extension AGRONOMY e-Updates

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1. When to take cattle off wheat pasture

There has been less wheat pasture available this fall and winter than normal in much of Kansas. But where there has been enough growth to provide forage, it's time to start scouting the fields closely to make sure the cattle are pulled off pasture before grain yields are affected.

Producers should start examining plants soon to determine if the wheat has reached the "first hollow stem" (FHS) stage. This stage occurs as the wheat switches from the vegetative stage to the reproductive stage of growth.

When the leaf sheaths become erect, the developing growing point, which is below the soil surface, will soon begin to form a tiny head. Although the head is quite small at this point, it has already established some important yield components. At this stage, the maximum potential number of spikelets is determined. Sufficient nitrogen (N) should already be available in the root zone at growth stage in order to affect the potential number of seeds per head.

Once the embryo head has developed, the first internode will begin to elongate pushing the head up through the leaf sheaths. This first internode will be hollow. This will be visible before you can actually feel the first node (joint, located just above the first internode). Prior to this stage the nodes are all formed but tightly packed together and hard to see.

FHS is the point at which a half-inch or so of hollow stem can first be identified above the root system and below the developing head. FHS occurs when the developing head is still below the soil surface, which means that producers have to dig plants out of the ground to do the examination.

To look for FHS, start by digging up some plants from fields that have not been grazed. Select the largest tillers to examine. Cut off the top of the plant, about an inch above the soil surface. Then slice the stem open from the crown area up. Look for the developing head, which will be very small. Next, see if you can find any hollow stem between the developing head and the crown area. If there is any separation between the growing point and crown, the wheat plant is at FHS. FHS will occur between a few days and a week or more prior to jointing, depending on temperatures.

If the wheat has reached FHS, cattle should be removed to prevent grain yield loss. Yield losses from grazing after FHS may be up to 1.25 bushels per day according to OSU data, although losses may not be this great for the first few days of grazing after FHS. Still, it is easy for producers to be late by a few days in removing livestock as they wait for obvious nodes and hollow stems to appear, and even the first few days can be significant.

Two things are observed when wheat is grazed too long: 1) fewer heads per acre because the primary tiller has been removed and 2) smaller and lighter heads than expected because leaf area has been removed. As cattle continue grazing, the wheat plant is stressed and begins to lose some of the tillers that would produce grain. A little later, if there is not enough photosynthate, the plant begins aborting the lower spikelets (flowers where seed develops) or some of the florets on each head. Finally, if there is not enough photosynthate during grain filling, the seed size will be reduced and if the stress is severe enough, some seed will abort.

First hollow stem. (Photo courtesy of Gene Krenzer, former Oklahoma State University Extension wheat specialist.)

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2. Spring planting of alfalfa

Producers looking to benefit from the surge in hay prices may want to consider planting alfalfa this spring. If so, the time to start planning for spring planting is now.

Before planting alfalfa, producers should be sure to have the soil tested for pH, phosphorus (P), and potassium (K). There is still time to get this done before a spring planting, and the results will pay off for the life of the stand – usually five to seven years.

Alfalfa does best when the soil pH ranges from 6.5 to 7.5. If the soil pH is less than 6.5, production will be reduced. At very low pH levels, the stand may be thin and weedy. Applying lime, if needed, before planting alfalfa will pay big dividends.

Alfalfa is a big user of P. For every ton of alfalfa removed from a field, 10-12 pounds of P are removed. Past research in Kansas has shown that applying and incorporating P fertilizer, if

recommended by a soil test analysis, results in large increases in productivity. In a no-till situation, P fertilizer can be surface-applied and still have a long-term beneficial effect on yields.

It's best to plant alfalfa no-till or reduced-till, if possible. Minimizing tillage can decrease planting costs and help maintain soil moisture levels. Alfalfa can be successfully no-tilled into wheat straw or row crop stubble. No-till will help create a firm, moist soil at planting time; save time; and cut costs.

Whether no-tilled or tilled, make sure there are no weeds growing when alfalfa is planted. Also, be sure there is not herbicide carryover from a previous crop that could injure the seedling alfalfa.

When seeding alfalfa, plant seed ¼ to ½ inch deep. Plant about ¾ inch deep in sandy soils, unless the field is irrigated. For dryland production, use a seeding rate of 8 to 12 pounds per acre in the west, and 12 to 16 pounds per acre in central and eastern Kansas. For irrigation production, use 15 to 20 pounds of seed per acre in all soils

When selecting seed, producers should be sure to use certified, treated seed. Varieties with a fall dormancy rating of 3 to 4 are best for the northern part of the state. For southern areas of the state, select a variety with a fall dormancy rating of 4 to 5. It is also important to select a variety with resistance to one or more of the following: phytophthora root rot, bacterial wilt, fusarium wilt, verticillium wilt, anthracnose, pea aphid, spotted alfalfa aphid, and other diseases and insects. This will help increase the longevity of the stand.

Producers should be sure the seed is inoculated to help ensure the nitrogen fixation necessary for optimum production.

