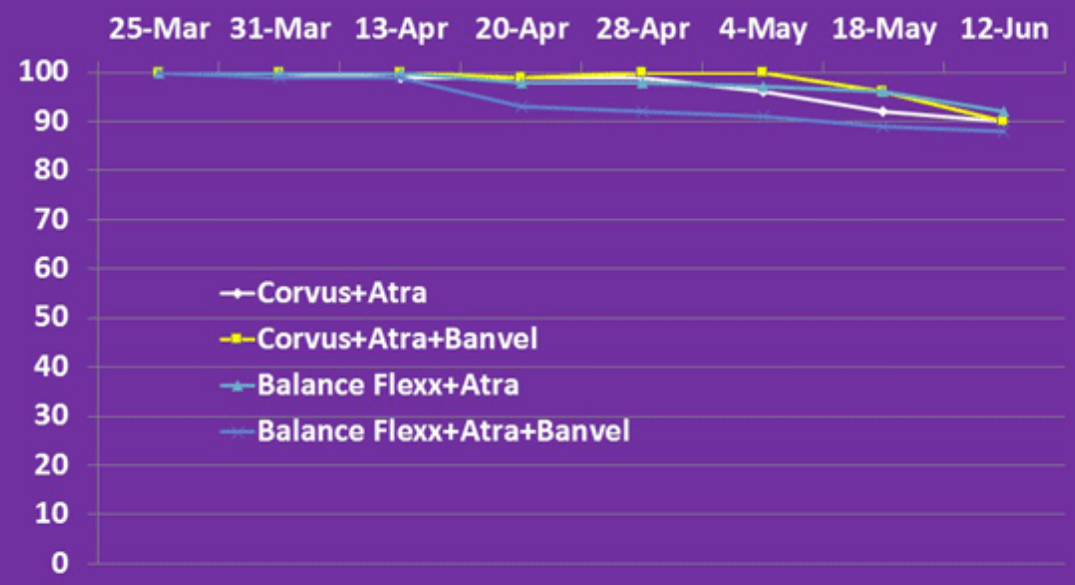
Figure 7. Application of herbicides was made to these kochia on March 20, 2015. Photo by Curtis Thompson, K-State Research and Extension.

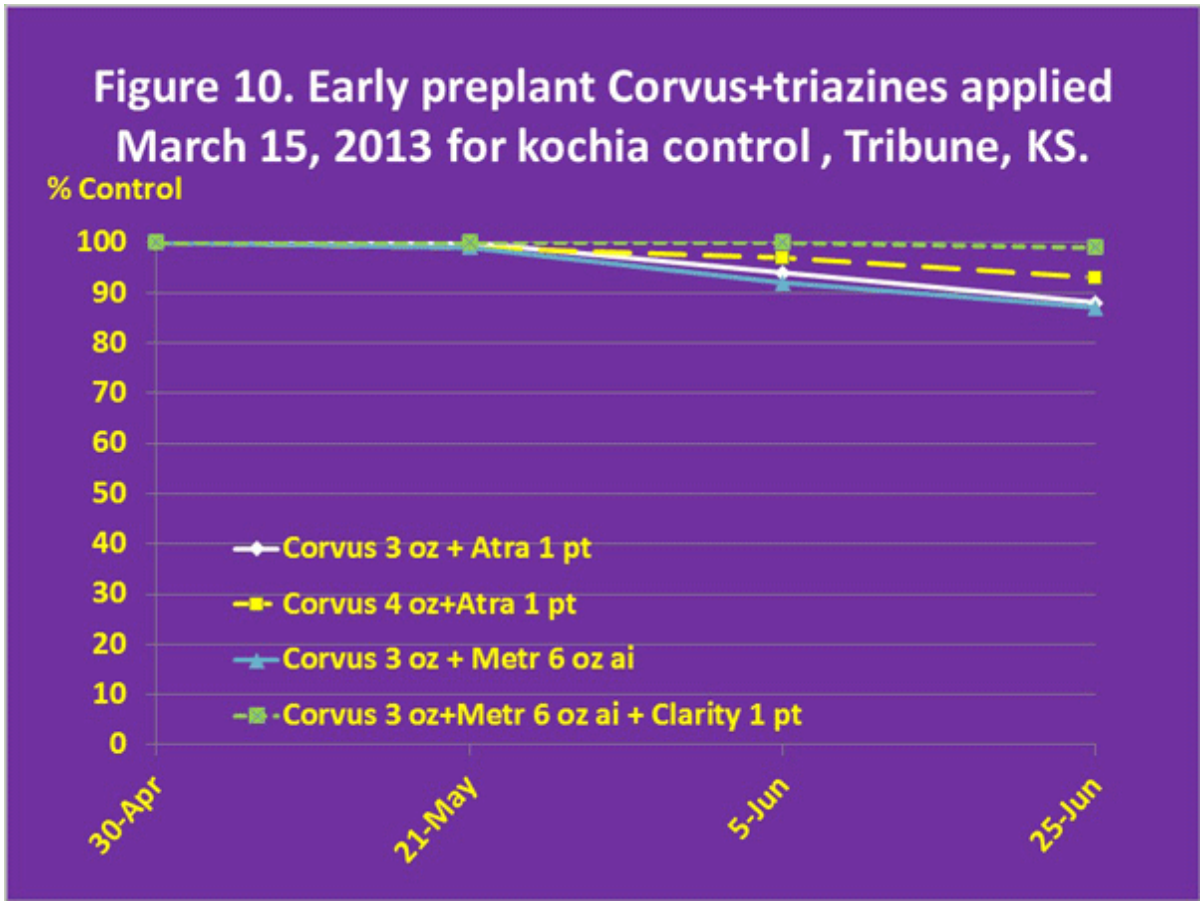
Figure 8. EPP/POST herbicides applied March 20,2015 for kochia control, Tribune, KS. Kochia at fuzz-ball stage



