

MIDWEST AND GREAT PLAINS DROUGHT AND CLIMATE OUTLOOK

19 SEP 2013

“UPDATE ON CLIMATOLOGICAL CONTEXT”

DR. STUART FOSTER

STATE CLIMATOLOGIST FOR KENTUCKY

WESTERN KENTUCKY UNIVERSITY

STUART.FOSTER@WKU.EDU

270-745-5983



GENERAL INFORMATION

- This drought and climate outlook webinar is a collaborative effort among the following climate services providers:
Doug Kluck and John Eise (NOAA), State Climatologists, Midwest Regional Climate Center, High Plains Regional Climate Center, NOAA's Climate Prediction Center, Iowa State University, National Drought Mitigation Center
- Next drought and climate outlook webinar
October 17, 2013 1:00 PM CDT Dr. Jim Angel, Illinois State Climatologist

Registration:

<http://www.drought.gov/drought/content/regional-programs/regional-drought-webinars>

- Access to past webinars
<http://mrcc.isws.illinois.edu/webinars.htm>
<http://www.hprcc.unl.edu/webinars.php>
- Operator assistance will be available for questions at the end of the presentation

AGENDA

Recent events

Current conditions highlighting recent change

Historical context

Outlooks

RECENT EVENTS

NOAA Climate.gov
science & information for a climate-smart nation

News & Features | Maps & Data | Teaching Climate | Supporting Decisions | About

Climate news, stories, images, & video (ClimateWatch Magazine) | News | How the Climate System Works | Climate Change & Global Warming | Natural Climate Patterns

Home » News & Features » Event Tracker » **Midwest heatwave in late August 2013** »

Midwest heatwave in late August 2013

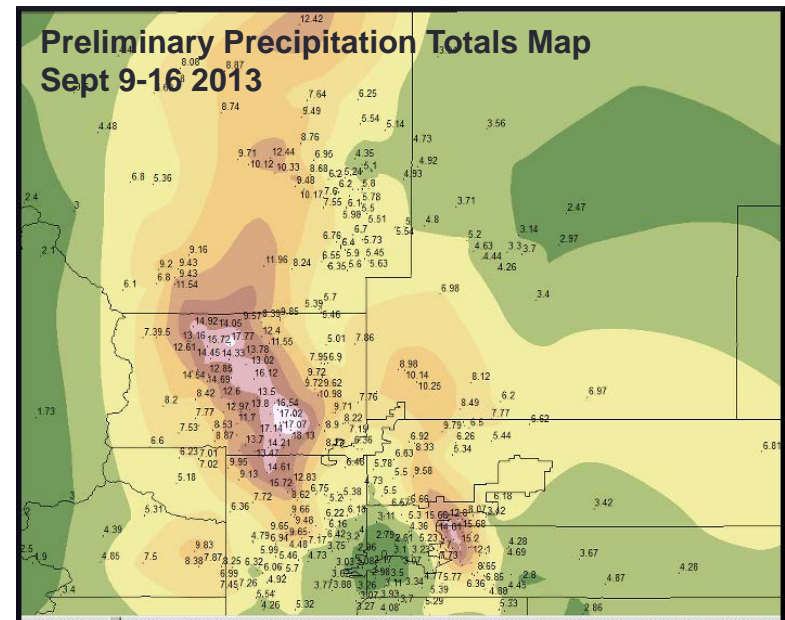
September 10, 2013

A heat wave struck the Midwest in late August and early September 2013. Daytime highs were 6 degrees above average, and nighttime lows were 11 degrees above average in late August. (In contrast, the first three weeks of the month had temperatures 2 to 8 degrees below average.) Through September 8, all-time daily record highs were tied or broken at 328 weather stations in the Midwest and High Plains.

August 25 - September 8, 2013
Highest temperature (°F)
75 110
NOAA Climate.gov

<http://www.climate.gov/news-features/event-tracker/midwest-heatwave-late-august-2013>

Flooding in Colorado

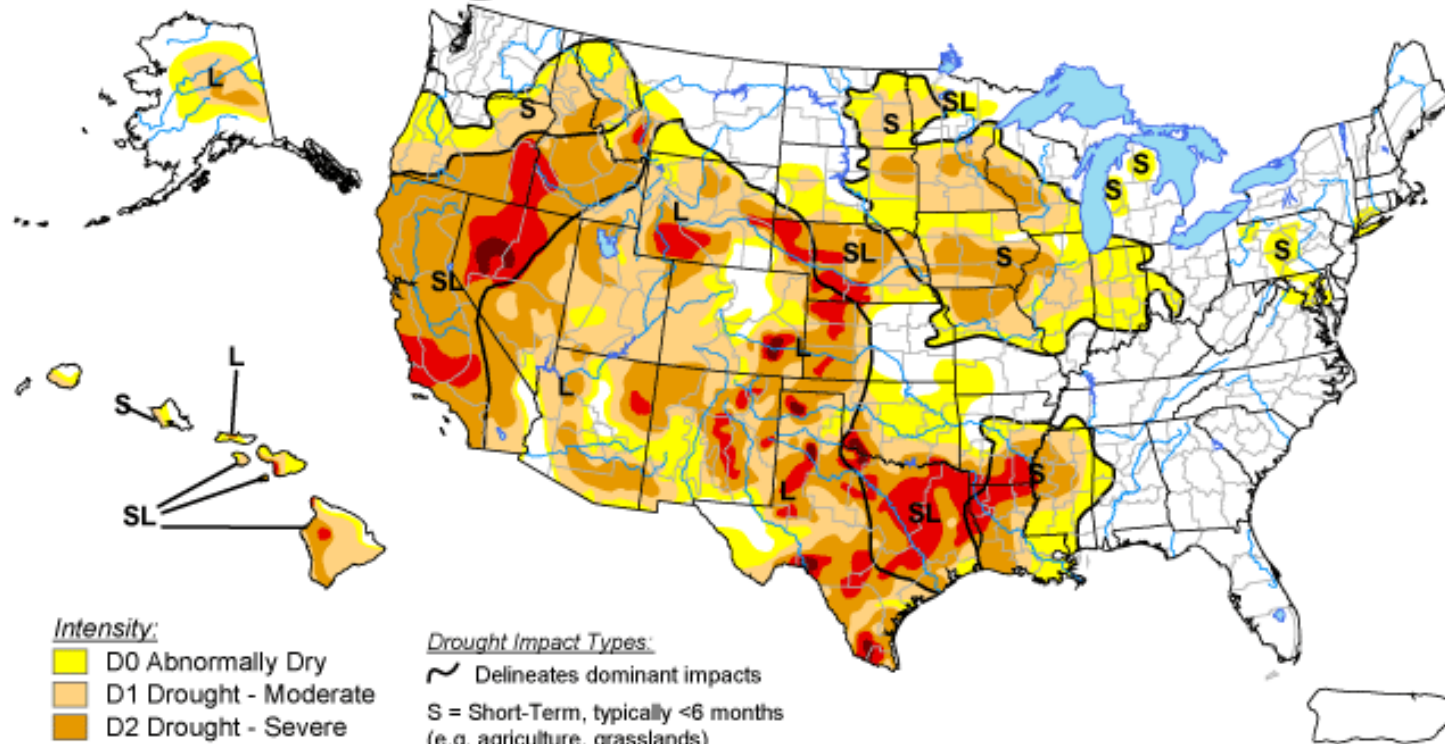


http://www.crh.noaa.gov/bou/?n=stormtotals_092013




U.S. Drought Monitor

September 17, 2013


Valid 7 a.m. EDT



Intensity:

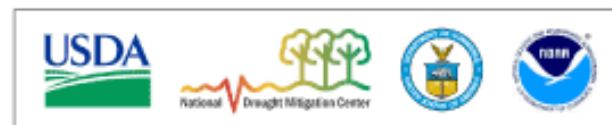
-  D0 Abnormally Dry
-  D1 Drought - Moderate
-  D2 Drought - Severe
-  D3 Drought - Extreme
-  D4 Drought - Exceptional

Drought Impact Types:

-  Delineates dominant impacts
- S = Short-Term, typically <6 months
(e.g. agriculture, grasslands)
- L = Long-Term, typically >6 months
(e.g. hydrology, ecology)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu/>

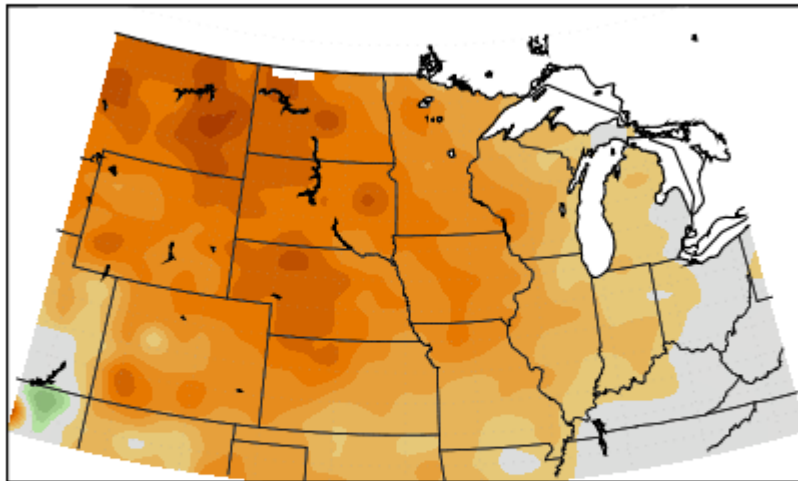


Released Thursday, September 19, 2013

Author: David Miskus, NOAA/NWS/NCEP/CPC

A LOOK BACK THE PAST 30 DAYS

Average Temperature (°F): Departure from Mean
August 20, 2013 to September 18, 2013

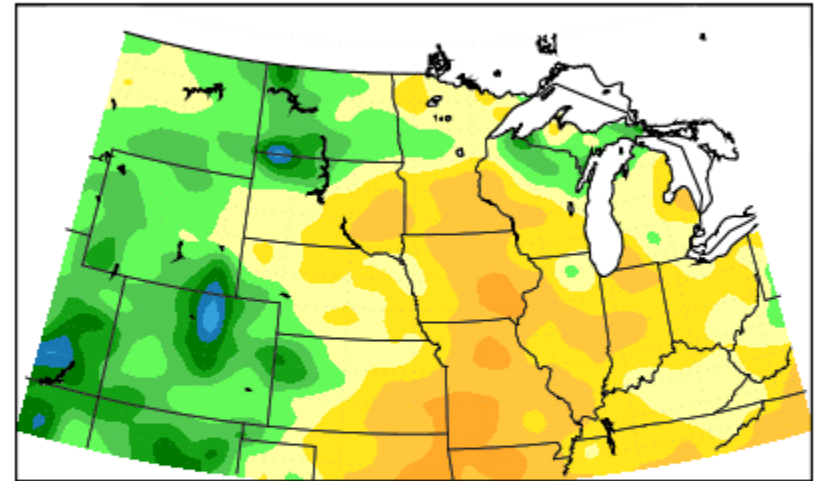


Mean period is 1981–2010.



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

Accumulated Precipitation (in): Departure from Mean
August 20, 2013 to September 18, 2013

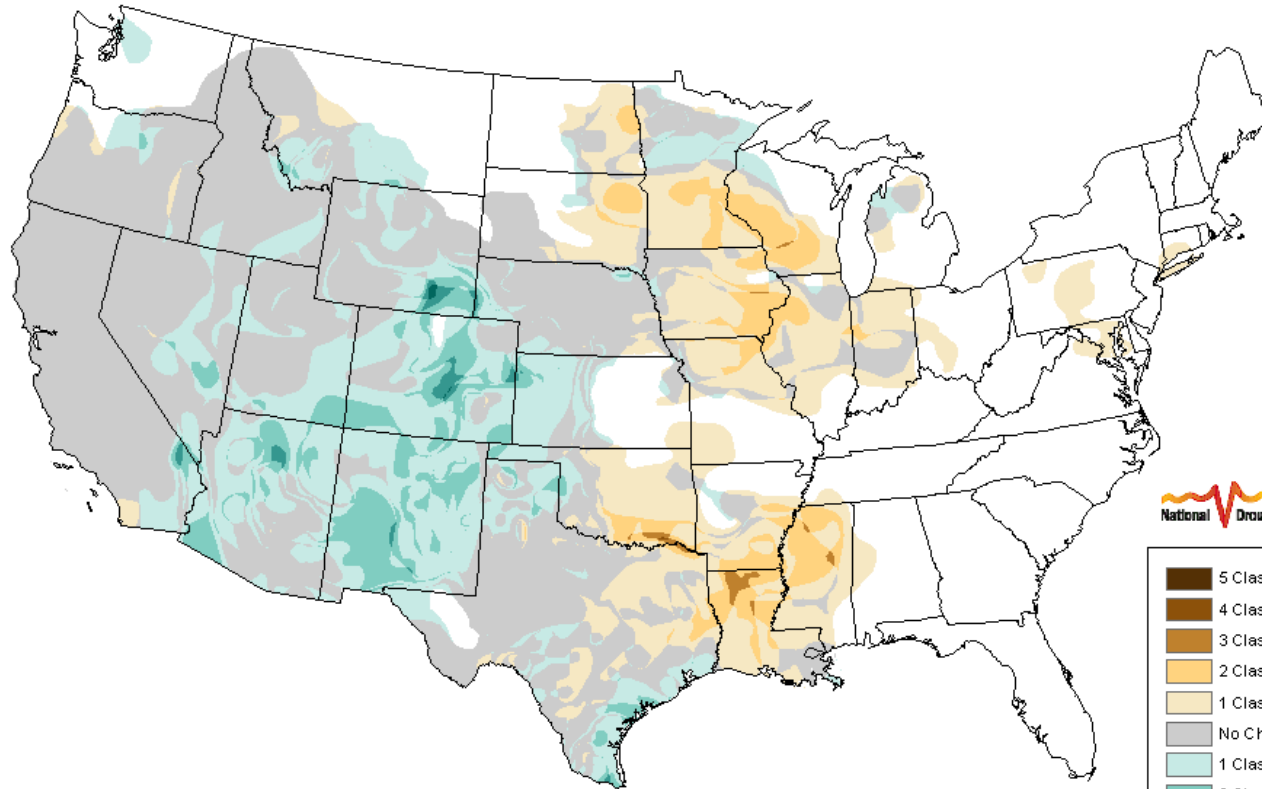


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Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

U.S. Drought Monitor Class Change 1 Month



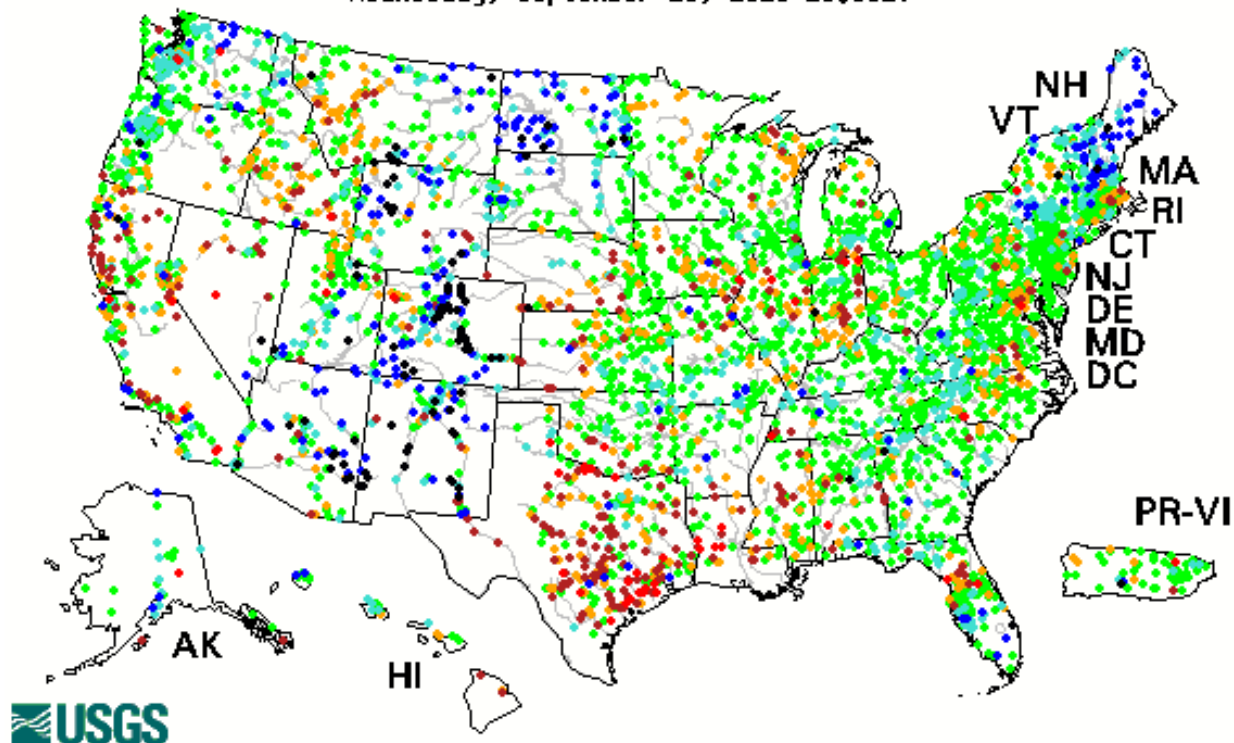
- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

