Issue 644

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eUpdate

07/28/2017

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 Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 cthompso@ksu.edu.

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eUpdate Table of Contents | 07/28/2017 | Issue 644

1. First report of sugarcane aphid on grain sorghum in Kansas this year

The sugarcane aphid (SCA) has now been reported in Sumner County. Sorghum producers in Kansas should begin scouting their fields on a routine basis. For detailed scouting method recommendations, see:
https://www.myfields.info/sites/default/files/page/ScoutCard%20KSU%20v05312017.pdf

More information on scouting and thresholds for treatment can be found in the Agronomy eUpdate article "Start scouting soon for sugarcane aphid" from July 7, 2017, and at the myFields web site at:
https://myfields.info/pests/sugarcane-aphid

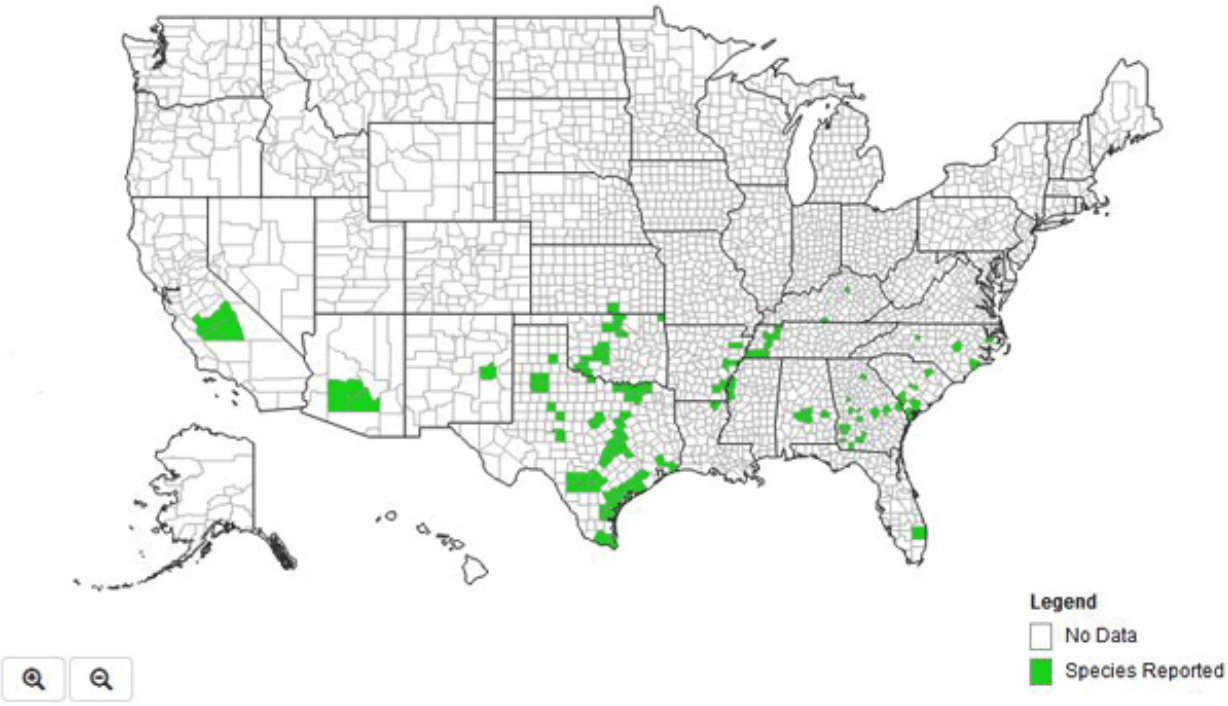
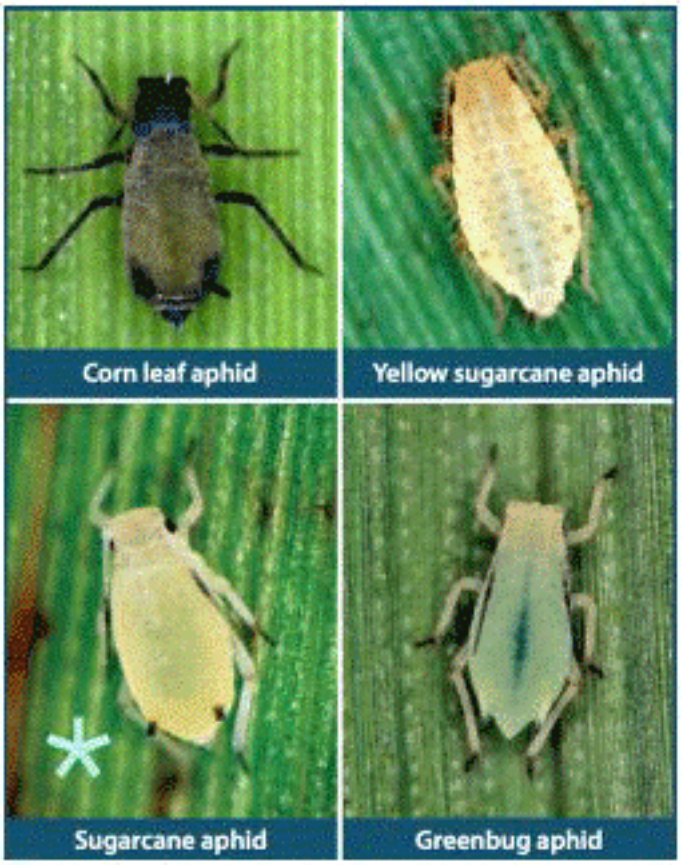


Figure 1. Current status of the SCA. The map indicates only the counties in which the SCA has been found, and does not indicate how many or how few aphids were found in that county. Source: https://www.myfields.info/pests/sugarcane-aphid



Chemical control

Two insecticides are labeled for use on sugarcane aphid on sorghum in Kansas this season:

Sivanto (flupyradifurone)
4.0 – 7.0 fl oz/acre (0.052 – 0.091 lb ai/acre)

Transform (sulfoxaflor)
0.75 – 1.5 oz/acre (0.375 – 0.75 oz ai/acre)

Field trials show good efficacy of the above materials against the sugarcane aphid. Both have the ability to penetrate leaves through translaminar movement and kill aphids feeding on the undersides.

Maximum efficacy will be achieved by application in a large volume of water, preferably 20 gallons per acre or GPA (minimum 10 GPA) by ground or 5 GPA from the air. Laboratory trials indicate that Transform (sulfoxaflor) is relatively safe for important aphid predators such as lady beetles and lacewings and thus can be considered IPM-compatible. This is true to a lesser extent for Sivanto (flupyradifurone), but various trials have indicated a much longer period of residual activity for this material.

Both insecticides have annual application limits and growers are advised to rotate them if follow-up applications are required. Note also that preharvest intervals will be a factor to consider when treating late-season infestations, so applicators should read labels carefully and keep a log of all

treatments for each field. Because Transform and Sivanto are absorbed by leaves and eventually metabolized by the plant, reinfestation can occur if large numbers of winged aphids continue to settle in the field.

When inspecting fields for treatment efficacy, note whether any live aphids are winged or wingless, as the former may indicate continued immigration rather than control failure. DO NOT attempt to control sugarcane aphid with contact insecticides that have broad-spectrum activity; these include all pyrethroid and organophosphate materials and combinations thereof. Replicated field trials indicate these materials are not effective, harm beneficial species, and often result in higher aphid numbers than unsprayed control plots.

Sorghum headworm infestations are often present when SCA is observed in a field, since this pest migrates using the same weather events. When choosing an insecticide to control headworms, use products that are less harmful to natural enemies such as Prevathon or Blackhawk, as these have proven compatible with Transform and Sivanto and less selective materials risk flaring the aphids.

The myFields web site: Keeping updated on SCA in Kansas and reporting findings

For ongoing current information on SCA in Kansas, check out the myFields web site often in the coming weeks and months: https://www.myfields.info/pests/sugarcane-aphid

It would be helpful if producers would report findings of SCA in their fields on the myFields web site as soon as the insects are found. Reports of findings are used in developing the map seen in Figures 1.

The reports used to develop each map are, in part, those submitted through the myFields web site from account holders that also have special permissions as "Verified Samplers." Only reports submitted by these verified samplers get mapped so that we can account for data quality. However, we do encourage any account holder to report their observations on the SCA. Web site administrators can see these reports and can contact the submitter for a confirmation, a great way to get an early detection in new areas. Web site visitors will need to: 1) sign up for an account, 2) log in, 3) to get access to the '*Scout a Field*' feature to make reports. The *Scout a Field* tool is easy, you just map the observation location and select yes or no for SCA presence.

