Issue 612

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eUpdate

02/17/2017

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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1. Kansas Wildfire Awareness Week: February 19-25

Kansas State University, K-State Research and Extension, and Kansas Forest Service are all represented on the Kansas Interagency Wildfire Council (KIWC). KIWC consists of federal and state agencies whom focus on wildfires, their impacts, and prevention. For the third year, Governor Sam Brownback has signed a proclamation from KIWC designating February 19-25, 2017 as Wildfire Awareness Week.

In 2016, Barber County had the largest wildfire in Kansas history with the Anderson Creek fire. More than 250,000 acres burned in Barber County alone in that fire. In 2015, 5,945 wildfires were reported in Kansas resulting in 21 injuries and nearly $4.9 million in property loss and damage. Kansas averages around 6,000 wildfires totaling 150,000 acres each year. A majority of these fires occur in the spring and are the result of human activities.

If you are planning a burn to manage grassland, clear ditches, or remove trash/debris - check the fire weather not only for the day of the burn, but for several days after. Fire weather is defined as the state of the weather with regards to available fuel and spread of fires. Days with high fire danger include those with warm temperatures, low humidity and high winds. In Kansas, the National Weather Service offices may issue a "Red Flag Warning" when conditions are particularly explosive. When the fire danger is high, pay extra attention to any outdoor fires, even trash bins, campfires, or grills.

This spring may be particularly active for several reasons:

- last summer had good growing conditions, providing ample fuel
- the winter has been mostly dry, with little snow to pack down the fuel
- dry fall into winter has cured 100- to 1000-hour fuels, making them more susceptible to burning
- persistent above normal temperatures are creating an increase of high fire danger days

Abundant surface soil moisture won't necessarily slow fire progress. Often, when emergency personnel are working wildfires in the spring, they get stuck in the mud. Dormant vegetation isn't taking up this moisture and is drying/curing much faster than 10-1000 hour fuels, which makes control difficult. In general terms, 100- to 1000-hour fuels are different sizes of branches/dead trees. Smaller branches would be 100-hour fuels; downed/dead trees would be 1000-hour fuels. It takes more time to dry/wet them -- more time to cure and get them dry enough to start burning, and more time to put them out. Grass and weed residues are one-hour fuels.

During Wildfire Awareness Week, KIWC and first responders remind all Kansas citizens to exercise safe, responsible behavior when conducting outdoor burning, now and during the coming season. More than 80% of first responders are volunteers and some extra vigilance from those who are burning goes a long way to reducing the occurrence of wild land fire, the resulting injuries and property loss, and the demand on those volunteers.

For additional information:

On the KIWC, visit www.twitter.com/wildfireKS or https://www.facebook.com/KSKIWC

In protecting yourself against wildfires, visit www.firewise.org/wildfire-preparedness/

About safe burning practices, visit http://www.kansasforests.org/fire_management/

About smoke management, http://www.ksfire.org/

Weather forecasts, visit your local National Weather Service page www.weather.gov and

Real-time weather observations, visit www.mesonet.ksu.edu

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2. Management following a wildfire: Effects on vegetation and soils

Dry conditions at this time of year can lead to an increased danger of wildfires. While a fire from a prescribed burn in the spring will not harm perennial grasses on grazing lands, a wildfire may act differently. A wildfire can cause enough damage, especially to bunch grasses, to result in a decline in productivity for a year or two. This is not always the case, however. The best general advice on burned rangeland is to just wait and see how well it recovers.

A good case example is last year's widespread and intense wildfire in Barber County. Following that fire, regrowth of grasses started within two weeks. Precipitation was at or above normal for most of 2016 which allowed for good recovery. Little bluestem was regrowing from the outside of the bunchgrass crown. Rhizomatous species such as Indiangrass were sending up new shoots.

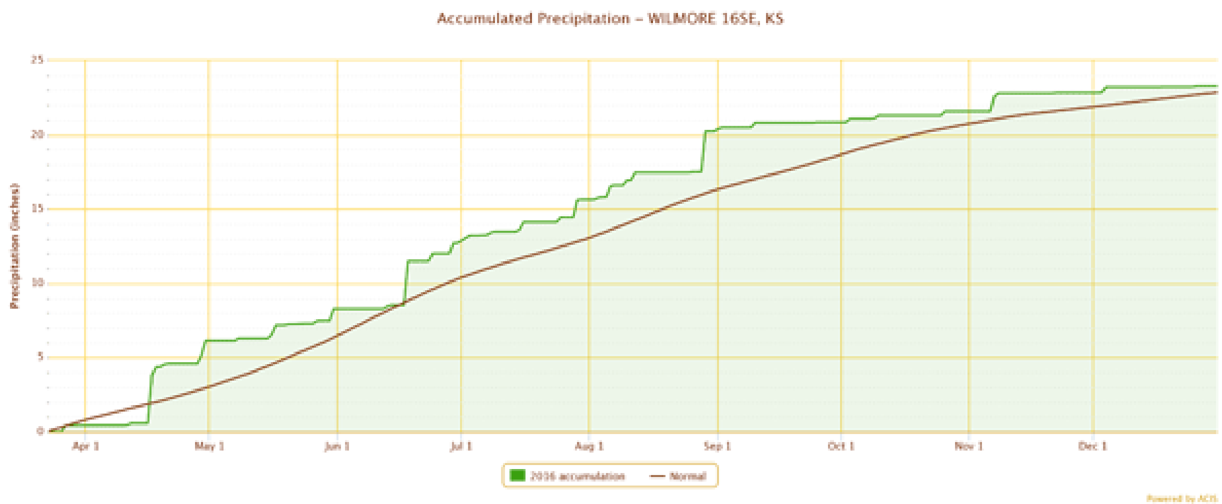

Figure 1. Precipitation in 2016 at Wilmore 16SE versus normal.

The 2016 wildfire also moved rapidly enough through the rangeland -- with high winds, low relative humidity, and warm air temperatures – that most grasses, especially those with rhizomes, could recover well.

Still, wildfires can and have damaged grasses in other cases. An earlier wildfire in central Kansas that occurred in mid-March in a dry year on shortgrass rangelands reduced forage production 65% the year of the burn and 39% the following year. This shortgrass rangeland consisted primarily of blue grama, buffalo grass, and western wheatgrass. In mixed prairie grassland, bunchgrasses such as little bluestem with large accumulations of dead plant material may be damaged as the passing fire ignites the dry material and generates increased temperatures at the soil surface for a period of time. If this occurs, forage production may be reduced by about 10-20 percent.

With wildfires, there are also potential issues concerning soil quality, soil erodibility, and growing wheat.

Rangeland

Where a wildfire occurs, the ability of rangeland or tame grass pastures to regenerate forage depends on precipitation amounts, the time of year that the fire occurs, the water infiltration ability of the soil, and management factors following the fire. Regarding the wildfire in Barber County in 2016, most of the soils in south central Kansas had very good moisture going into the 2015-2016 winter. The topsoil was generally quite dry at the time of the fire in late March 2016, but subsoil moisture was still good. This helped grass recover in the long-term. This winter, drought conditions have been developing in Kansas, especially in western and eastern parts of the state (Figure 2). Nearly 65% of Kansas is experiencing some level of drought at this time.

