



Extension Agronomy

eUpdate

09/25/2015

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.

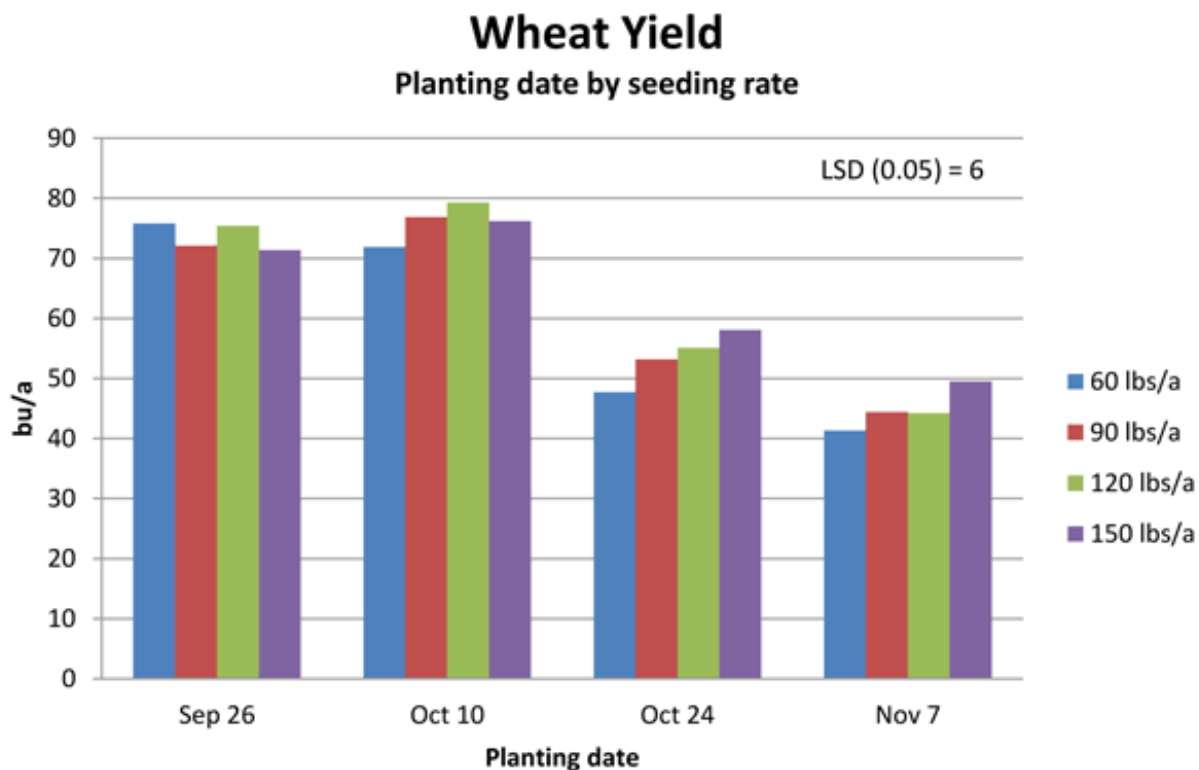
1. Wheat planting date and seeding rate research in northwest Kansas.....	3
2. Sugarcane aphid update.....	5
3. Pigweed article misrepresented by some news agencies.....	8
4. Green stem syndrome in soybeans.....	9
5. Agronomy Field Day to feature sorghum production research, Oct. 9.....	12
6. Comparative Vegetation Condition Report: September 8 - 21.....	14

1. Wheat planting date and seeding rate research in northwest Kansas

Wheat planting season is here, along with summer row crop harvest. As with any year, there will likely be delays due to weather in getting some wheat fields planted on time. If this happens, what is the cost in planting wheat later than normal and can increasing the seeding rate increase yield to compensate for losses due to delayed planting?

To answer these questions, a four-year study was initiated in 2009 at the Northwest Research-Extension Center in Colby and completed in 2012. The results in 2011 were not used due to the dry spring conditions that reduced yields across all treatments. TAM 111 was seeded at four rates (60, 90, 120, and 150 lbs/acre) and at the four planting dates of September 26, October 9, October 28, and November 7. The actual planting date for a particular year was within three days of these planned planting dates. For the Colby area, September 26 would be considered an optimal planting date in most years, and October 10 would be to the latter end of optimal timeframe. October 28 is late for this area while November 7 is very late.

The following chart shows the four-year average yields for each treatment in the study.



The following conclusions can be made from this study:

- Wheat yields were much higher when planted at the optimal time: Sept. 26 or Oct. 10.
- At the earliest planting date, seeding rate had no effect on grain yield. This is because the plants have plenty of time to tiller, especially at the lower seeding rates.

- At the Oct. 10 planting date, seeding rate did impact yield with the 120 lbs/acre seeding rate yielding more than the 60 lbs/acre rate.

* When planting dates were later than optimal, increasing the seeding rate improved yields significantly. However, the higher seeding rates did not compensate for the effect of delayed planting on yield losses compared to the yields at the optimal planting dates. At these later planting dates, the plants do not tiller as much as at the optimal planting dates, and they do not have as much time to develop before cold weather begins. Increasing the seeding rate at late planting dates has the potential to compensate for the decreased tillering potential of wheat planted late, and increase yields compared to the lower seeding rates – although the yields will not increase to the level observed from wheat planted during the optimal planting time.