Here is the sign up page: https://www.myfields.info/user/register

Also, if sorghum producers are interested in receiving alerts, which are triggered by new reports submitted by verified samplers, they just need to sign up for a myFields account. Signing up for an account automatically signs them up for SCA alerts, but they can also opt out of them in their user preferences. The alerts include a statewide email notice when SCA is first detected in the state, and then are localized by county as SCA moves into the state. The notices will also contain latest recommendations and contact info for local Extension experts.

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2. Small grain forage options for this fall

Small grain forages can be a profitable option for producers. They can be planted in the fall and either terminated or grazed out in the early spring, allowing time to plant a summer row crop if soil moisture is adequate.

Small grain options for fall forage

There are five common small grain options for forage: spring oats, winter wheat, winter barley, winter cereal rye, and winter triticale. Each has its strengths and weaknesses.

Spring oats. Spring oats are usually planted in late February or March in Kansas. But spring oats can also be planted in August -- and if done so, they will produce much more fall forage than any of the other small grain forages in the fall before a killing freeze. They will almost never produce grain if planted in August. Spring oats do not need to vernalize before heading. They will develop rapidly in the fall if they have enough moisture and nutrients, and may even head out before being killed by the first hard freeze in the mid 20's, but in most years will not have time to produce viable grain. The very mild winter last year, however, resulted in much of the spring oats planted in the fall surviving the winter last year in southern Kansas.

Spring oats can be utilized in the fall for either hay or grazing. Spring oats can be ready to graze 6 to 8 weeks after planting with adequate moisture. Under good conditions, spring oats can produce up to 1 to 2 tons of forage per acre, but as planting is delayed past early August expect less tonnage. Spring oats are not very drought-tolerant, and will not establish well or produce much forage if soils are very dry. Rye and barley are more drought-tolerant than spring oats.

Spring oats should be seeded at the rate of 2 to 3 bushels (or 64 to 96 pounds) per acre. About 30 to

50 pounds of nitrogen per acre will be adequate depending on yield potential and if no excess nitrogen is available in the soil.

Oat pasture can generally carry 500 pounds of beef per acre. Average daily gains range from 1.5 to 2.5 pounds per head per day. Forage quality on actively growing oats is high, with protein content in the range of 20 to 25%.

Oats are fairly susceptible to atrazine so if producers plan on planting oats this fall after corn or milo, risk of herbicide carryover that can kill seedling plants does exist.

Winter wheat. Wheat is often used for grazing and grain in so-called "dual-purpose" systems. These kinds of systems are usually balanced between getting good forage and good grain yields without maximizing yields on either side. Dual-purpose wheat is typically planted one to two weeks earlier than wheat planted for grain only, which can increase the risk of a wheat streak mosaic infection. Also, producers wanting both grazing and grain should use a higher-than-normal seeding rate and increase the nitrogen rate by 30 to 50 pounds per acre.

Producers who need more pasture than normal can plant even earlier, at the likely expense of lower grain yields. Planting very early opens wheat to many risks, such as wheat streak mosaic, barley yellow dwarf, Hessian fly, and common root rot. Wheat can also be grazed out, foregoing grain yield altogether. Wheat usually produces most of its forage in late fall and early winter, and again in the spring. There are differences among varieties in how much fall forage is produced.

Winter barley. There are now new, improved varieties of winter barley available with better winterhardiness, especially under grazing. Many of the newer varieties also produce more forage than older varieties. Barley produces palatable growth rapidly in the fall under favorable conditions. It is considered superior to other cereals for fall and early winter pasture, but wheat, triticale, and rye provide better late winter and spring grazing. Barley has excellent drought and heat tolerance. Winter barley forage is typically the most palatable of the small grain cereals. And feed quality is the highest, as well.

Winter rye. Rye establishes fall pasture quickly. It also regrows rapidly in late winter and early spring. However, rye becomes stemmy and unpalatable earlier in the spring than other cereals. Since rye is less palatable and higher in fiber than wheat or barley, cattle gains during grazing are normally greater on oat, wheat, triticale, and barley pasture than on rye pasture. Rye is the hardiest of the small grain cereals for overall tolerance to drought, heat, winterkill, and poor soil conditions.

Winter triticale. Triticale, a cross between wheat and rye, possesses the toughness of rye along with the quality of wheat. It can be grazed much harder than wheat and still recover to produce grain. Triticale has longer effective spring grazing than rye, but not as long as wheat. Depending on the variety, winter triticale will head later than rye so the forage can remain higher in quality later into the spring. Heading date on all winter cereals should be a consideration if spring grazing is the goal.

Small grain pasture management

As planting dates get later in the fall, producers will get more fall forage production from triticale and rye. The later it gets, the more rye becomes the best option if fall forage is needed.

When planting a small grain cereal primarily for forage, use a seeding rate about 50 percent higher

than if the crop were grown for grain. In western Kansas and under dry soils conditions a seeding rate of 1.5 bu/acre is recommended. In eastern Kansas or under irrigation a seeding rate near 2 bu/acre is recommended. Also, when planting a small grain cereal for grazing purposes, nitrogen (N) rates should be increased by about 30 to 50 lbs/acre. To determine the actual amount of additional N needed, the following formula can be used:

Additional lbs N/acre = (No. animals/acre) x (lbs of weight gain/animal) x 0.4

In a graze-out program, all the N may be applied in the fall. But split applications will reduce the chances of having a problem with nitrate toxicity. In addition, there may be excess nitrogen this fall from failed summer crops, so producers should use caution when putting on nitrogen this fall without a profile nitrogen soil test.

Under good growing conditions, a well-fertilized small grain dryland pasture can carry about 500 pounds of cattle per acre. Under poor growing conditions, stocking rates should be reduced considerably. Cattle gains of 1.5 to 2.5 or more pounds per acre per day are possible during periods of good pasture production. Under irrigation, with intensive management, much higher stocking rates are attained.

Fall grazing management is critical to the success of small grain pastures. Begin grazing when the plants are well rooted and tillered, usually about 6 to 8 weeks after planting. If the foliage is too tall when the animals are introduced, or if the crop is overgrazed, the plants will be more susceptible to winterkill. Make sure some green leaves remain below the grazing level. The minimum stubble height should be about 3 to 4 inches. Rye has a more upright growth pattern than most wheat varieties, so it should not be grazed as low. Winter barley is more susceptible to winterkill than rye or wheat. However, newer varieties of barley are exhibiting increased winter hardiness.

In terms of overall forage quality of hay, barley is highest, followed by oats, wheat, triticale, and rye. During the fall and early spring periods of peak production, the crude protein content of small grain pasture is normally about 20-25 percent. Growing cattle require about 12 percent crude protein, thus no protein supplements are necessary.

Small grain pastures can cause bloat. Daily supplementation with poloxalene (Bloat Guard) is highly effective in reducing bloat and is available in many different feeding forms Feeding high-quality grass hay, silage, and/or an ionophore such as Rumensin or Bovatec can also provide some protection against bloat. Rumensin and Bovatec have also been shown to increase stocker cattle weight gains on wheat pasture. Mineral supplements containing magnesium are necessary when grazing cattle on small grain pasture to minimize the occurrence of grass tetany.

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3. Fall planting of tall fescue pastures

Tall fescue is best seeded in the fall in Kansas. Where there is adequate soil moisture, this would be a good time to establish a tall fescue pasture or hay meadow. By starting now with soil tests, variety selection, and seedbed preparation, tall fescue can be a productive pasture for many years to come.

Both tall fescue and smooth bromegrass make good cool-season permanent pasture in eastern Kansas. Tall fescue is more hardy and grazing tolerant that smooth bromegrass and is much more tolerant of wet conditions. Tall fescue can be utilized for fall and winter grazing much better than smooth bromegrass.

Be sure to use either endophyte-free or nontoxic (sometimes called novel or "friendly" endophyte-infected) varieties of tall fescue when establishing a new pasture, or renovating an old pasture if improved animal performance is the main objective. Old KY-31 endophyte-infected fescue would be acceptable to plant where you know excessive grazing will occur, for example in grass traps or pens for animal receiving facilities. In this instance ground cover and animal comfort are the main goals.