Other herbicides that could be tankmixed with the glyphosate ahead of corn or sorghum include Lexar EZ or Lumax EZ, or for corn only 3 to 4 fl oz of Corvus, Balance Flexx (Figures 9 and 10) or 1.5 to 2.5 oz of Scoparia herbicide. The addition of atrazine is key for most effective control with these herbicides. The addition of Banvel did not increase kochia control with Corvus+atrazine or Balance Flexx+atrazine in 2012, Figure 9. When marginal rainfall is received for the initial activation, Banvel, which is very soluble, is able to be activated and provide significant kochia control while atrazine and other herbicides may not be activated. This buys time for additional rainfall and full activation of all the herbicides.

Figure 9. Early preplant herbicides applied March 16, 2012 for kochia control , Tribune KS.

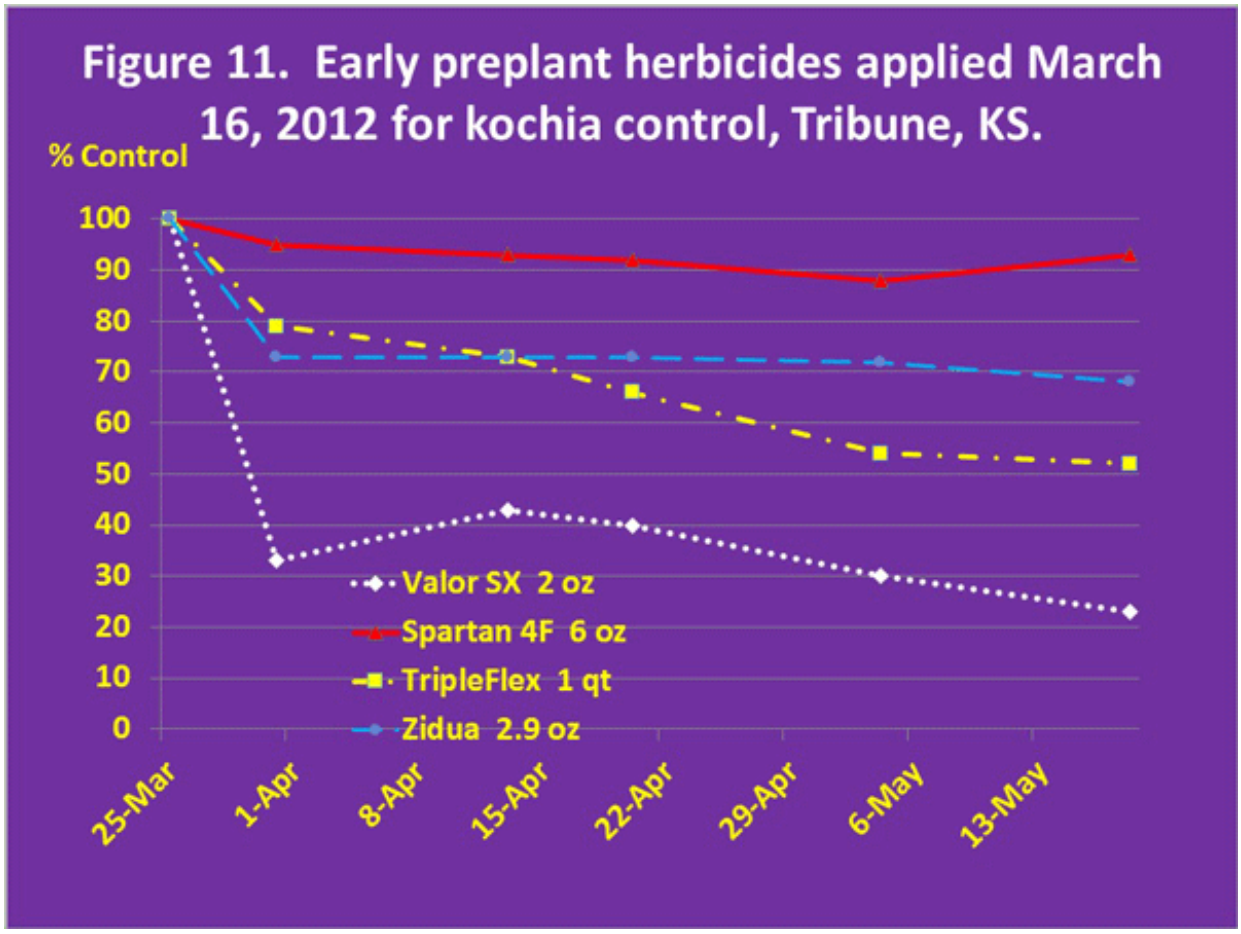




Fields going to sunflowers this spring

Planting sunflower into a clean seedbed is a key step to getting good season-long control of all broadleaf and grassy weeds. But it is especially important for getting good control of any weed populations, such as kochia, that are resistant to glyphosate or ALS-inhibitor herbicides and cannot be controlled with POST applied herbicides in sunflower.

The best approach to kochia control in sunflower is to start in March with a tankmix of glyphosate (using a minimum of 0.75 lb ae/are) and Spartan (sulfentrazone), Spartan Charge (sulfentrazone+Aim), or Broadaxe (sulfentrazone+Dual Magnum) before kochia begin to germinate. The sulfentrazone will provide excellent preemergence control of kochia ahead of sunflower planting. Figure 11 indicates that 6 oz of Spartan controlled kochia very effectively in the Tribune experiments up to early June. It is very possible that as little as 4 oz could have done a similar job at the Tribune location because of the 7.8 pH and 1.8% organic matter soil. The label does not allow a March application of dicamba when intending to plant sunflower. Monitor fields closely as additional glyphosate or Gramoxone SL treatments maybe required prior to sunflower planting. Select preemergence products that are effective on kochia and apply at planting to extend control of kochia and other weeds.



Fields going to soybeans this spring

The best management strategy for controlling kochia in soybeans is similar to the control strategy for sunflower, but there are more herbicide options in soybeans than in sunflower. Start in February or early March with a tankmix of glyphosate (using a minimum of 0.75 lb ae/acre) and 8 to 16 oz/acre of Clarity prior to kochia emergence. The use of Clarity requires a minimum accumulation of 1 inch of rain and then 28 days prior to planting soybeans. As indicated in the label, Clarity cannot be used as a preplant treatment in soybeans in areas with less than 25 inches of annual rainfall.