-- Jim Shroyer, Crop Production Specialist
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3. Spring oats for forage production

Over the last several years, cattle producers have found spring oats to provide excellent spring pasture and hay. With reasonable fertilizer inputs, spring oats can provide an excellent bridge for producers short on available pasture in April and May until perennial pasture or summer annual forage production becomes available.

Oat pasture should be treated the same as winter wheat pasture in terms of stocking rates and time to initiate grazing. Since grain production is not practical or recommended under grazing, producers should treat oat pasture as a graze-out program or remove it when ready for the next crop. Oats are easily controlled by a variety of herbicides, such as glyphosate and atrazine. The length of effective grazing is a function of stocking rate and weather. Rotational grazing may extend the window for effective pasture production. Oat pasture is also being used successfully in sheep production.

Properly stored, oat hay also provides a high-quality feed source. Studies at the South Central Experiment Field near Hutchinson indicate hay yields on a dry weight basis of three to five tons per acre are typical under average weather conditions. The average yield across 20 varieties at the Experiment Field is four tons per acre. Hay yield was determined at late milk/early dough stage, with an average moisture content of 60%.

These hay yields were obtained with 75 lbs/acre of nitrogen (N) applied preplant and an additional 50 lbs/acre N broadcast approximately six weeks after emergence. Lower total N rates will result in

adequate forage production, especially hay. However, to maximize grazing opportunities, it is important to supply adequate N.

For hay, late boot to early heading is the optimal timing to balance quantity with quality considerations. Harvested at the dough stage, hay should have an approximate TDN of 56% with 10% protein, both on a dry basis. A nitrate test is recommended. Prussic acid levels should not be a concern.

Silage is another option for spring oats. Oats should be harvested for silage from late milk through early dough stages. Expect silage with a TDN of approximately 60% and 9% protein on a dry weight basis.

Finally, oats in Kansas may be planted for grain with expected yields of 50 or more bushels per acre most years. However, typical growing conditions during grain fill normally result in low test weights, making the grain unsuitable for food use. Grain from oats is acceptable as livestock feed; however, a market should be identified prior to planting since few markets exist locally.

Cultural practices

Before planting oats, check the herbicide history of the desired field. Oats are especially sensitive to triazine herbicides. Also, if producers are planting oats for pasture and are considering applying a herbicide for weed control, carefully check the pesticide label for grazing restrictions.

The optimal planting date depends on location. In southeast Kansas, the optimal date ranges from February 20 to March 15. In northwest Kansas, the optimal date is from the first week of March through the end of March. For most of the state, planting is recommended from late February through the mid-March. After the optimal planting range, grain production will be limited most years. However, adequate pasture is practical after the optimum planting date. To maximize pasture production potential, it is necessary to plant as early as possible.

A seeding rate of two bushels per acre is recommended. Under good soil moisture or irrigation, three bushels per acre may be preferable for grazing. When grown for hay or silage, fertility recommendations are similar to those for grain production: 75 to 125 lbs N per acre. When planted for grazing, an additional 30 lbs N per acre is recommended. As always, a soil test is recommended.

Oats may be successfully planted no-till, however, growth and vigor are typically greater when pre-plant tillage is used. No-till is more successful in fields that have been under no-till for a period of years, and riskier in “opportunistic” no-till situations. In either case, a fine, firm seedbed is necessary for optimal production. Under adequate soil moisture conditions, a seeding depth of ½ to 1 inch is preferable. Oats may be planted at depths greater than one inch under dry conditions; however, oat seedlings are less vigorous than wheat and can experience difficulties emerging at deeper planting depths, especially after crusting rains.

To facilitate planting and maximize forage production, winter annual weeds should be controlled either mechanically or with a burndown herbicide prior to planting. Weed control is best achieved through a good stand with rapid growth. Before using any herbicides consult the label.

For more information, see K-State publication MF-1072 “Small Grain Cereals for Forage” at:
http://www.ksre.ksu.edu/library/crpsl2/MF1072.pdf

-- Jim Shroyer, Crop Production Specialist
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4. Winter Canola Risk Management Schools planned in February

Be sure to preregister now with your local county Extension office for one of K-State's upcoming Winter Canola Risk Management schools. The schools are scheduled in Anthony on Feb. 22 and McPherson on Feb. 28. Both schools will begin at 10 a.m.

K-State Research and Extension is dedicated to helping producers make informed management decisions to minimize their production and marketing risks. Industry experts will be on hand to provide updates on the latest marketing prospects for canola in Kansas.

Two of the most experienced canola agronomists in the southern Great Plains will be available to answer questions and provide knowledge about growing the crop.

Canola is a crop that requires attention in the spring. Producers who attend one of the schools will have the necessary tools to successfully scout their fields for disease and potential pest problems.

Topics to be presented at both schools include:

- Canola varieties;
- Winter survival in a drought year;
- Pest management in late winter and spring;
- Winter canola establishment strategies;
- Harvest risk management;
- Update on winter canola insurance; and
- Update on marketing strategies.

Representatives of the Great Plains Canola Association will give an update on what the GPCA has been doing to promote the benefits of canola in a wheat-based cropping system.

The schools are free to attend and will include a complimentary lunch. Organizers ask, however, that attendees pre-register to allow for enough food.