Figure 1. Tall fescue pasture near Parsons. Photo by Doohong Min, K-State Research and Extension.

Soil selection

Tall fescue will grow on almost any soil but produces best on fertile moist soils. The ability of tall fescue to withstand low fertility and wet soil is excellent. Tall fescue also can withstand submersion for a few days. It will produce on soils with pH of 5.2 to 8.0, but optimum growth occurs in the 5.8 to 7.0 pH range.

Varieties

Several new varieties are suitable for Kansas. New certified varieties are either free of the endophyte fungus or contain the "friendly" nontoxic endophyte that does not produce the ergovaline toxin detrimental to livestock. Endophyte-free seed of older varieties like Kentucky-31 are also available. Check the seed tag to be sure of the endophyte level and type. To avoid reduced animal performance resulting from toxic endophyte-infected grass that is fed or grazed, livestock producers should plant the seed free of live toxic endophyte. Plants produced from fungus-free seed remain free of the endophyte.

The Southeast Agricultural Research Center have tested tall fescue varieties in recent years. The table below is from "Evaluation of Tall Fescue Cultivars," in the SEARC's 2017 Agricultural Research report: http://newprairiepress.org/cgi/viewcontent.cgi?article=1376&context=kaesrr

All varieties in this test are endophyte-free or nontoxic ("novel") endophyte.

Table 1. 2016 Forage yield of tall fescue cultivars, Southeast Agricultural Research Center, Mound Valley

Cultivar	2016 total forage yield (tons/acre at 12% moisture)
NFTF 1051	9.12
PBU-B2	9.11
PBU-B7	9.11
Teton II	8.44
LE 14-86	8.41
NFTF 1411	8.40
NFTF 1044	8.37
Estancia	8.35
PBU-B5	8.31
LE 14-84	8.14
PBU-B1	8.12
GT 213	8.10
MV 14	8.02
Martin 2 ProTek	7.97
AGRFA 148	7.89

Tower ProTek	7.80
Ky 31 LE	7.78
Ky 31 HE	7.63
BarOptima PLUS E34	7.47
Bar FAF 131	7.47
Average	8.21
LSD (0.05)	1.08

Seeded Sept. 30, 2014
Harvested May 9, August 18, and December 6, 2016
Source: SEARC 2017 Agricultural Research report,
http://newprairiepress.org/cgi/viewcontent.cgi?article=1376&context=kaesrrf

Seedbed preparation

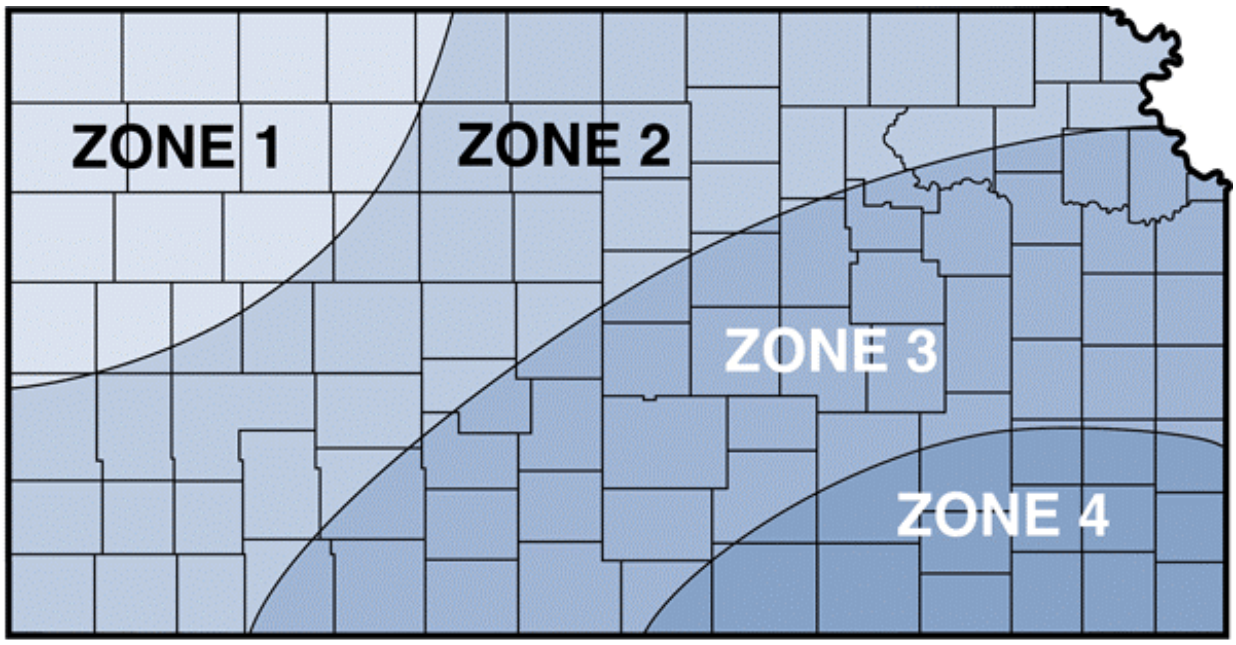
Tall fescue establishes best in a well-limed and fertilized seedbed that has been tilled 4 to 6 inches deep, leveled, and firmed before seeding. Several producers report successful stands by simply broadcasting or no-tilling the seed into existing overgrazed grass pastures in the fall. Even though the practice works on occasion, it is not recommended. A well-prepared seedbed improves chances of rapid stand establishment.

A soil test should be taken well ahead of planting to determine lime and fertilizer needs, and needed lime and phosphate should be incorporated into the seedbed before planting. About 30 - 40 pounds of N per acre should be applied at or before planting.

An existing tall fescue stand will tolerate pH as low as 5.0. On existing pastures with pH less than 6.0, 2 tons of agricultural lime per acre, topdressed, will increase life of the stand and growth of legumes if present.

Stand establishment

Figure 2. Recommended planting dates for tall fescue for each area in Kansas.



Optimum Planting Dates for Cool-season Grasses

	Zone 1	Zone 2	Zone 3	Zone 4
Fall	Aug 10–Sept 10	Aug 15–Sept 15	Aug 20–Sept 20	Aug 15–Oct 1
Winter	Not recommended	Not recommended	Not recommended	Not recommended
Spring	Mar 1–Apr 1	Feb 15–Mar 15	Feb 15–Mar 15	Not recommended

On droughty, claypan soils, only fall plantings are recommended because winter and spring plantings may not survive if summers become hot and dry. However, if a moist summer persists, seedlings may establish well. Deeper soils and/or good moisture supplies will result in successful winter or spring seedings. When planting in a well-prepared seedbed, 12 - 20 pounds per acre of pure live, high-germinating seed is adequate. When seed germination is not known or the seedbed is less than desirable, a rate of 20 to 25 pounds per acre may be required for a satisfactory stand. For drilled seedings, use the lower end of that seeding rate range. For broadcast incorporation, use the higher end of the range.

For best results, seed should be covered with 1⁄4 to 3⁄8 inch of soil. Seeding tall fescue with winter wheat is often desirable. The wheat seeding rate should not be much higher than 60 lb/acre. Planting a cover crop like wheat can protect the soil from erosion and furnish additional grazing or grain production income in the seeding year. If wheat is grazed, avoid grazing in fall or spring when new grass seedlings could be injured by trampling during wet weather.

Converting endophyte-infected pastures

Establishing a new tall fescue pasture on ground with existing endophyte-infected pasture requires some special care. The endophyte fungus that infects many tall fescue pastures in Kansas will survive in the seed up to 14 months. For that reason, you should prevent seed production on established endophyte pasture for 14 months before renovating with fresh seed. Otherwise, infected seed from the previous tall fescue may emerge along with the newly planted seed.

You can kill existing endophyte-infected tall fescue by applying glyphosate at the rate of 0.75 to 1.5 lb ae/acre when new growth is about 4 inches tall. It is easier to control fescue in the fall than in the

spring however excellent spring control can be achieved. After tall fescue has been killed, producers could grow an alternative crop for one year that will allow the use of herbicides to control any volunteer tall fescue that emerges.

After 14 months without seed production from the old tall fescue, replant the field with an endophyte-free variety or a nontoxic endophyte variety. There are several nontoxic endophyte varieties on the market including MaxQ, DuraMax Gold, and BarOptima Plus E34 but new nontoxic endophytes are continually being developed so be watchful for their release.