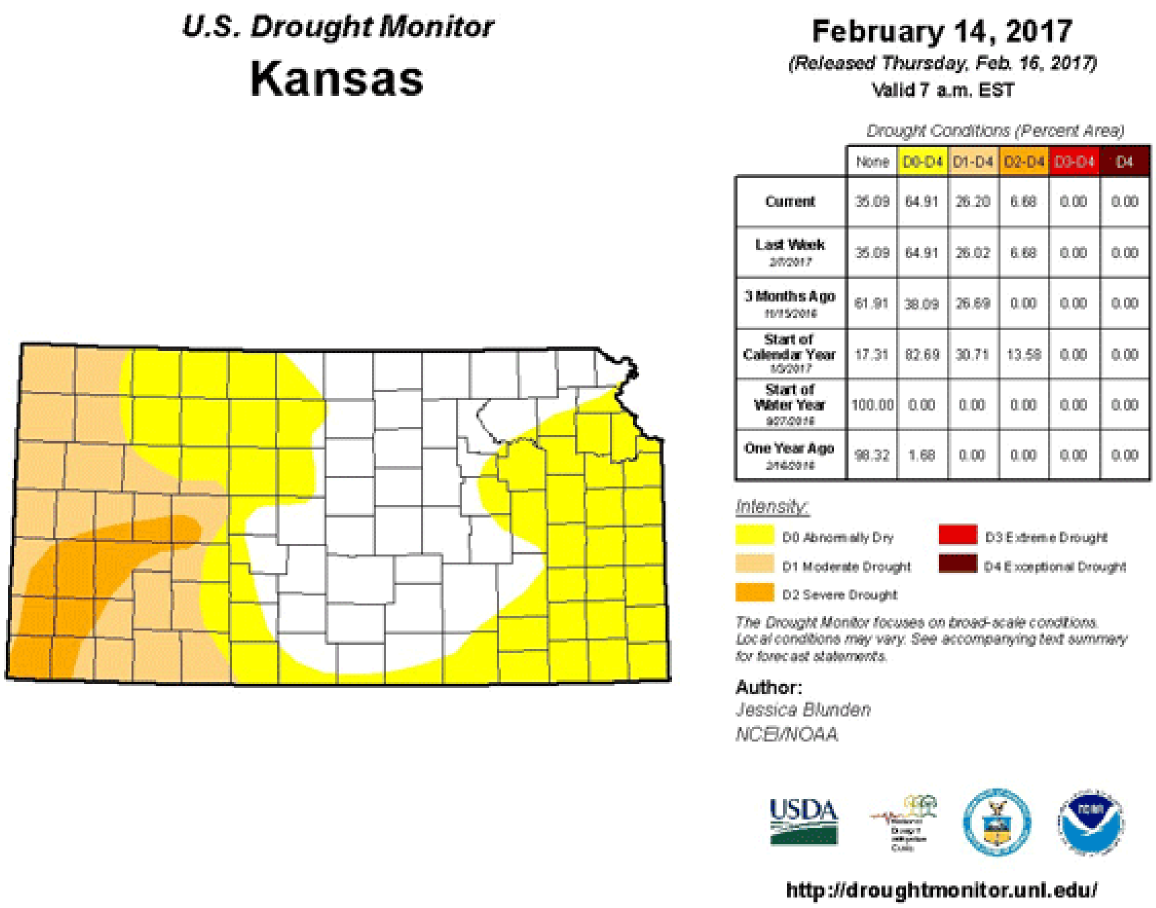

Figure 2. U.S. Drought Monitor for Kansas, February 14, 2017.

Warm, dry, and windy conditions have been occurring recently, and a Red Flag Warning was issued for much of eastern Kansas on February 16. Some wildfires have already occurred this year. Vegetation recovery will depend on the time of the fire and subsequent weather conditions.

The crowns of grass plants often survive a wildfire and will regrow, but some can be damaged if the fire occurs when soil and air conditions are extremely dry. If plant litter remains after the fire, less damage will have occurred to the plant crowns, and soil conditions will be better. As noted earlier, good precipitation during the early growing season following the wildfire will hasten recovery and lessen the immediate impact of the fire.

Evaporation and runoff may be increased if the fire occurs when the grasses are not actively growing.

Bare soil may lose at least one-half inch of moisture per week through evaporation. The higher the clay content of the soil, the greater the potential for puddling and runoff.

Wildfires can reduce stored food reserves of grasses, reduce moisture infiltration, increase evaporation and runoff, lead to erosion, create grazing distribution problems, lead to an infestation of noxious weeds, and injure or kill trees.

Trees can burn quite hot, and for an extended period of time, if they catch fire. Eastern red cedar trees, among others, may be killed by a wildfire. On rangeland, this would normally be considered a good thing. Following the 2016 Anderson Creek fire in Barber County, the death of the Eastern red cedar resulted in flowing water in streams that had been dry for years. The main concern now is to remove those standing dead trees since they serve as perches for raptors that prey on young quail and prairie chicken chicks. In addition, song birds that eat red cedar berries will end up planting new trees under the dead trees.

A. Native warm-season grass rangeland

Between mid-March and June, wildfires generally do not reduce forage production as much as fires later in the year. However, if conditions are dry, regrowth will not occur and stocking rate must be reduced. Wildfires at this time may change plant composition of the grazing land.

When wildfires occur between late June and frost, the major consideration is to protect the plants from overuse. Immediate removal of the grazing animals is usually necessary. This will permit regrowth and allow plants to accumulate food reserves before winter. Wildfires occurring between fall and mid-March leave the soil bare until spring growth. Forage yields will be reduced, and a reduction is stocking rate is advised.

On sandy soils, blowouts should be controlled as soon as possible. Mulching with manure, straw, or hay free of noxious weeds, along with reseeding can stabilize the blowout area. Fencing of blowouts will restrict livestock traffic and speed recovery.

Several grazing management options exist after a wildfire. If a wildfire occurs where prescribed burning is practiced, burn the areas that were untouched by the wildfire in late spring, when the desirable grass species have 1 to 1.5 inches of new growth. This will encourage grazing of the entire pasture. Observe where the animals are grazing, and use grazing distribution tools such as salt, mineral, and oilers to attract cattle to underutilized areas.

For forage plants to recover, it usually will be necessary to reduce stocking rates on the burned area.

Area	Year after wildfire	Stock at:
Flint Hills and East	1	75-85%
	2	Normal
Central Kansas	1	65-75%

	2	90-100%
	3	Normal
Western Kansas	1	50%
	2	75%
	3	Normal

Note: During lengthy droughts, use lower stocking rates than those listed in the chart. The main concern is the inability of the plants to regrow. The plants must be given the opportunity for regrowth during drought.

If a wildfire occurs where prescribed burning is not practiced, management decisions should be based on when the grassland was burned, how much of it was burned, and where livestock water is located.

Example 1: If there is a livestock-watering source in both the burned and unburned portions of the grassland, divide the burned and unburned areas (using an electric fence, for example) and reduce the stocking rate in the burned area.

Example 2: If there is only one livestock-watering source in the grassland area, the decision is whether to manage the burned or the unburned area. If the unburned area is larger, separate the two areas with an electric fence and stock the unburned area at the normal rate. If the burned area is larger, either manage only the burned part by reducing the stocking rate or establish an alternate water source, fence the area, and reduce the stocking rate on the burned portion. If the sole watering source is in the burned portion, the unburned portion would not be utilized unless the area was fenced and another water source established or a lane is fenced off to allow watering from the unburned area.

Example 3: If only a small portion of the grassland is burned, fence it off and reduce the stocking rate on the unburned portion accordingly.

Example 4: In areas where prescribed burning is commonly practiced, a partial burn of one-third of the pasture may provide an opportunity to try patch-burn grazing. Livestock will concentrate on the recently burned area, but the next year a different third of the pasture is burned and the livestock will change their grazing habits. Patch-burn grazing will result in rotational grazing without using a fence.

Mowing unburned areas in the early spring can encourage livestock to move from the burned area. However, don't mow in August or September. Early intensive grazing is another option for burned areas. Removing all livestock from the grassland by mid-July provides late-season rest and time for the desirable grasses to replenish root reserves.

B. Tamegrass hay meadows

Hay meadows burned by wildfires will probably produce less hay. To return hay meadows to their former production, cut the meadow in early to mid-July to allow regrowth and replenishment of root reserves.

Effects on soil

The number one issue regarding the impact of a wildfire on soil quality is going to be susceptibility to erosion from water or wind. Past research, mainly on forest soils after a fire, indicate there is nothing to worry about as far as long-lasting chemical or biological effects in the soil from a fire. Managers and landowners may notice a hardening of the soil surface, but there is no reason to be concerned that the fire will cause the soils to become hydrophobic (water-repelling). That can happen in forest soils, but is unlikely in grassland soils. Any surface hardening caused by the wildfire will likely be shallow and temporary.

If the vegetative cover on the surface of the soil was completely burned off, this increases the potential for wind erosion during the early spring months, when wind erosion rates are often at their highest.