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2. Sugarcane aphid update

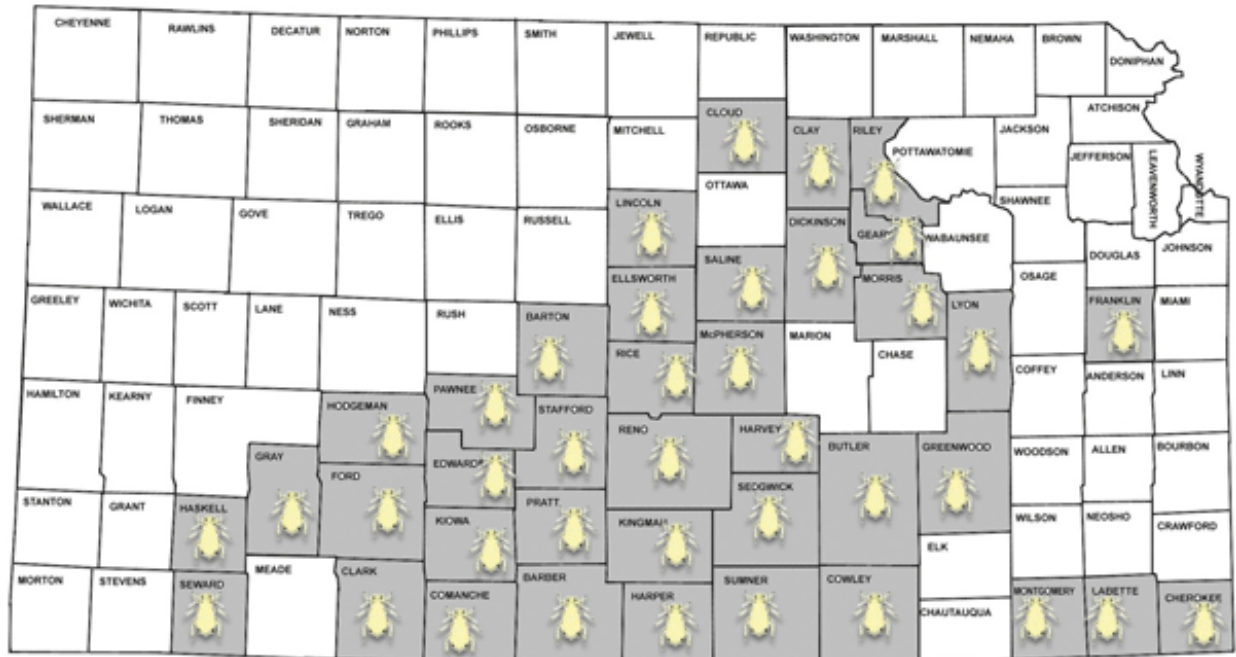
The sugarcane aphid movement in Kansas has slowed down during the week of Sept. 21-25 with the sorghum crop maturing and drying down. South central Kansas seemed to be the “hot zone” this year, but many counties farther north and west had populations of these aphids as well. Some chemical reps have suggested spraying sorghum fields as soon as sugarcane aphid populations of any size are found.



Sugarcane aphids on sorghum

However, finding a few sugarcane aphids does not necessarily warrant immediate treatment. Using our new thresholds (<http://myfields.info/sites/default/files/page/ScoutCard%20KSU%20reduced%20v3.pdf>), many farmers outside of the “hot zone” in Kansas did not have to spray their sorghum fields for sugarcane aphids.

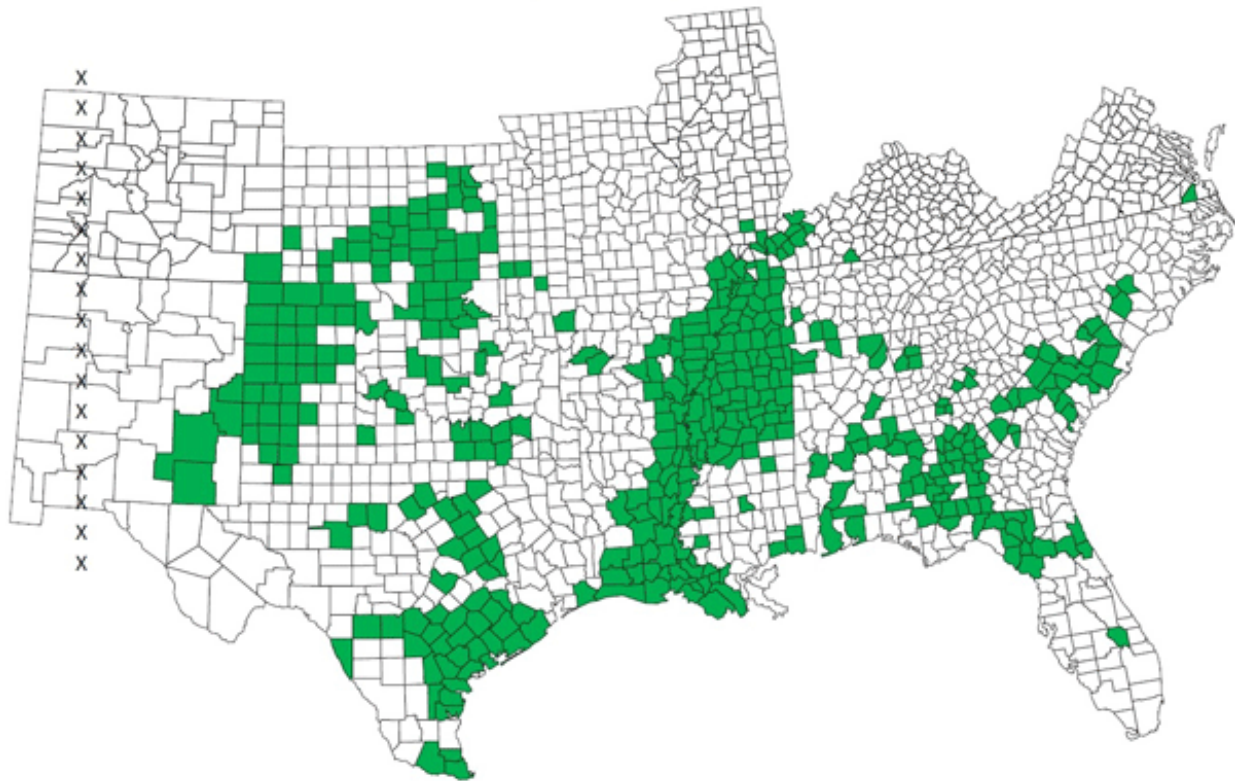
2015 Sugarcane Aphid Occurrence on Sorghum in Kansas



updated September 21, 2015 **KSTATE** <http://blogs.k-state.edu/kansasbugs/>
 Kansas State University
 Research and Extension

The sugarcane aphid overwinters in southern Texas and is passively swept northward during the warmer months. Next season it will be important to monitor the progression of the sugarcane aphid northward from Texas and Oklahoma, and observe thresholds before treating.

This is especially important because populations of sugarcane aphid can be swept into the same fields multiple times depending on the weather, and the chemical options for treating the sugarcane aphid will be even more limited next year. A federal judge recently ruled against the use of sulfoxaflor, the active ingredient in one of our best tools against sugarcane aphid, Transform insecticide. Our SCA Task Force is monitoring the situation and waiting to hear the final ruling from the EPA. We will keep you posted on this issue.



The map above illustrates the states, colored in green, where sugarcane aphids were found in sorghum as of Sept. 18th this year. Several new state records have been recorded this year, including Virginia, Tennessee, New Mexico, Colorado, and Illinois.

For more scouting and threshold information visit:

<http://myfields.info/sites/default/files/page/ScoutCard%20KSU%20reduced%20v3.pdf>

Article on sulfoxaflor: <https://www.newscientist.com/article/mg22730393-900-bees-win-as-us-court-rules-against-neonicotinoid-pesticide/>

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3. Pigweed article misrepresented by some news agencies

A recent Agronomy eUpdate article (September 18, 2015, issue No. 529) about the increased prevalence of pigweeds in Kansas this year has been taken out of context by many news reporting agencies, according Dallas Peterson, Weed Management Specialist and author of the article.