More information

For more information, see Tall Fescue Production and Utilization, K-State Research and Extension publication C729, at: http://www.ksre.ksu.edu/bookstore/pubs/c729.pdf.

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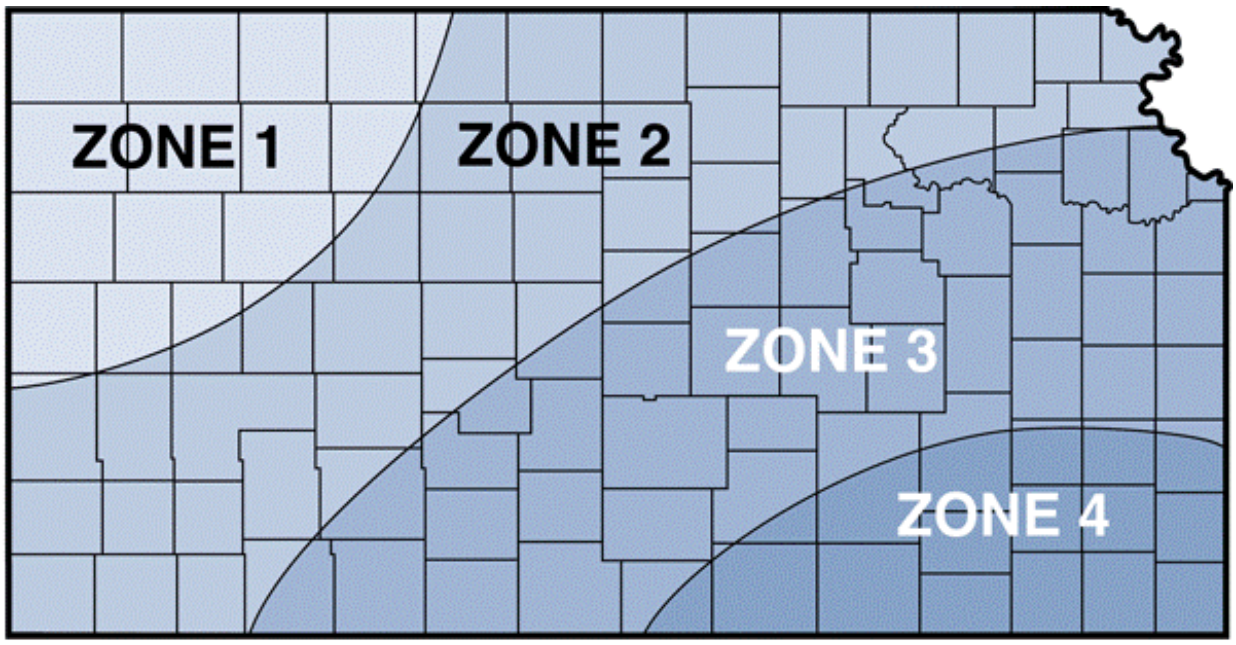
4. Fall planting of smooth bromegrass pastures

Now would be a good time of year to plan for fall seeding of smooth bromegrass pastures and/or hay meadows. If you start planning now, you should have plenty of time to have the soil tested, add lime and nutrients, especially phosphorus (P) and potassium (K) if necessary, and adequately prepare the firm seedbed so that you can have many years of productive forage from your pasture/meadow.

Figure 1. Smooth bromegrass pasture. Source: Smooth Brome Production and Utilization, K-State Research and Extension publication C402,
https://www.bookstore.ksre.ksu.edu/pubs/C402.pdf

Planting dates

Smooth brome can be planted in late summer, early fall, winter or early spring (Figure 1).



Optimum Seeding Dates for Smooth Brome

	Zone 1	Zone 2	Zone 3	Zone 4
Fall	Aug 10–Sept 15	Aug 15–Sept 20	Aug 15–Sept 20	Aug 15–Oct 1
Winter	Nov 1–Mar 1	Nov 15–Feb 15	Dec 1–Feb 15	Not recommended
Spring	Mar 1–Apr 1	Feb 15–Apr 1	Feb 15–Apr 1	Not recommended

Figure 2.

Winter and spring plantings are not recommended on droughty claypan soils because smooth bromegrass will not survive if a hot, dry summer follows planting. Cool-season grasses are established most successfully with late summer or fall plantings. Adequate time must be allowed for summer tillage (if you're not planting it no-till) and soil moisture storage.

Good weed control is essential. Germinating weeds can be destroyed by light tillage operations or burndown applications of glyphosate. If you're using tillage, it should be done no later than mid-August for a late August or early September planting. When moisture is available, several tillage operations may be needed to control weed growth and thus conserve soil moisture. Excess tillage may increase moisture loss and stand establishment failure.

No-till seeding of smooth bromegrass has emerged as a viable planting method, IF you do not need to incorporate lime or phosphorus to a 6-inch depth prior to planting. With no-till seeding, nonselective herbicides such as glyphosate are heavily relied upon to control existing weeds.

Seedbed preparation

Proper seedbed preparation is essential for a good stand. The ideal seedbed is firm, moist, free of weeds, and adequately fertilized and limed. Such a seedbed can be obtained by planning and using

good techniques. Seedbed preparation on land suited for cultivation is relatively simple. For best results, minimize weed competition, obtain uniform seed distribution, plant shallow and evenly cover seed with soil. Many smooth bromegrass pastures have been established on sites that cannot be adequately tilled because soil is too shallow and/or slopes are too steep. On these areas, little seedbed preparation is possible.

Lime. Soil testing is essential to determine lime needs. Smooth bromegrass will grow on moderately acid soils, but does best on near neutral pH soils. Because smooth bromegrass stands can remain productive for 20 years or longer, correcting soil pH prior to seeding is essential. Needed lime should be added and thoroughly mixed to a soil depth of six inches as far ahead of planting as possible (6 – 12 months before planting).

Nitrogen. Figure 2 shows nitrogen recommendations for new seedings of smooth brome. Applying 30-40 pounds of nitrogen before seeding will help ensure vigorous establishment of brome. Nitrogen could be applied with needed phosphorous and potassium and incorporated prior to seeding or broadcast after planting.

Phosphorous and Potassium. Soils in Kansas vary in levels of phosphorous and potassium present. A soil test is essential to determine requirements for these nutrients. Based on the soil test, addition of phosphorus and potassium will help establish smooth brome stands and ensure subsequent growth. Table 1 lists phosphorus and potassium recommendations for establishing new stands of smooth brome. Broadcasting and incorporating recommended rates of phosphorus and potassium during seedbed preparation is the most desirable practice. Phosphorus and potassium also may be applied with the drill at seeding. Avoid placing more than 20 pounds per acre of nitrogen plus potash in direct contact with the seed at planting.

Table 1. Nutrient recommendations for new seedings of smooth bromegrass

Nutrient	**Recommended rates**				
Nitrogen	30-40 lbs/acre				
Phosphorus	Soil test level (ppm P)				
	Very low (0-5)	Low (6-12)	Medium (13-25)	High (26-50)	Very high (51 or more)
	60-80 lbs/acre	40-60 lbs/acre	20-40 lbs/acre	None	None
Potassium	Soil test level (ppm K)				
	Very low (0-40)	Low (41-80)	Medium (81-120)	High (121-160)	Very high (161 or more)
	80-100 lbs/acre	60-80 lbs/acre	30-60 lbs/acre	0-30 lbs/acre	None

Source: Smooth Brome Production and Utilization, K-State publication C402

Seed source and rate

High-quality seed of known germination and purity is important. Seeding rate depends on seed quality and method of seeding. When planting in a well prepared seedbed, 10 – 15 pounds of pure live seed (PLS) per acre is adequate. PLS refers to the amount of live seed of the desired species in a

bulk lot. As an example, 100 pounds of bulk smooth bromegrass seed that has a germination of 90 percent and a purity of 95 percent contains 85.5 pounds of pure live seed (100 x .90 x .95= 85.5). Seeding rates of 15 - 20 pounds of PLS should be adequate if planting with a good no-till drill with good furrow openers, accurate seed placement, and good press wheels.

If a poor seedbed exists, or if the seed will be broadcast with shallow incorporation with a harrow, seeding rates as high as 20 pounds PLS per acre may be required to obtain satisfactory stands. Higher seeding rates should be used when smooth bromegrass is broadcast on the surface and covered.