September 17, 2013
compared to
August 20, 2013

<http://droughtmonitor.unl.edu>

7-DAY AVERAGE STREAMFLOW

Wednesday, September 18, 2013 15:30ET

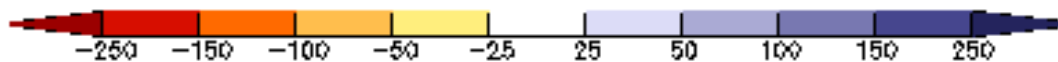
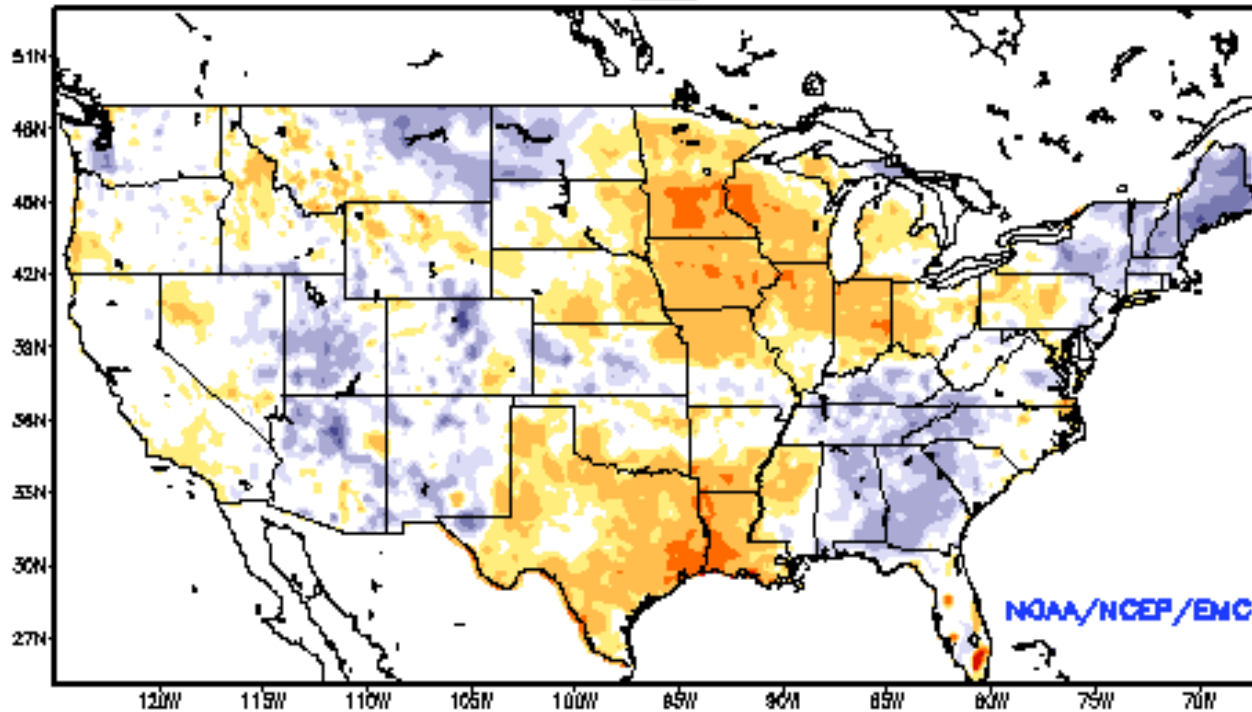


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

http://waterwatch.usgs.gov/?id=ww_current

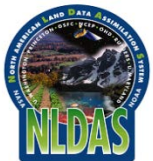
CURRENT SOIL MOISTURE ANOMALY

Ensemble-Mean - Current Total Column Soil Moisture Anomaly (mm)
NCEP NLDAS Products ___ Valid: SEP 14, 2013



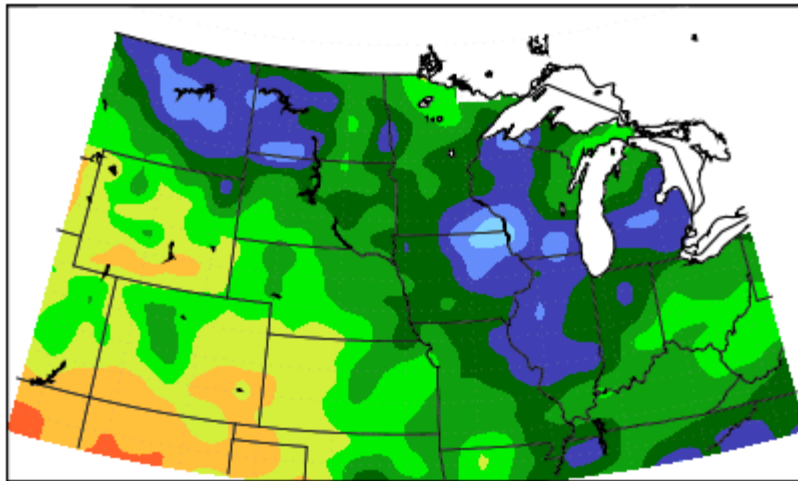
Soil Moisture Anomaly in
millimeters

<http://www.emc.ncep.noaa.gov/mmb/nldas/drought/>



FROM ONE EXTREME TO ANOTHER

Accumulated Precipitation: Percent of Mean
April 1, 2013 to June 30, 2013

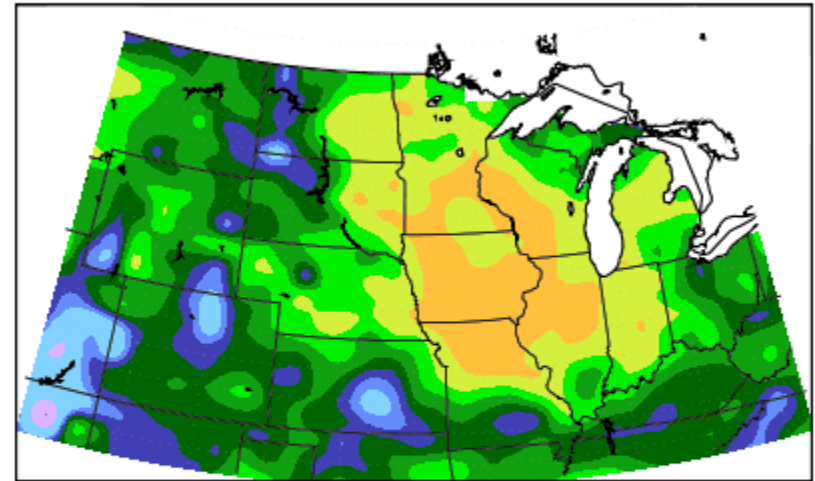


Mean period is 1981–2010.



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana-Champaign

Accumulated Precipitation: Percent of Mean
July 1, 2013 to September 18, 2013

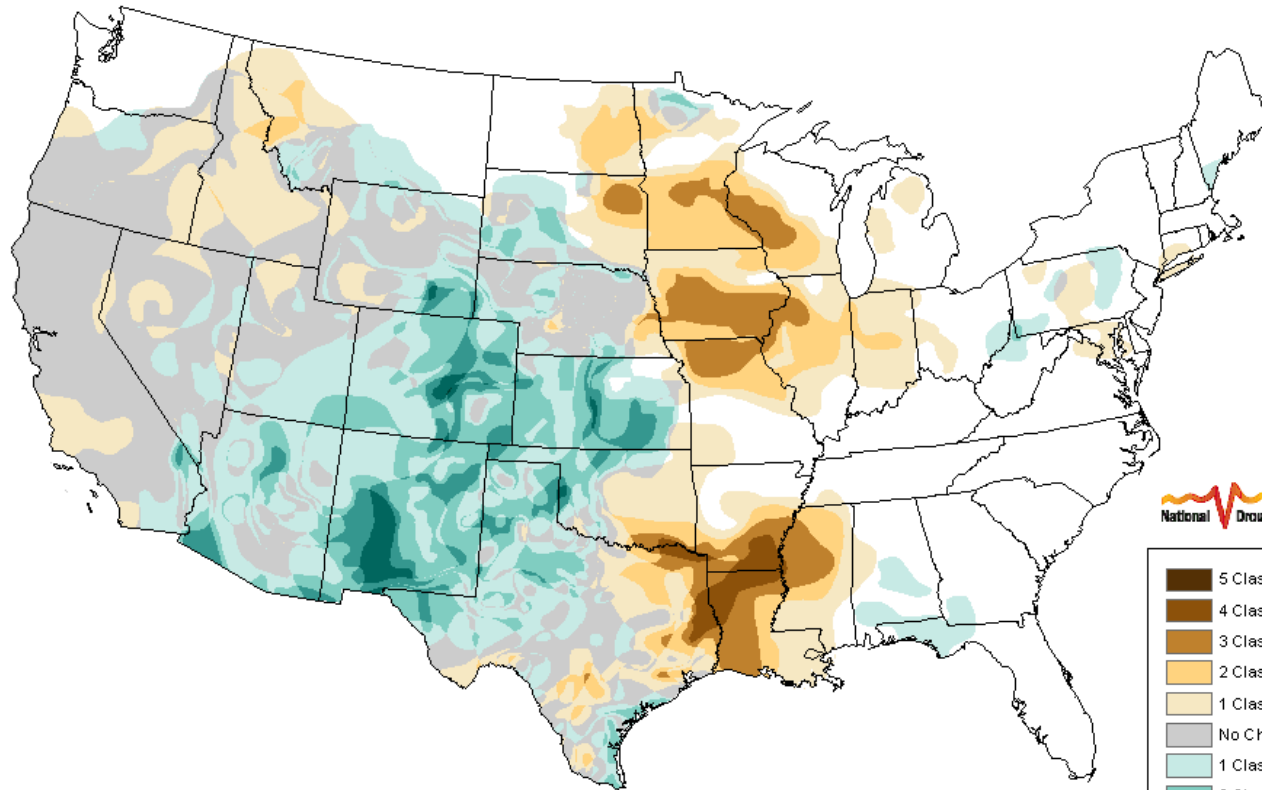


Mean period is 1981–2010.



Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana-Champaign

U.S. Drought Monitor Class Change 3 Months



- 5 Class Degradation
- 4 Class Degradation
- 3 Class Degradation
- 2 Class Degradation
- 1 Class Degradation
- No Change
- 1 Class Improvement
- 2 Class Improvement
- 3 Class Improvement
- 4 Class Improvement
- 5 Class Improvement

September 17, 2013
compared to
June 25, 2013

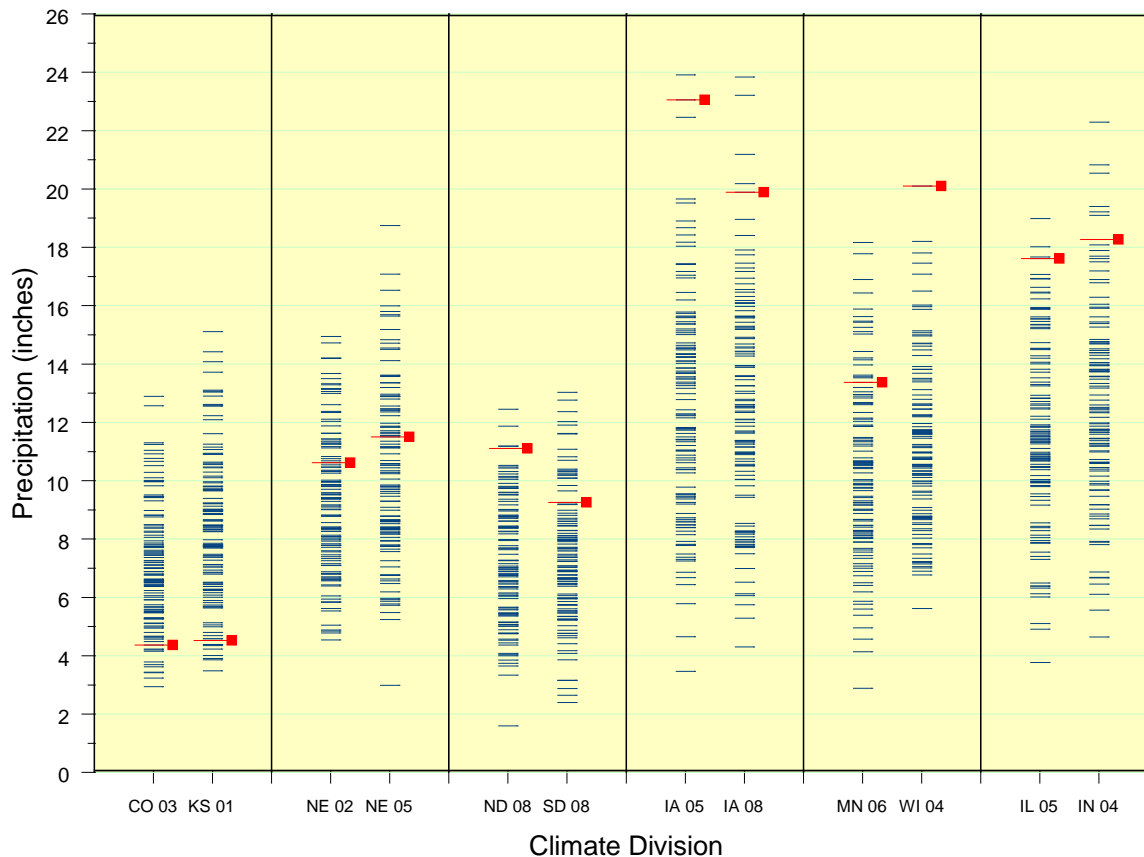
<http://droughtmonitor.unl.edu>

A TALE OF TWO SEASONS: FROM EARLY SPRING

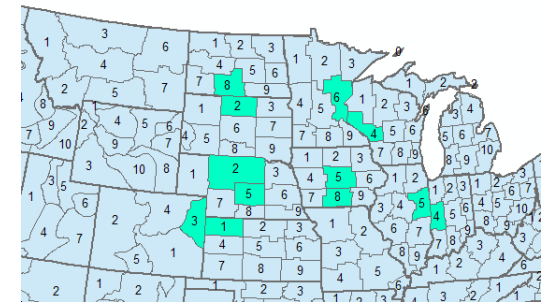
*Historical perspective from a spatial
sample of climate divisions*

Cumulative Precipitation for April through June

Total for 2013 Relative to Years 1895-2013



- Unusually to near record wet conditions in eastern portion
- Persistence of unusually dry conditions in western portion

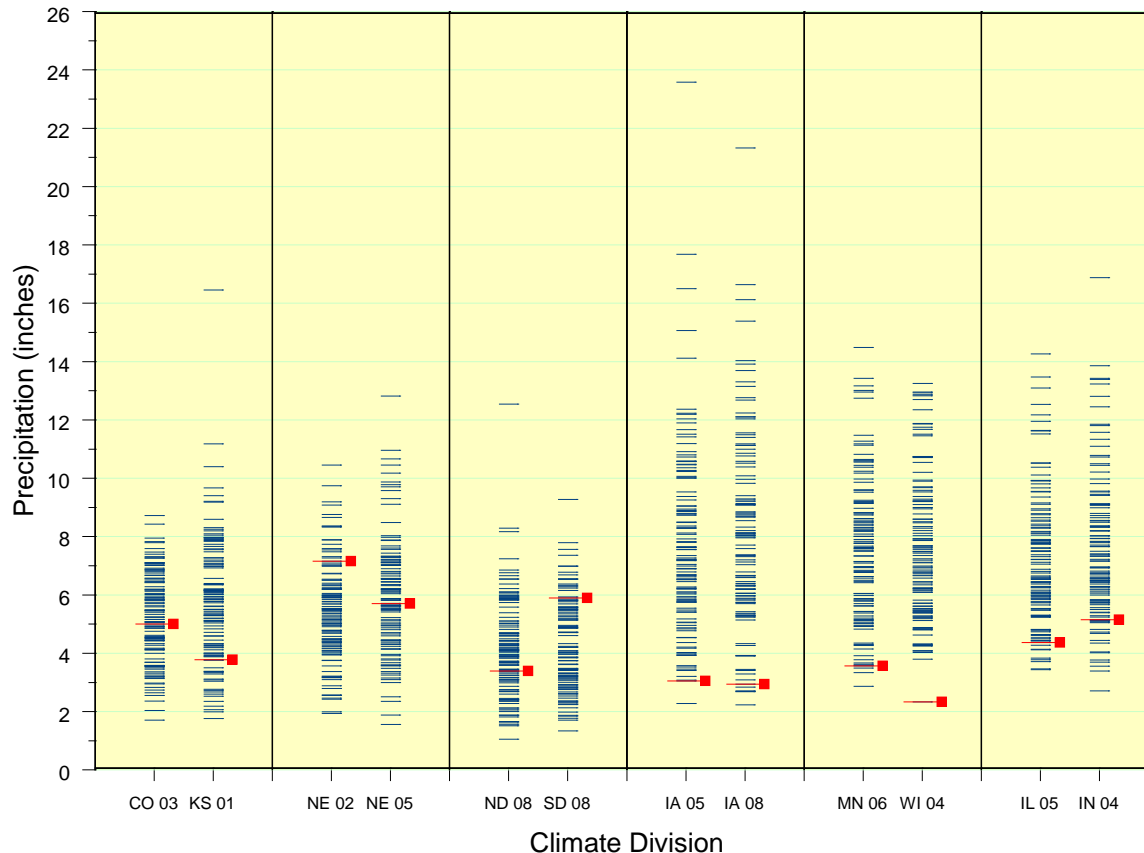


A TALE OF TWO SEASONS: TO LATE SUMMER

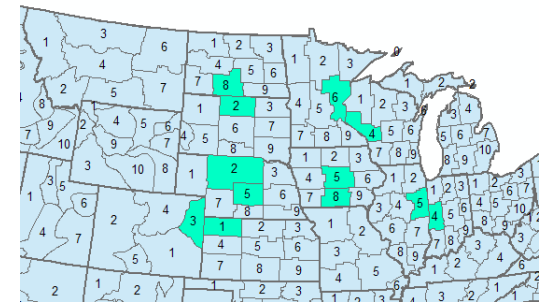
*Historical perspective from a spatial
sample of climate divisions*

Cumulative Precipitation for July through August

Total for 2013 Relative to Years 1895-2013

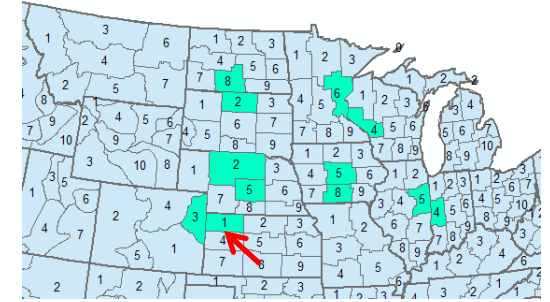
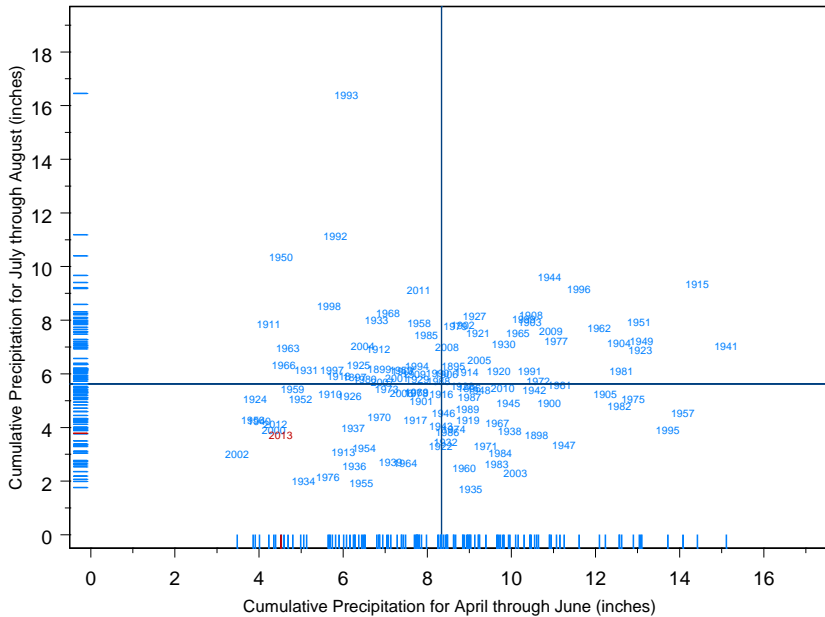