The Friday, Feb. 22 school in Anthony will be held at the Bank of Kansas meeting room. Call the K-State Research and Extension Harper County office at 620-842-5445 for more information or to register.

The Thursday, Feb. 28 school in McPherson will be at the McPherson County Extension office. The McPherson school is spores by The Citizen's State Bank. Call 620-241-1523 for more information or to register.

-- Mike Stamm, Canola Breeder
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5. Comparative Vegetation Condition Report: January 29 – February 11

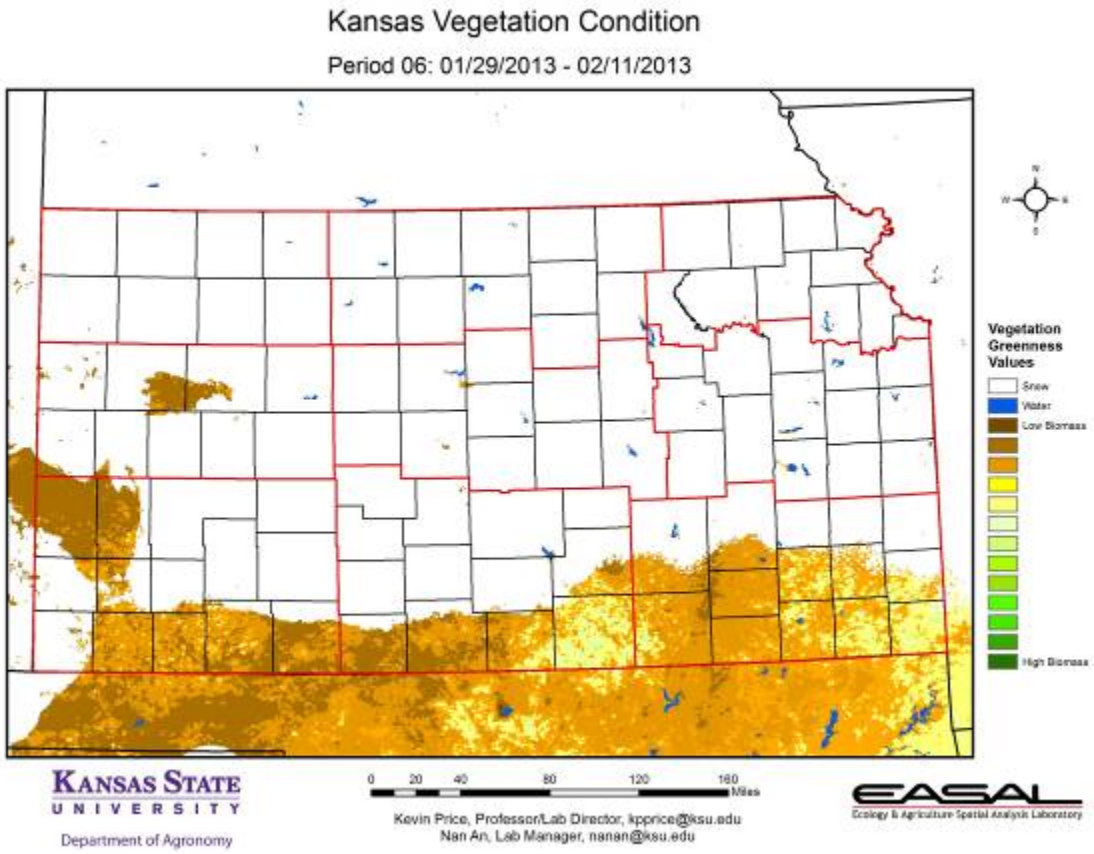
K-State's Ecology and Agriculture Spatial Analysis Laboratory (EASAL) produces weekly Vegetation Condition Report maps. These maps can be a valuable tool for making crop selection and marketing decisions.