Method of seeding

Drilling smooth bromegrass seed is the preferred method of seeding. Drilling ensures uniform seed distribution, accurate seeding rates, and uniform depth of coverage. For best results, smooth bromegrass should be seeded ¼ to ½ inch deep.

Broadcasting smooth bromegrass on the surface with shallow incorporation can result in good stands of smooth bromegrass. Wheat can be used as a cover crop in establishing a stand of smooth bromegrass. Start by broadcasting 20 pounds PLS of smooth bromegrass seed on the surface of soil prior to wheat seeding. As the wheat is drilled, the smooth bromegrass seed is covered. After the wheat is taken for hay or grain, smooth bromegrass is usually established, provided sufficient moisture is available for both crops. This is a slow establishment method, but it is desirable on soils subject to erosion or to obtain a return from the field the first year.

Grazing new stands

New stands of smooth bromegrass should be protected from grazing until the grass is well established – at least three leaves with collars and crown roots establishing. With proper management, fall seeded smooth bromegrass usually can be grazed the next year. Light grazing with haying at the bloom stage should be considered the first spring. Spring seedings should not be grazed until the following spring.

Weed control in new stands

Broadleaf weeds can be an issue in new stands of smooth bromegrass, but as with grazing, the new crop should be well established before using herbicides. Smooth bromegrass should have at least three leaves with collars and the crown root system should be established before any herbicide application is made. Weeds can be trimmed at 6-8-inches tall with a rotary mower in spring seedings until smooth bromegrass has developed the three leaves and adequate root system.

More information

For more information, see Smooth Brome Production and Utilization, K-State Research and Extension publication C402, at: http://www.ksre.ksu.edu/bookstore/pubs/c402.pdf

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5. Kansas River Valley Experiment Field fall field day, August 8

The Kansas River Valley Experiment Field near Rossville will host its fall field day on Tuesday, August 8. The field day begins at 5 p.m. sharp.

Field day topics and K-State presenters include:

- Starters and Late Nitrogen Application – Dorivar Ruiz Diaz, Nutrient Management Specialist
- Field Crop Pest Activity Happening Now and in the Near Future – Jeff Whitworth and Holly Schwarting, Extension Entomology
- Getting the Most from Your Drone Experience – Ashley Lorence and Andy Newsum, Graduate Students, Precision Agriculture
- The Learning Curve During the First Year of Xtend Soybeans – Dallas Peterson, Weed Management Specialist

The field is located 1 mile east of Rossville on U.S. Hwy 24, on the south side of the road.

A BBQ meal will be provided after the field day, sponsored by Wilbur-Ellis. To pre-register, call Michelle Wilson at the Shawnee County Extension office at 785-232-0062, ext. 100 by 5 p.m. on Monday, August 7. Commercial pesticide applicator continuing education credits have been applied for.

6. Yield Monitor Workshop, August 14

A Yield Monitor Workshop will be held August 14 at K-State's Machinery Automation and Robotics Lab, 142 Seaton Hall. The school will run from 9 a.m. until 2 p.m.

Speakers include:

Jared Ochs, Topcon Precision Agriculture
Justin Atwood, LandMark Implements
Lucas Haag, K-State Northwest Area Crops and Soils Specialist
Terry Griffin, K-State Dept. of Agricultural Economics
Ignacio Ciampitti, K-State Crop Production and Cropping Systems Specialist
Ajay Sharda, K-State Dept. of Biological and Agricultural Engineering
K-State Research and Extension Precision Ag team

Topics include:

Yield monitor calibration for quality data
Yield data cleaning
New yield monitoring technologies
Yield monitor setup and data extract for FMIS/Analysis
Utilizing yield data for input prescription
Utilizing satellite imagery for yield prediction

Registration is free for members of Kansas Ag Research and Technology Association (KARTA) and for K-State Extension agents; and is $25 for all others. Lunch and refreshments are provided.

For more information or to register, contact one of the following:

Ajay Sharda, Biological and Agricultural Engineering, asharda@ksu.edu
Arlene Jacobson, 785-532-5825, ajacobso@ksu.edu

Biological and Agricultural Engineering
Kansas State University

Yield Monitor School

August 14th, 2017

Machinery Automation And Robotics Lab

142 Seaton Hall, Biological and Agricultural Engineering
Kansas State University

9:00 AM – 2:00 PM

K-STATE PRECISION AG

KARTA

K-STATE Research and Extension

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

7. East Central Experiment Field fall field day, August 16

The East Central Experiment Field in Ottawa will host its fall field day on Wednesday, August 17. The field day begins at 9 a.m. with registration, coffee and doughnuts, and the program starts at 9:30 a.m. A complimentary lunch will be served.

Field day topics and K-State presenters include:

- Increasing the Rate of Genetic Gain for Yield in Soybean Breeding Programs – Bill Schapaugh, Soybean Breeder
- When Corn Fungicides Are a Good Investment – Eric Adee, Agronomist-in-Charge, East Central Research Field and Kansas River Valley Research Field
- Row Crop Management Strategies – Ignacio Ciampitti, Crop Production and Cropping Systems Specialist
- New Research on Pigweed Control – Marshall Hay and Nate Thompson, Graduate Students

From I-35 at the Ottawa exit, the East Central Experiment Field is south 1.7 miles on Kansas Highway 59, then east 1 mile, and south 0.75 mile.

More information, including Certified Crop Advisor Credits, is available by contacting the East Central Experiment Field at 785-242-5616.

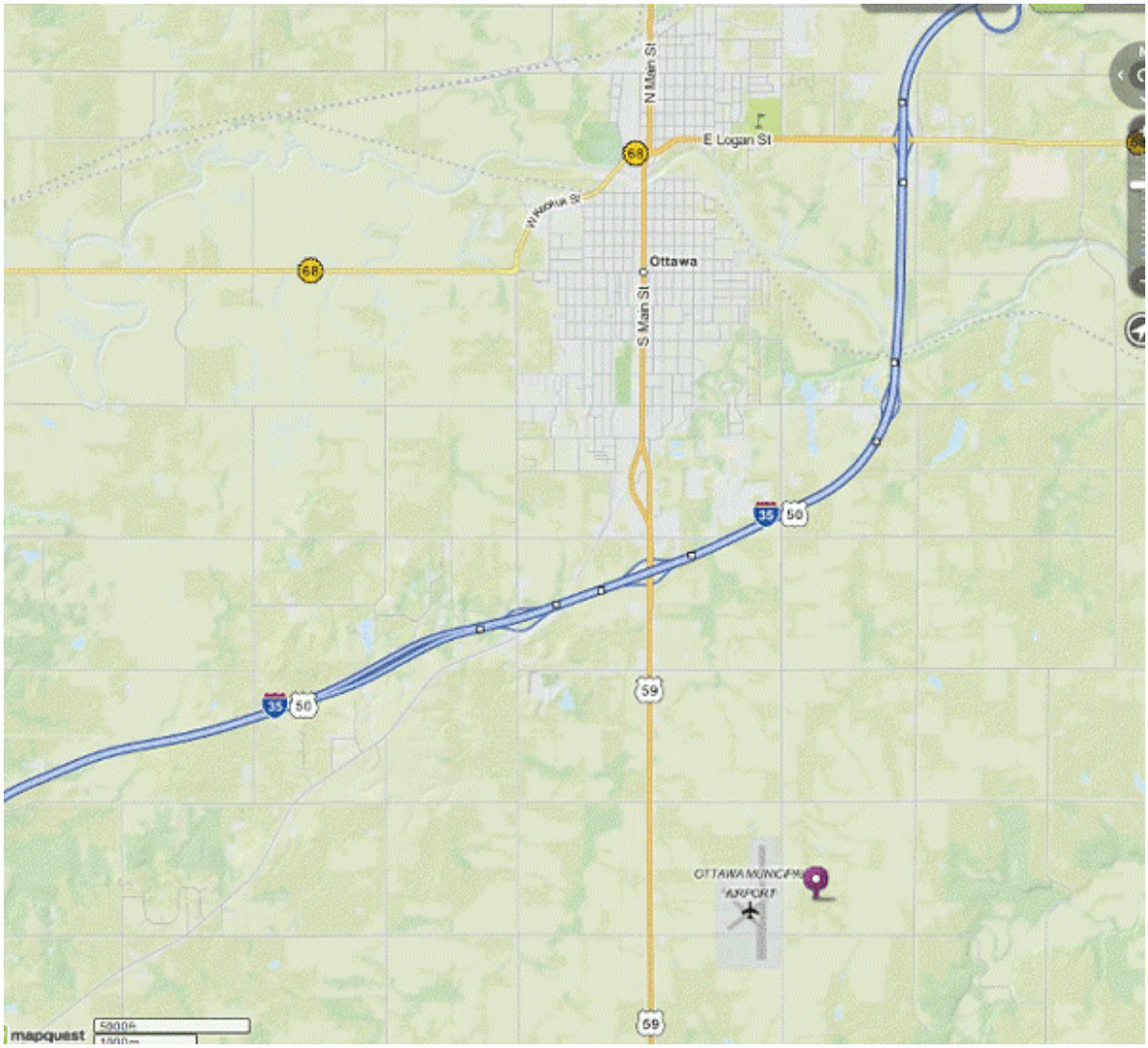

Figure 1. Location of East Central Experiment Field, south of Ottawa.