The article explained that the combination of wet weather this summer combined with the increase in glyphosate-resistant Palmer amaranth resulted in more pigweeds in Kansas soybean fields than in previous years. He emphasized that managing pigweeds in the future would likely require a more diversified weed control program and more timely applications.

Peterson indicated that this also would be true for the new technologies such as 2,4-D and dicamba-resistant soybeans, and that Palmer amaranth may not be controlled by these herbicides programs when applied to larger weeds beyond the recommended treatment stage.

Unfortunately, that was misinterpreted by some that the new technologies would not work, when in fact, these technologies should help in managing glyphosate-resistant weeds if used as part of a program and at the proper timing.

The original article can be accessed at:

https://webapp.agron.ksu.edu/agr_social/eu_article.throck?article_id=703

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4. Green stem syndrome in soybeans

Green stem syndrome in soybean is a condition by which the stem remains green while the seeds are mature and ready to harvest. In parts of the state, there are many fields of soybeans with brown pods but green stems (Figure 1). A hard freeze will kill the leaves and stems, but it still may take a while for the leaves to drop, if leaves are still green.

Producers can either harvest these soybeans now if the seed moisture is dry enough, or wait until the leaves have dropped and stems dry down. In most cases, it would be best to harvest sooner rather than later to reduce losses from shattering and lower seed quality. Harvesting beans before the leaves have dropped can be messy and gum up the combine, but at least the yield level will be maintained. Make sure harvesting equipment is sharp and in top condition, and take it slow in the field. Harvesting soybeans with green stems can be challenging.



Figure 1. Green stem syndrome in soybean, characterized by green stem and brown pods (seeds are fully mature). Photos by Ignacio Ciampitti, K-State Research and Extension.

SOYBEAN – GREEN STEM SYNDROME

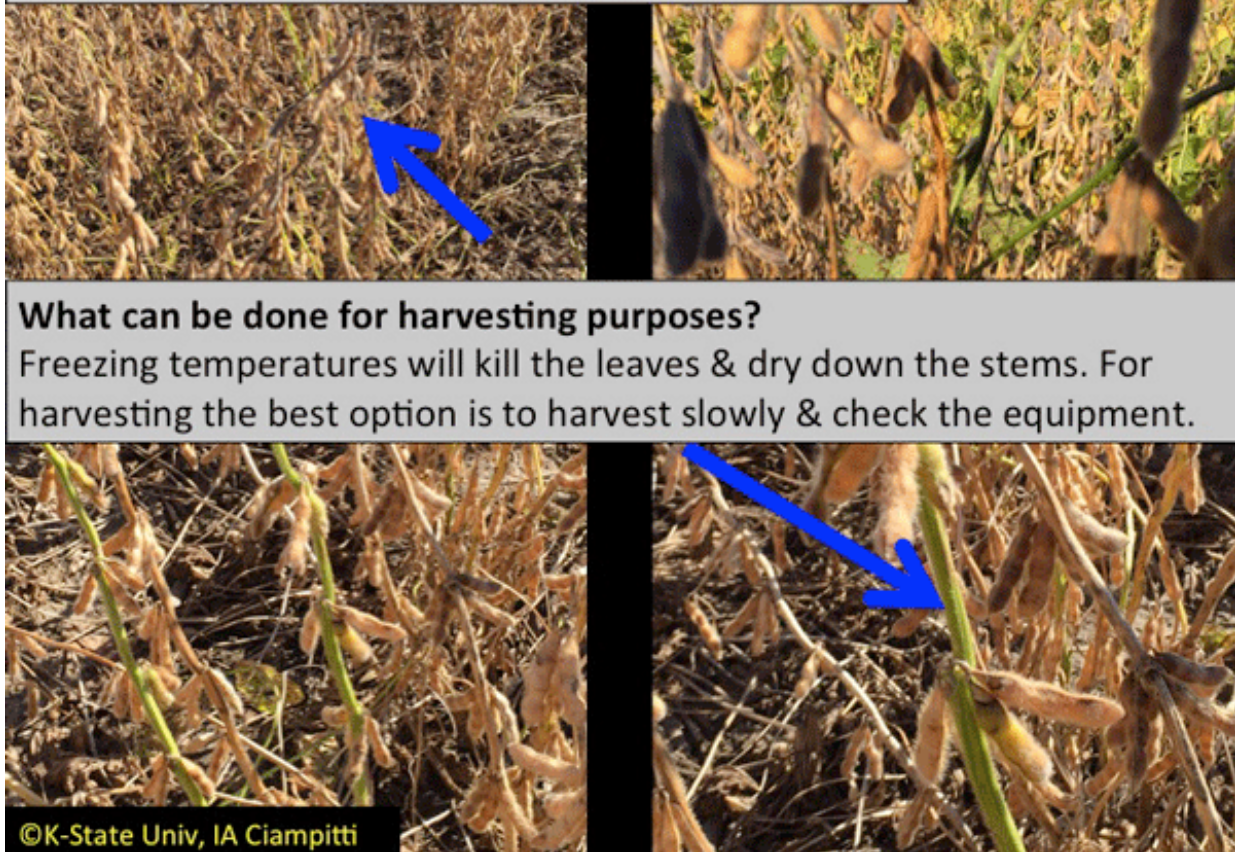


Figure 2. Soybeans with green stems. Photos by Ignacio Ciampitti, K-State Research and Extension.

Causes

What caused this unusual situation this year? It's most likely due to a combination of early-season stress, low pod counts, and improved late-season crop growing conditions.

In a normal situation, soybeans will accumulate carbohydrates and proteins in the leaves and stems up until seeds begin to form (R5). The leaves provide the photosynthates needed by the newly formed seeds as they begin filling. As the seeds continue to get bigger, their need for photosynthates will eventually become greater than what the leaves can provide through normal photosynthesis. As this happens, the plants will move carbohydrates and proteins from the leaves and stems into the seeds. This can be referred to as "cannibalization" of the vegetative tissue (rapid senescence process and defoliation), but it's a normal process. This eventually causes leaves to turn yellow and drop, and the stems to turn brown and die.

The fewer the number of seeds, due to abiotic or biotic stresses, the lower the demand for photosynthates produced by leaves and stems. If demand is low enough, the leaves and stems are never "cannibalized" for their carbohydrates and protein. As a result, the leaves and stems will remain

green longer than normal, even up through physiological maturity of the beans. Late-season rainfall can make the problem worse by keeping the plants alive as the seeds have dried down. It will take either a frost or a desiccant to kill the leaves and stems in this situation.

If the leaves are still green and intact when pods have turned brown and have reached 13-14% moisture, it's almost always an indication of mid-season stress around flowering/pod set and low yield potential – at least relative to the amount of foliage produced.

What can be done for harvesting purposes?