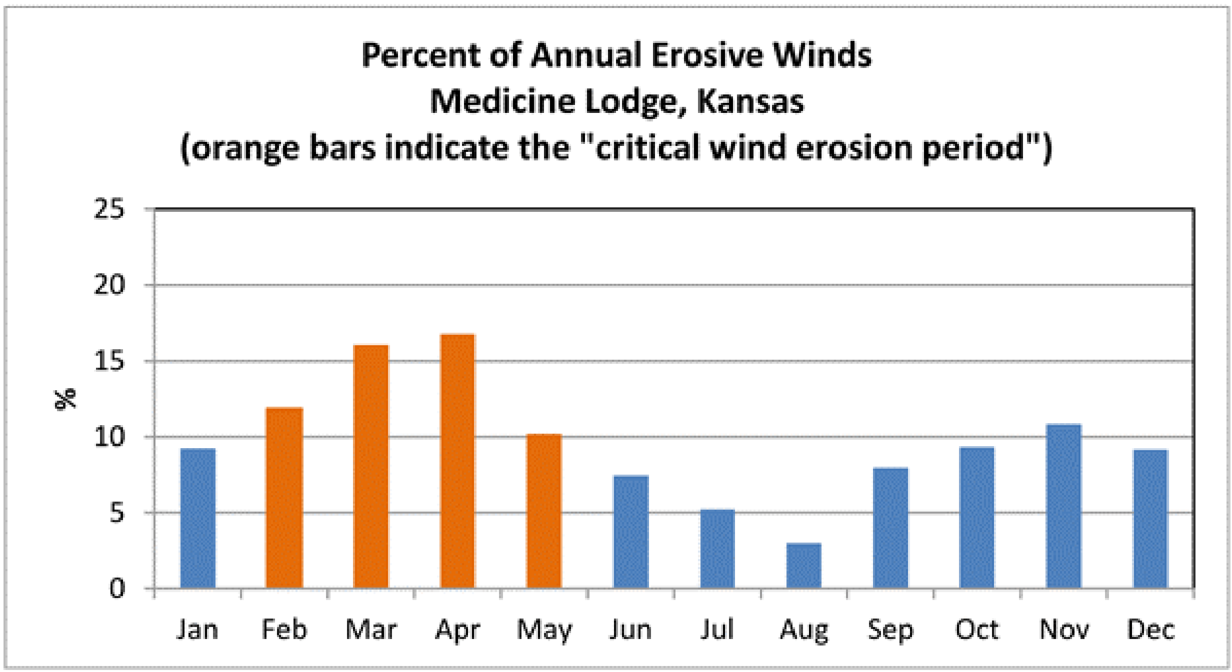

Figure 3. Source: John Tatarko, USDA-ARS Agricultural Systems Research Unit, Ft. Collins, Colo.

If the vegetation begins to regrow within a week or two, which may well occur on warm-season grasslands, this will reduce the potential for erosion problems. When vegetation or residue cover is insufficient, ridges and large soil clods (or aggregates) are frequently the only means of controlling erosion on large areas. Seeding a temporary cover crop is another option for small areas, if the permanent grasses and forbs do not seem to be growing back two or three weeks after receiving some moisture.

Another option for smaller tracts of land left bare of vegetation or residue by the wildfire is to roughen the land surface with ridges and clods. This reduces the wind velocity and traps drifting soils. While this is not practical to do on large acreages of rangeland, it can be an effective practice on smaller acreages, such as a section of cropland ground. A cloddy soil surface will absorb more wind energy than a flat, smooth surface. Better yet, a soil surface that is both ridged and cloddy will absorb even more wind energy and be even more effective in reducing the potential for wind erosion.

Crosswind ridges are formed by tilling or planting across the prevailing wind erosion direction. If erosive winds show no seasonal or annual prevailing direction, this practice has limited protective value. In Kansas, the prevailing winds in early spring the prevailing winds are from the south. Crosswind ridges at this time of year, therefore, should be in an east-west direction to protect from both northerly and southerly winds.

Tillage implements can form ridges and depressions that alter wind velocity. The depressions also trap saltating soil particles and stop avalanching of eroding material downwind.

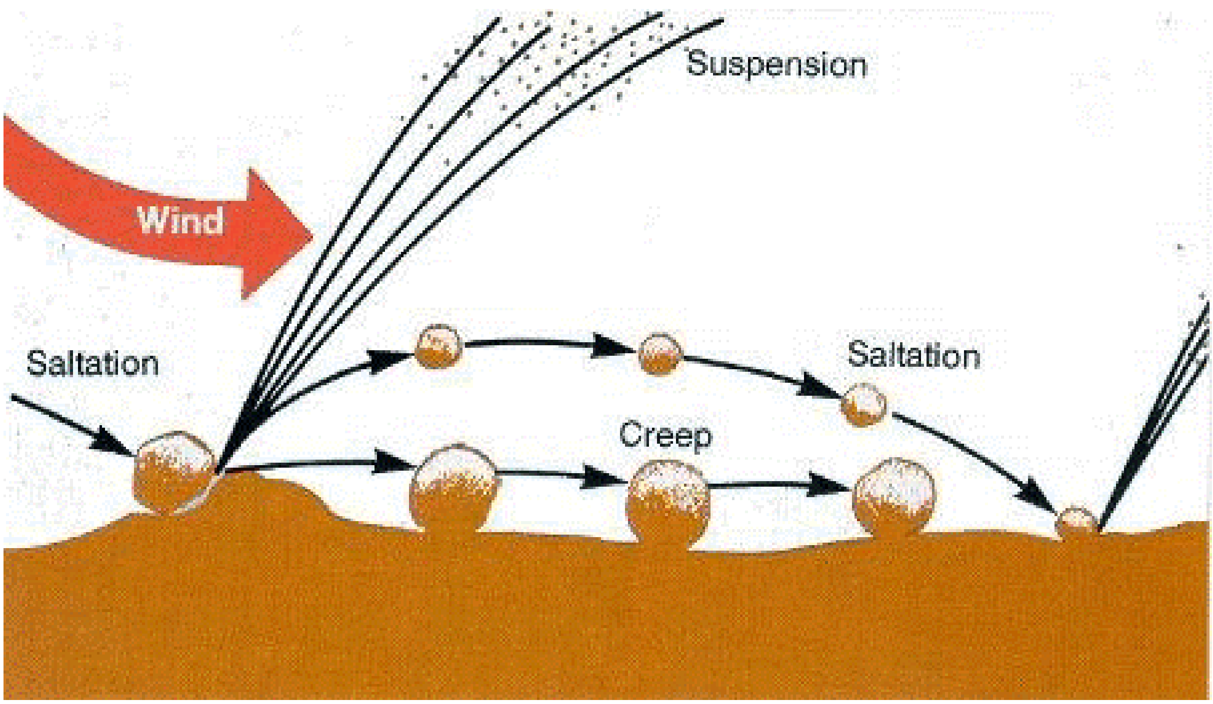

Figure 4. Source: Principles of Wind Erosion and Its Control, K-State Research and Extension publication MF-2860: http://www.bookstore.ksre.ksu.edu/pubs/MF2860.pdf

However, soil ridges protrude higher into the turbulent wind layer and are subject to greater wind forces. Therefore, it is important that cloddiness on top on the ridge is sufficient to withstand the added wind force, otherwise they will quickly erode, and the beneficial effects will be lost. Ridging sandy soils, for example, is of little value because the ridges of sand are erodible and soon leveled by the wind.

Clod-forming tillage produces aggregates or clods that are large enough to resist the wind force and trap smaller moving particles. They are also stable enough to resist breakdown by abrasion throughout the wind erosion season.

If clods are large and stable enough, as smaller particles are removed or trapped, the surface becomes stable or "armored" against erosive action. The duration of protection depends on the resistance of the clods to abrasion or changes in the wind direction.