8. Southwest Research-Extension Center field day, August 24

The Southwest Research-Extension Center hosts its annual fall field day on Thursday, Aug. 24 at 4500 E. Mary St. in Garden City.

The field day includes field tours, seminars, and commercial exhibitor displays, plus a sponsored lunch. Registration begins at 8 a.m. with the program starting at 9:15 a.m.

One credit hour and one core hour will be available for commercial pesticide applicator licensing.

Field tour and seminar topics include:

- Corn and Sorghum Insect Control Update
- Weed Control in Irrigated Corn
- Weed Control in Dryland Sorghum
- The Effect of Humic Products on Sorghum Yield and Nitrogen Use Efficiency
- Integrating Cover Crops and Annual Forages into Wheat-Sorghum-Fallow Cropping Systems
- Wheat Health Management
- Core Hour for Commercial Pesticide License

More information is available by contacting Randall Currie at rscurrie@ksu.edu or by calling the center at 620-276-8286.

9. Comparative Vegetation Condition Report: July 18 - 24

The weekly Vegetation Condition Report maps below can be a valuable tool for making crop selection and marketing decisions.

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 27-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 Vegetation Condition Report (VCR) maps were originally developed by Dr. Kevin Price, K-State professor emeritus of agronomy and geography, and his pioneering work in this area is gratefully acknowledged.

The maps have recently been revised, using newer technology and enhanced sources of data. Dr. Nan An, Imaging Scientist, collaborated with Dr. Antonio Ray Asebedo, assistant professor and lab director of the Precision Agriculture Lab in the Department of Agronomy at Kansas State University, on the new VCR development. Multiple improvements have been made, such as new image processing algorithms with new remotely sensed data from EROS Data Center.

These improvements increase sensitivity for capturing more variability in plant biomass and photosynthetic capacity. However, the same format as the previous versions of the VCR maps was retained, thus allowing the transition to be as seamless as possible for the end user. For this spring, it was decided not to incorporate the snow cover data, which had been used in past years. However, this feature will be added back at a later date. In addition, production of the Corn Belt maps has been stopped, as the continental U.S. maps will provide the same data for these areas. Dr. Asebedo and Dr. An will continue development and improvement of the VCRs and other advanced maps.

The maps in this issue of the newsletter show the current state of photosynthetic activity in Kansas, and the continental U.S., with comments from Mary Knapp, assistant state climatologist:

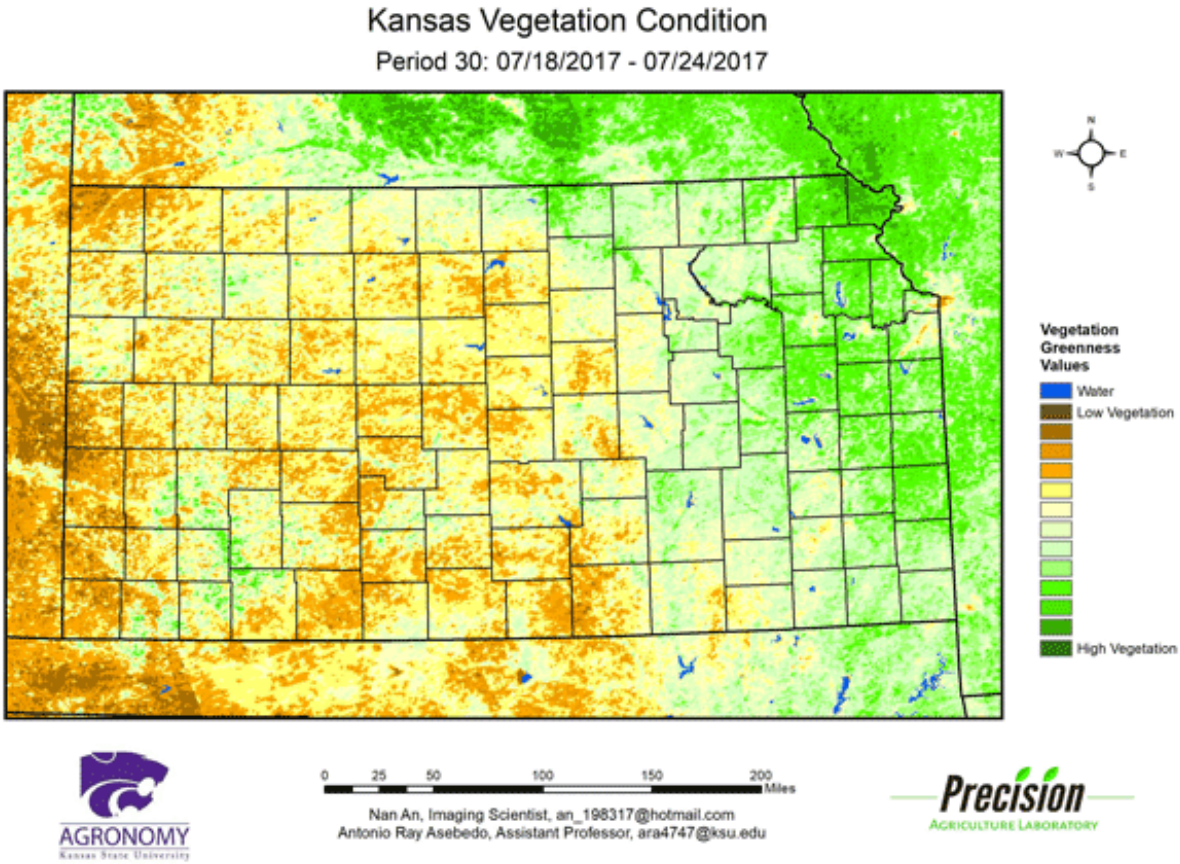

Figure 1. The Vegetation Condition Report for Kansas for July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory shows the area of greatest vegetative activity is in eastern Kansas, particularly in extreme northeast Kansas. Warm weather has slowed vegetative activity in the west, but a pocket of increased activity is visible in southwest Kansas, particularly south of Garden City, where heavier showers occurred.