- Shift to below to near record dryness in eastern portion
- Below to near average precipitation in western portion

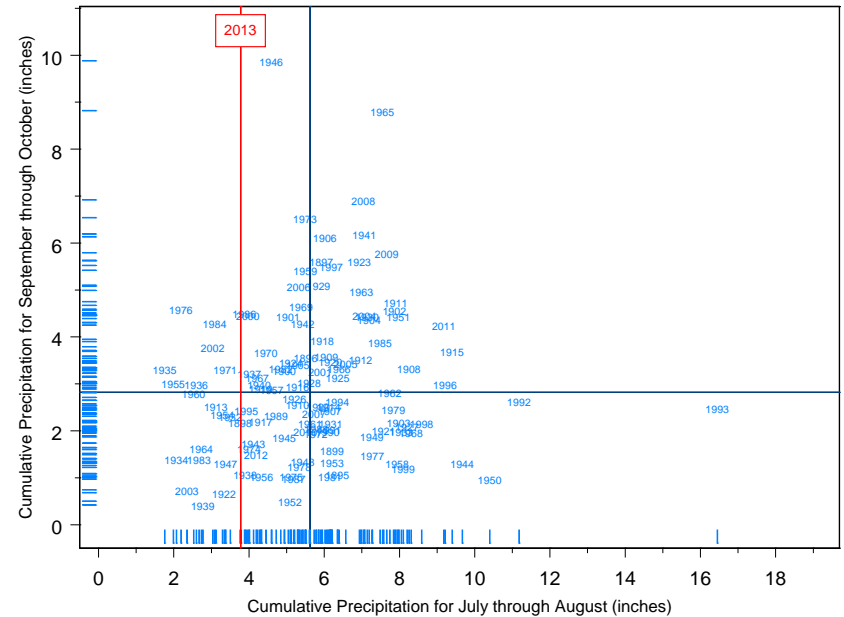


BEFORE AND AFTER KANSAS, NORTHWEST DIVISION

Historical Persistence of the Precipitation Pattern, AMJ and JA
Kansas Northwest (01) Climate Division



Historical Persistence of the Precipitation Pattern, JA and SO
Kansas Northwest (01) Climate Division

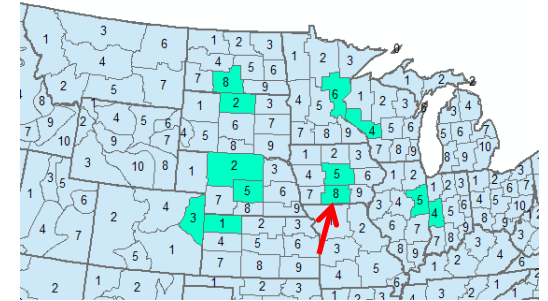
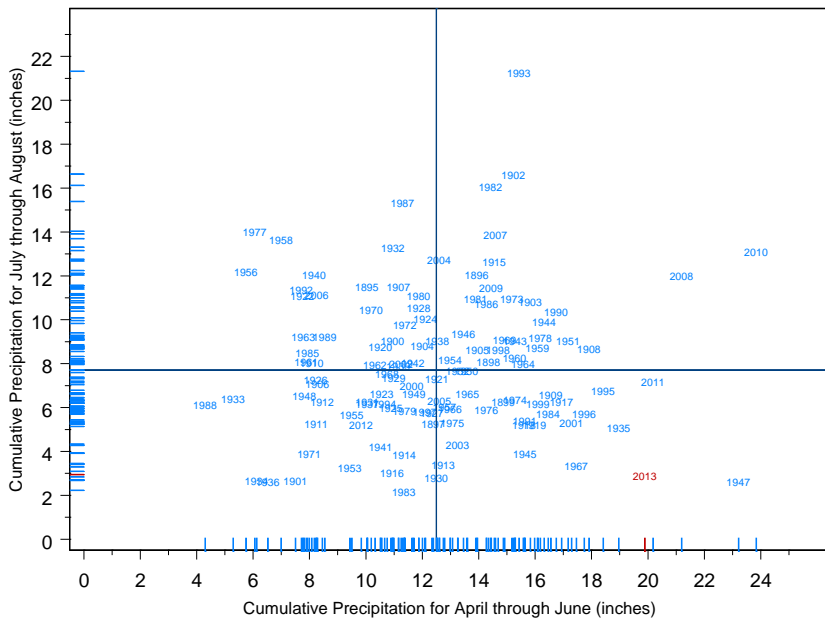


- AMJ-JA period is distinctive for persistent dryness relative to climatology
- Dryness during JA is not an effective predictor of SO precipitation, but may indicate reduced probability of extreme wetness

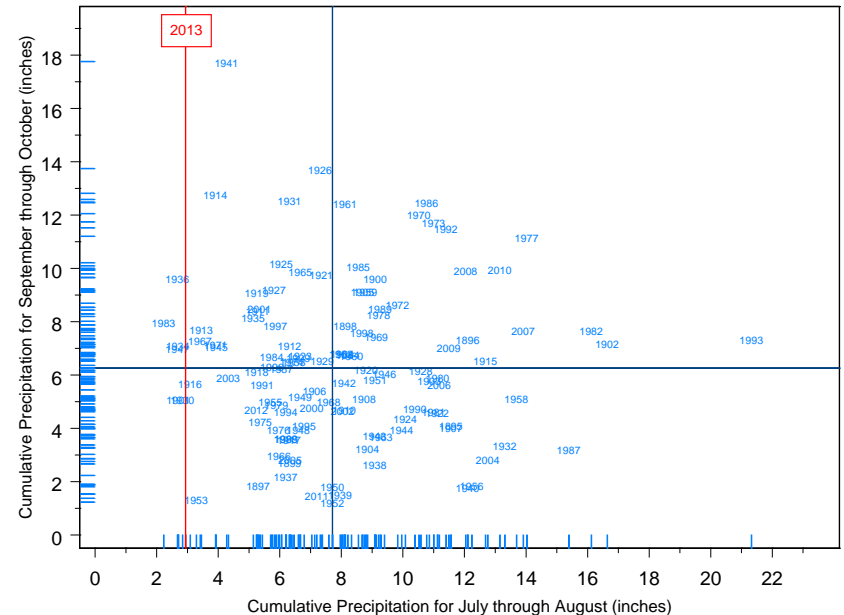
BEFORE AND AFTER

IOWA, SOUTH CENTRAL DIVISION

Historical Persistence of the Precipitation Pattern, AMJ and JA
Iowa South Central (08) Climate Division



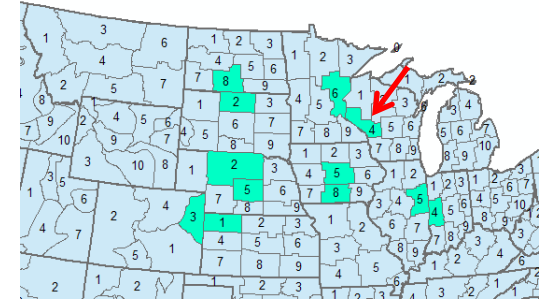
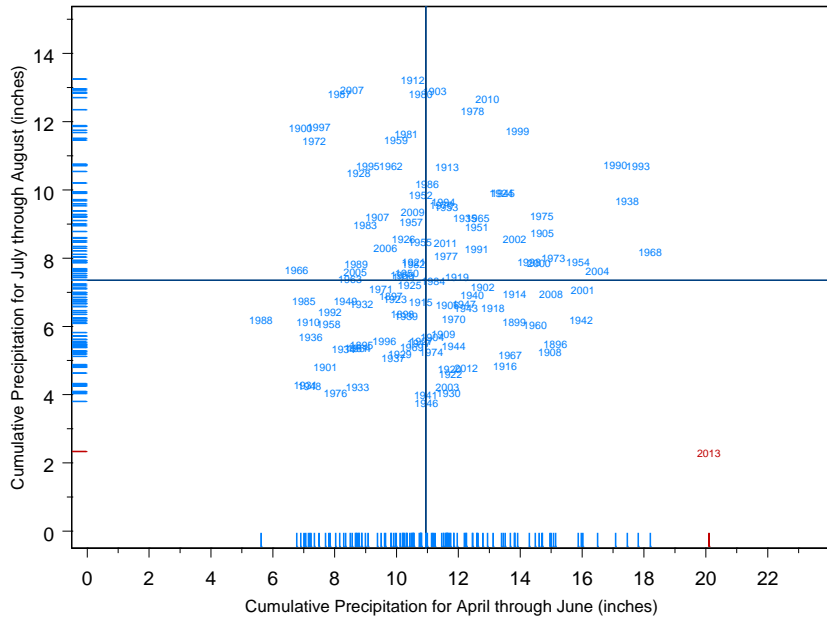
Historical Persistence of the Precipitation Pattern, JA and SO
Iowa South Central (08) Climate Division



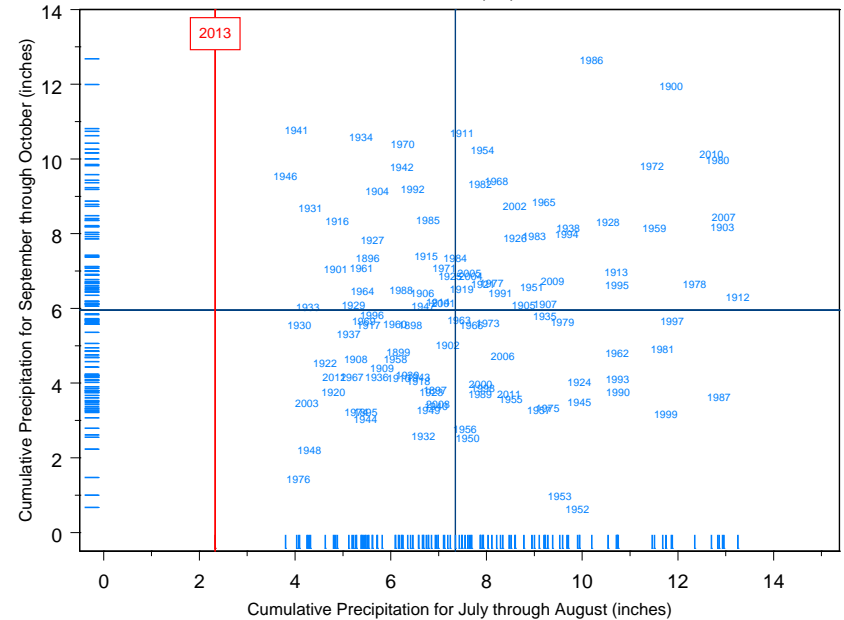
- AMJ-JA shows transition from extreme wetness to extreme dryness
- Dryness during JA is not an effective predictor of SO precipitation

BEFORE AND AFTER WISCONSIN, WEST CENTRAL DIVISION

Historical Persistence of the Precipitation Pattern, AMJ and JA
Wisconsin West Central (04) Climate Division



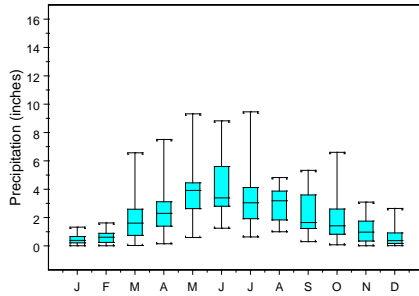
Historical Persistence of the Precipitation Pattern, JA and SO
Wisconsin West Central (04) Climate Division



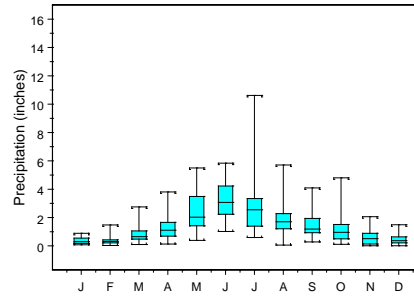
- AMJ-JA shows transition from *record wetness* to *record dryness*
- Dryness during JA is not an effective predictor of SO precipitation

MONTHLY PRECIPITATION CLIMATOLOGY

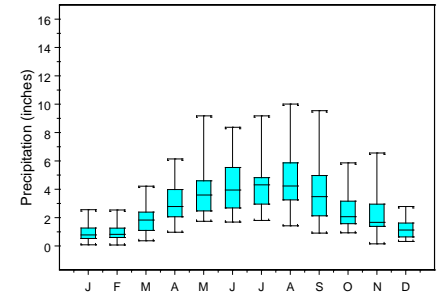
Nebraska Central Division (05)
1981-2010



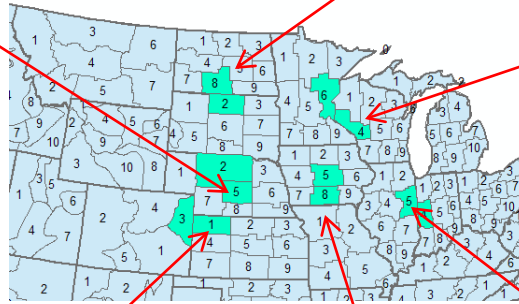
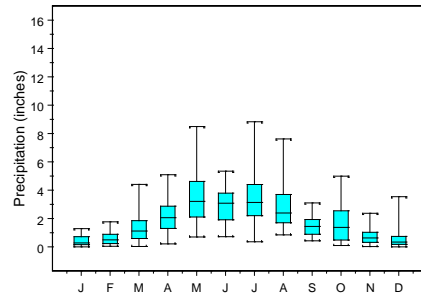
North Dakota South Central Division (08)
1981-2010



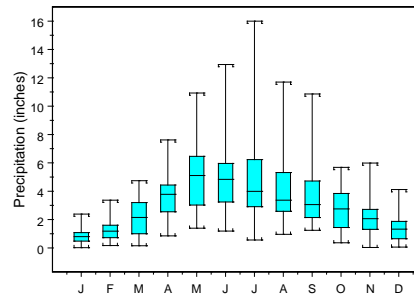
Wisconsin West Central Division (04)
1981-2010



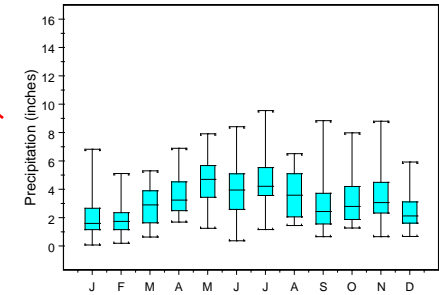
Kansas Northwest Division (01)
1981-2010



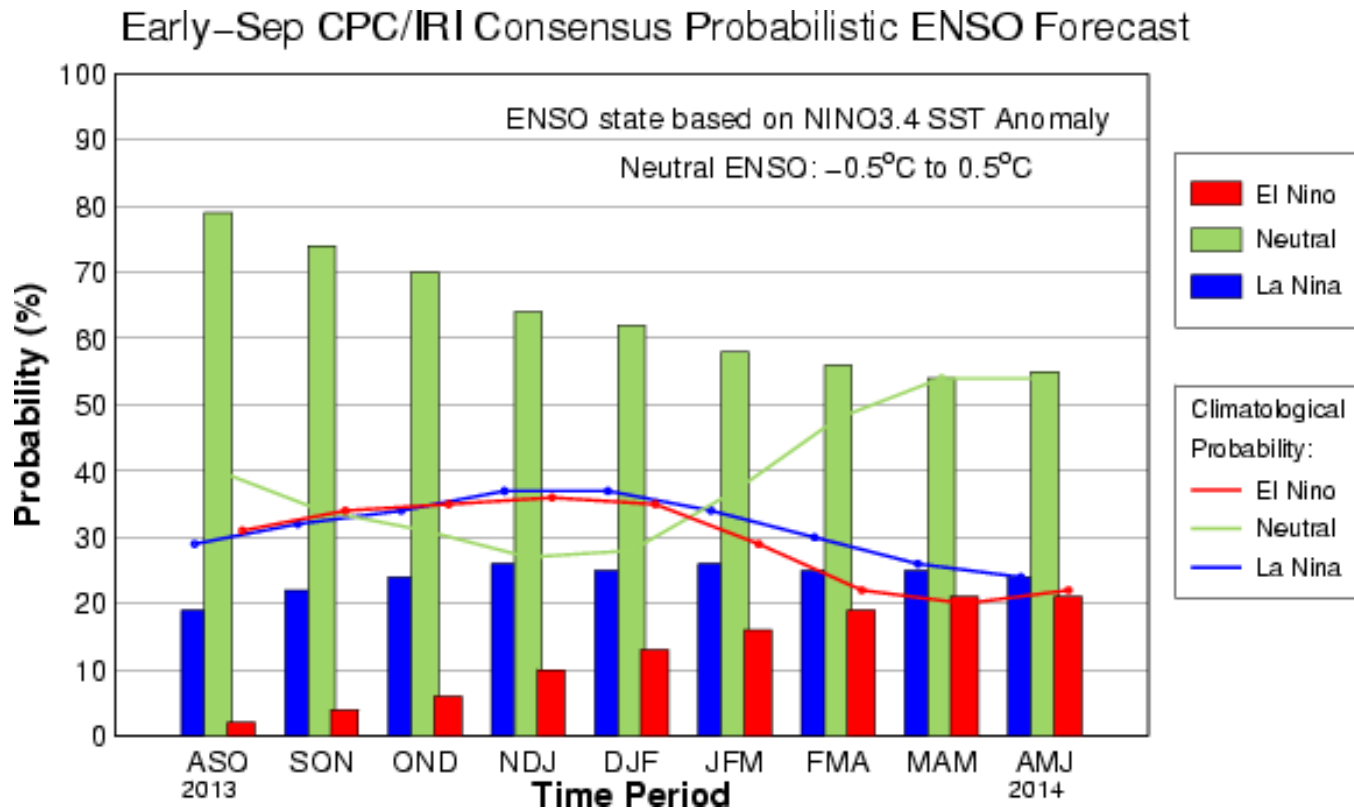
Iowa South Central Division (08)
1981-2010