Gramoxone Inteon tankmixed with metribuzin (Dimetric, Metribuzin, Sencor) will provide extended residual control of kochia, as long as the population of kochia is susceptible to triazine herbicides.

Figure 2 shows the effectiveness of a full pound of metribuzin, which is not practical for western Kansas. Figure 3 shows the effectiveness of 3/8 lb of metribuzin alone or with dicamba which provided residual kochia control into May, especially when dicamba was added. Metribuzin can injure soybeans depending on soil texture, organic matter and soil pH, so be sure to follow label guidelines regarding soil characteristics and rate guidelines regarding use rate on soybeans.

Authority-based herbicides that contain sulfentrazone could be considered for use prior to kochia emergence to manage an early flush of kochia. It's important to note the crop rotation restrictions on these products, however. The Valor-based products have not provided adequate control of kochia

(Figure 11). Other Authority-based products did provide excellent control of kochia well into June (Figure 12). Also, Zidua has activity on kochia. It appears that more rain is required for activation of Zidua; however, once activated, no additional kochia emerged. For adequate kochia control with Zidua, using maximum labels rates for your soil type would be recommended.

Fields going to wheat this fall

If kochia is emerging in row crop stubble intended to be planted to wheat this fall, herbicide options exist that provide residual kochia control. Atrazine cannot be used in this situation, as this treatment is off-label. The following herbicides could provide effective residual control of kochia for fields to be planted to wheat this fall: dicamba, metribuzin or Dimetric (Dimetric label indicates ½ to 2/3 of a pound), Corvus, Balance Flexx, Scoparia (equal to Balance Pro), and Lumax EZ. These products allow wheat to be planted 4 months following application. Effectiveness of some of these herbicide treatments is shown in Figures 2, 3, 9, 10, 12, and 13.

These treatments can be effective when made prior to kochia emergence. A November application of 1 lb of atrazine was effective through June 12, however, this treatment is labeled only if corn or sorghum will be planted the following year. The November application of Corvus was not adequate. The addition of metribuzin to Corvus would have improved kochia control. HPPD inhibitors should always be applied with a triazine. Only metribuzin, which is a triazine, can be applied in the late fall or early spring when wheat will be planted in the fall. February and March applications of Corvus and metribuzin were very similar and effective. This suggests that if weather cooperates and a window for application is available in February, getting these early treatments applied at that time could be beneficial.