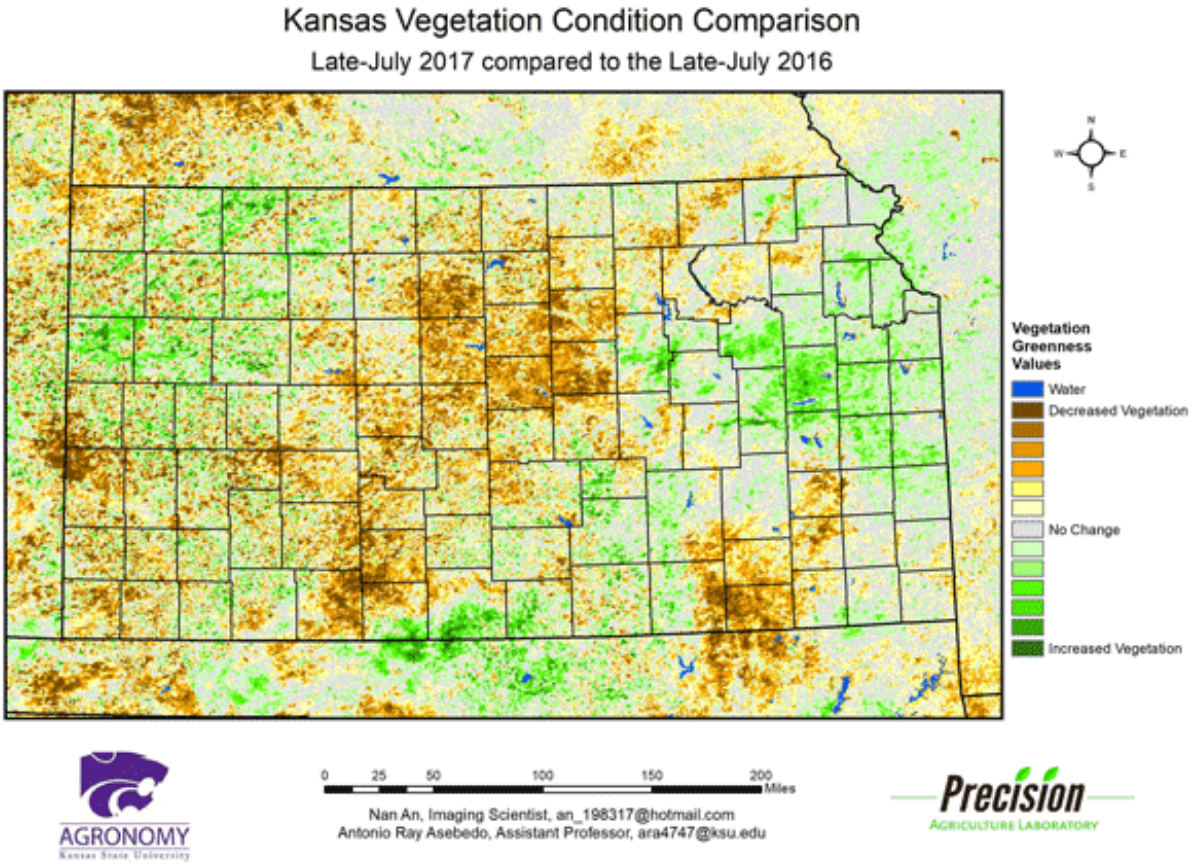

Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory shows the greatest change in vegetative activity is in the Central Division. This summer has been hotter and much drier than last in that region, and that has resulted in lower vegetative activity.

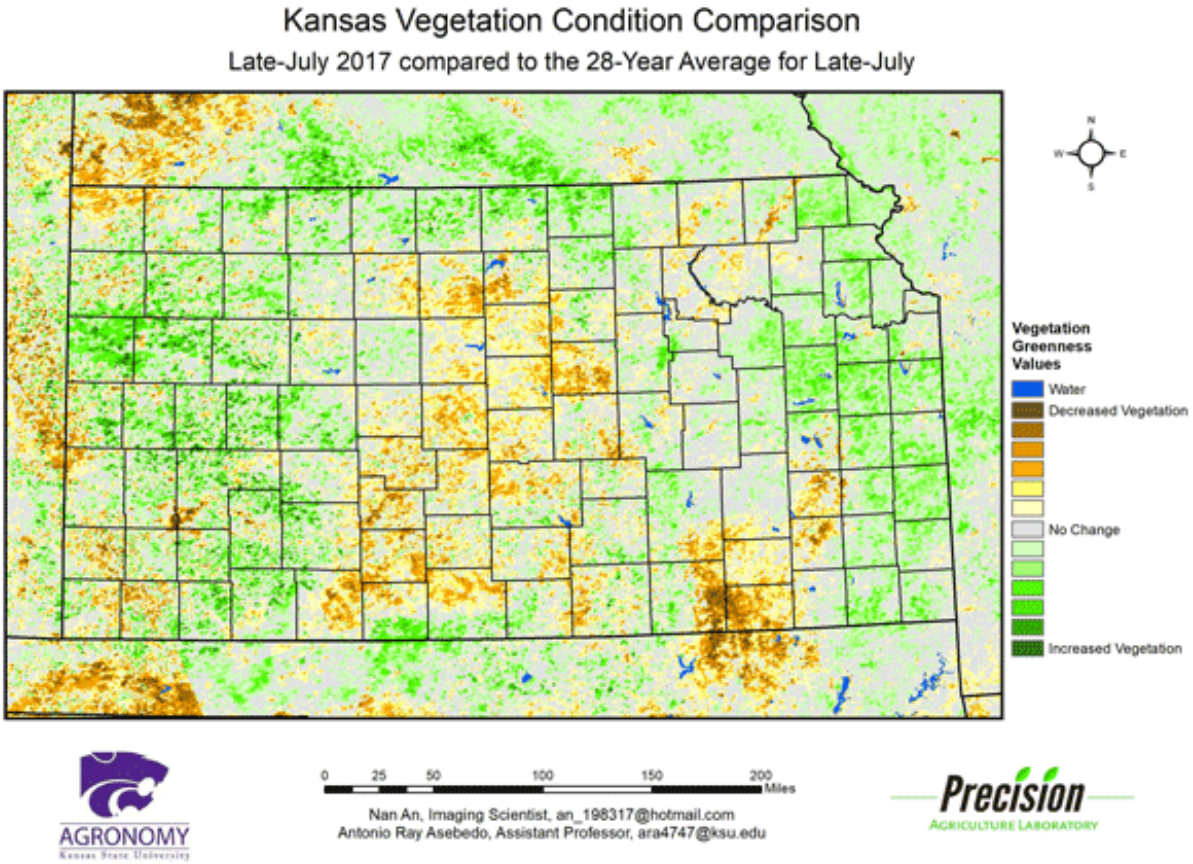

Figure 3. Compared to the 28-year average at this time for Kansas, this year's Vegetation Condition Report for July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory much of the state has close-to-average vegetative activity. Wetter-than-normal conditions have favored parts of the west, particularly Wallace County. Meanwhile continued hot, dry weather has stressed vegetation in the central parts of the state.

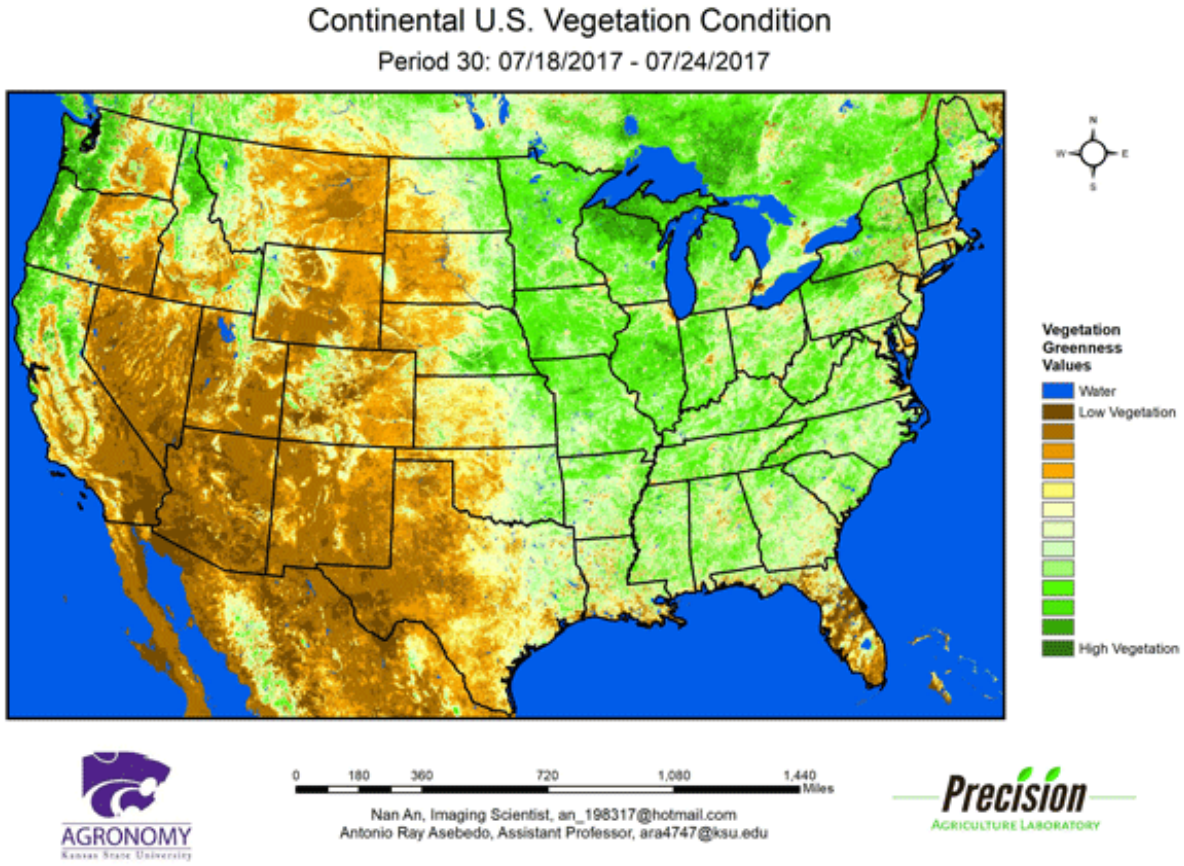

Figure 4. The Vegetation Condition Report for the U.S. for July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory shows the highest NDVI values are centered in the Midwest, particularly in southern Missouri and central Illinois. A second area of higher vegetative activity is also visible along the West Coast, where the wet winter continues to benefit vegetative growth. Extremely low NDVI values continue to highlight the severe drought in eastern Montana and western South Dakota.