Of the factors that affect the size and stability of soil aggregates, most notable is soil texture. Sandy or coarse-textured soils lack sufficient amounts of silt and clay to bind particles together to form aggregates. Such soils form a single-grain structure or weakly cemented clods, a condition that is quite susceptible to erosion by wind. Loams, silt loams, and clay loams tend to consolidate and form stable aggregates that are more resistant to erosive winds. Clays and silty clays are subject to fine granulation and more subject to erosion.

For more information, see *Principles of Wind Erosion and Its Control*, K-State Research and Extension publication MF-2860, at: http://www.bookstore.ksre.ksu.edu/pubs/MF2860.pdf

Growing wheat

Wheat can be injured by fire or super-heated air, and this injury will be most severe on the edge of the field closest to the heat. Wheat in the jointing stage or beyond is in greater danger as the growing point is above ground, but wheat in the tillering stages of growth can also suffer consequences of extreme heat. It is not uncommon to have some injury to growing wheat on the edge of a field if the field is adjacent to a prescribed burn. The injury symptoms may be bleached or scorched leaves and possibly damaged growing points. The extent of injury from a wildfire depends on how quickly the fire moved through the field or around the field.

Research has found that the lethal high temperature for wheat is about 120 degrees F. Wheat exposed to temperatures above this threshold will most likely not recover.

A wildfire can easily heat the air or the plants themselves to temperatures well above that level, depending on the distance of the fire from the wheat, possibly resulting in irrecoverable damage to the affected plants.

Wildfire injury to wheat will most likely be quite variable through the field. The only way to accurately assess any possible injury is to slice open the stems and examine the growing points about a week after the fire. As with freeze damage, if the growing point is green and turgid, it is fine. If it is white and soft, it is damaged. If there was extensive damage, the ability of the wheat to recover will be similar to the ability to recover from spring freeze injury.

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3. Last year's rains bring increased fire risk in 2017

Spring is the optimal time for many people to do prescribed burns across Kansas, especially in the Flint Hills. It invigorates grass/crop growth, reduces noxious weeds, and eliminates excessive dead plant material. These materials, often called fuels, can be variable from season to season. If an area of land is never burned, fuels accumulate and pile up on the ground over the years, often falling over with winter wind and snow.

However, fuel accumulations occur on a yearly basis even on burned areas. Warm-season grasses, weeds, and other one-hour fuels exhibit their growth from spring to summer. They are called "one hour" fuel because that is typically the speed at which they can dry out and "cure," and be receptive to burn in a fire. The amount of plant growth, and thus production of these fuels, can vary considerably from one season to the next.

In 2016, near record rains in June brought flooding to much of Kansas, especially southern portions of the state. These rains saturated the soil and provided a large source of moisture for plant growth. Favorable temperatures during the summer utilized the copious moisture and provided extensive growth of perennial grasses and weeds.

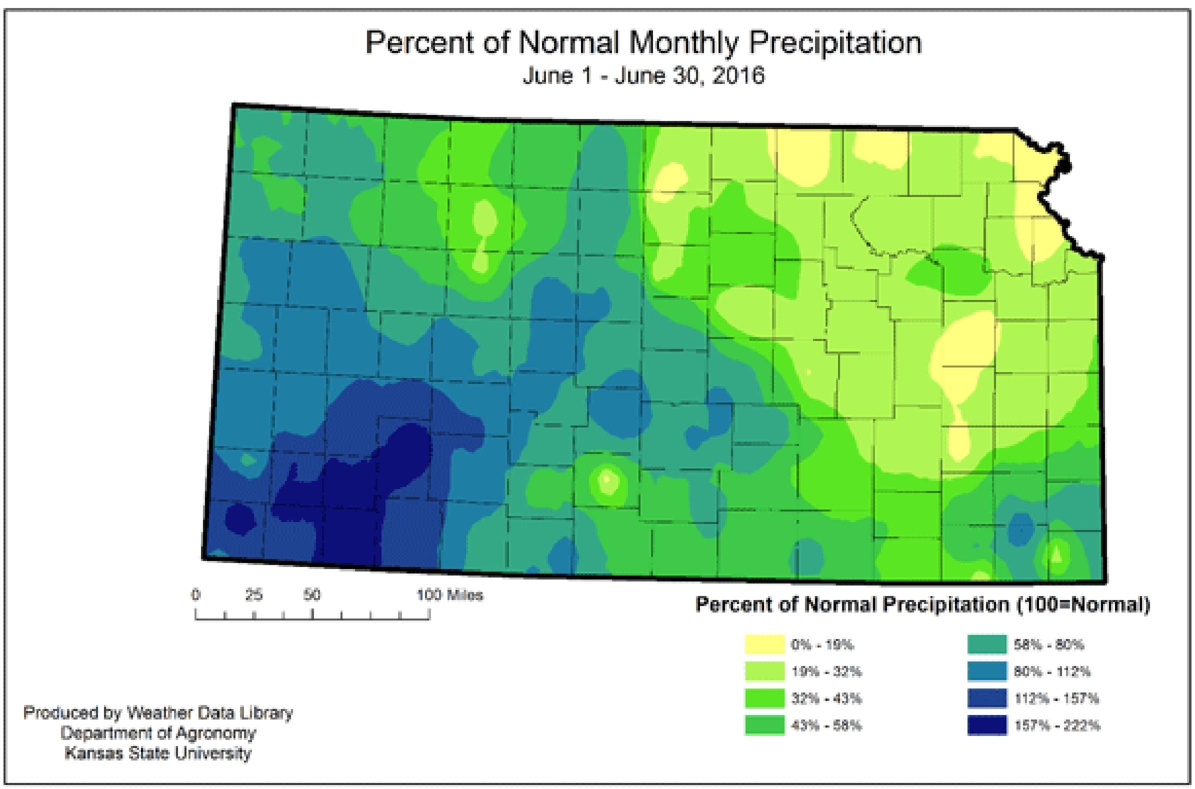

Figure 1. June rains were above normal for most of the state in 2016, especially in the southwest and central part of the state. You can find this and other maps at: http://climate.k-state.edu/maps/monthly/index.php?inMonth=6&inYear=2016

Another factor that has heightened fire risk this spring is the warm and nearly snowless winter so far in much of Kansas. Because of the lack of widespread snow and/or ice, the tall fuels produced as a result of environmental conditions have not yet been knocked down to the ground. Although we have had some winds, they haven't occurred along with rains or snow/ice events, and thus haven't been successful in knocking down these fuels, either. Therefore, last year's aggressive plant growth remains vertical. Vertical fuels are much more susceptible to rapid curing/drying out, which makes them a very efficient fire carrier, and will exhibit increased fire behavior. When fuels fall down and lay horizontally, they act as a sponge due to being packed more tightly, and hold moisture much adequately.

Considering all these factors, what does this mean for spring burning in Kansas this year? Fire managers need to be extra vigilant when planning prescribed fires in the region. Some of the steps fire managers can take to mitigate the impact of this fuel load include:

- Make larger fire breaks around the prescribed burn region.
- Eliminate tall grasses around structures/trees that may aid in carrying fire.
- Anticipate increased fire behavior and increased potential for spotting.
- Be extra thorough with mop up operations.

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4. Topdressing wheat with sulfur

In recent years, sulfur (S) deficiency in wheat has become common in many areas of Kansas, particularly in no-till wheat. Classic S deficiency symptoms, confirmed by soil and plant analysis, have been observed in many no-till wheat fields during periods of rapid growth in the spring. These observed deficiencies generally occur during periods of rapid growth prior to jointing, or during stem elongation.

There are two likely reasons for this: a reduction in sulfur additions to the crop from atmospheric deposition and phosphorus fertilizer applications, and cooler soil temperatures as a result of no-till planting, which slows S mineralization in the soil. The net effect of these factors is a significant reduction in the crop available S.

The photo below is a good representation of the problem. Generally the S-deficient wheat is yellow and stunted, and the problem is found in patches in the field, especially in areas where there has been previous soil erosion or soil movement. Sulfur deficiency on growing crops is often mistaken for nitrogen (N) deficiency. However, unlike N where the older leaves show firing and yellowing, with S deficiency, the pale yellow symptoms of S deficiency often appear first on the younger or uppermost leaves. Wheat plants with S deficiency often eventually become uniformly chlorotic. The patchy S-deficient areas of the field are often found on hilltops or sideslopes where erosion has occurred and soil organic matter is reduced, or where leaching is more pronounced. In terraced or leveled fields, wheat in areas where topsoil was removed or significant cuts were made also commonly shows symptoms.