Illinois East Division (05)
1981-2010

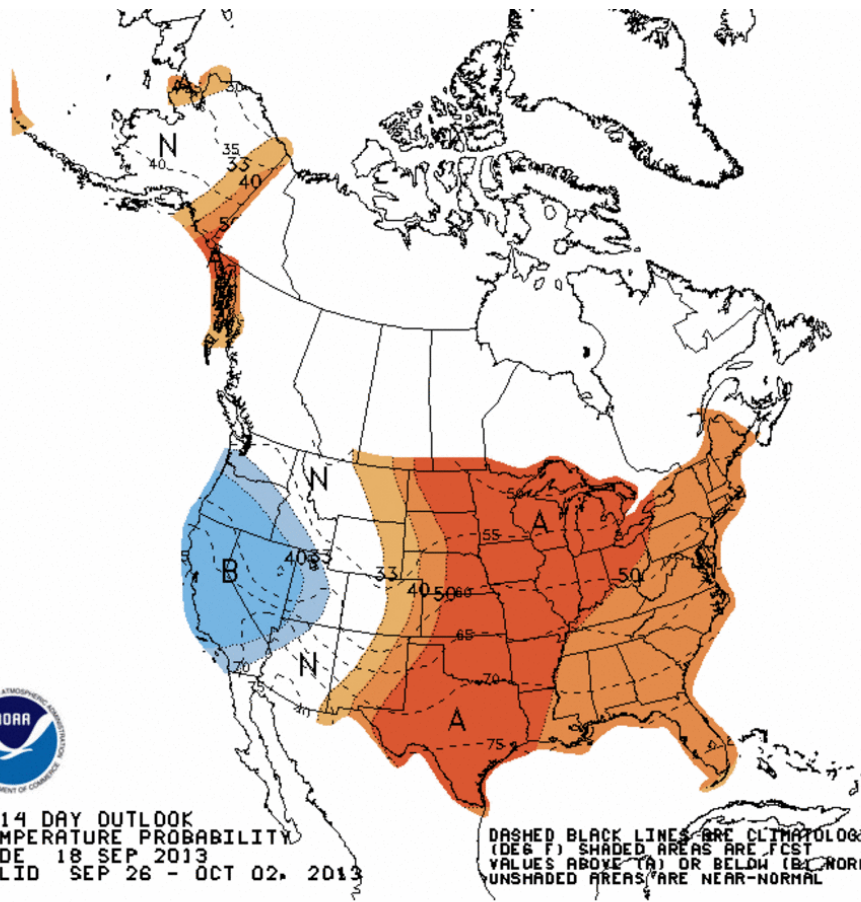


ENSO OUTLOOK

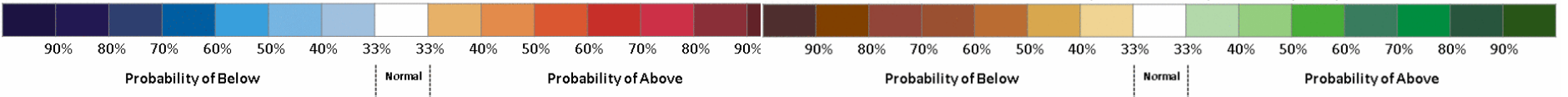
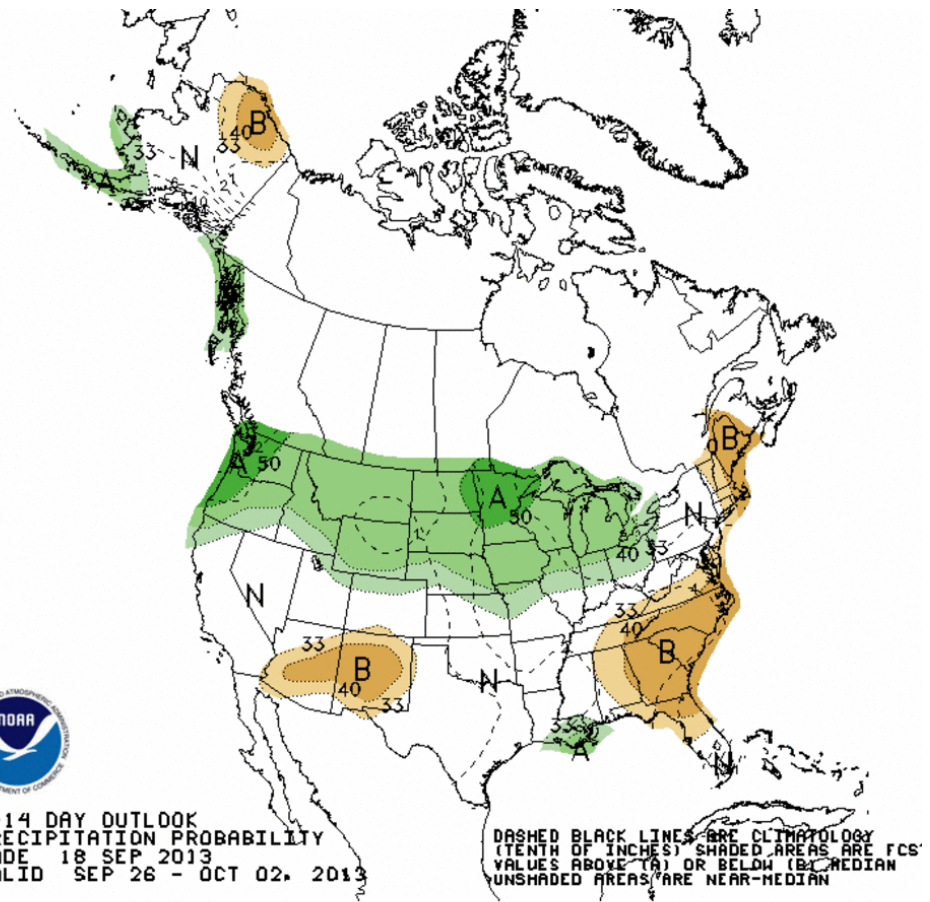


8-14 DAY CLIMATE OUTLOOK

Temperature

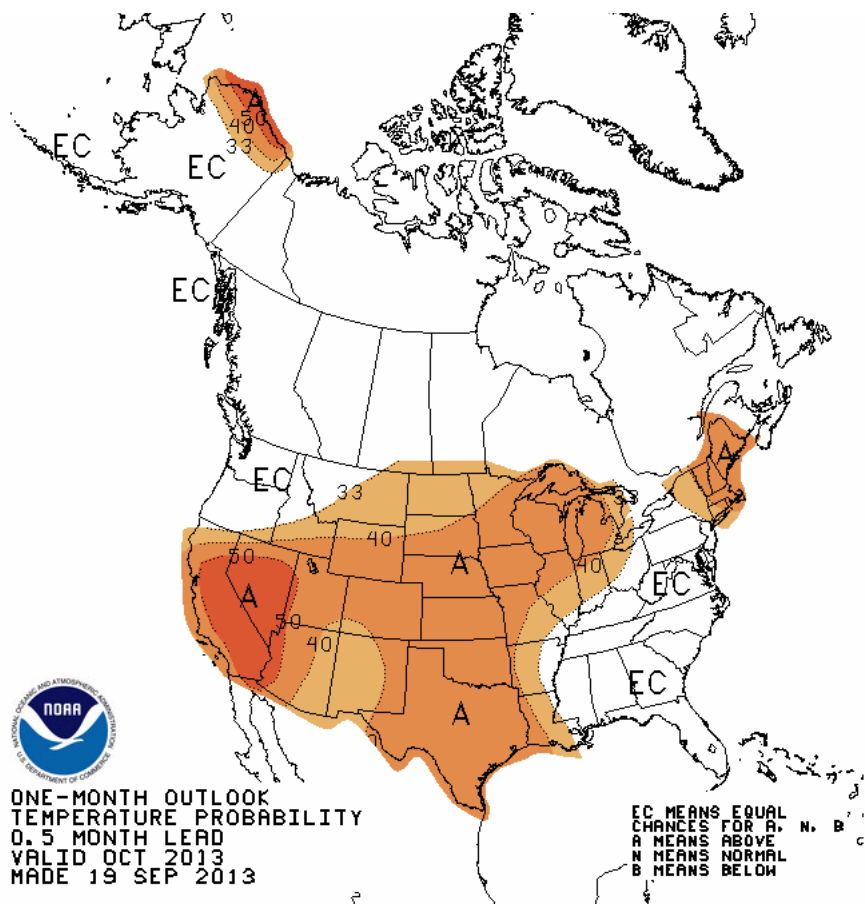


Precipitation

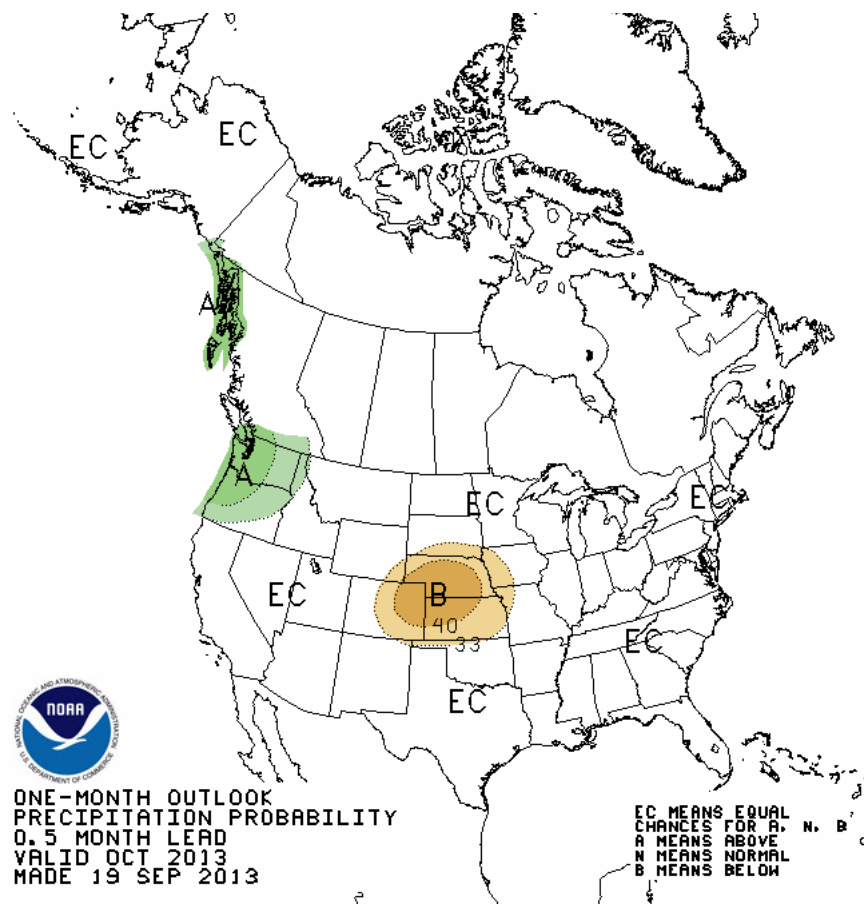


OCTOBER CLIMATE OUTLOOK

Temperature



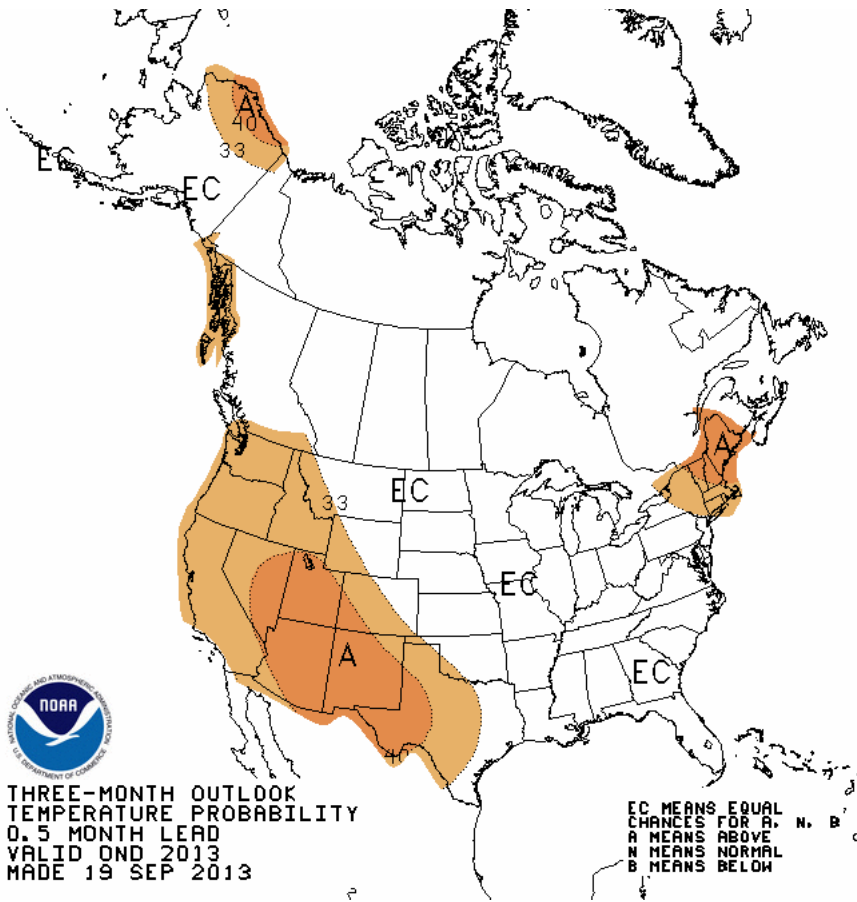
Precipitation



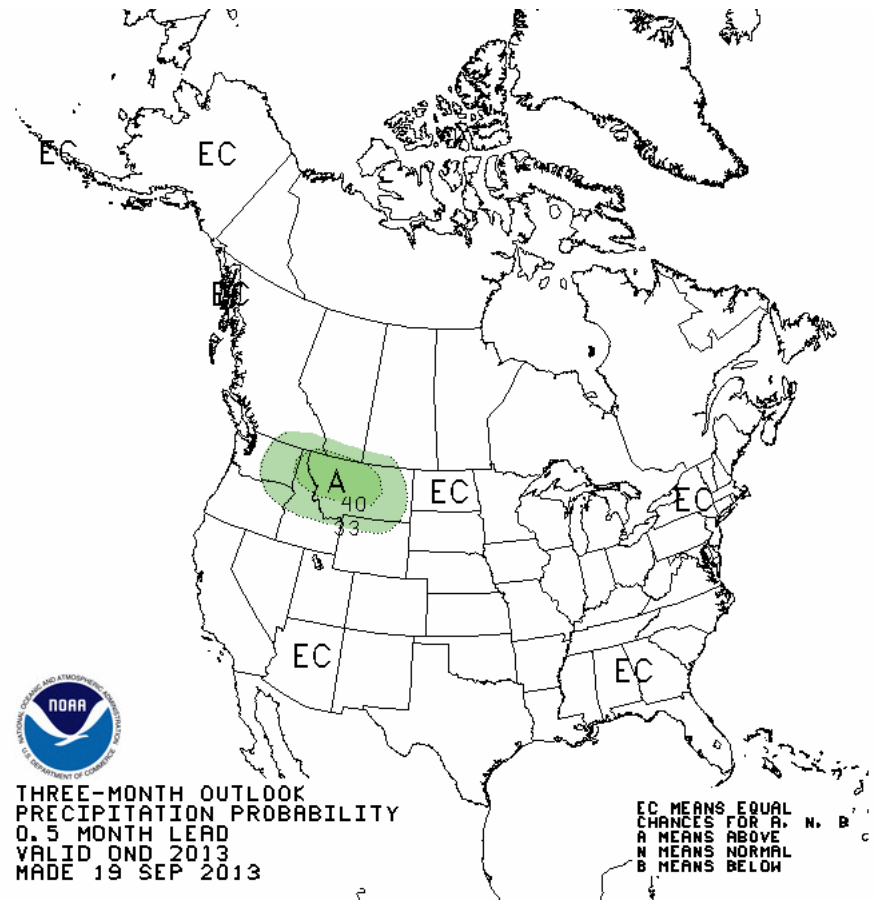
SEASONAL CLIMATE OUTLOOK

OCTOBER - DECEMBER

Temperature



Precipitation

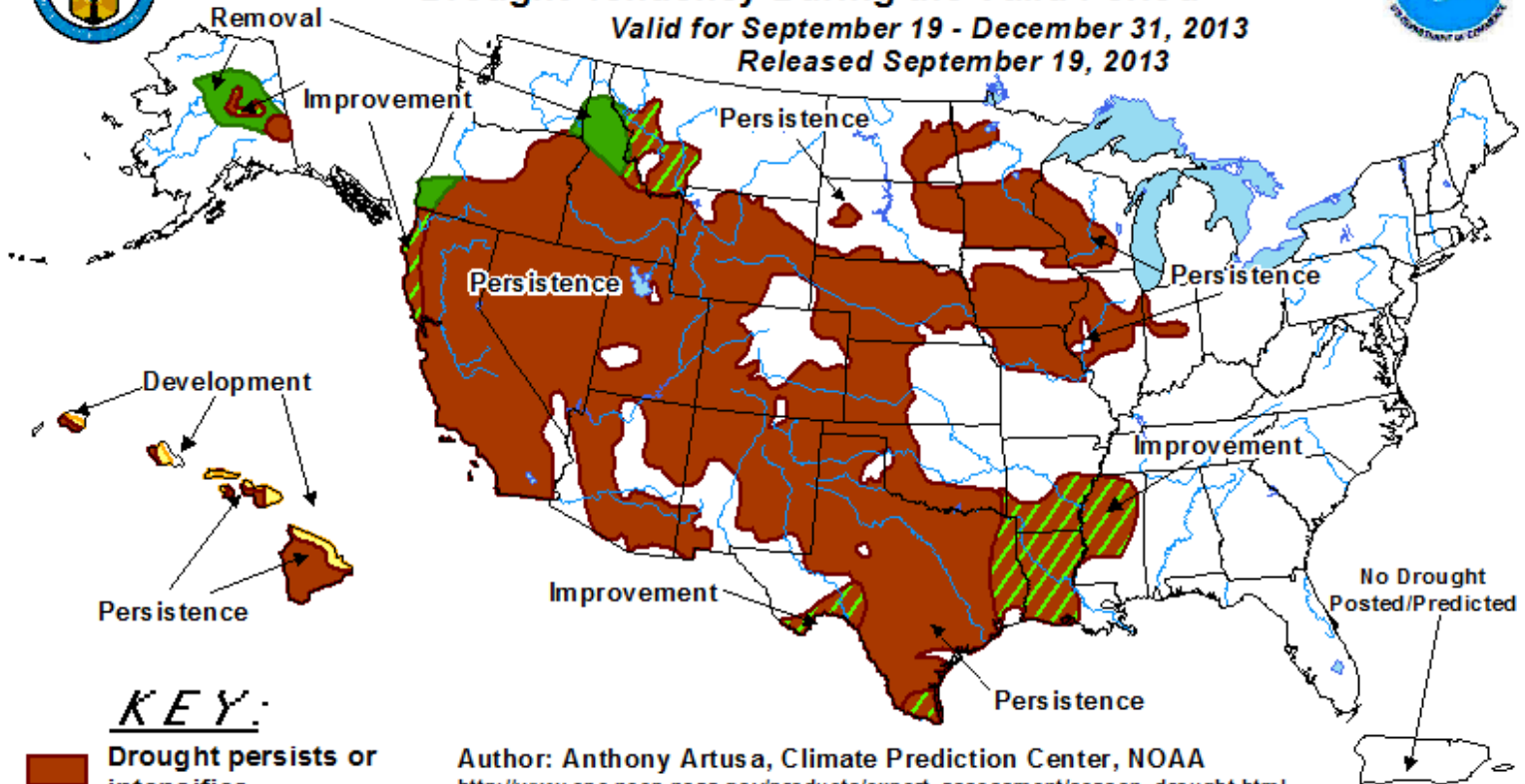







U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for September 19 - December 31, 2013
Released September 19, 2013