Eventually, freezing temperatures will kill the leaves and dry down the stems. Otherwise, the utilization of desiccants to kill leaves and drop the stem moisture down is a viable option, but only if the producer wants to harvest the field soon, before a freeze is likely to occur. If the stems and/or leaves are still green when the field is harvested, the best option is to harvest slowly and make sure the harvesting equipment is sharp and in excellent condition.

We recommend scouting your field right before harvest to better understand what environmental conditions led to the green stems.

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5. Agronomy Field Day to feature sorghum production research, Oct. 9

Exciting advances in sorghum research will be featured at the 2015 Agronomy Field Day on October 9 at the Agronomy North Farm, 2200 Kimball Ave. in Manhattan. Topics will range from increases in yield potential to the sugarcane aphid, cover crops, and more.

The full list of topics and K-State speakers:

- Sorghum genetics and breeding – Tesfaye Tesso, Sorghum Breeder, and Geoffrey Morris, Sorghum Geneticist
- Inzen sorghum, a tool for postemergence grass control in sorghum– Curtis Thompson, Weed Management Specialist
- Heat and water stress sorghum physiology – Vara Prasad and Krishna Jagadish, Crop Physiologists
- Sorghum in Kansas cropping systems – Ignacio Ciampitti, Crop Production Specialist
- Sorghum response to cover crops in no-till systems – Kraig Roozeboom, Cropping Systems Agronomist
- Update on sugarcane aphid in Kansas – Brian McCornack, Entomologist

The field day will begin with registration at 9 a.m. and wrap up at 1 p.m. Sessions include two concurrent one-hour tours in the morning, starting at 9:30, followed by a poster session during and after lunch.

In addition, there will be displays from commercial companies and K-State researchers in the shed near the registration area, along with the crop garden, forage garden, and weed garden for browsing. Extension specialists will be available to answer questions.

There is no charge to attend, and a complimentary lunch will be available. Preregistration is requested by October 6 so that a lunch count can be made. Those interested in attending can preregister by calling Troy Lynn Eckart at 785-532-5776. To preregister online, see: <https://kstateagron2015.eventbrite.com>

On-site registration will also be available.

For more information, interested persons can contact Dorivar Ruiz Diaz at 785-532-6183 or ruizdiaz@ksu.edu

Research and new technologies for sorghum production



Agronomy Field Day 2015

*Agronomy North Farm, Manhattan
Friday, October 9
9:00 a.m.- 1:00 pm*

KANSAS STATE
UNIVERSITY

Department of Agronomy

6. Comparative Vegetation Condition Report: September 8 - 21

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=CRP3Y5Nlggw>

<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 26-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 Nan An at nanan@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, assistant state climatologist:

Kansas Vegetation Condition

Period 38: 09/08/2015 - 09/21/2015

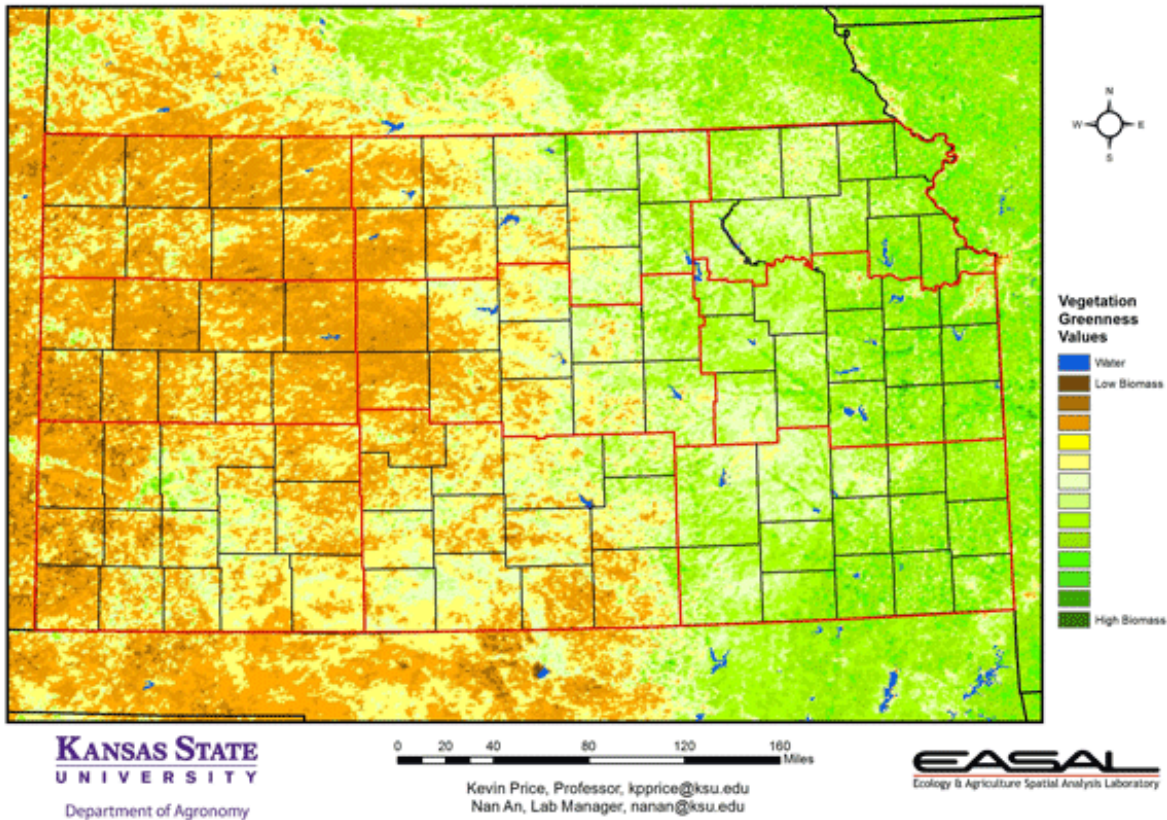


Figure 1. The Vegetation Condition Report for Kansas for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the highest biomass production continues to be in eastern Kansas. There is an area of increased photosynthetic activity in southwest Kansas, where rainfall continues to be higher than average. Favorable soil moisture and moderate temperatures resulted in increased biomass production in these areas. Lower NDVI values are visible in Trego, Ellis, Rush, and Ness counties Kansas and have expanded into Pawnee and Barton counties, where drought conditions have intensified.