Figure 1. Sulfur deficiency in wheat. Photo by Dave Mengel, K-State Research and Extension.

Sulfur deficiencies in wheat have been showing up early in the spring, shortly after greenup, before organic S is mineralized from soil organic matter, and before wheat roots can grow into the subsoil to utilize sulfate accumulated there. Deficiencies of S are often difficult to identify because the paling in crop color is not always obvious. Crops lacking S also may be stunted, thin-stemmed, and spindly. In the case of wheat and other cereal grains, maturity is delayed. Due to the slower growth and lack of good tillering, winter annual weed competition is also enhanced.

The majority of S in soils is present in organic forms in surface soils and as sulfate. Sulfate is relatively soluble, so it tends to leach down from the surface soil into the subsoil. In many of our Kansas soils it will accumulate in the B horizon in two forms. Some will be sorbed to clay surfaces and coatings similar to the processes whereby phosphates are sorbed, though sulfate will not be adsorbed as strongly. Sulfate will also be present in the subsoil of many Kansas soils as gypsum. Traditionally, S deficiency was most common on high-yielding crops grown on irrigated sandy soils low in organic matter and subject to leaching. However, due to the reduced additions from the atmosphere (there is less S in the air now) and continued crop removal, an increasing number of finer-textured soils have shown S deficiency in recent years.

A soil test for available sulfate-S in the soil profile is available. For proper interpretation of this test, soil organic matter, soil texture, the crop to be grown, and the expected yield level all need to be factored in. Since sulfate-S is mobile, sampling to a 24-inch depth is important. Accurate estimates of S needs cannot be made from a surface sample alone. However, due to the relatively high demand for S during the rapid vegetative growth phase of wheat growth, and relatively shallow rooting by the wheat crop at this time, the S measured in the deeper, subsoil levels by the test may not be available to wheat in the early spring, especially where soils are cold.

Many fields in North Central and Northeast Kansas now have an established history of S deficiency for wheat. In this situation rather than waiting for symptoms to appear in the spring, farmers may want to consider a winter topdressing application of S as a preventive measure.

There are many S-containing fertilizer materials. Several dry materials are available that can be blended with dry phosphorus or nitrogen fertilizers for winter/spring topdressing. Some of these products are best used in preplant applications, however.

- Elemental S (typically 90-95 percent S) is a dry material marketed by several manufacturers. Before it becomes available for plant uptake, elemental S must first be oxidized by soil microorganisms to sulfate-S and this can be a slow process when surface-applied. As a result, this material is well suited for preplant applications. Elemental S is not well suited for corrective applications to S-deficient wheat in the spring, however, due to the time requirement for oxidation to sulfate.

- Ammonium sulfate, AMS (21-0-0-24S) is a dry material that is a good source of both N and S. It has high acid-forming potential, however, and soil pH should be monitored. Ammonium sulfate is a good source to consider for both preplant or topdressing to correct existing sulfur deficiencies.

- Gypsum (analysis varies) is calcium sulfate, and is commonly available in a hydrated form containing 18.6 percent S. This material is commonly available in a granulated form that can be blended with other materials. Since it is a sulfate source, it would be immediately available, and is another good source for spring topdressing. But gypsum is not as water soluble as many fertilizer materials, such as ammonium sulfate.

- New N-P-S products such as Microessentials or Anchor D are ammonium phosphate materials formulated with sulfur, and in some cases micronutrients such as zinc. In most of these products the sulfur is present as a combination of elemental-S and sulfate-S.

There are also liquid sources of sulfur fertilizers available.

- Ammonium thiosulfate (12-0-0-26S) is the most popular S-containing product used in the fluid fertilizer industry, as it is compatible with N solutions and other complete liquid products.

- Potassium thiosulfate (KTS, 0-0-17-17S) is a clear liquid product that can be mixed with other liquid fertilizers.

Application guidelines supplied by the manufacturers of both these liquid products caution that these products should not be applied in a foliar application or as foliar sprays to actively growing plants. Topdressing with thiosulfate and UAN can be done early, before Feekes 5, and at temperatures below 70 degrees. But some burn can be expected, especially with KTS. These products would be good sources for preplant application, however.

For more information see *Sulfur in Kansas*, K-State publication MF-2264, http://www.ksre.ksu.edu/bookstore/pubs/MF2264.pdf

For estimations of required application rates of S see *Soil Test Interpretation and Fertilizer Recommendations*, K-State publication MF-2586
http://www.ksre.ksu.edu/bookstore/pubs/mf2586.pdf

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5. Prescribed Burning Workshops scheduled for 2017

Three more Prescribed Burning Workshops are scheduled for the remainder of the winter in Kansas, with the possibility of more upon request.

The agencies involved include K-State Research and Extension, USDA-NRCS, USDA-FSA, Kansas Department of Wildlife, Parks & Tourism, and the National Weather Service. Each workshop lasts about 4 hours. Topics include, reasons for burning, regulations, weather considerations, liability, burn contractors, equipment and crew, hazards, fuels, firebreaks, fire types and behavior, ignition techniques, and burn plans. Attendees have the opportunity to talk through specific burn scenarios with the presenters.

Contact Walt Fick at 785-532-7223 or whfick@ksu.edu if you would like to host a prescribed burning workshop.

Workshop	Date (2017)	Location	Host	Agency	Phone	email
Edwards	Feb. 21	Kinsley	Jess Crockford	KPFC	620-664-4882	jbcrock@sbcglobal.net
Frontier District	Feb. 22	Ottawa	Rod Schaub	K-State	785-828-4438	rschaub@ksu.edu
Southwind District	March 1	Uniontown	Chris Petty	K-State	620-223-3720	cgp@ksu.edu

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6. Preplant Corn School, Feb. 23, Wilson

K-State Research and Extension will hold a Corn Preplant School in Wilson, at the St. Wenceslaus Parish Hall, on Feb. 23, from 9 a.m. to 3 p.m.

Topics include:

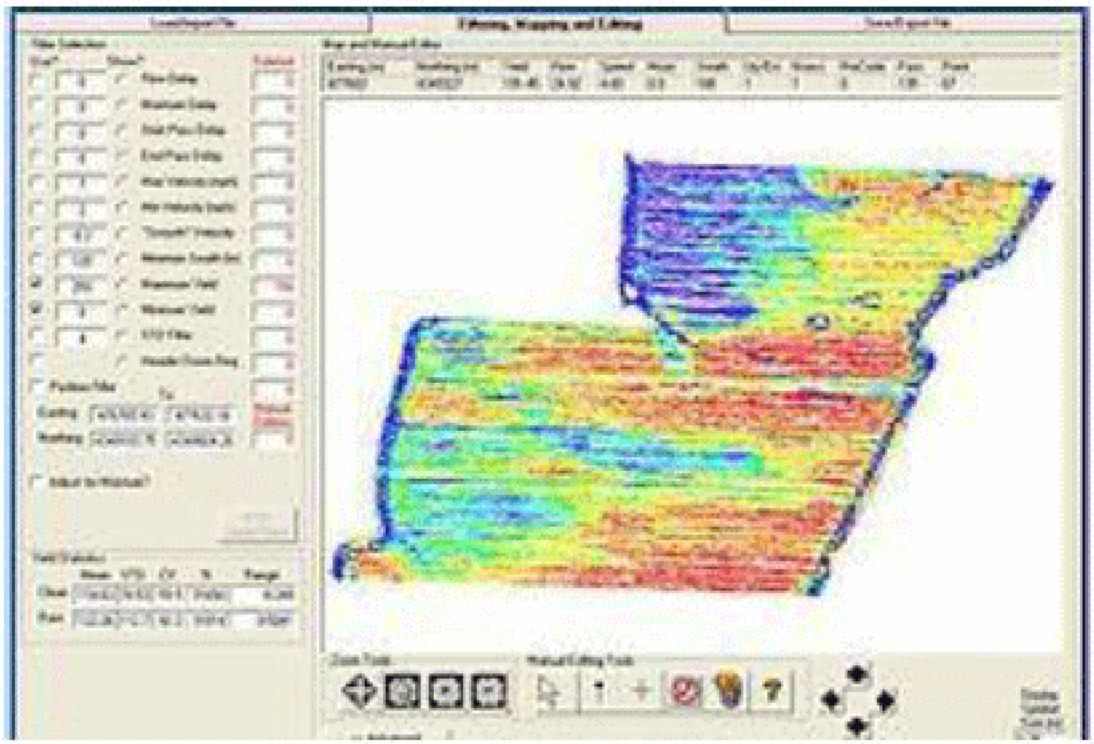
- Insects in Corn
- Corn Production Practices
- Diseases in Corn
- Looking at Planting Practices and Early Season Corn
- Economics
- Weed Control