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

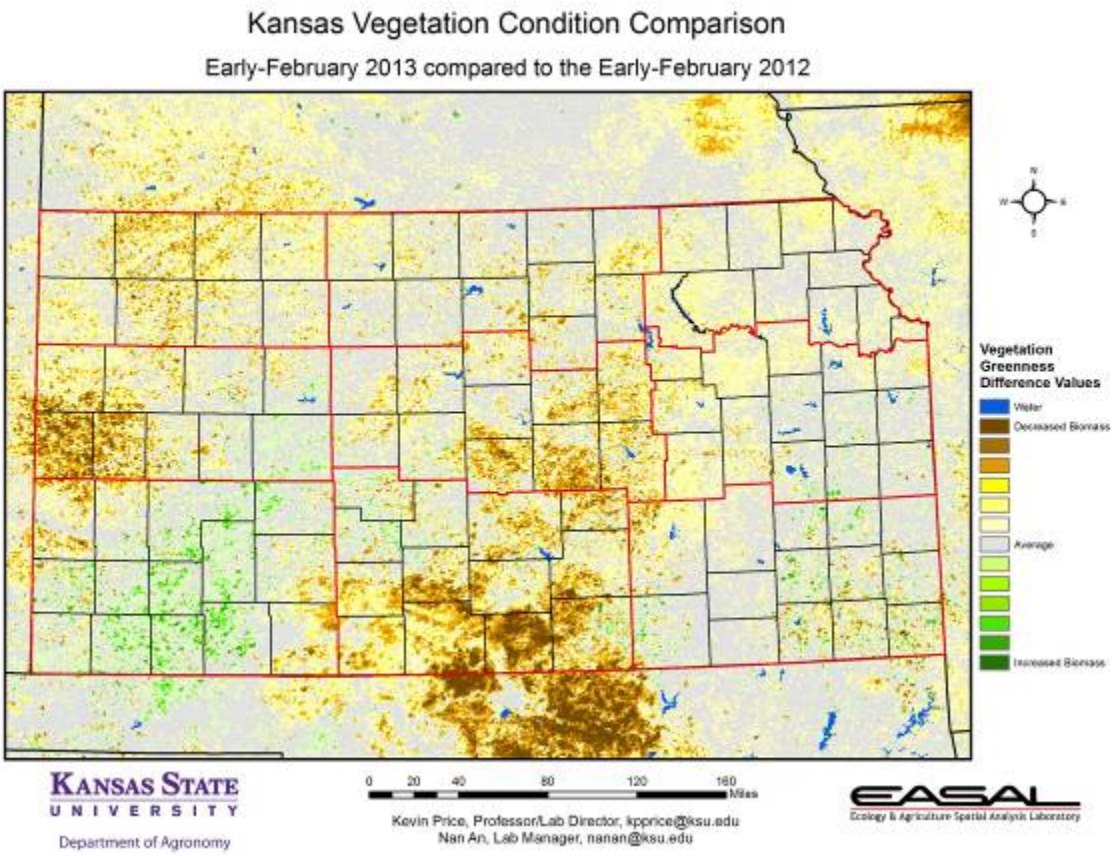
The objective of these reports is to provide users with a means of assessing the relative condition of crops and grassland. The maps can be used to assess current plant growth rates, as well as comparisons to the previous year and relative to the 24-year average. The report is used by individual farmers and ranchers, the commodities market, and political leaders for assessing factors such as production potential and drought impact across their state.

NOTE TO READERS: The maps below represent a subset of the maps available from the EASAL group. If you'd like digital copies of the entire map series please contact Kevin Price at kpprice@ksu.edu and we can place you on our email list to receive the entire dataset each week as they are produced. The maps are normally first available on Wednesday of each week, unless there is a delay in the posting of the data by EROS Data Center where we obtain the raw data used to make the maps. These maps are provided for free as a service of the Department of Agronomy and K-State Research and Extension.

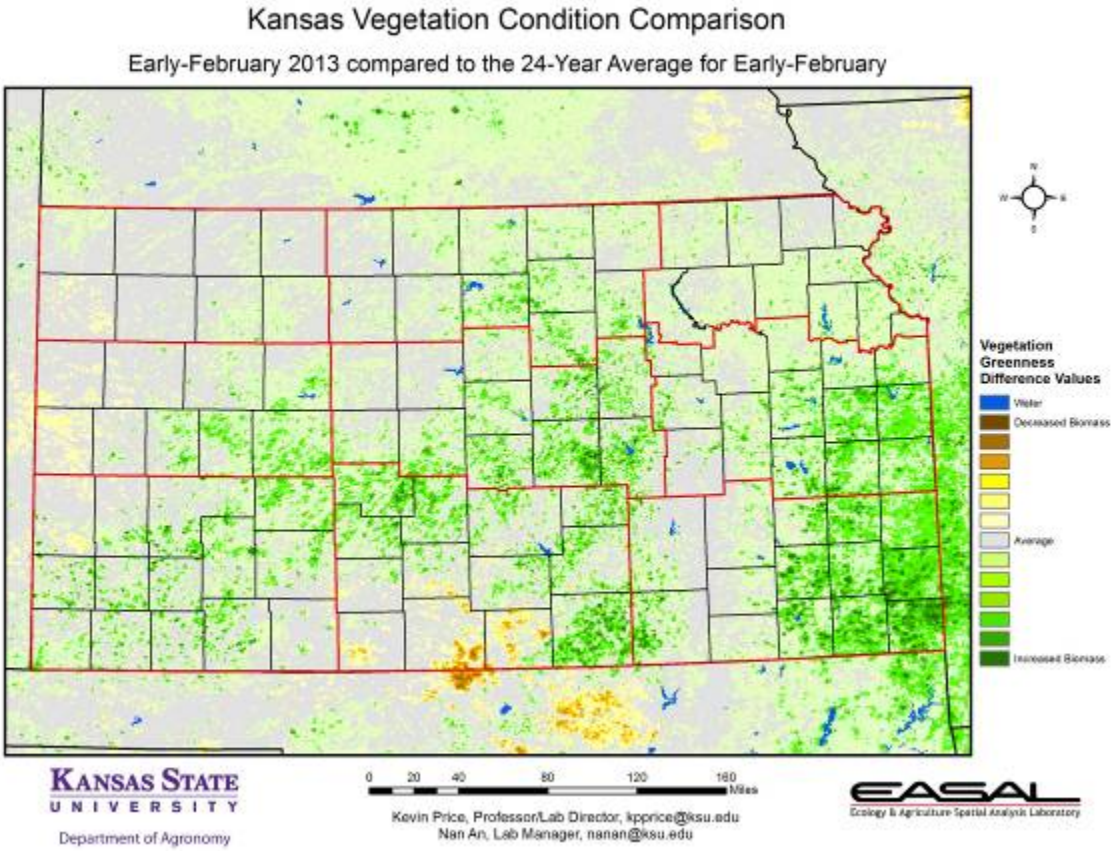
The maps in this issue of the newsletter show the current state of photosynthetic activity in Kansas, the Corn Belt, and the continental U.S, with comments from Mary Knapp, state climatologist:



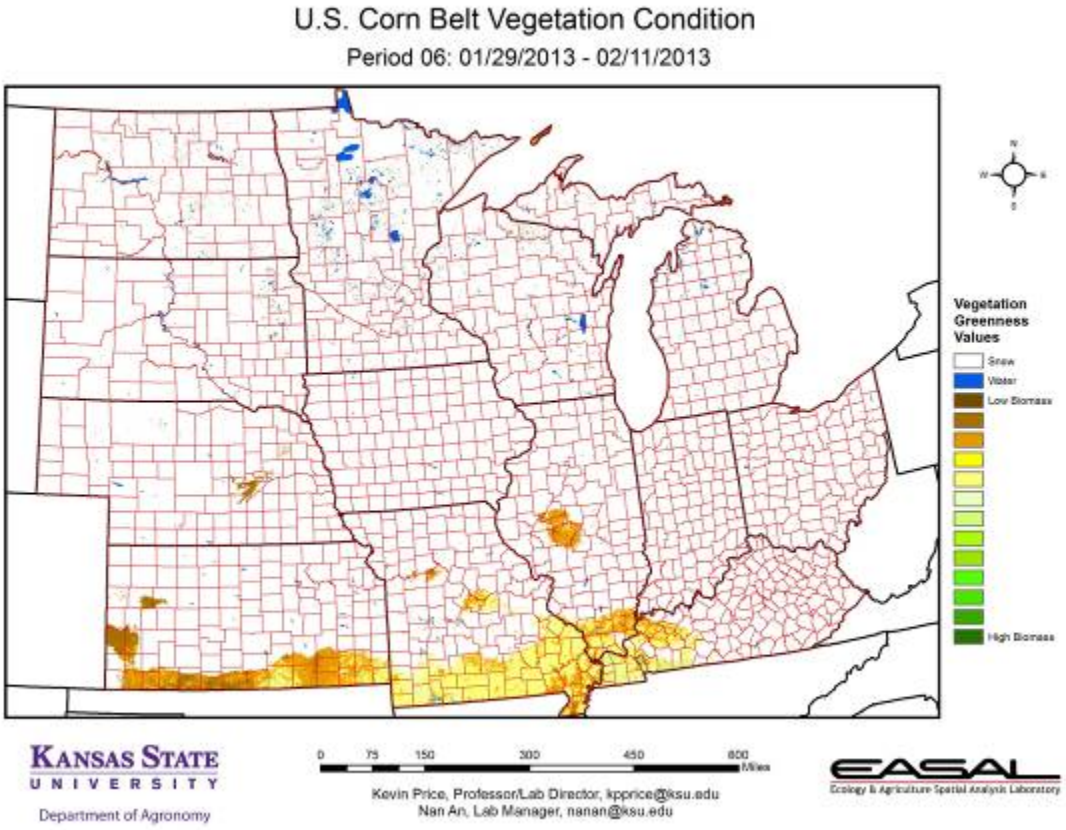
Map 1. The Vegetation Condition Report for Kansas for January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that snow was present across most of the state during the period. The greatest total for the period was 5 inches.