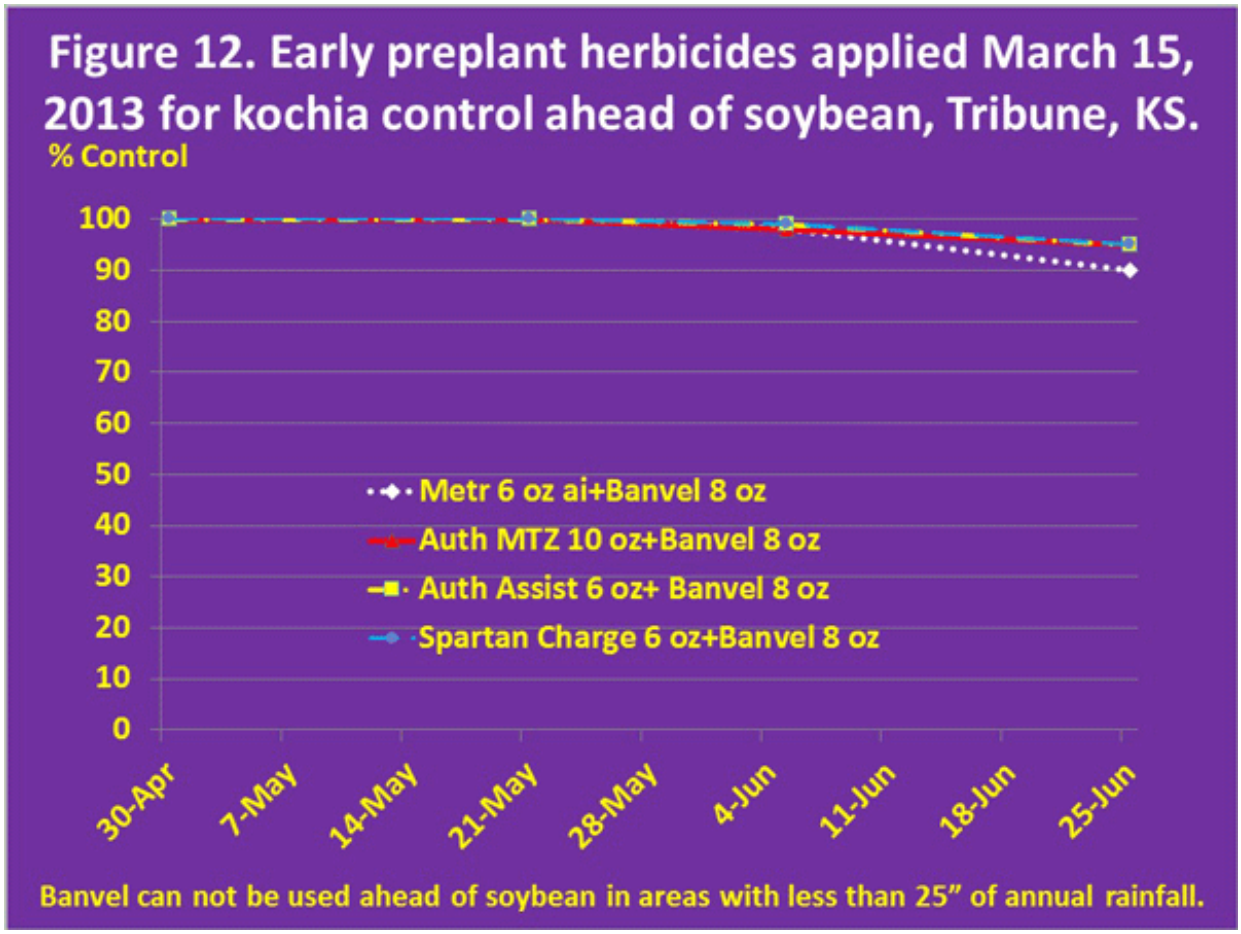


Figure 12. Early preplant herbicides applied March 15, 2013 for kochia control ahead of soybean, Tribune, KS.
% Control
100
90
80
70
60
50
40
30
20
10
0
30-Apr
7-May
14-May
21-May
28-May
4-Jun
11-Jun
18-Jun
25-Jun
Metr 6 oz ai+Banvel 8 oz
Auth MTZ 10 oz+Banvel 8 oz
Auth Assist 6 oz+ Banvel 8 oz
Spartan Charge 6 oz+Banvel 8 oz
Banvel can not be used ahead of soybean in areas with less than 25" of annual rainfall.