A lunch will be provided at no charge. Please RSVP by Feb. 21 to Michelle Buchanan, Midway Extension District, 785-472-4442 or 785-483-3157, or email mbuchanan@ksu.edu

7. Two Yield Editor workshops scheduled: March 2 and March 3

Two Yield Editor workshops from K-State Research and Extension are scheduled:

- March 2nd in Garden City at 10:00 a.m. CT at the K-State Southwest Research-Extension Center
- March 3rd in Goodland at 10:00 a.m. MT at the 4-H building



Local K-State contacts for these workshops are:

Garden City --

Katelyn Barthol, Finney County Extension Agent (620) 272-3670

Kurt Werth, Gray County Extesnion Agent (620) 855-3821

A.J. Foster, Southwest Area Crops and Soils Specialist (620) 276-8286

Goodland --

Jeanne Falk-Jones, Sunflower District Extension Agronomist (785) 462-6281

Lucas Haag, Northwest Area Crops and Soils Specialist (785) 462-6281

Presentation topics include:

- Understanding sources of error in yield monitor data

- Importing data into USDA-ARS Yield Editor
- Detecting and flagging erroneous data
- Properly optimizing settings
- Exporting cleaned data

Participants should bring their own laptop computers. Yield Editor software and sample data will be provided, although participants are also free to bring some of their own data to work with.

Registration is free for members of KARTA (Kansas Ag Research & Technology Association) and $25 for non-members. To register, visit www.kartaonline.org/events

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8. Comparative Vegetation Condition Report: February 7 - 13

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:

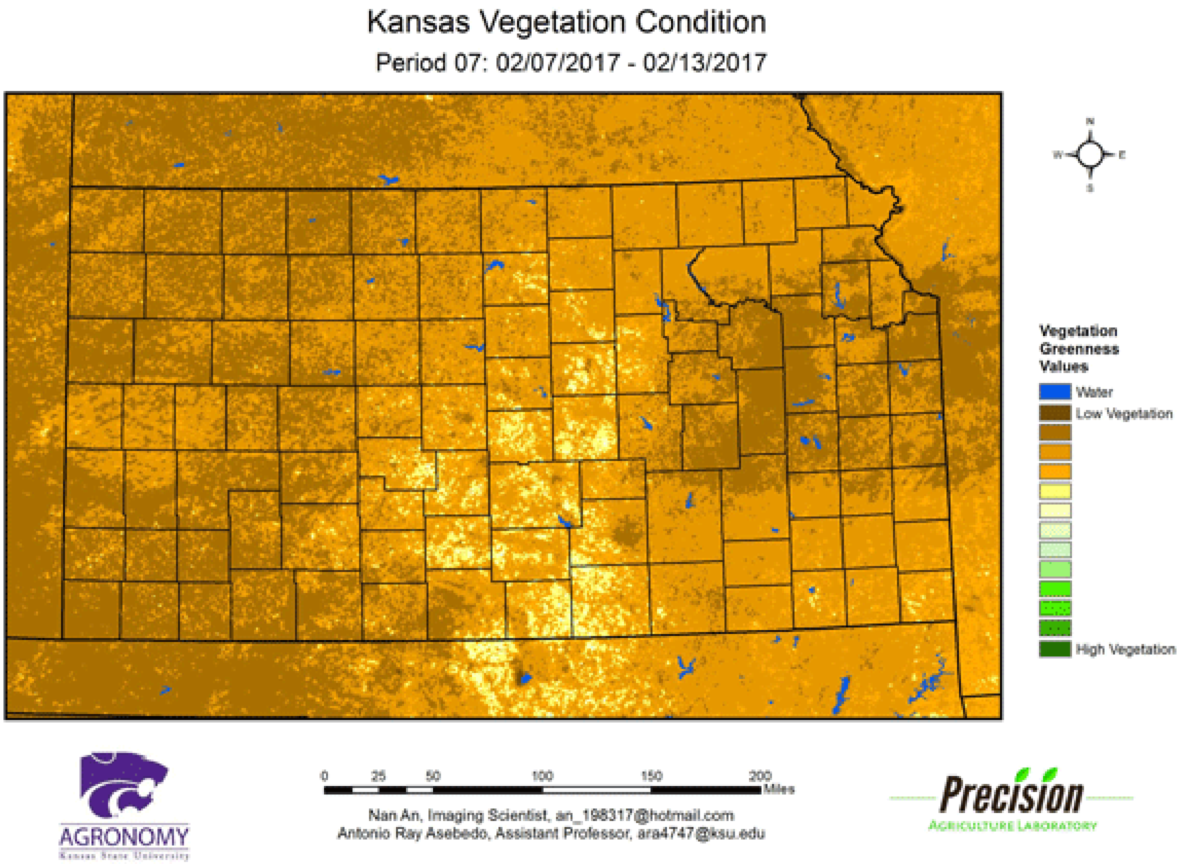

Figure 1. The Vegetation Condition Report for Kansas for February 7 – February 13, 2017 from K-State's Precision Agriculture Laboratory shows a slight increase in photosynthetic activity. The areas of highest NDVI values are mainly in central and south central Kansas. This is not unexpected given the season.