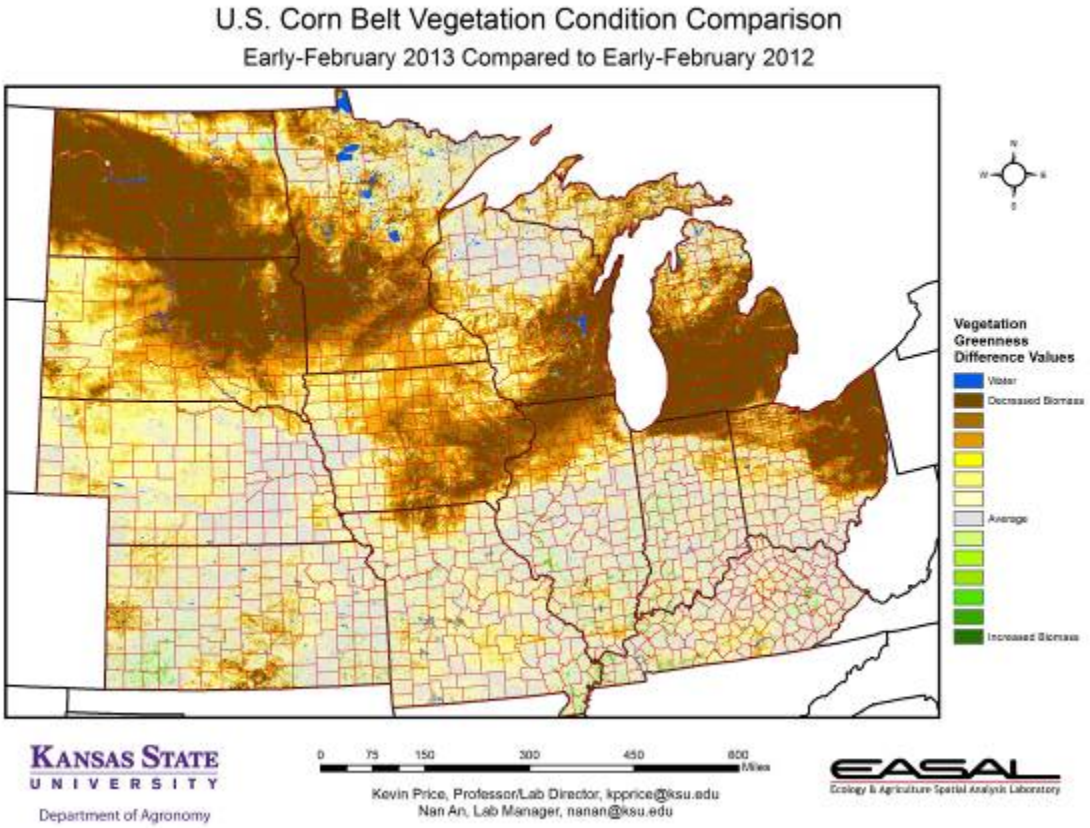
Map 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for September January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that cooler and drier conditions are dominating the state. Last year, generous winter moisture favored vegetative development. Temperatures averaged 2 to 8 degrees above normal last year. This year, temperatures are averaging 3 to 6 degrees above normal while precipitation is only 58% of normal for the state.



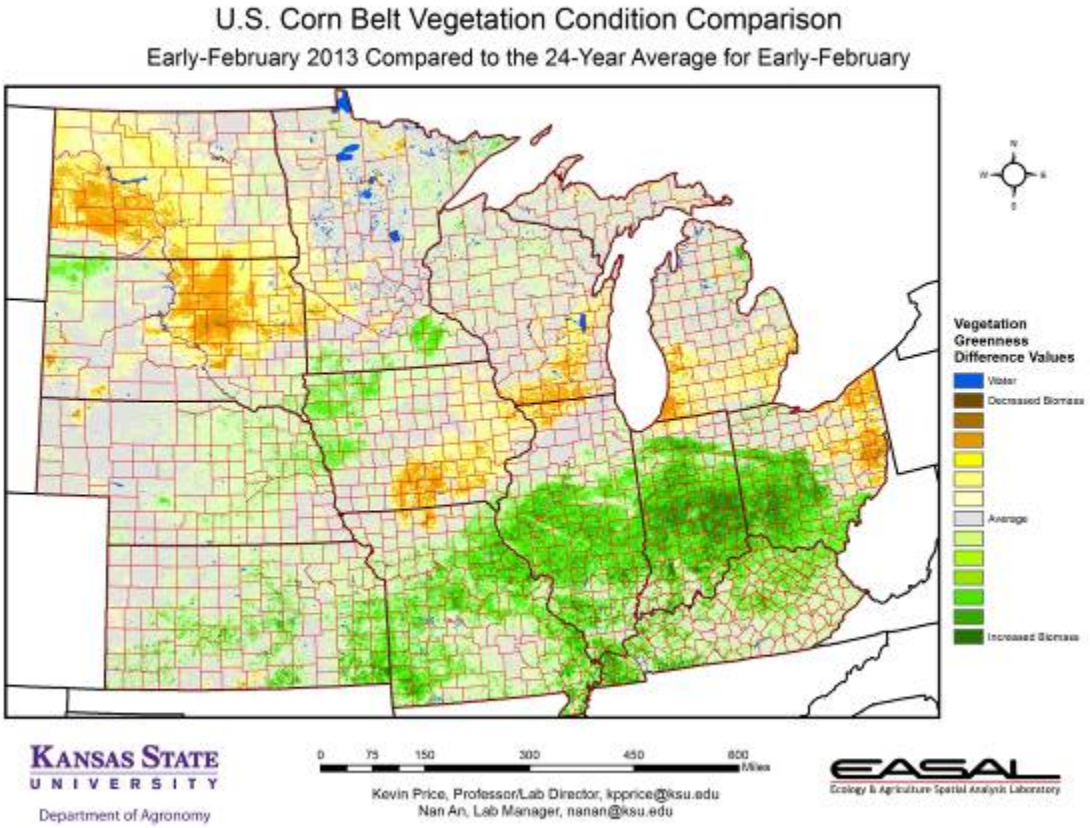
Map 3. Compared to the 24-year average at this time for Kansas, this year's Vegetation Condition Report for January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows the continued pattern of higher-than-average photosynthetic activity. This is most noteworthy in east central and southeast Kansas. In these divisions, temperatures are averaging 3 degrees above normal for the period, while precipitation is averaging very close to normal.