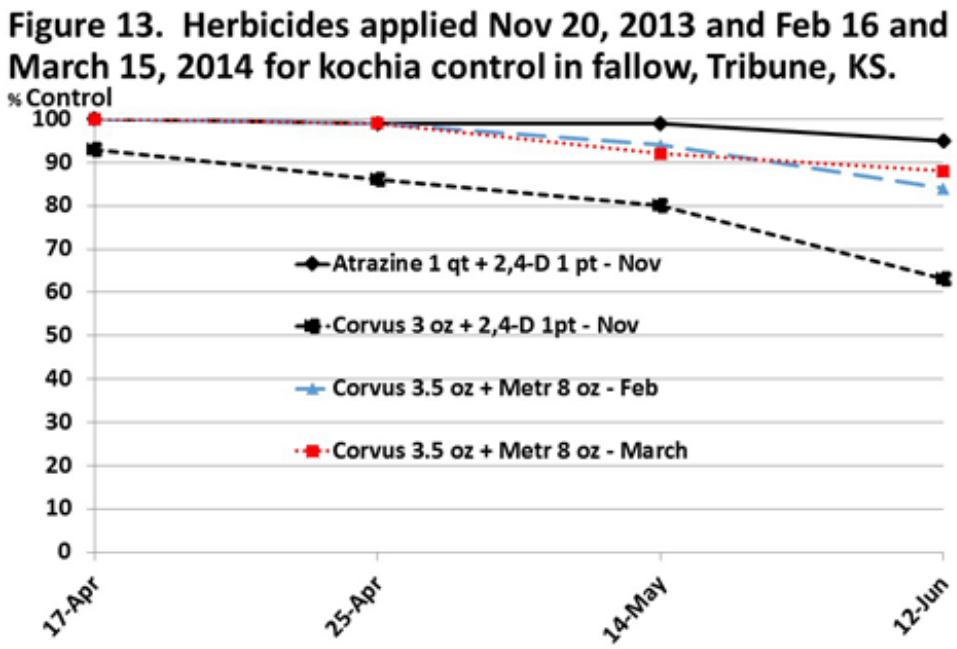


Figure 13. Herbicides applied Nov 20, 2013 and Feb 16 and March 15, 2014 for kochia control in fallow, Tribune, KS.
% Control
100
90
80
70
60
50
40
30
20
10
0
17-Apr
25-Apr
14-May
12-Jun
Atrazine 1 qt + 2,4-D 1 pt - Nov
Corvus 3 oz + 2,4-D 1pt - Nov
Corvus 3.5 oz + Metr 8 oz - Feb
Corvus 3.5 oz + Metr 8 oz - March

Fields of standing wheat

If kochia is emerging in a field of growing wheat, the options for control depend on whether the population of kochia is susceptible or resistant to ALS-inhibitor herbicides and whether wheat has reached the jointing stage. There are three big challenges to kochia control in wheat:

- There are many populations of kochia with resistance to either ALS-inhibitor herbicides, or glyphosate. There may even be some populations resistant to dicamba.
- A majority of kochia emerges early in the spring, but some emergence can extend over a period of weeks or months. An herbicide applied early in the spring will need to have residual activity to be effective on later-emerging kochia. Several ALS-inhibitor herbicides have good residual activity, but are ineffective on ALS-resistant kochia.
- Dicamba, a non-ALS herbicide is one of the more effective products on most populations of kochia, but must be applied before the jointing stage of wheat.

Even though most kochia present in wheat in western Kansas is resistant to ALS-inhibitor herbicides, an ALS inhibitor herbicide tank mixtures with dicamba or herbicides containing Starane can be very effective to control kochia. In general, 2,4-D, MCPA, Aim, and Cadet, are not very effective in controlling kochia.

Additional products containing dicamba include Rave (Amber + dicamba) or Pulsar (Starane + dicamba). These products have to be applied before the jointing stage of wheat. Dicamba has some residual soil activity, but not as much as most sulfonylurea herbicides. Rave will have residual activity from the Amber, but since Amber is a sulfonylurea herbicide, it would not provide any residual control of kochia populations that are resistant to ALS-inhibitor herbicides. Both ingredients in Pulsar have limited residual activity.

As mentioned above, another option producers have for kochia control is Starane or other fluroxypyr products. Like dicamba, Starane is a growth regulator herbicide, but it can be applied up to the early boot stage of wheat. Starane also has limited residual activity, so good coverage is still important for control. Starane is weak on mustard control.

Huskie is also effective on kochia. It is a broad-spectrum herbicide effective on most broadleaf weeds in wheat, and can be applied up to the boot stage of wheat. Huskie also has limited residual activity, so producers will need to make sure kochia plants are thoroughly covered with Huskie to get the best control. Ideally, the Huskie should be timed for application after the majority of kochia has emerged, but before the wheat canopy affects good spray coverage.

Buctril can control kochia and can be applied at later stages of wheat development, but is a contact herbicide with no soil residual activity. Consequently, Buctril has the same kind of challenges as Starane and Huskie in terms of getting good coverage. Getting thorough coverage is even more critical with Buctril since it is a true contact herbicide and not translocated in plants. Buctril is effective on very small kochia only.

Curtis Thompson, Weed Management Specialist
cthompso@ksu.edu

Dallas Peterson, Weed Management Specialist
dpeterso@ksu.edu

Kansas State University Department of Agronomy
2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506
www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron

2. Plan now for good marestail control in soybeans

Controlling glyphosate-resistant marestail in soybeans continues to be a big challenge for Kansas no-till producers. Because soybeans are generally planted later in the season, and marestail generally germinates in the fall or early spring, application timing and weed size are critical factors to successful control.

Figure 1. Glyphosate-resistant marestail in soybeans. Photo by Dallas Peterson, K-State Research and Extension.