Kansas Vegetation Condition Comparison
Mid-September 2015 compared to the Mid-September 2014

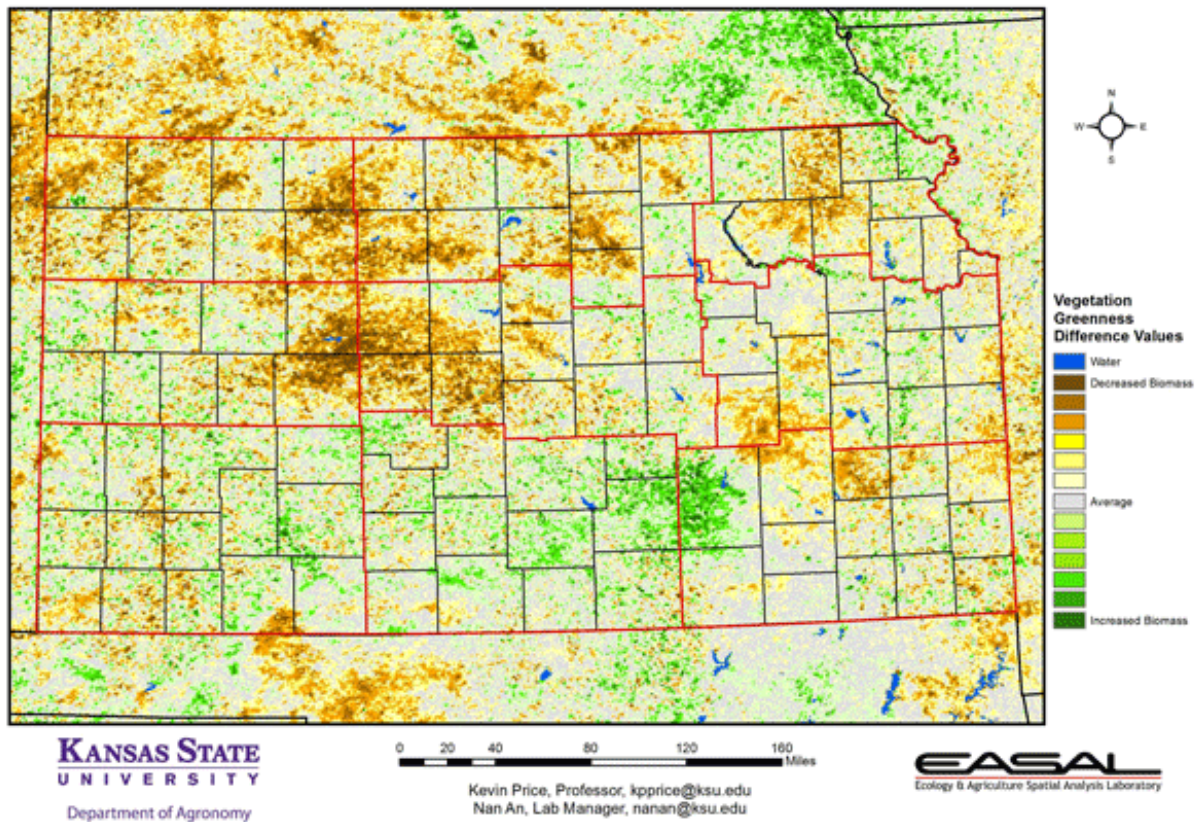


Figure 2. Compared to the previous year at this time for Kansas, the current Vegetation Condition Report for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows parts of central and west central Kansas have lower photosynthetic activity. These areas continue to miss out on the storm systems and drought conditions have intensified. This area is now considered to be in moderate drought. Lower NDVI values are also visible in parts of east central and northeast Kansas.

Kansas Vegetation Condition Comparison

Mid-September 2015 compared to the 26-Year Average for Mid-September

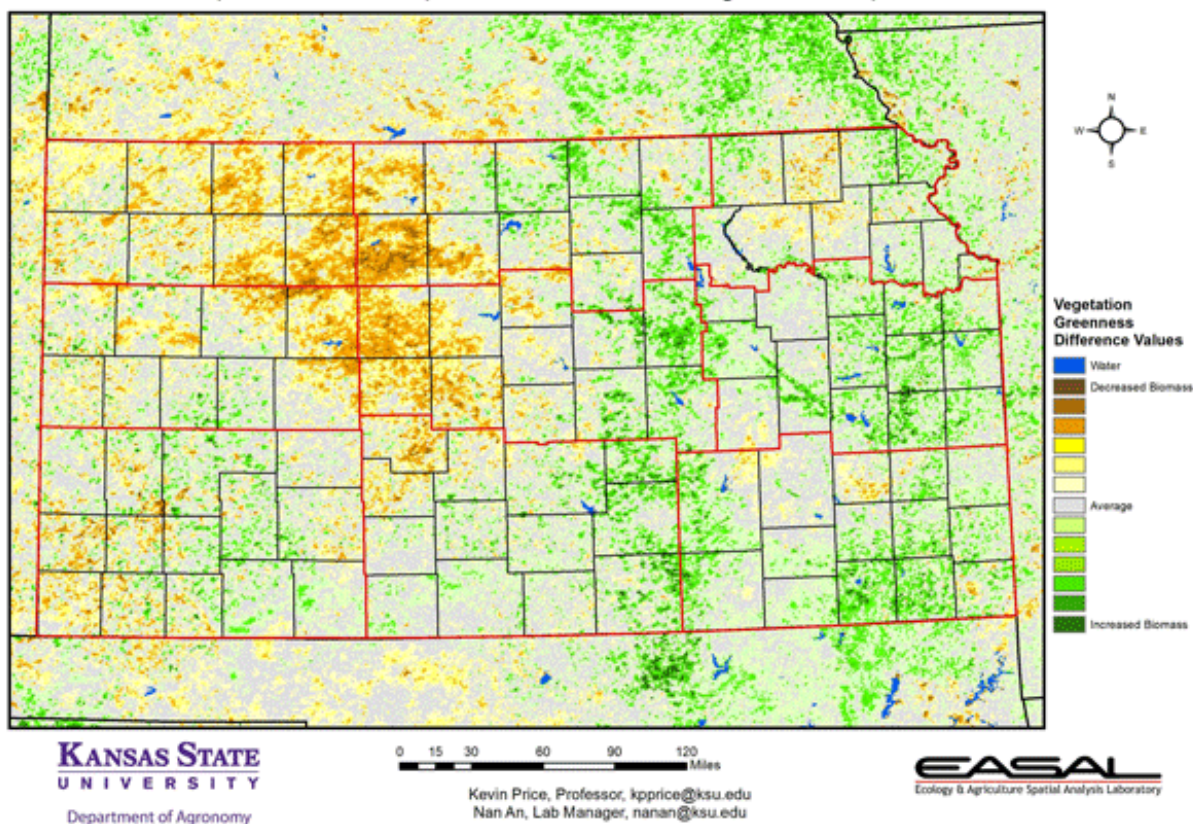


Figure 3. Compared to the 26-year average at this time for Kansas, this year's Vegetation Condition Report for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that most of the state continues to show at or above average photosynthetic activity. Most of the below average photosynthetic activity is concentrated on the boundaries of the Western and Central divisions. These areas continue to miss most of the storm systems, and moderate drought is expanding in these areas.