KEY:

-  Drought persists or intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

Author: Anthony Artusa, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The Green and Brown hatched areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The Green areas imply drought removal by the end of the period (D0 or none)

SUMMARY

- * Recent Conditions

- * Dryness in Midwest rapidly intensifying
- * Wetness in portions of Great Plains easing drought conditions in limited areas

- * Outlook

- * Climatology

- * The recent past is a poor predictor of the near future
- * Upcoming fall and winter months are relatively dry
(but precipitation is critical for groundwater/soil moisture recharge)

- * Models

- * ENSO is expected to remain in a neutral phase into the fall and winter months
- * Climate outlooks currently provide minimal guidance beyond climatology
- * Drought conditions expected to persist through the end of the year with improvement on a small scale in some areas

Further Information - Partners

•Today's and Past Recorded Presentations and :

- <http://mrcc.isws.illinois.edu/webinars.htm>
- <http://www.hprcc.unl.edu>

•NOAA's National Climatic Data Center:

- www.ncdc.noaa.gov
 - Monthly climate reports (U.S. & Global): www.ncdc.noaa.gov/sotc/

• NOAA's Climate Prediction Center: www.cpc.ncep.noaa.gov

• Climate Portal: www.climate.gov

• U.S. Drought Portal: www.drought.gov

• National Drought Mitigation Center <http://drought.unl.edu/>

•American Association of State Climatologists

- <http://www.stateclimate.org>

•Regional climate centers

- <http://mrcc.isws.illinois.edu>
- <http://www.hprcc.unl.edu>

IF YOU HAVE QUESTIONS

Climate:

- Stuart Foster: stuart.foster@wku.edu, 270-745-5983
- Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
- John Eise: john.eise@noaa.gov, 816-268-3144
- Mike Timlin: mtimlin@illinois.edu; 217-333-8506
- Natalie Umphlett: numphlett2@unl.edu ; 402 472-6764
- Brian Fuchs: bfuchs2@unl.edu 402 472-6775

Weather:

- crhroc@noaa.gov

Midwest and Great Plains Drought and Climate Webinar

September 19, 2013

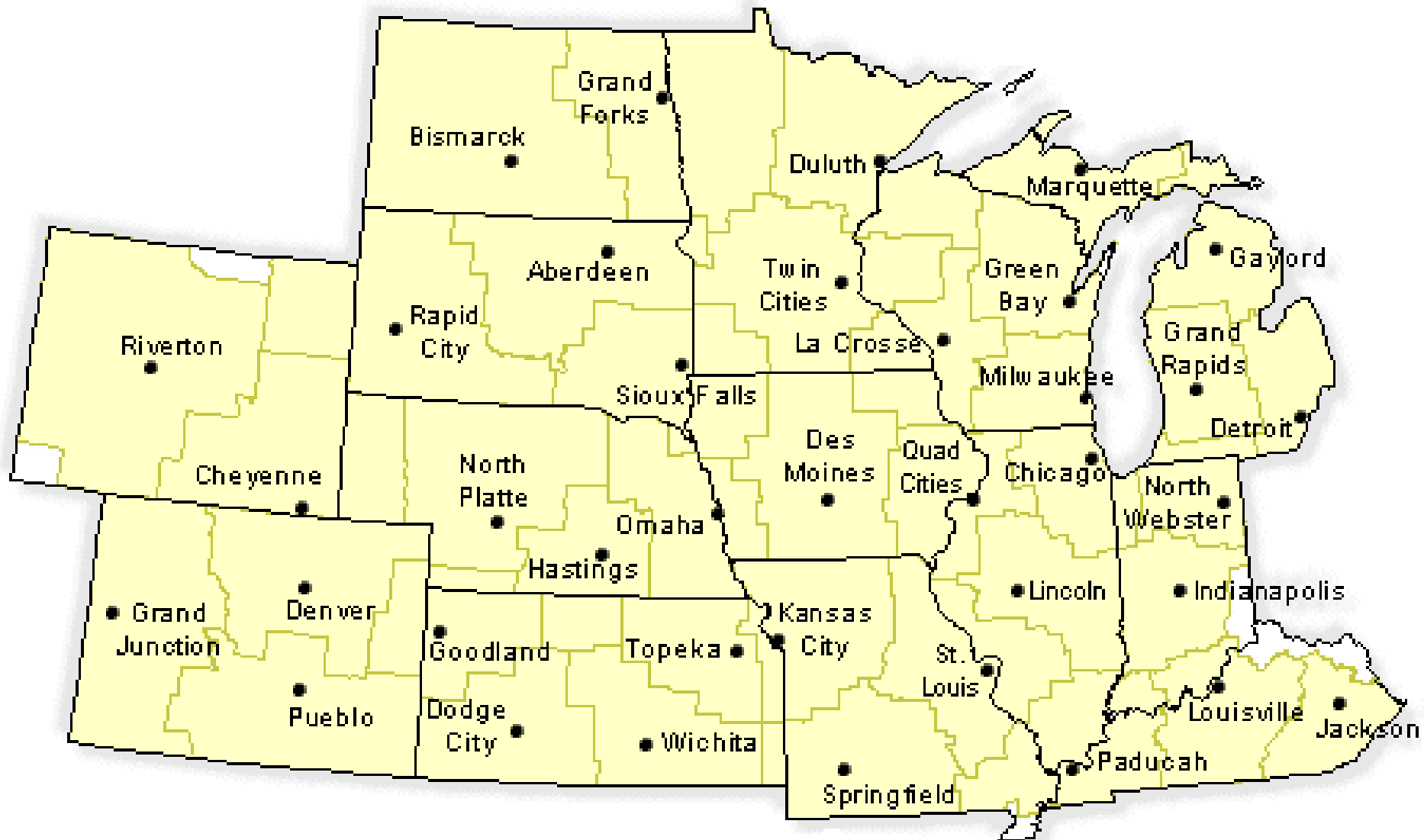
“Central Region Agricultural Update”

Brad Rippey
USDA Meteorologist
Washington, D.C.

Photo by B. Rippey
Saline Co., Nebraska
April 18, 2013



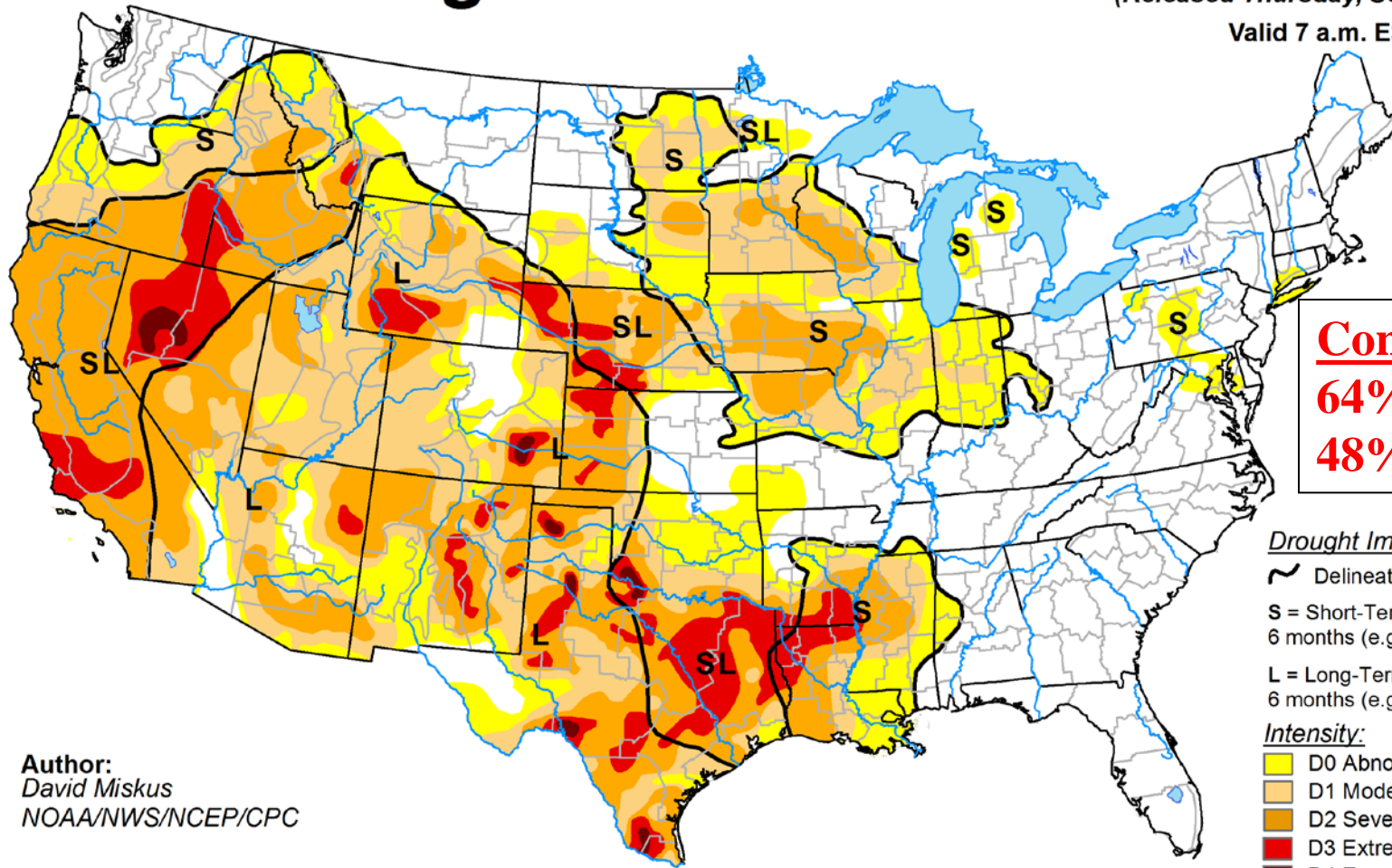
NWS Central Region



U.S. Drought Monitor

September 17, 2013
(Released Thursday, Sep. 19, 2013)

Valid 7 a.m. EST



Contiguous U.S.
64% D0 – D4
48% D1 – D4

Author:
David Miskus
NOAA/NWS/NCEP/CPC

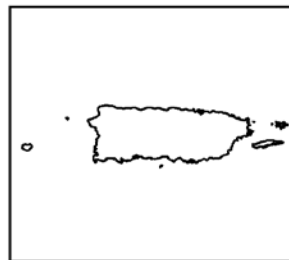
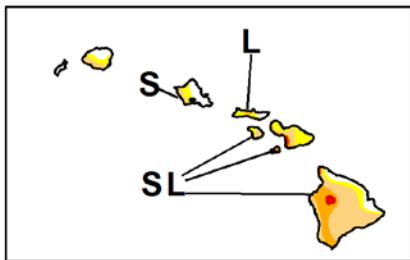
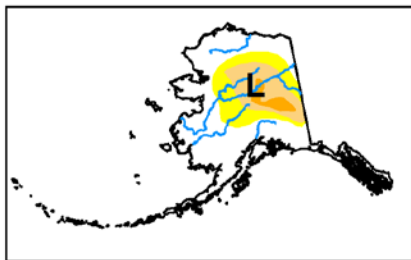
Drought Impact Types:

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Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

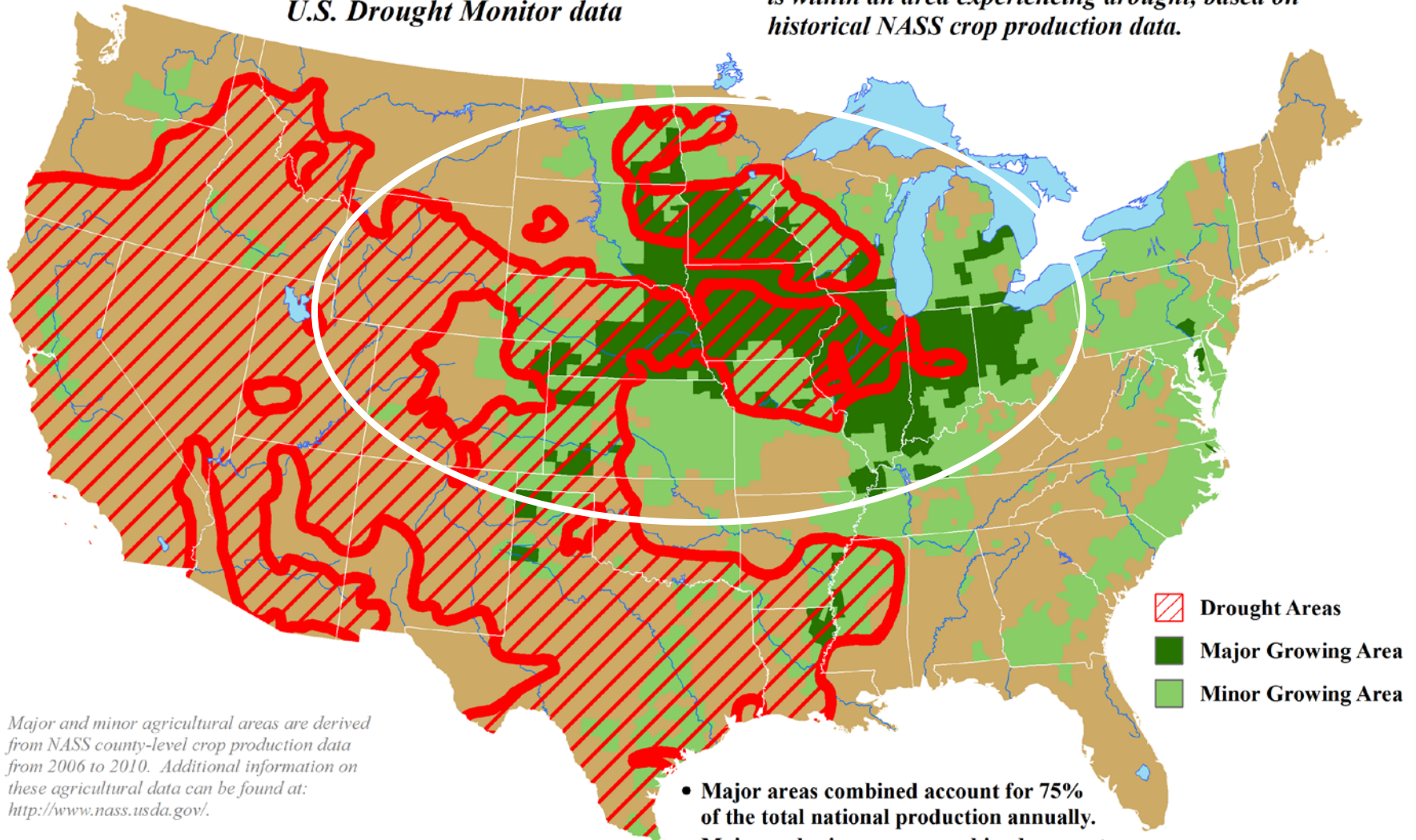


<http://droughtmonitor.unl.edu/>

U.S. Corn Areas Experiencing Drought

Reflects September 17, 2013
U.S. Drought Monitor data

Approximately **55%** of the corn grown in the U.S.
is within an area experiencing drought, based on
historical NASS crop production data.

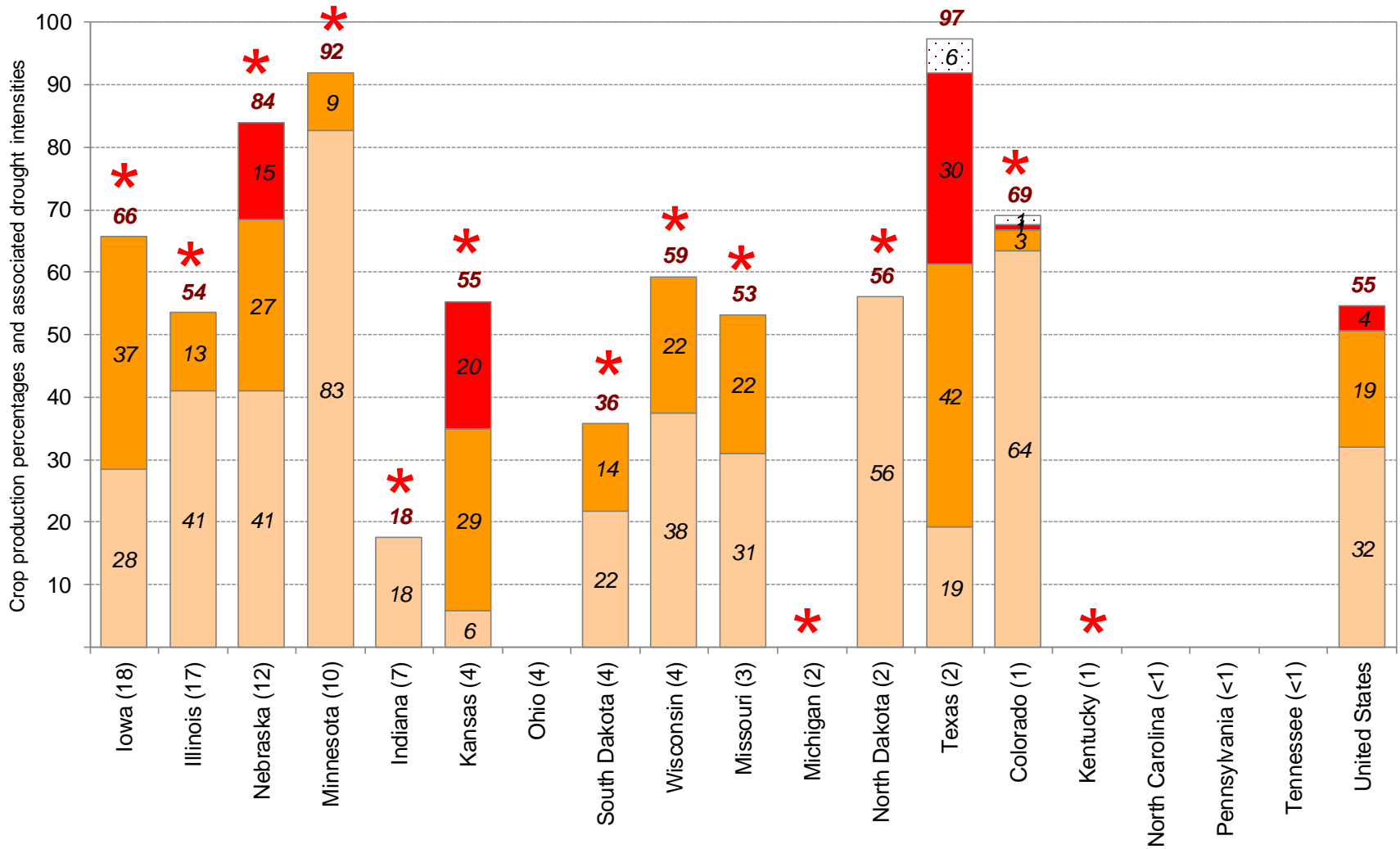


Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

Approximate Percentage of Corn Located in Drought * September 17, 2013



* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.