In the early spring, using a growth regulator herbicide like 2,4-D and/or dicamba is an inexpensive and effective option to control rosette marestail. Dicamba has provided better control than 2,4-D and will also provide some residual control, especially at higher use rates. A combination of the two will give broader spectrum weed control than either one alone. Recent observations in Kansas suggests marestail will bolt in April throughout most of the state, so timing control before the end of March is recommended.

In addition, using a herbicide with longer residual control of marestail helps with weeds that germinate between treatment and soybean planting. Products that include Canopy EX, Autumn Super, Classic, FirstRate, Sharpen, metribuzin, or Valor can help provide residual control against several broadleaf species including marestail. However, it is very important to consult and follow the herbicide label guidelines for the required preplant intervals prior to planting soybeans.

As soybean planting nears, existing marestail plants can become difficult to control because plants will have bolted and be considerably larger. Herbicides to apply as a burndown prior to planting include tank mixes of glyphosate with FirstRate, Classic, Sharpen, Optill, or 2,4-D. Be very careful to

follow label directions when using 2,4-D prior to soybean planting. The plant-back restriction ahead of soybean can range from 7-30 days depending on rate and formulation. Sharpen generally provides good marestail control and can be applied any time before soybean emergence. However, it is still most effective if applied before marestail starts to bolt, in a tank-mix with other herbicides, when used with methylated seed oil, and at spray volumes of 15 gallons per acre or more.

One additional herbicide to consider as a rescue burndown application to control bolting marestail prior to soybean planting is Liberty. Although, it would be better to control marestail at an earlier stage of growth, Liberty has been one of the most effective herbicides to control bolting marestail. Liberty also has broad spectrum non-selective activity on other broadleaf and grass species if treated at a young growth stage. Liberty is primarily a contact herbicide, so a spray volume of 15 gallons per acre or greater generally provides the most consistent weed control. Liberty tends to work best under higher humidity and warm sunny conditions at application.

Controlling marestail in the growing soybean crop can be the biggest challenge for producers. Glyphosate alone is often not effective on larger plants or glyphosate-resistant marestail. The most successful treatments for large marestail in Roundup Ready soybeans have been with combinations of glyphosate + FirstRate, glyphosate + Classic, or glyphosate + Synchrony. However, some marestail may also be resistant to Classic, FirstRate, and Synchrony and control may be marginal.

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.

Dallas Peterson, Weed Management Specialist
dpeterso@ksu.edu

Doug Shoup, Southeast Area Crops and Soils Specialist
dshoup@ksu.edu

3. Alfalfa weevils: What are they up to during the winter?

Many people assume nothing is going on with the alfalfa weevil during the winter months, or maybe that any eggs present will die during cold weather. That is not the case. Alfalfa weevils are cool-weather insects. Adults lay eggs in alfalfa fields in the fall or even the winter. Most of these eggs survive the winter, and continue to develop at temperatures above 48°F.

Eggs hatch and larvae emerge in the spring after accumulating enough degree days or thermal units. Alfalfa weevil adults also lay eggs in the spring, but in many cases the first larvae to emerge are from eggs that were laid in the fall and overwintered.

Figure 2. Alfalfa weevil larvae. Photo by Holly Schwarting, K-State Research and Extension.

Early scouting for alfalfa weevil

Scouting for alfalfa weevil larvae should start after plants break dormancy. A degree day or thermal unit accumulation system can be used to predict when to initiate scouting. Insect development is controlled by temperature. This can be used to help manage these pests. Weevil activity has been tracked in Kansas for the past few years and has been used to generate recommendations (see table below).

Approximate degree days required for alfalfa weevil development

Degree Days or Thermal Units	Stage	Importance
25–300	Eggs develop and hatch	In stems
301–450	1st and 2nd instars	Leaf pinholing – start samp
450–600	2nd and 3rd instars	Defoliation
600–750	3rd and 4th instars	Defoliation
750+	Pupa to adult	Adults – some feeding – ov

Because it is impossible to determine whether eggs were laid in the fall, winter, or spring, the degree day model may vary considerably, but it is useful for indicating when to start a scouting program. The base temperature for alfalfa weevils, or the temperature below which there is no development, is approximately 48°F. Every day after oviposition that the temperature exceeds 48°F, the eggs mature and get closer to hatching. Hatching usually occurs after about 300 degree days. In Kansas, scouting for the presence of eggs and the first signs of larvae should start after the accumulation of about 180 degree days from January 1.

To calculate a degree day, record the daily high temperature anytime it exceeds 48°F. For example, if there is only one day in January that the temperature exceeded 48°F, take that temperature and add the lowest temperature for that day, or 48°F, whichever is higher. Then divide by 2 to calculate the average temperature for that day. Next, subtract 48°F.

As an example, say there was one day in January when the high temperature was 60°F and the low was 35°F. You would use 48°F as the default value for the low instead of 35°F. The calculation in this case would be:

[(60 + 48)/2] – 48 = 54 – 48 = 6 degree days (or weevil development units)

Continue recording and summing degree days until you have accumulated 150 to 180. That is when to start scouting alfalfa fields because the first eggs will start hatching soon. The location where the daily temperature is recorded is probably not exactly the same as where weevils are developing, so the model may be off a little, but it can save time by alerting you to when eggs should start hatching.