Kansas State University Department of Agronomy

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U.S. Corn Belt Vegetation Condition

Period 38: 09/08/2015 - 09/21/2015

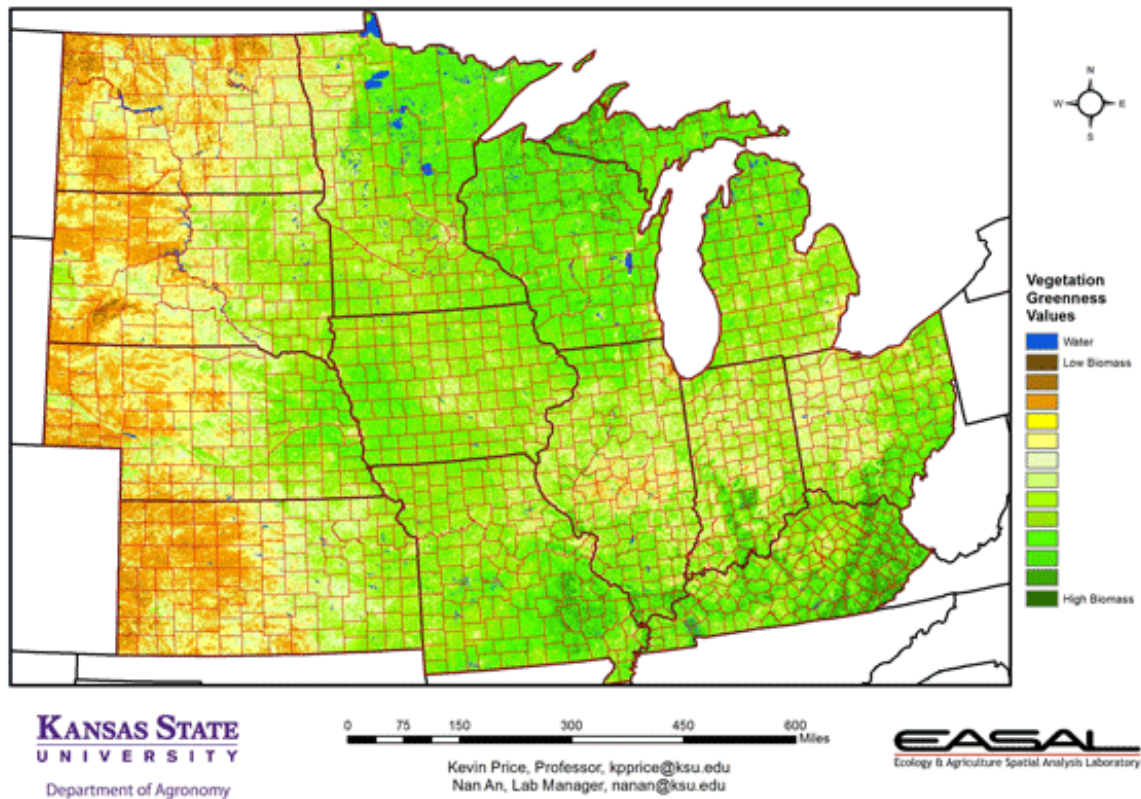


Figure 4. The Vegetation Condition Report for the Corn Belt for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that greatest photosynthetic activity is concentrated in the northern and southern parts of the region. Favorable moisture conditions have resulted in high photosynthetic activity. Lower NDVI values are beginning to appear from Illinois to western Ohio, as crops are maturing early.

U.S. Corn Belt Vegetation Condition Comparison
Mid-September 2015 Compared to Mid-September 2014

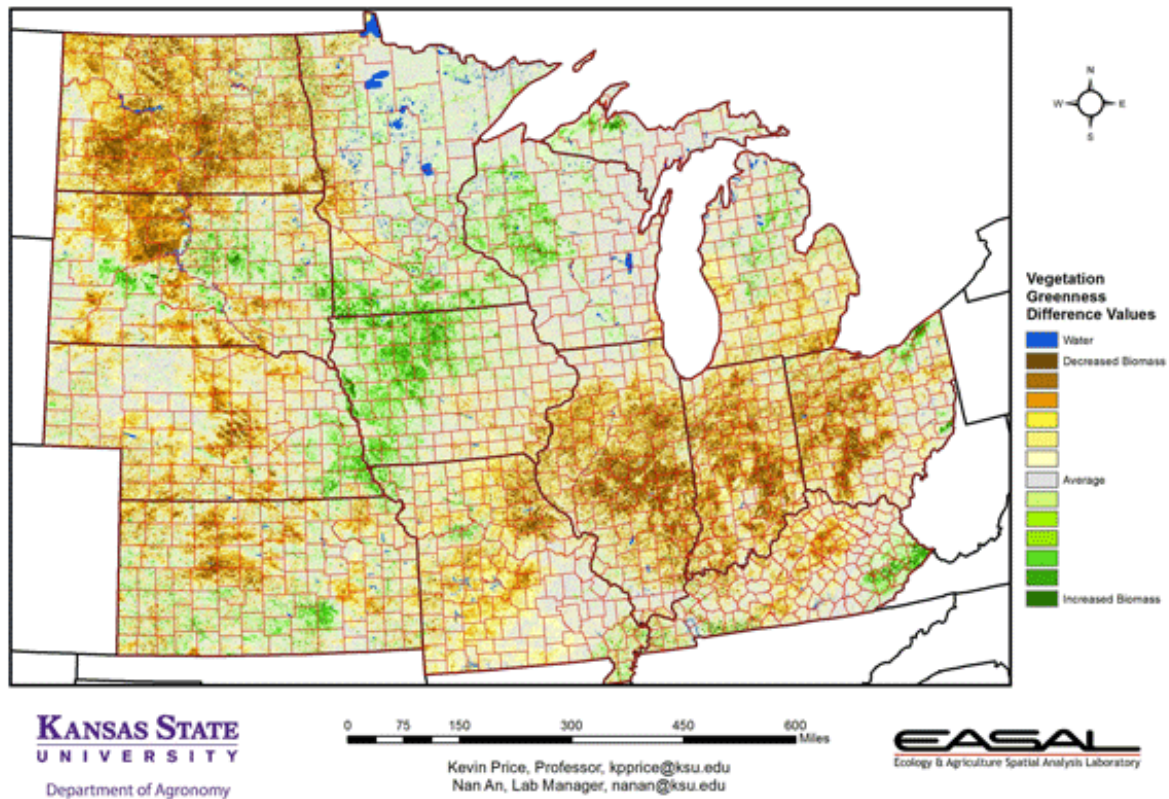


Figure 5. The comparison to last year in the Corn Belt for the period for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows lower photosynthetic activity along the western and eastern portions of the region. Lower NDVI values dominate the Ohio River states, where both corn and soybean development is ahead of last year.