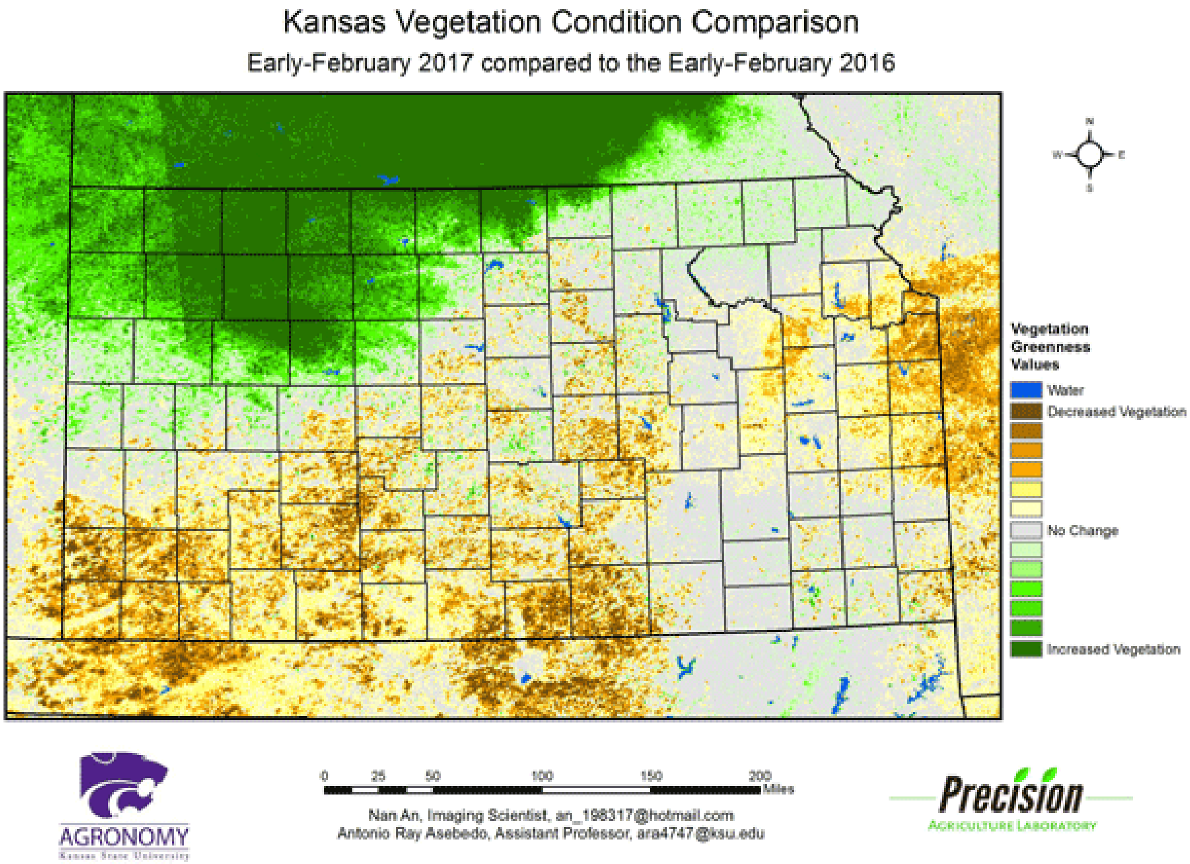

Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for February 7 - February 14, 2017 from K-State's Precision Agriculture Laboratory shows much higher NDVI values ranging from northwest to north central Kansas. Last year at this time, much of the area was snow covered. Lower NDVI values are most prominent in southwest and south central Kansas, where the winter wheat continues to be less advanced than last year.

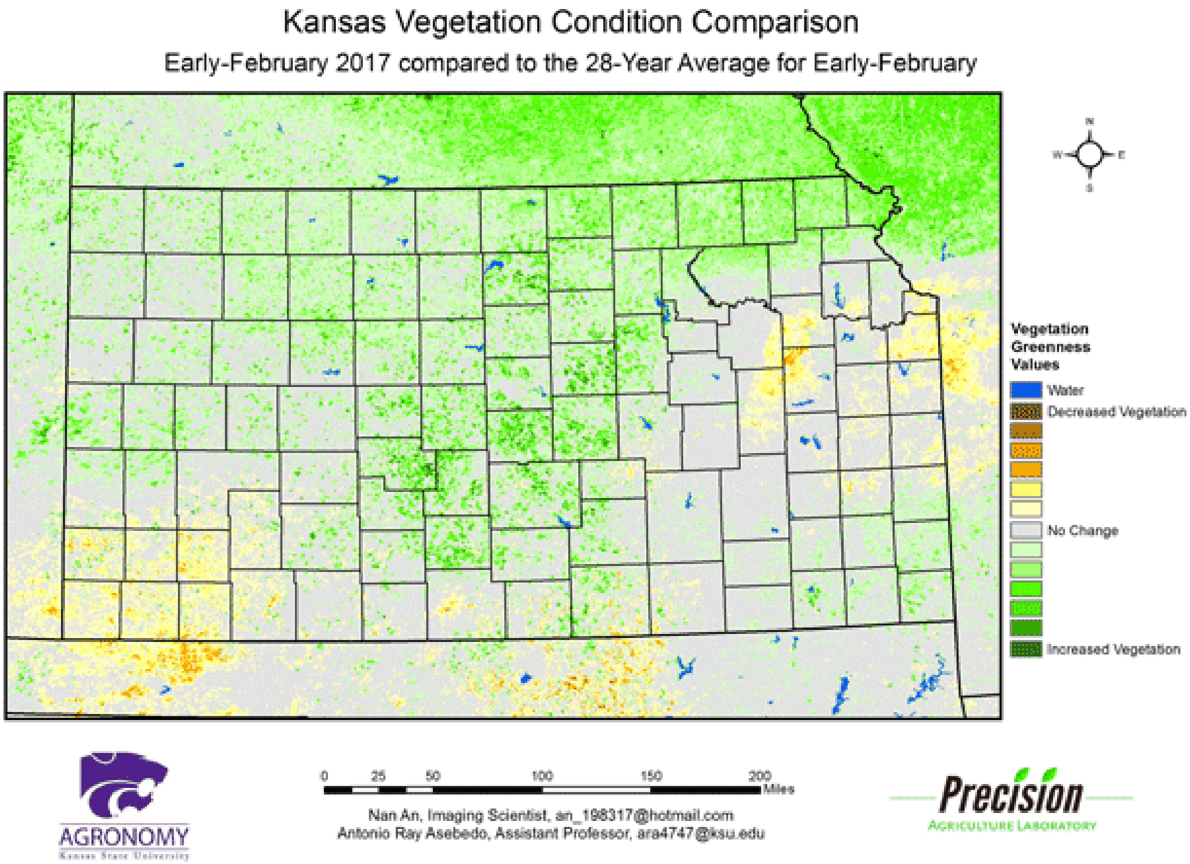

Figure 3. Compared to the 27-year average at this time for Kansas, this year's Vegetation Condition Report for February 7 – February 13, 2017 from K-State's Precision Agriculture Laboratory much of the state has near-normal vegetative activity. NDVI values continue to increase in the Central and South Central Divisions in response to warmer temperatures. The Southwestern Division isn't responding as much due to the drought conditions in the region.

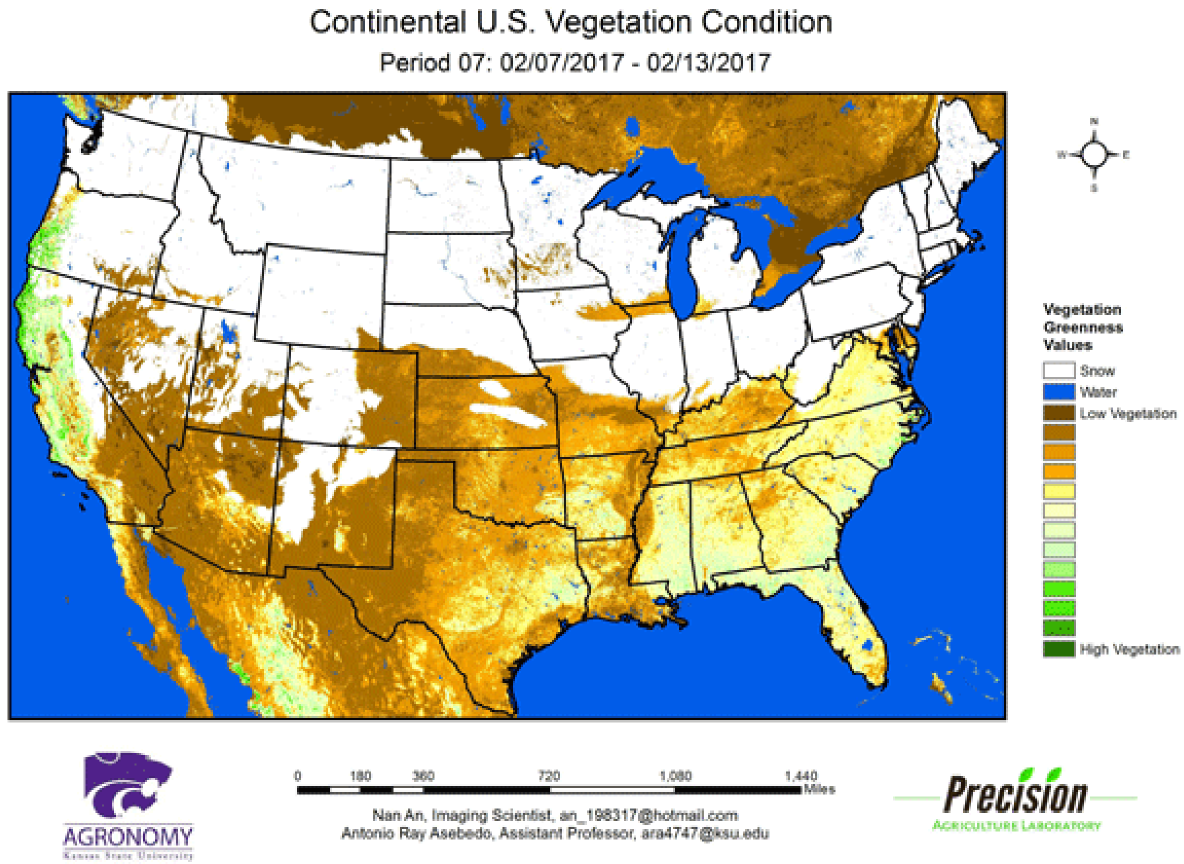

Figure 4. The Vegetation Condition Report for the U.S for February 7 – February 14, 2017 from K-State's Precision Agriculture Laboratory shows the highest NDVI values are confined to the South, particularly in east Texas and Louisiana. Snow coverage has retreated to the Northern Plains, although there was a small pocket in central Kansas. The Kansas snow was light and melted within the day of falling. The Sierra Nevada of California continues with tremendous snowpack.