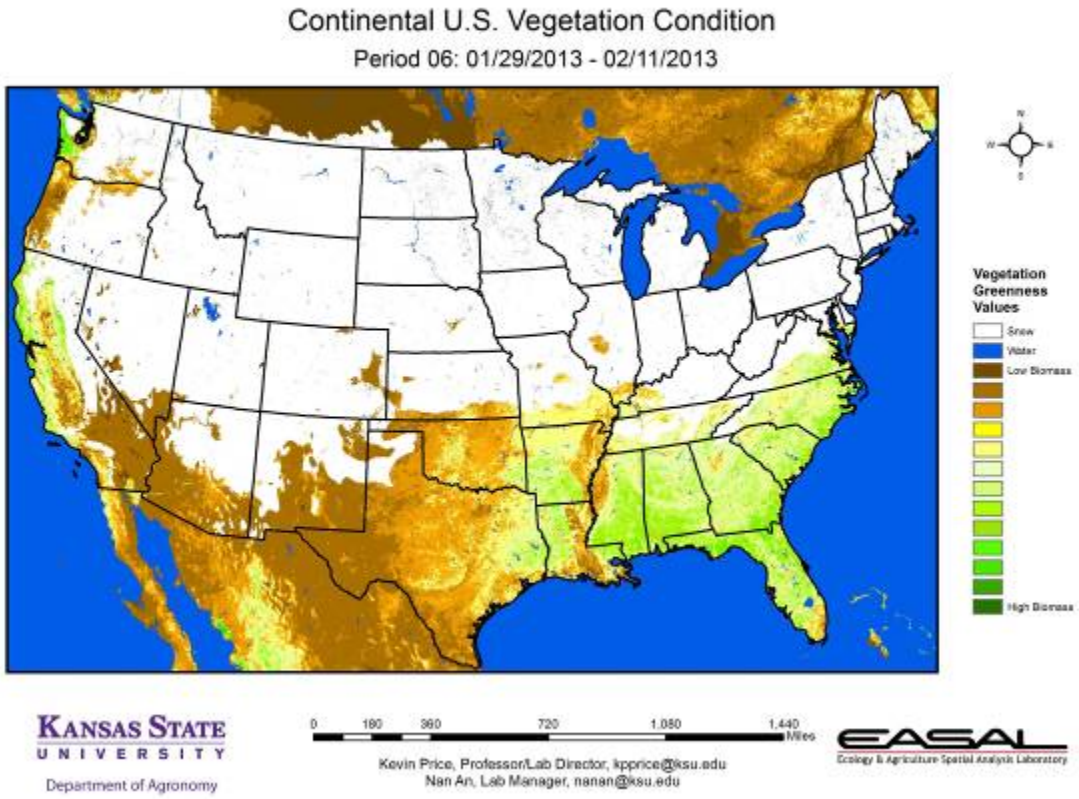
Map 4. The Vegetation Condition Report for the Corn Belt for January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that snow was again present across most of the region. The heaviest snowfalls were in the northern and eastern portions of the region. As of February 1st, snow depth in the Northern Plains ranged from 10 to 20 inches. Southern areas saw snow depths in the 2- to 4-inch range.



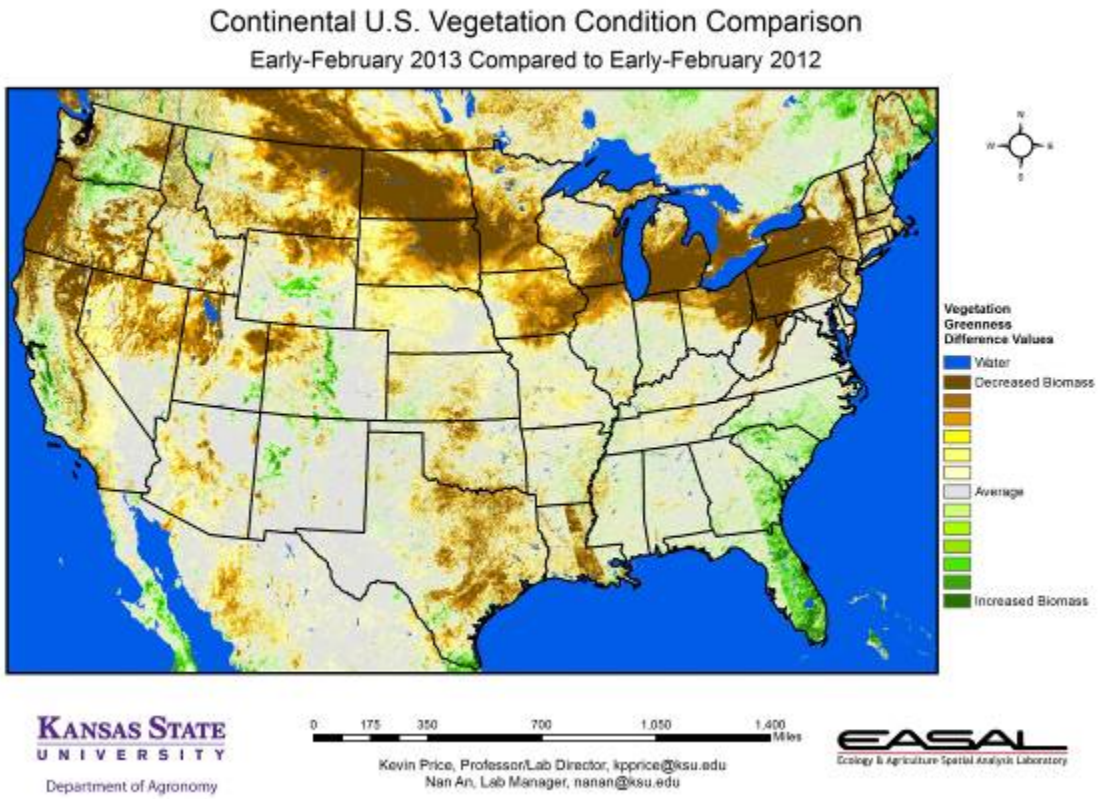
Map 5. The comparison to last year in the Corn Belt for the period January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows lower NDVI values across the northern area of the Corn Belt. Heavier snowfalls and cooler temperatures, compared to last year, have limited photosynthetic activity.