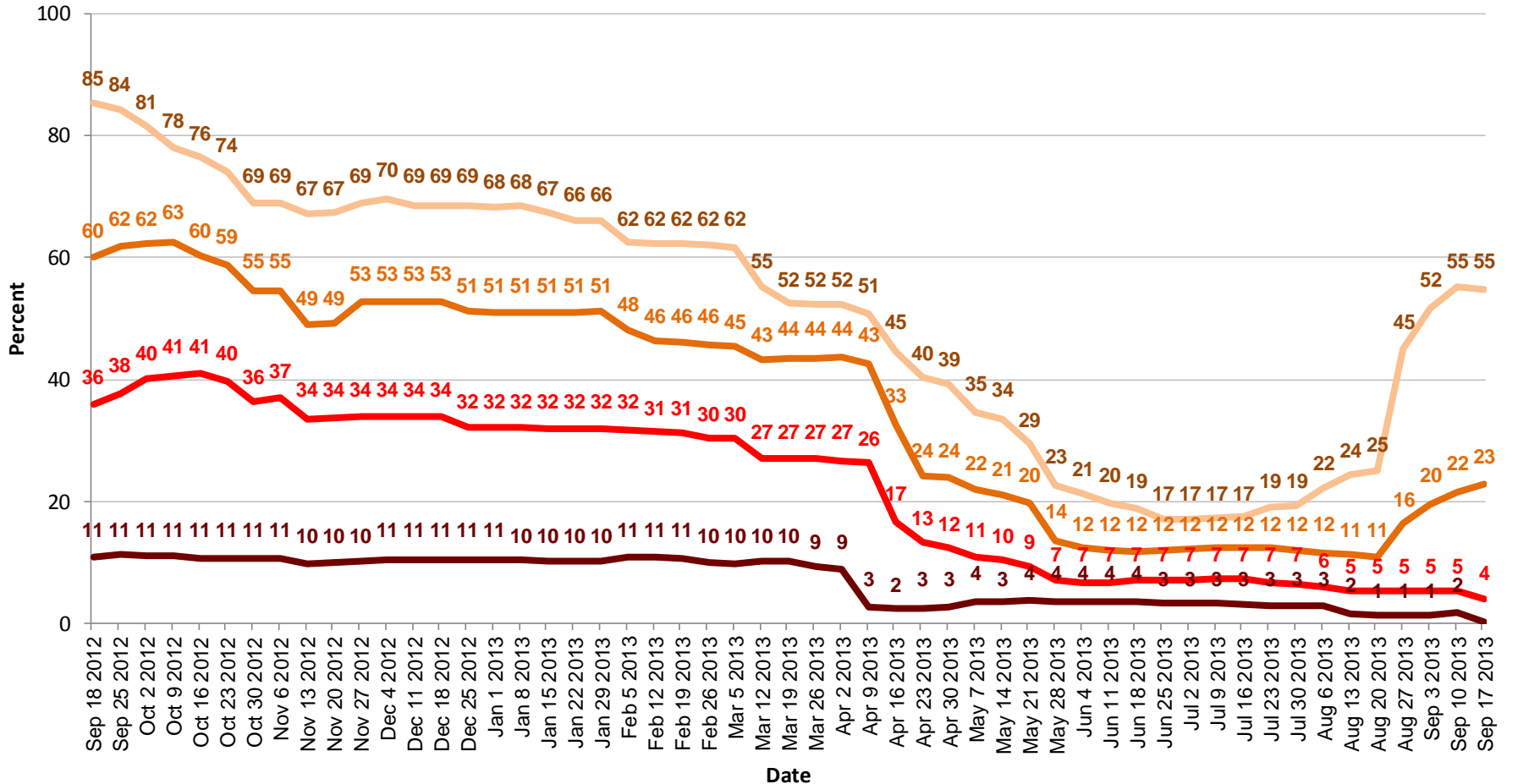
State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 5-year averages from 2006-2010. More information on NASS data can be found at <http://www.nass.usda.gov/>.

*** Central Region state**



Agricultural Weather Assessments
World Agricultural Outlook Board

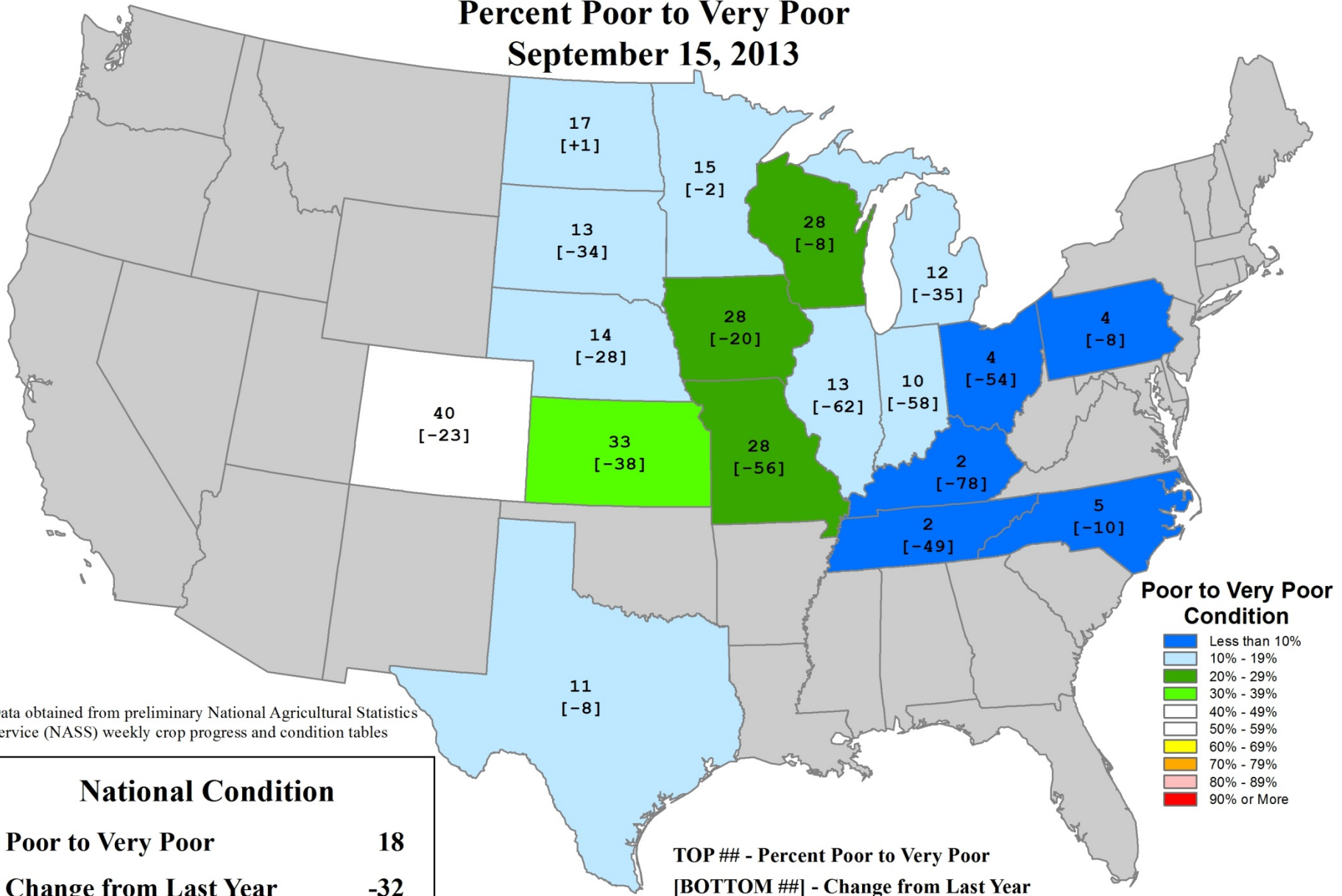
United States Corn Areas Located in Drought



- Moderate or more intense drought (D1+)
- Severe or more intense drought (D2+)
- Extreme or more intense drought (D3+)
- Exceptional drought (D4)

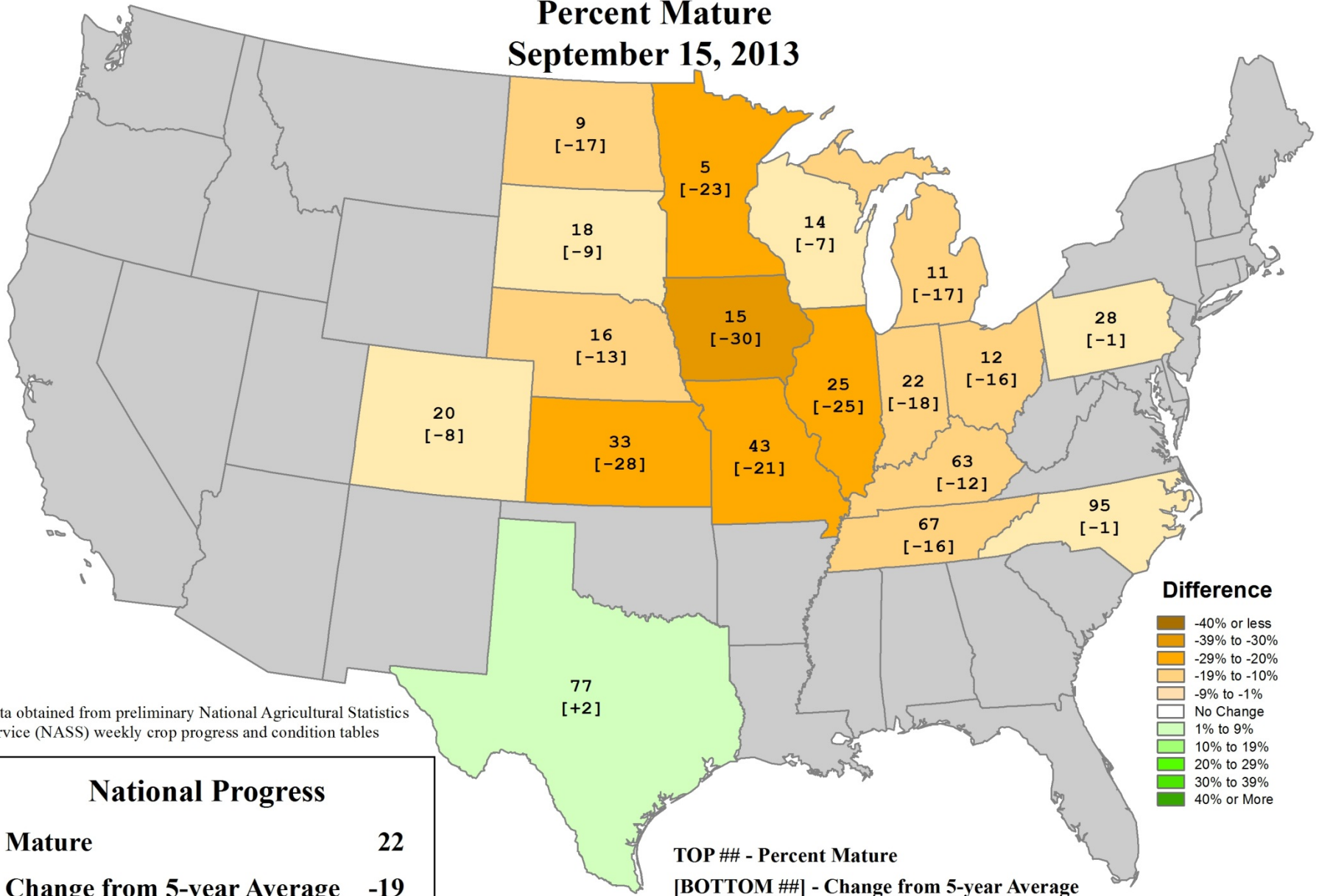
U.S. Corn Conditions

Percent Poor to Very Poor
September 15, 2013



U.S. Corn Progress

Percent Mature
September 15, 2013

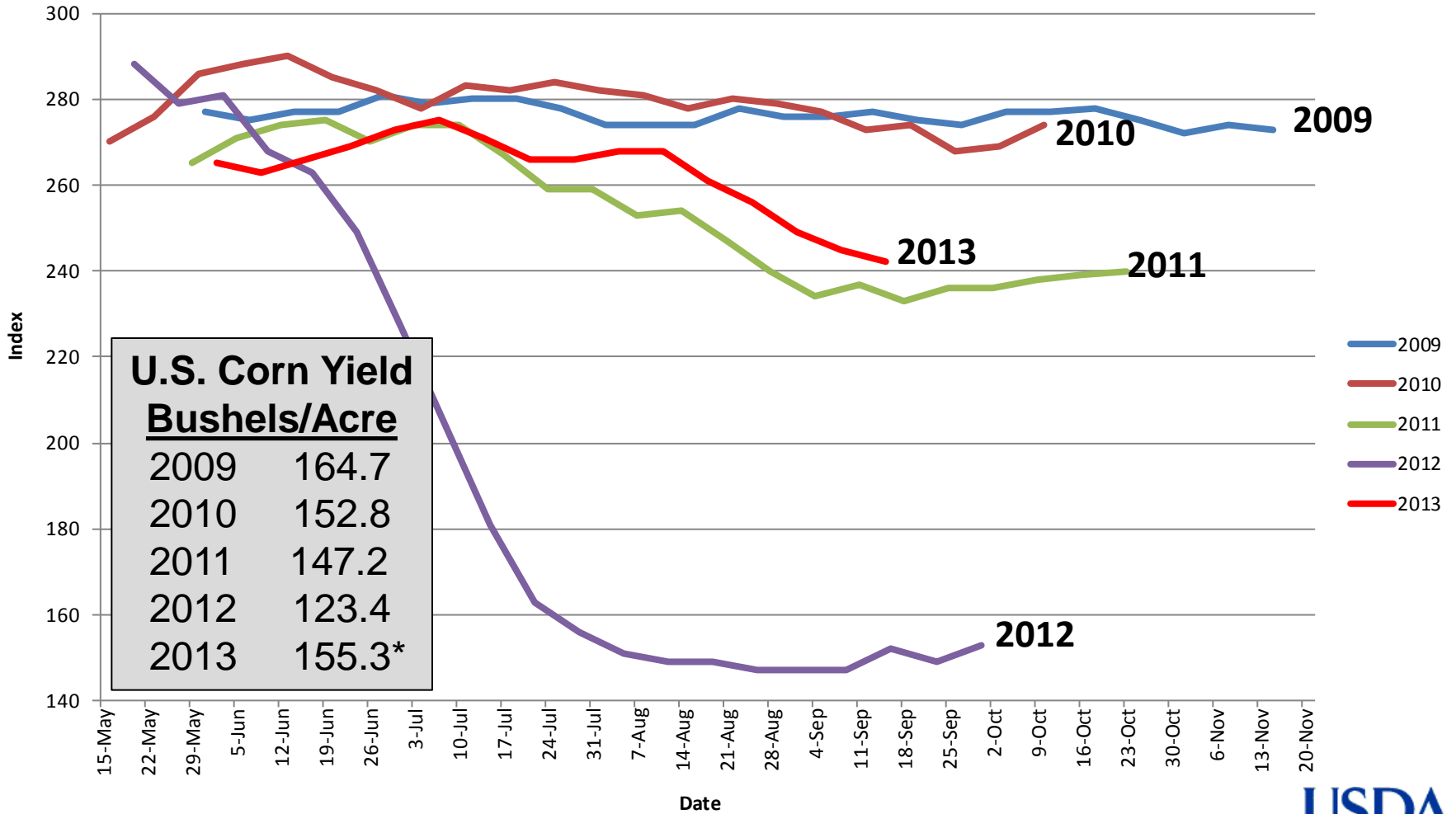


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

Difference

- 40% or less
- 39% to -30%
- 29% to -20%
- 19% to -10%
- 9% to -1%
- No Change
- 1% to 9%
- 10% to 19%
- 20% to 29%
- 30% to 39%
- 40% or More

U.S. CORN Condition Index

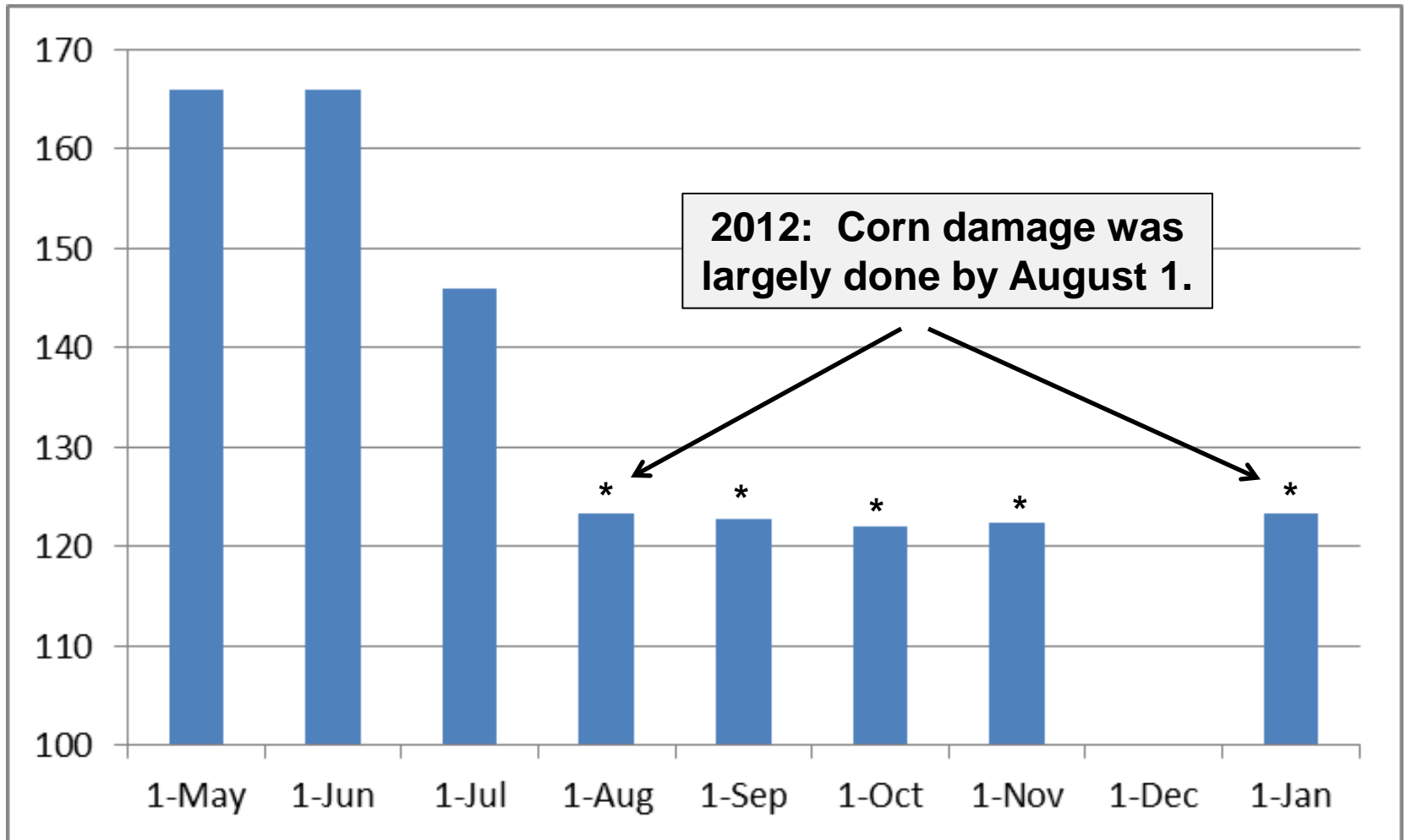


Based on NASS crop progress data.