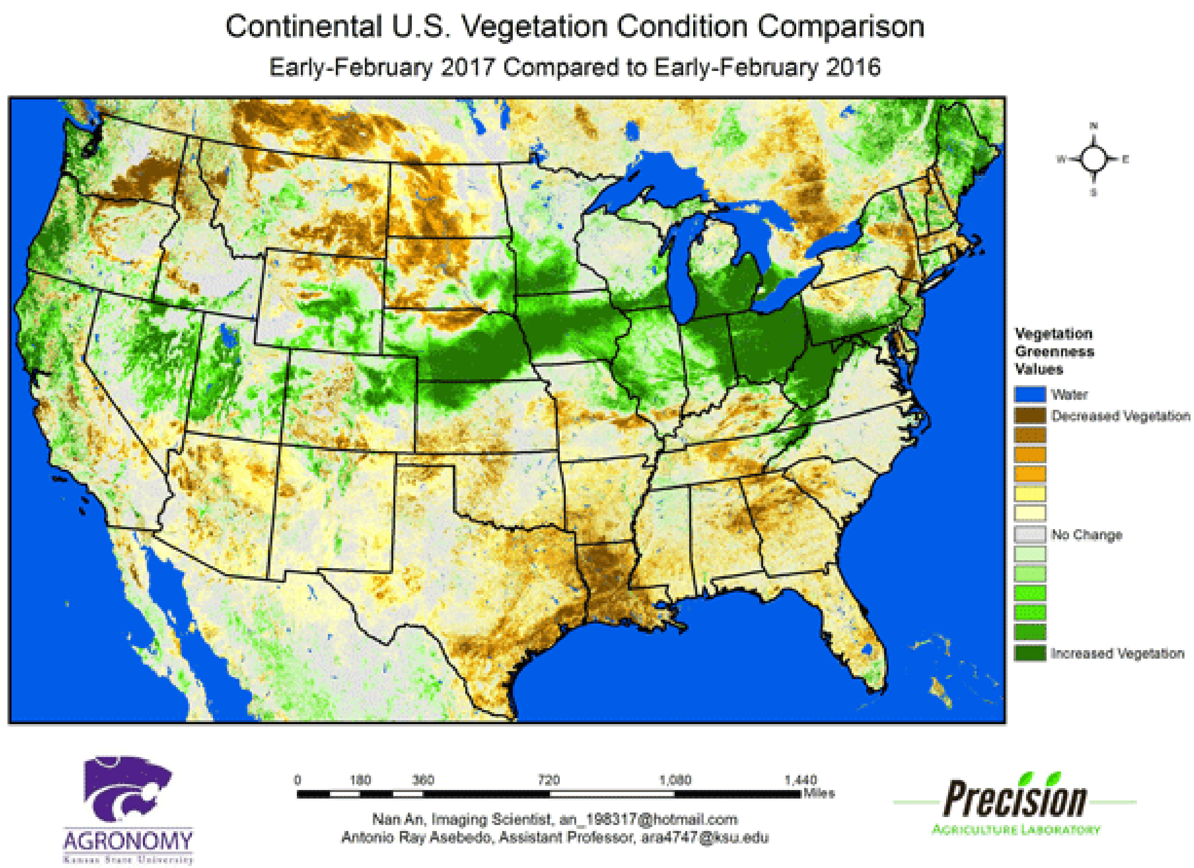

Figure 5. The U.S. comparison to last year at this time for February 7 – February 13, 2017 from K-State's Precision Agriculture Laboratory shows the split in the snow cover, particularly in the Plains. Snow cover persists in the Northern Plains and is missing in the Southern Plains and the Ohio River Valley.

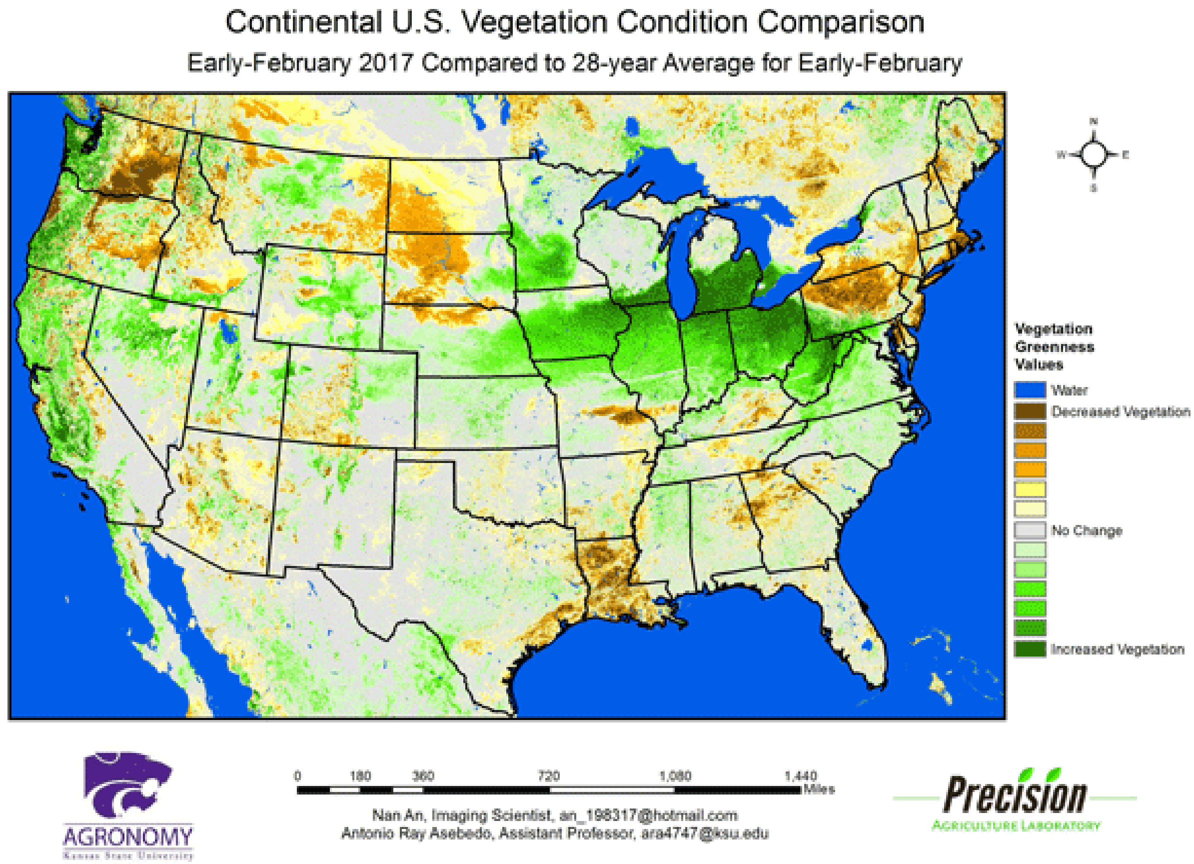

Figure 6. The U.S. comparison to the 27-year average for the period of February 7 – February 13, 2017 from K-State's Precision Agriculture Laboratory shows an area of below-average photosynthetic activity in the Intermountain West and the Northern Plains, where snow cover is greatest. Above-average NDVI values are visible in the Midwest from Iowa through Pennsylvania, where snow cover is much more limited and temperatures have been warmer than normal.

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