U.S. Corn Belt Vegetation Condition Comparison
 Mid-September 2015 Compared to the 26-Year Average for Mid-September

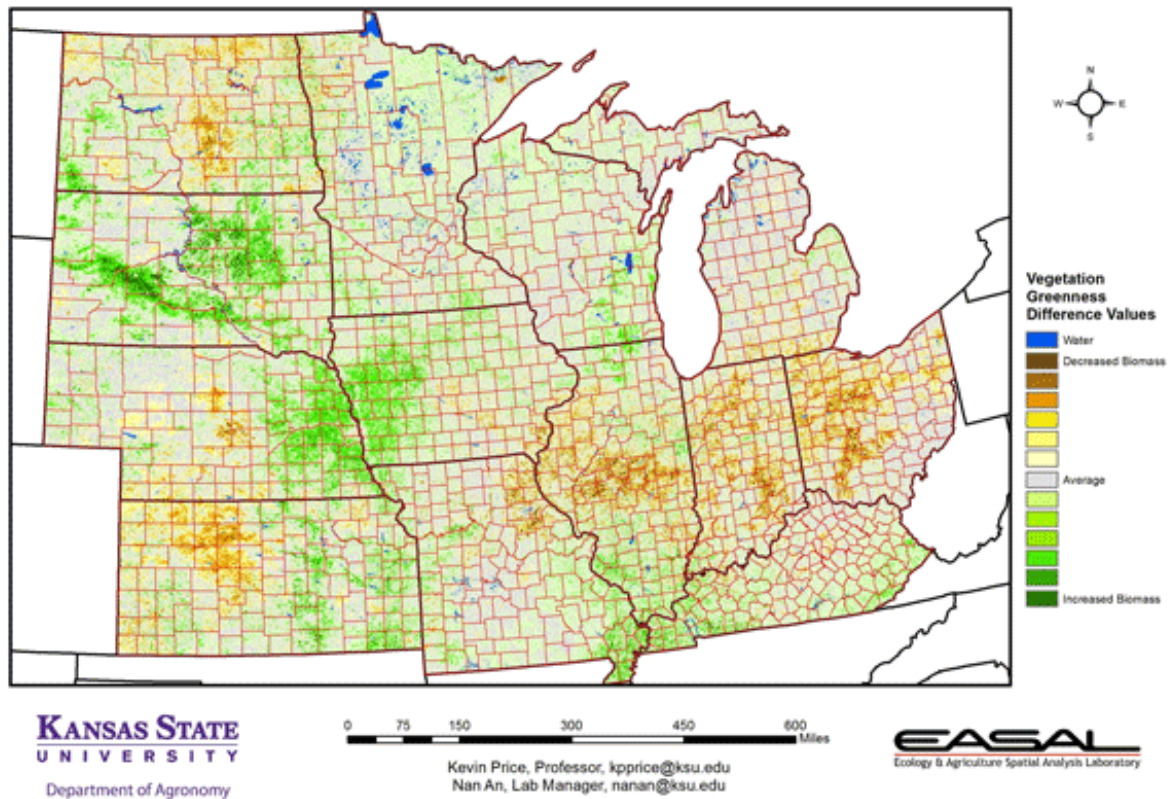


Figure 6. Compared to the 26-year average at this time for the Corn Belt, this year's Vegetation Condition Report for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows most of the region has average biomass production. Central Illinois through western Ohio are the exceptions, with below-average NDVI values, although crop conditions are rated favorably. Crop development is ahead of average in these regions. There is an area of below-average photosynthetic activity in western Kansas, where drought is intensifying.

Continental U.S. Vegetation Condition

Period 38: 09/08/2015 - 09/21/2015

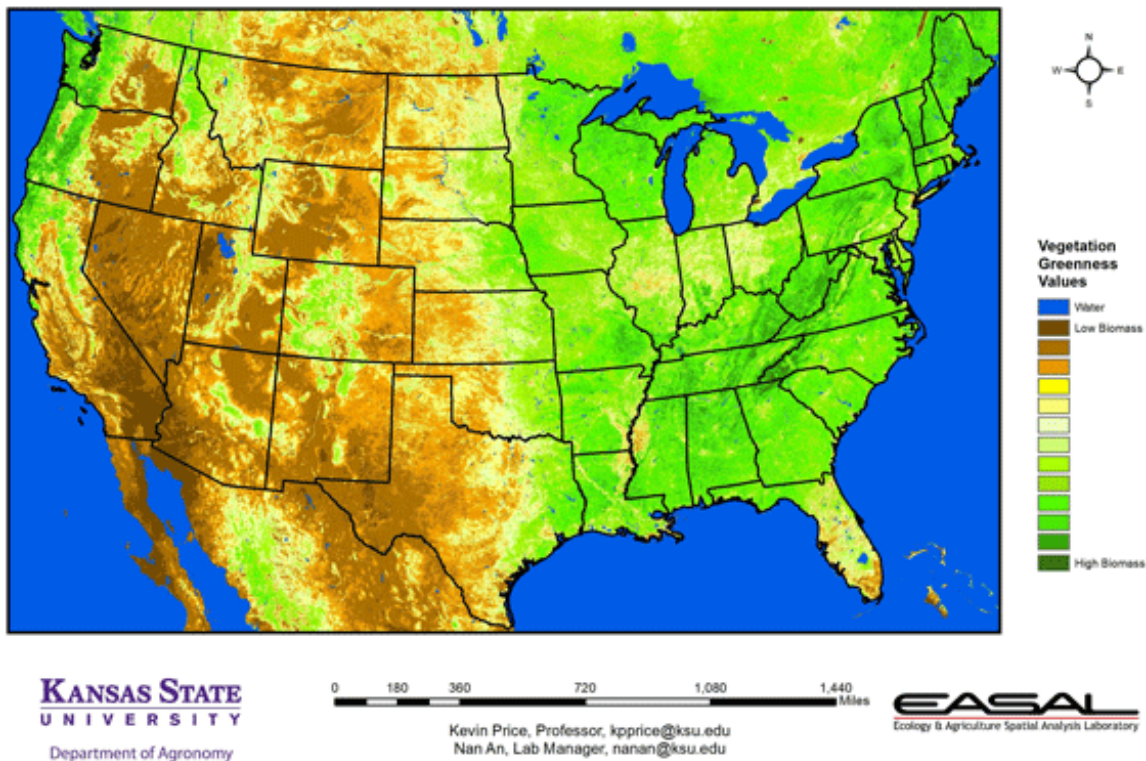


Figure 7. The Vegetation Condition Report for the U.S for September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the highest photosynthetic activity is centered in the Appalachians of West Virginia and Tennessee. Low NDVI values are noticeable in Florida, where drought conditions continue. Low NDVI values are also notable along the western Cascades in Oregon, where drought and wildfires continue to affect vegetation.