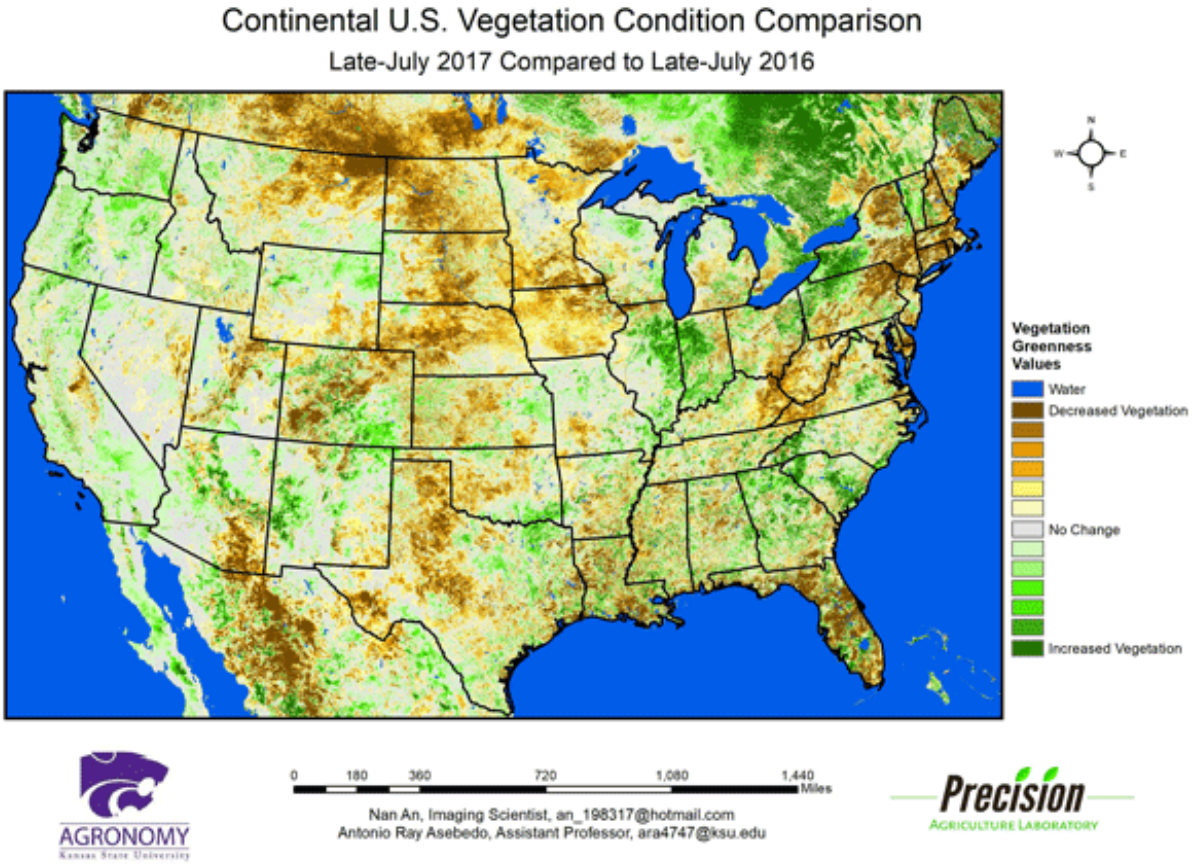

Figure 5. The U.S. comparison to last year at this time for July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory shows the impact that the split in moisture has caused this year. Much lower NDVI values are visible from eastern Montana through the Dakotas and into the Oklahoma Panhandle. In contrast, eastern Illinois and western Ohio have much higher NDVI values than last year at this time.

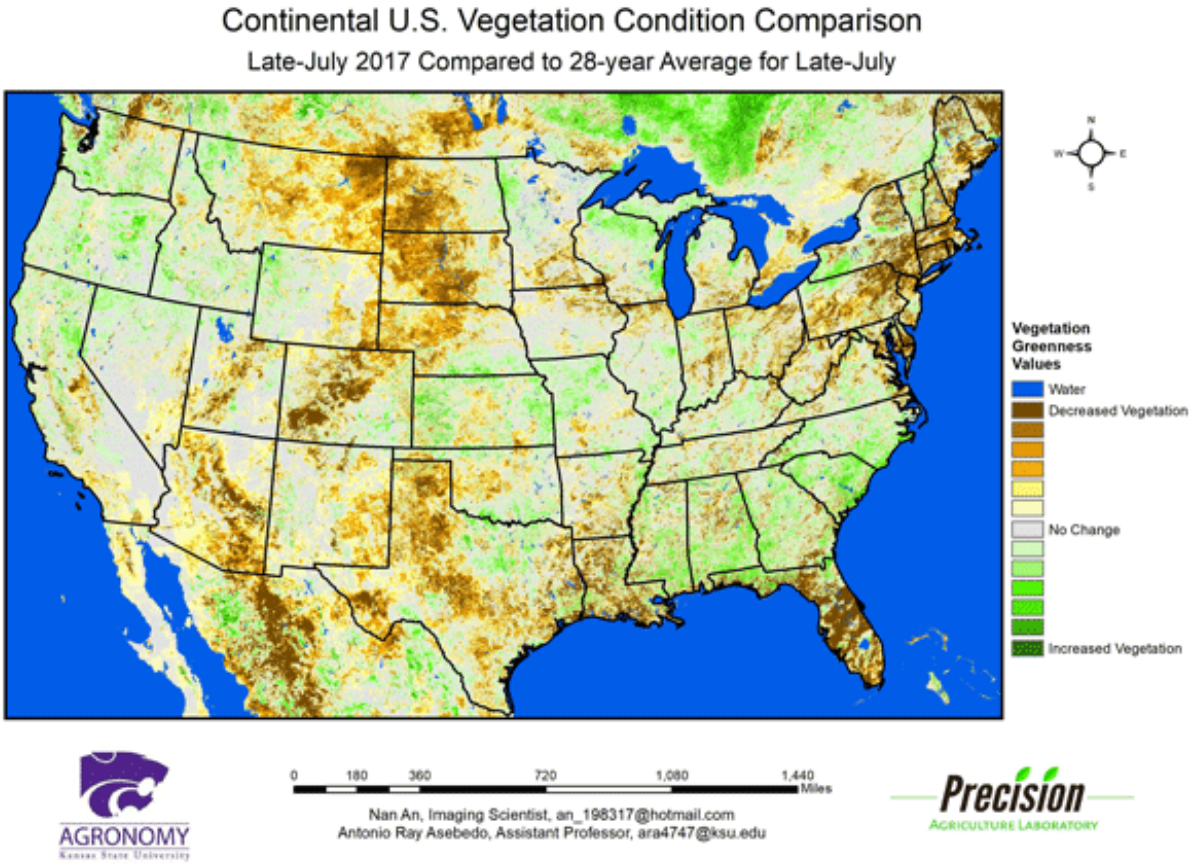

Figure 6. The U.S. comparison to the 28-year average for the period of July 18 – July 24, 2017 from K-State's Precision Agriculture Laboratory shows an area of below-average photosynthetic activity in upper New England, where continuing storm systems and persistent cloud cover have masked vegetative activity. Drought impacts in the Northern Plains are visible as below-average NDVI values as well. In Colorado, parts of Idaho and the Sierra Nevada of California, the below-average NDVI values are due to monsoon moisture. Parts of the area have been under flood advisories most of the week.

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