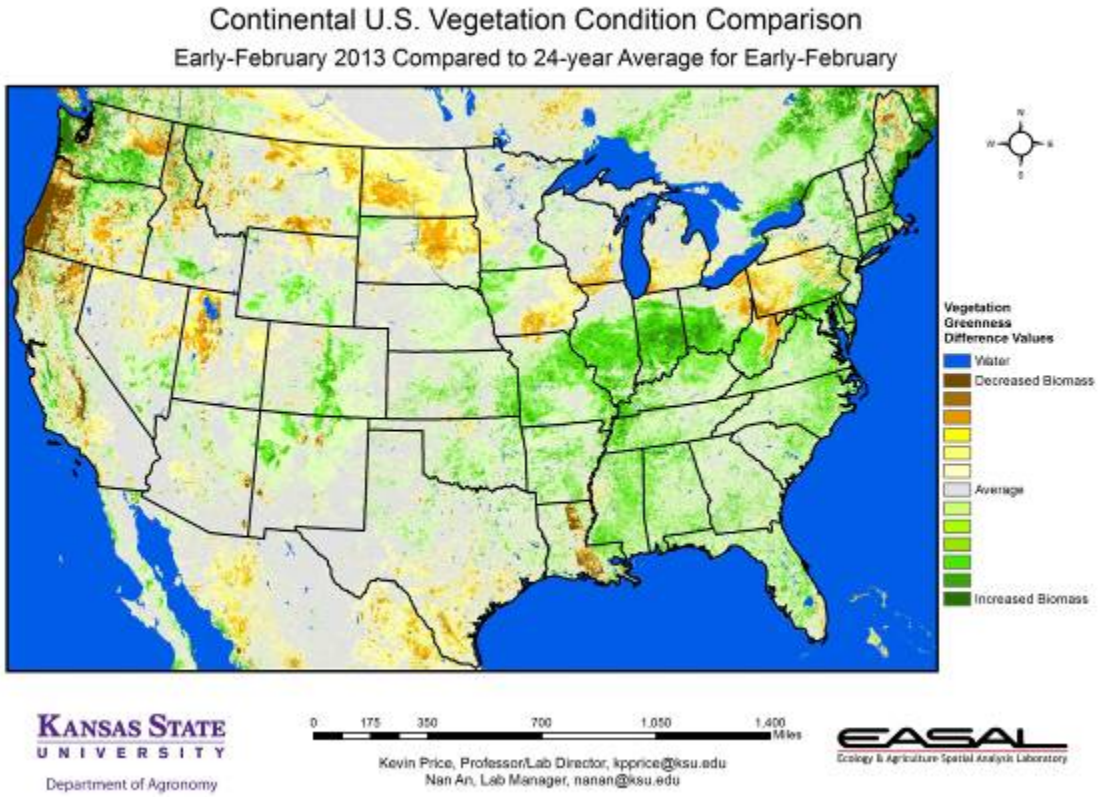
Map 6. Compared to the 24-year average at this time for the Corn Belt, this year's Vegetation Condition Report for January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that higher photosynthetic activity has been concentrated in the central areas of the Corn Belt. After extremely dry conditions during the past year, favorable moisture has returned to the region.



Map 7. The Vegetation Condition Report for the U.S. for January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that only the Deep South missed out on snow during the period. Snow cover in the Central Rockies is greater than last year at this time. As of February 1st, 92 percent of the Central Rockies had snow cover with an average depth more than 18 inches. In 2012, on February 1st only 64 percent of the area had snow cover, and the average depth was 14 inches.



Map 8. The U.S. comparison to last year at this time for the period January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that both the northern areas of the country and the Central and Southern Plains have lower NDVI values. There is a splice line in the Southeast that contributes to the higher NDVI values seen in that region this year.



Map 9. The U.S. comparison to the 24-year average for the period January 29 – February 11 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the Northern Plains has below-average photosynthetic activity, while the central Corn Belt is showing above-average photosynthetic activity. Despite a cold snap at the end of January, above-average temperatures were common east of the Rockies.

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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.