Do not be too quick to treat for alfalfa weevil. Wait until the field reaches the treatment threshold. Treating too early is not only unnecessary, it can also have detrimental effects by killing beneficial insects.

For more details, see *Alfalfa Weevils*, K-State publication MF-2999, at your local county Extension office, or http://www.bookstore.ksre.ksu.edu/pubs/MF2999.pdf

Other early spring alfalfa insects

The next insect to start watching for would probably be pea aphids. They can also start relatively

early in the spring, and can be a problem on first-year stands. If weevil treatments are applied, they will wipe out any beneficial insects -- which normally do a good job of keeping aphid populations under control.

Also, producers need to keep an eye out for army cutworms as there were some reports of army cutworm activity last fall. Army cutworms start feeding again anytime temperatures are above 50 degrees F. Armyworms are another potential problem.

Those are the early season pests which have the most potential for damaging alfalfa prior to the first cutting. For more information on control, see K-State publication MF-809, Alfalfa Insect Management 2015, at: http://www.bookstore.ksre.ksu.edu/pubs/MF809.pdf

Jeff Whitworth, Extension Entomologist
jwhitwor@ksu.edu

Holly Schwarting, Entomology Research Associate
holly3@ksu.edu

4. Summary of diseases on corn, grain sorghum, and soybeans in Kansas in 2015

The 2015 growing season was one of contrasts. On the positive side, losses to diseases in soybeans were the lowest in at least 20 years. On the negative side, yield loss to disease in corn was higher than in any recent year. Overall, grain sorghum losses were average to somewhat above average.

Corn diseases

Frequent rains in May and June allowed gray leaf spot to get off to a quick start, especially in northeast, north central, and central Kansas. Because of low corn prices, many growers chose not to make an investment in fungicide applications and this turned out to be a big mistake. Statewide, yield losses to gray leaf spot were estimated to be 3%. This calculates to a loss of 17 million bushels or about 4.5 bushels for every acre of corn grown in the state. Of course many corn acres in western Kansas had no loss while fungicide trials in northeast Kansas produced an 18% gain in yield over unsprayed plots. Losses in some individual fields likely reached the 25 to 35% range.

Southern rust was a second major disease in corn in 2015. Tropical storm Bill, which struck the Texas and Louisiana Gulf coasts on June 16, pushed southern rust spores all of the way up to Kansas. The first reported case in Kansas came from Parsons on July 11, but based on the level of disease, initial infection likely occurred in the third or fourth week of June. Nearly all counties surveyed had some level of rust present by the end of the growing season. Some corn planted in late April in southeast Kansas had an 8% yield loss from rust. While not estimated, losses in June-planted corn were likely much higher.

Fusarium stalk rot levels were also above average in 2015. Loss of photosynthetic leaf area due to gray leaf spot and southern rust directly contributed to the increase in stalk rot.

Soybean diseases

Soybean disease losses were estimated at 3.6% across the state, which is well below the long-term average of 12%. The most significant reductions in disease incidence were in sudden death syndrome (SDS) and charcoal rot. Delayed planting, use of more tolerant varieties, changes in the timing and amount of late-season rains, and the use of seed treatment all contributed to the decline in SDS from the record 2014 levels. Timely rains, especially in southeast Kansas, contributed to the lowest levels of charcoal rot in many years.

The most significant soybean disease in 2015 was soybean cyst nematode. The nematode continues to gain tolerance to the currently deployed resistance genetics in varieties. Growers are encouraged to rotate varieties and never plant the same variety in the same field twice.

Sorghum diseases

Sorghum was mostly healthy throughout the season until late when significant levels of Fusarium stalk rot developed. Above-average rains in many areas likely resulted in the development of root rot that then moved up into the stalk and the loss of nitrogen from leaching or denitrification. Low nitrogen levels are frequently associated with higher stalk rot levels. The highest levels of stalk rot and lodging occurred in north central and northwest Kansas.

Doug Jardine, Extension Plant Pathology
jardine@ksu.edu

5. K-State Soybean Schools scheduled for late January

A series of four K-State Soybean Production Schools will be offered in late-January 2016 to provide in-depth training for soybean producers.

The one-day schools will cover issues facing soybean producers: weed control strategies, crop production practices, soil fertility and nutrient management, insect and disease control, and risk management.