Continental U.S. Vegetation Condition Comparison
Mid-September 2015 Compared to Mid-September 2014

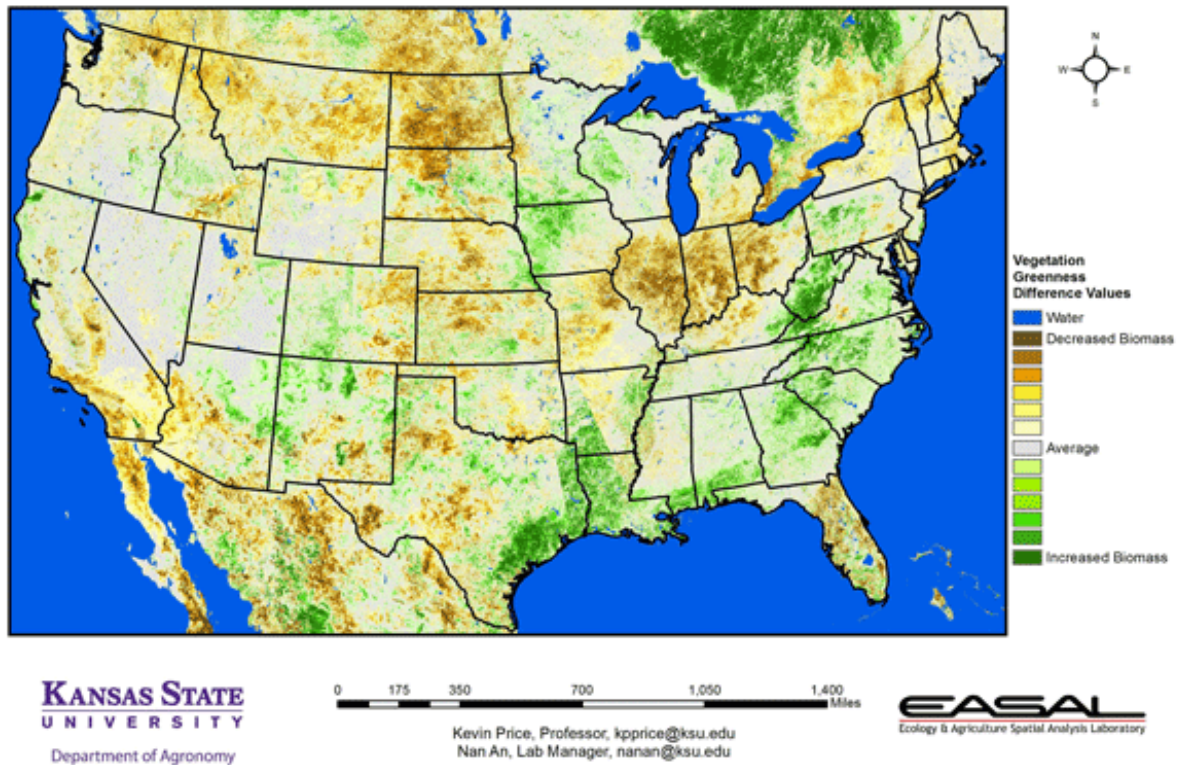


Figure 8. The U.S. comparison to last year at this time for the period September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that lower NDVI values are most evident along the northern tier of states and through the Ohio River Valley. Crop development in much of the region is ahead of average. In the West Coast region, lower NDVI values are visible in Southern California into northern Idaho and western Montana. Little change is evident in Oregon and Northern California, where drought remains unchanged from last year.

Continental U.S. Vegetation Condition Comparison
Mid-September 2015 Compared to 26-year Average for Mid-September

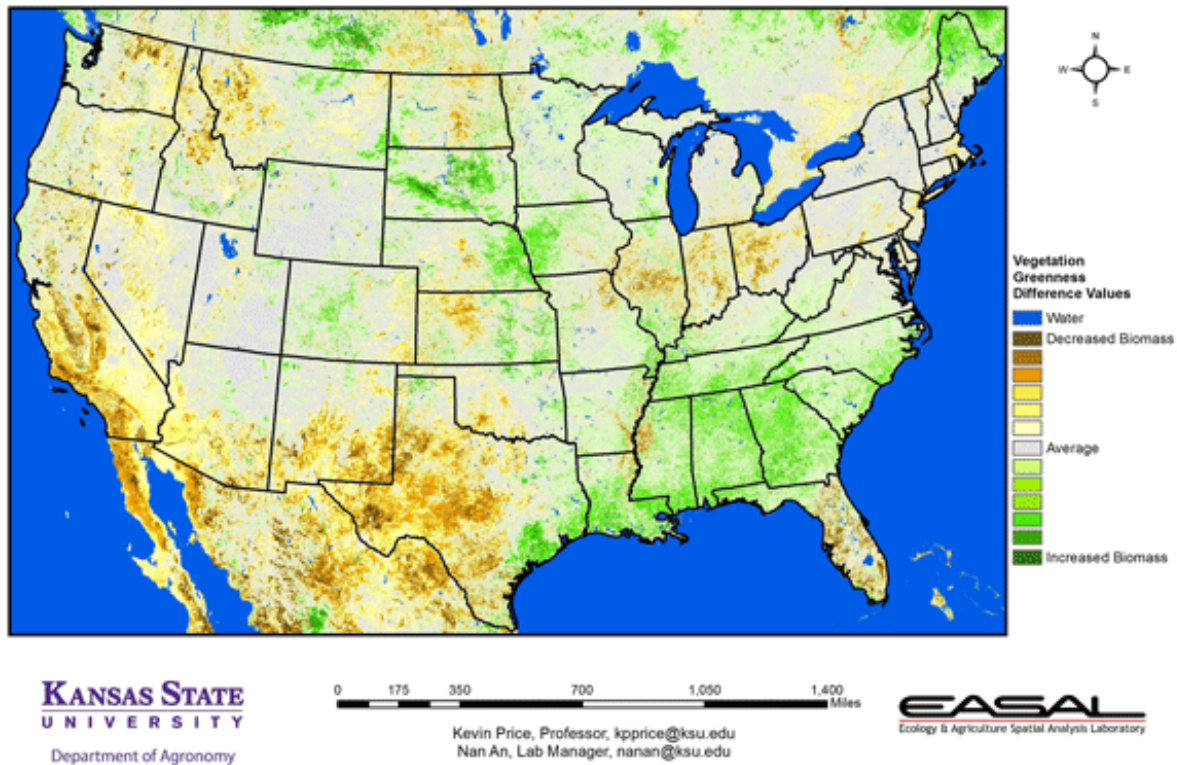


Figure 9. The U.S. comparison to the 26-year average for the period September 8 - 21 from K-State's Ecology and Agriculture Spatial Analysis Laboratory shows that the West continues to have lower-than-normal photosynthetic activity, while the greatest increase in NDVI values is in Mississippi and Alabama. Below-average NDVI values are also visible from southern California through west Texas.

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