Index Weighting: Excellent = 4; Good = 3; Fair = 2; Poor = 1; Very Poor = 0



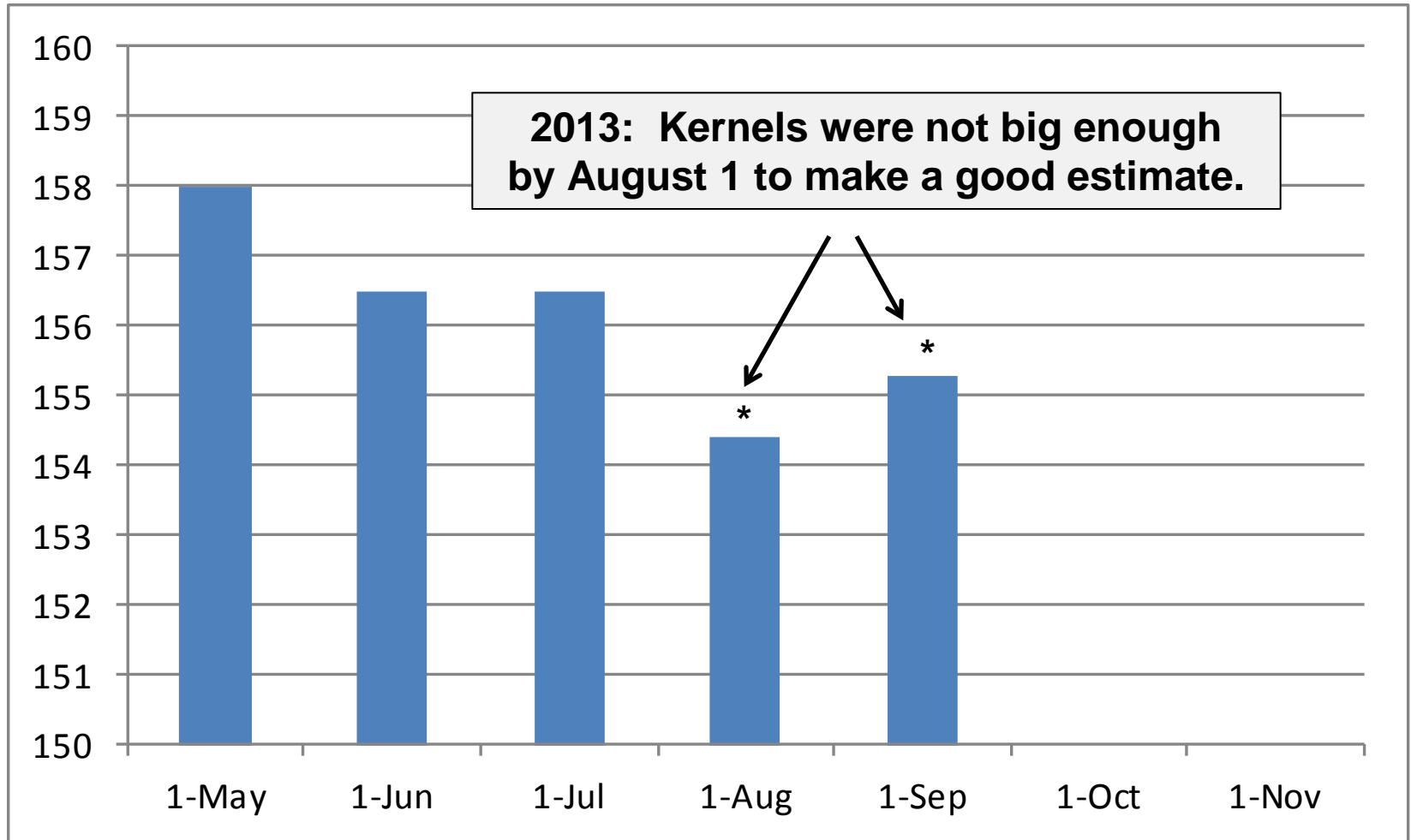
2012 U.S. Corn Yield Forecast (Bushels / Acre)



* Based on field surveys

Source: USDA

2013 U.S. Corn Yield Forecast (Bushels / Acre)



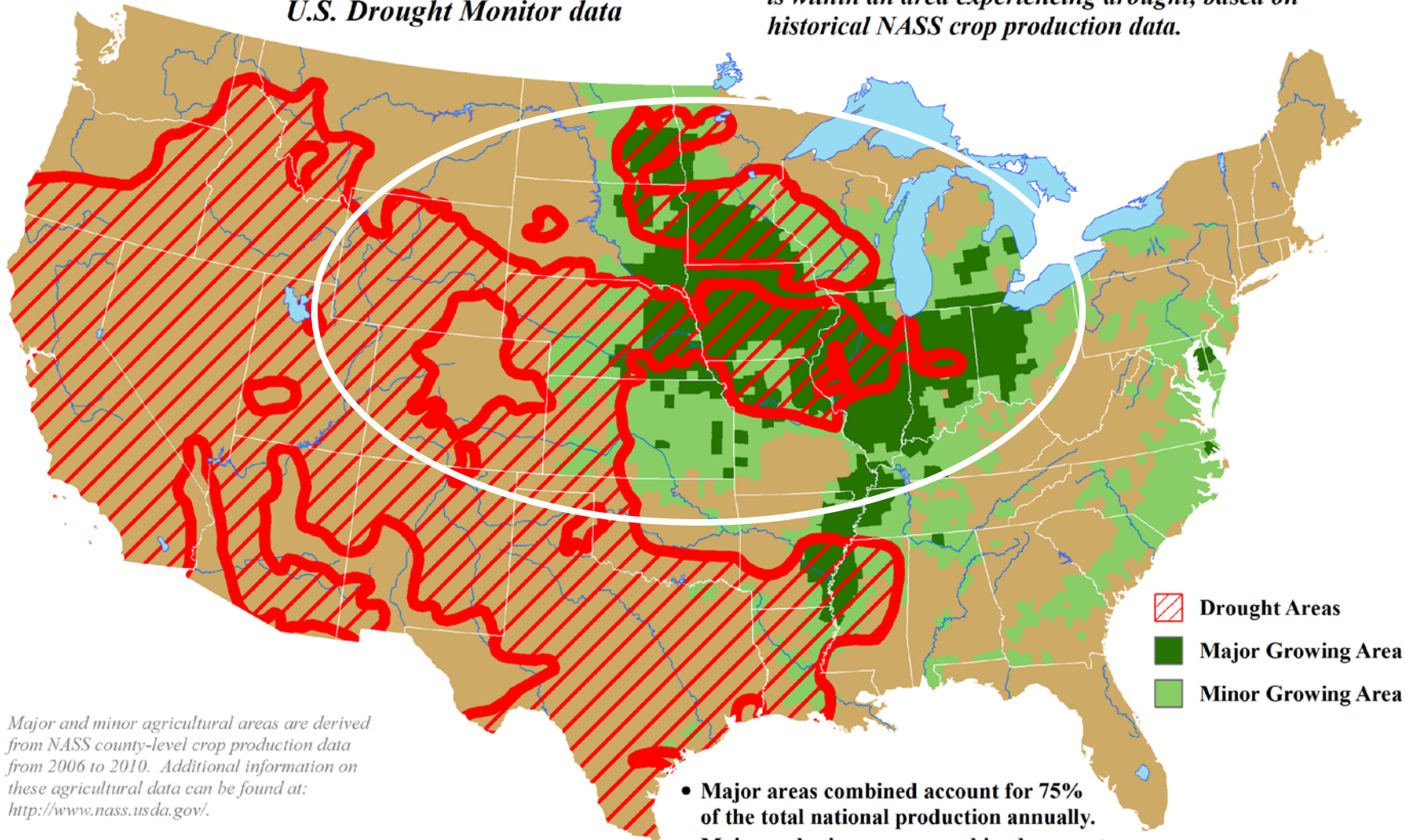
* Based on field surveys

Source: USDA

U.S. Soybean Areas Experiencing Drought

Reflects September 17, 2013
U.S. Drought Monitor data

Approximately 45% of the soybeans grown in the U.S.
is within an area experiencing drought, based on
historical NASS crop production data.

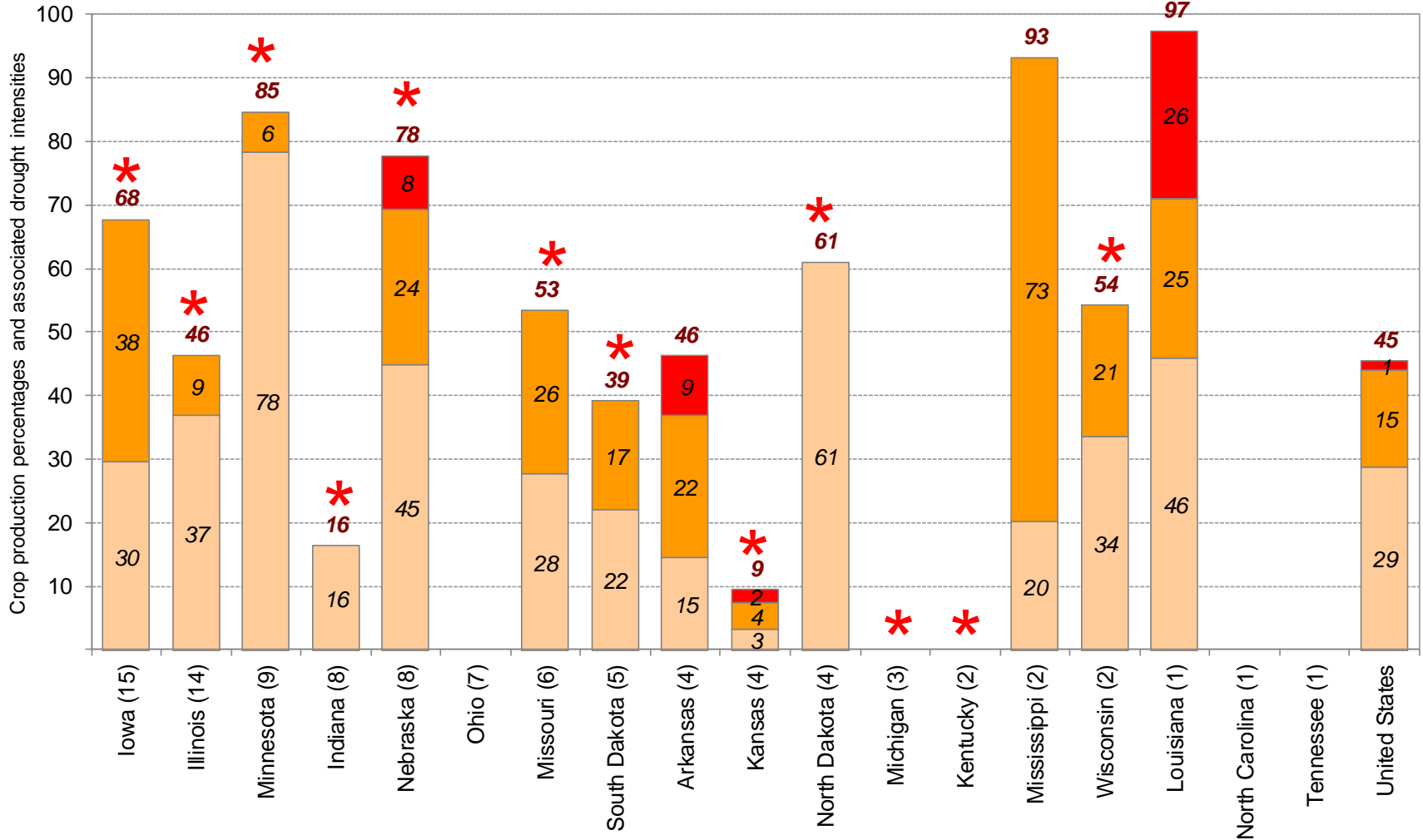


Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

Approximate Percentage of Soybeans Located in Drought * September 17, 2013



* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.



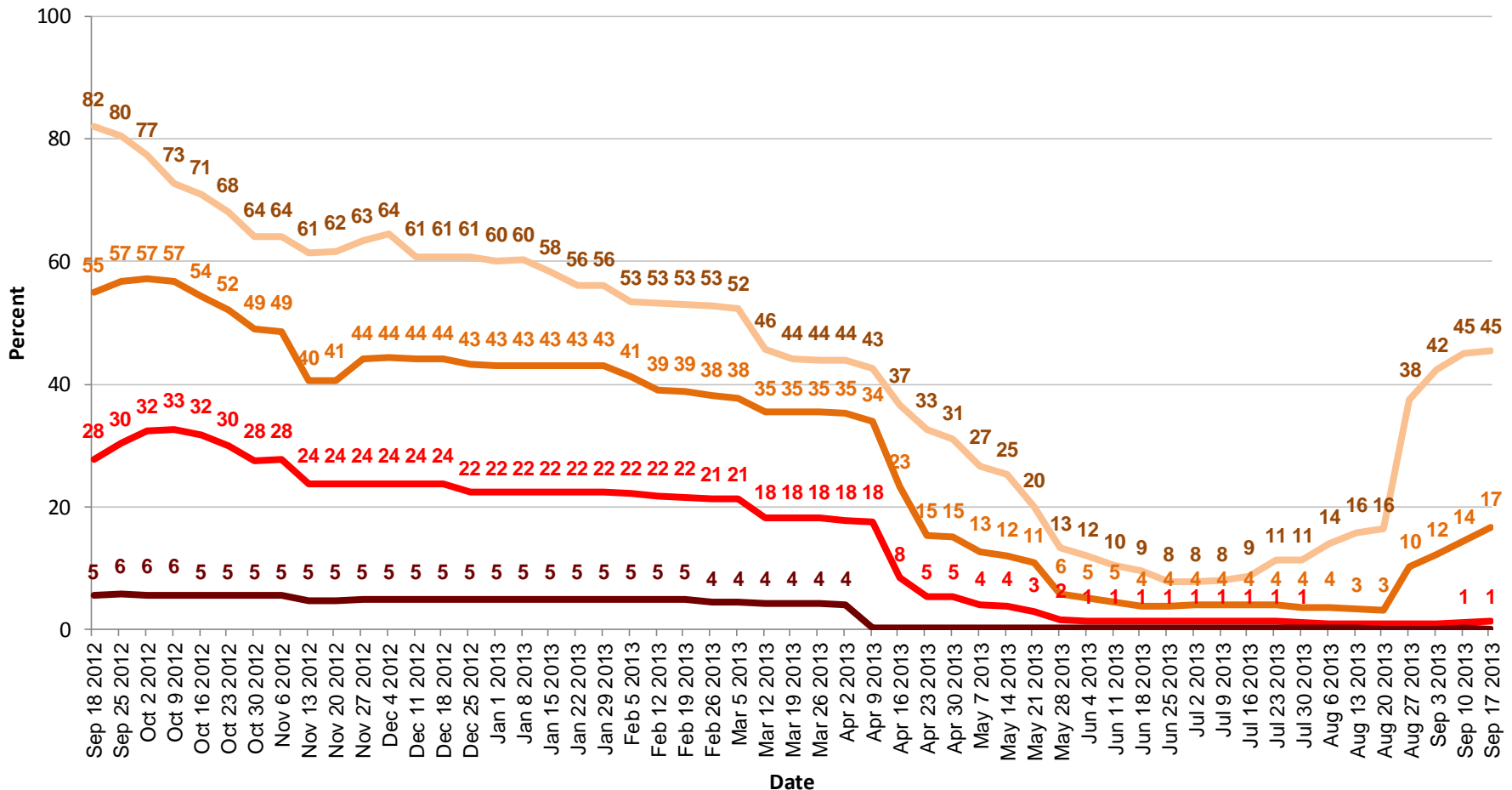
State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 5-year averages from 2006-2010. More information on NASS data can be found at <http://www.nass.usda.gov/>.