The schools will begin at 9 a.m. and adjourn at 2.30 p.m., including a farmer panel at the end of the School. The dates and locations are:

Jan. 25: **Great Bend:** Great Bend Recreation Commission, 1214 Stone Street
- Alicia Boor, Barton County Agricultural Extension Agent, aboor@ksu.edu, 620-793-1910

Jan. 26: **Overbrook:** Grace Community Church, 310 E 8th Street
- Darren Hibdon, Frontier District Crop Production Extension Agent, dhibdon@ksu.edu, 785-229-3520

Jan. 28: **Beloit:** NC Kansas Technical College Auditorium, Highway 24
- Sandra Wick, Post Rock District Crop Production Extension Agent, swick@ksu.edu, 785-282-6823

Jan. 29: **Marysville:** American Legion, 310 N 19th St
- Anastasia Johnson, Marshall County Agricultural Extension Agent, anastasia@ksu.edu, 785-562-3531

Lunch will be provided, courtesy of the sponsors. There is no cost to attend, but participants are asked to pre-register before Jan. 22.

Online registration at K-State Soybean Schools: http://bit.ly/KSBEANSchools

You can also register by emailing or calling the nearest local Research and Extension office for the location you plan to attend.

For more information, contact:

Doug Shoup, Southeast Area Crops and Soils Specialist

dshoup@ksu.edu

Stu Duncan, Northeast Area Crops and Soils Specialist
sduncan@ksu.edu

Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
ciampitti@ksu.edu

6. Wheat grazing webinar planned for January 28

Running cattle on wheat pasture in the winter months can have big payoffs, but can also require attention to proper timing and grazing intensity.
Romulo Lollato, K-State wheat and forage specialist, will present "Managing Grazing Timing and Intensity in Dual-Purpose Wheat Systems" on Thursday, Jan. 28 at 1:30 pm (CT). The free webinar will be hosted by Great Plains Grazing, a U.S. Department of Agriculture-Agriculture and Food Research Initiative Coordinated Agricultural Project grant.

The webinar is open to anyone interested in wheat grazing systems. Attendees can expect to learn about the following:

- Wheat pasture as a forage system;
- Management of dual-purpose wheat systems (planting date, seeding rate, seeding depth, etc.);
- Use of mobile device (smartphone app) to manage grazing intensity;
- Discussion of varieties' characteristics for dual-purpose wheat production.

Lollato's research and extension efforts are focused on management practices to improve wheat and forages enterprise productivity and profitability, minimizing the gap between current and potential yields. His research efforts focus on maximizing wheat productivity.

This is the sixth of a series of twelve webinars hosted monthly by Great Plains Grazing. The free webinar series provides research-based information, and is targeted for producers and extension agents. Previous webinars are archived and available for viewing on the Great Plains Grazing website at www.greatplainsgrazing.org.

To register for the Jan. 28 wheat grazing webinar, see: www.greatplainsgrazing.org/webinars.html

7. K-State Sorghum Schools scheduled for early February

A series of four K-State Sorghum Production Schools will be offered in early-February 2016 to provide in-depth training for sorghum producers. The schools will be sponsored by Kansas Grain Sorghum Commission.

The one-day schools will cover issues facing sorghum producers: weed control strategies, crop production practices, soil fertility and nutrient management, insect control, irrigation, limited irrigation and iron chlorosis (western Kansas), sugarcane aphid, and risk management.

The schools will begin at 9 a.m. and adjourn at 3 p.m., including a farmer panel at the end of the School. The dates and locations are:

Feb. 2: **Scott City:** Wm. Carpenter 4-H Building, 608 N Fairground Rd
- John Beckman, Scott County Extension Agent, jbeckman@ksu.edu, 620-872-2930

Feb. 3: **Phillipsburg:** Phillips County Fair Building, 1481 US-183
- Cody Miller, Phillips-Rooks District Extension Agent, codym@ksu.edu, 785-543-6845

Feb. 4: **Ellsworth:** American Legion Post 174, 645 W 15th St
- Michelle Buchanan, Midway District Extension Agent, mbuchanan@ksu.edu, 785-472-4442

Feb. 5: **Emporia:** Bowyer Community Building, 2650 W US Hwy 50
- Brian Rees, Lyon County Extension Agent, brees@ksu.edu, 620-341-3220

Lunch will be provided, courtesy of the sponsors. There is no cost to attend, but participants are asked to pre-register before Jan. 29.

Online registration at K-State Sorghum Schools: **http://bit.ly/KSSORGHUMSchools**

You can also register by emailing or calling the nearest local Research and Extension office for the location you plan to attend.

For more information, contact:

Kansas State University Department of Agronomy
2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506
www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron

Jill Barnhardt, Kansas Grain Sorghum Commission
jill@ksgrainsorghum.org

Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
ciampitti@ksu.edu

Curtis Thompson, Weed Management Specialist
cthompso@ksu.edu

Lucas Haag, Northwest Area Crops and Soils Specialist
lhaag@ksu.edu

A.J. Foster, Southwest Area Crops and Soils Specialist
anserdj@ksu.edu

Stu Duncan, Northeast Area Crops and Soils Specialist
sduncan@ksu.edu

Doug Shoup, Southeast Area Crops and Soils Specialist
dshoup@ksu.edu

Kansas State University Department of Agronomy
2004 Throckmorton Plant Sciences Center | Manhattan, KS 66506
www.agronomy.ksu.edu | www.facebook.com/KState.Agron | www.twitter.com/KStateAgron