*** Central Region state**



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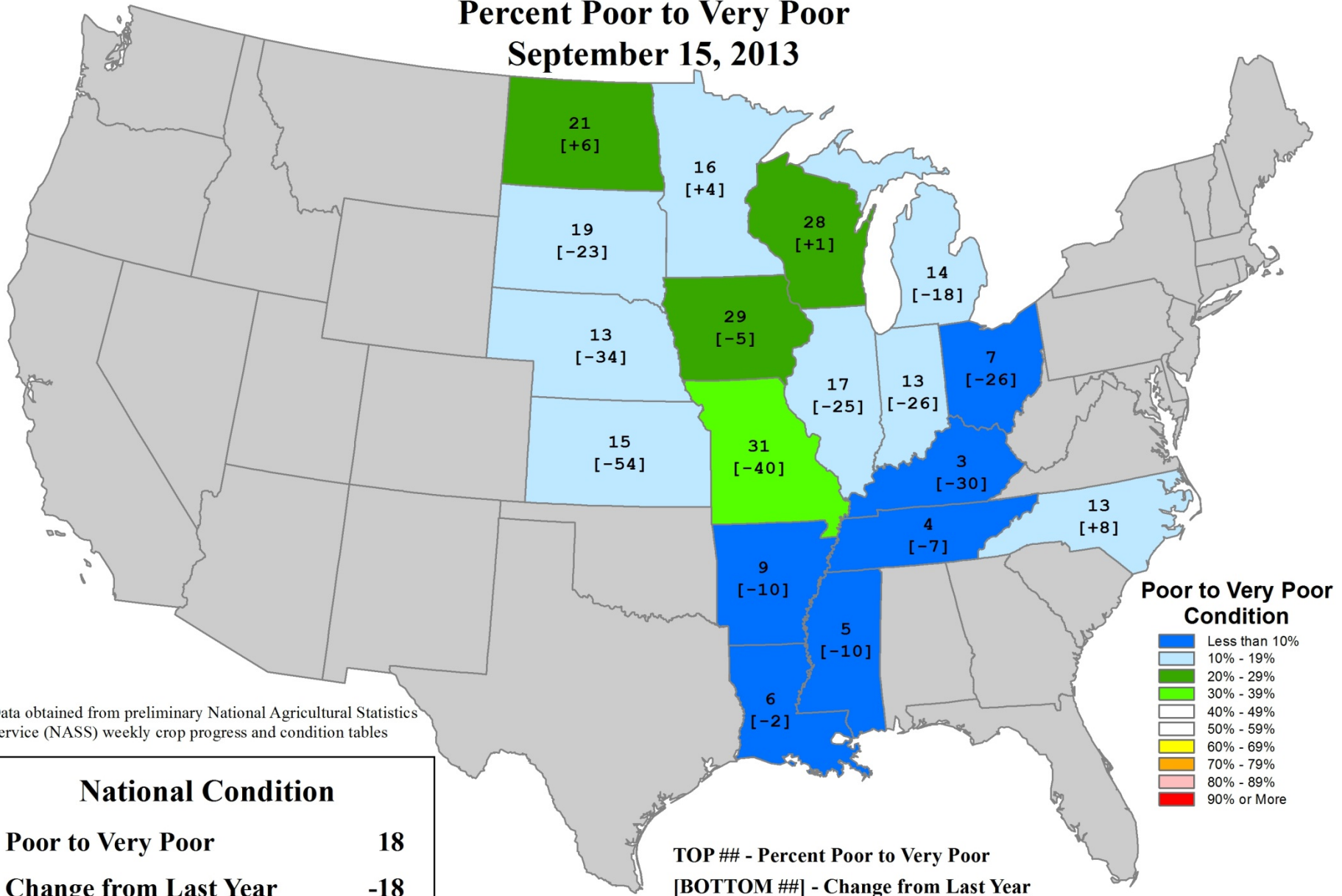
United States Soybean Areas Located in Drought



- Moderate or more intense drought (D1+)
- Severe or more intense drought (D2+)
- Extreme or more intense drought (D3+)
- Exceptional drought (D4)

U.S. Soybean Conditions

Percent Poor to Very Poor
September 15, 2013



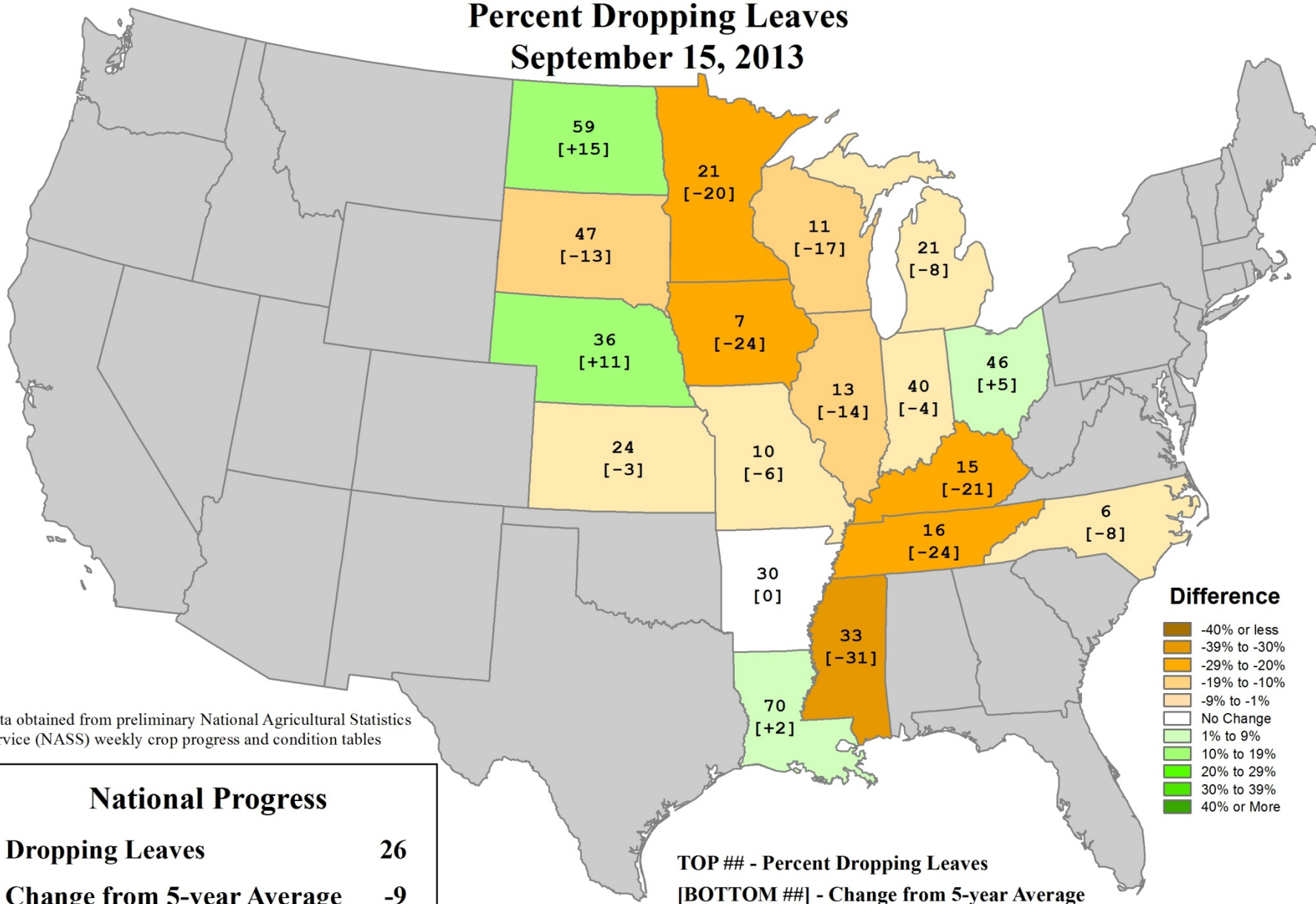
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

Poor to Very Poor Condition

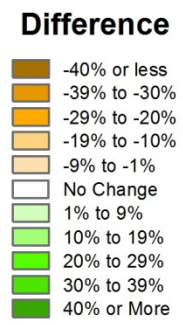
- Less than 10%
- 10% - 19%
- 20% - 29%
- 30% - 39%
- 40% - 49%
- 50% - 59%
- 60% - 69%
- 70% - 79%
- 80% - 89%
- 90% or More

U.S. Soybeans Progress

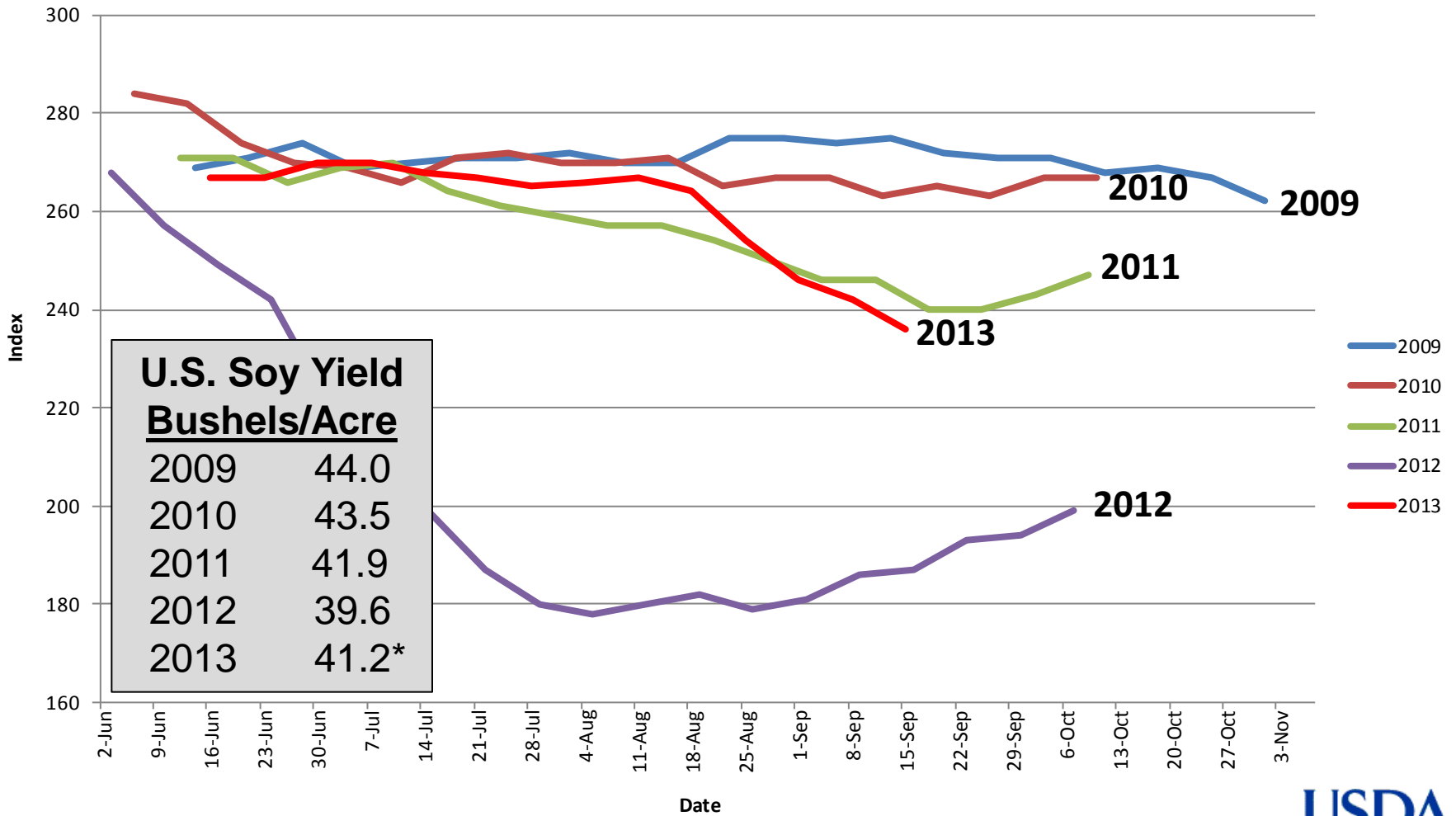
Percent Dropping Leaves
September 15, 2013



Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables



U.S. SOYBEAN Condition Index



U.S. Soy Yield
Bushels/Acre

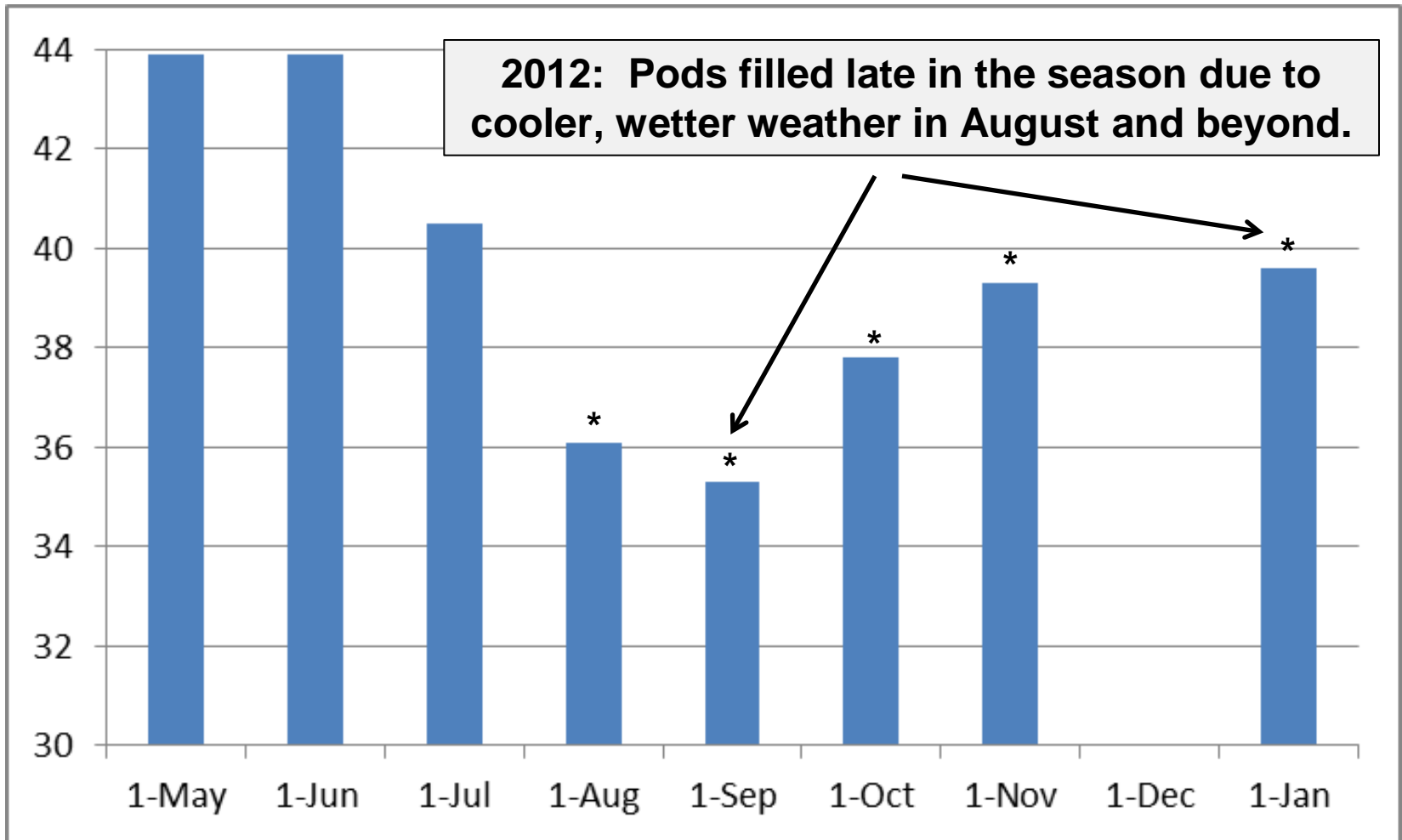
2009	44.0
2010	43.5
2011	41.9
2012	39.6
2013	41.2*

Index Weighting: Excellent = 4; Good = 3; Fair = 2; Poor = 1; Very Poor = 0



Based on NASS crop progress data.

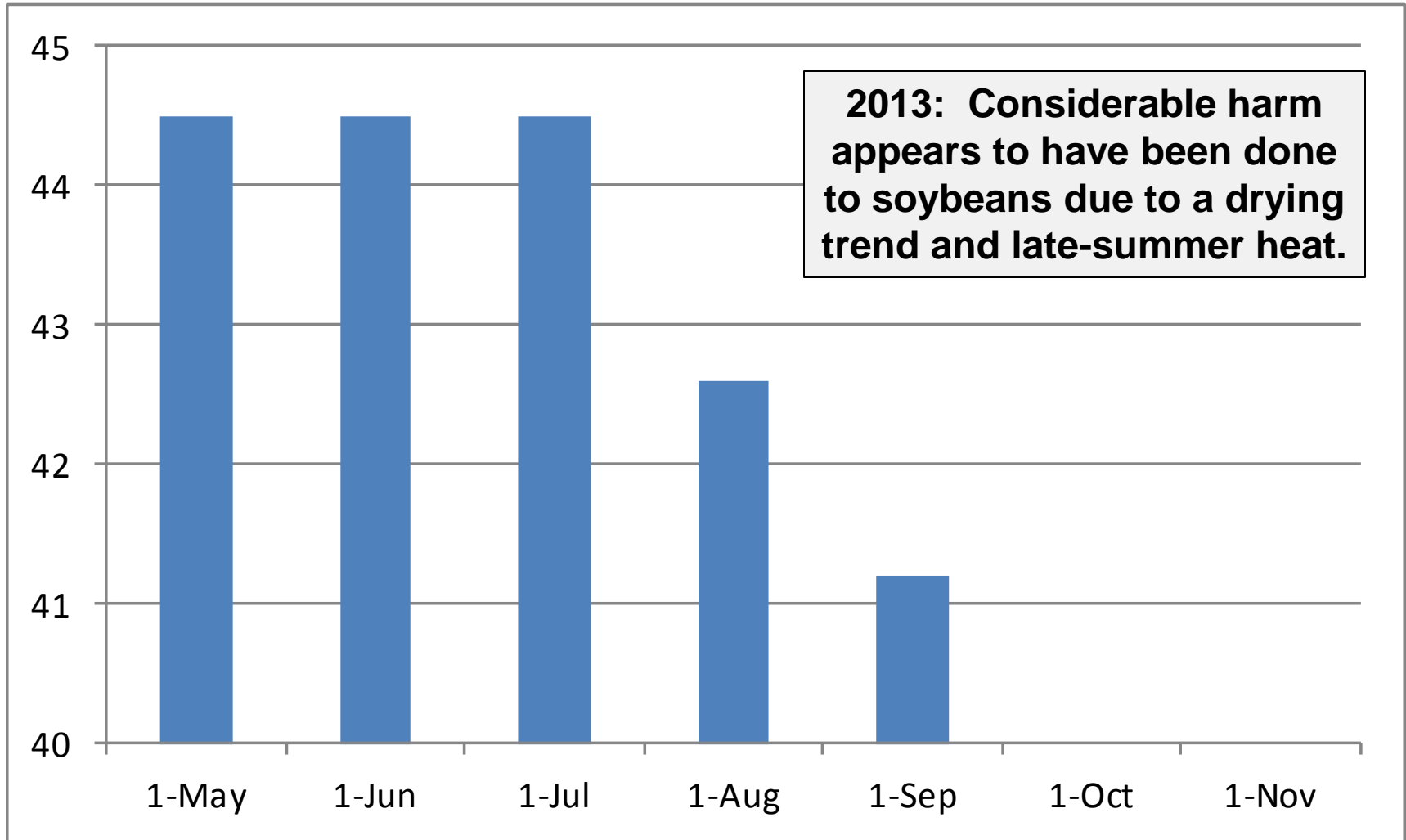
2012 U.S. Soybean Yield Forecast (Bushels / Acre)



* Based on field surveys

Source: USDA

2013 U.S. Soybean Yield Forecast (Bushels / Acre)



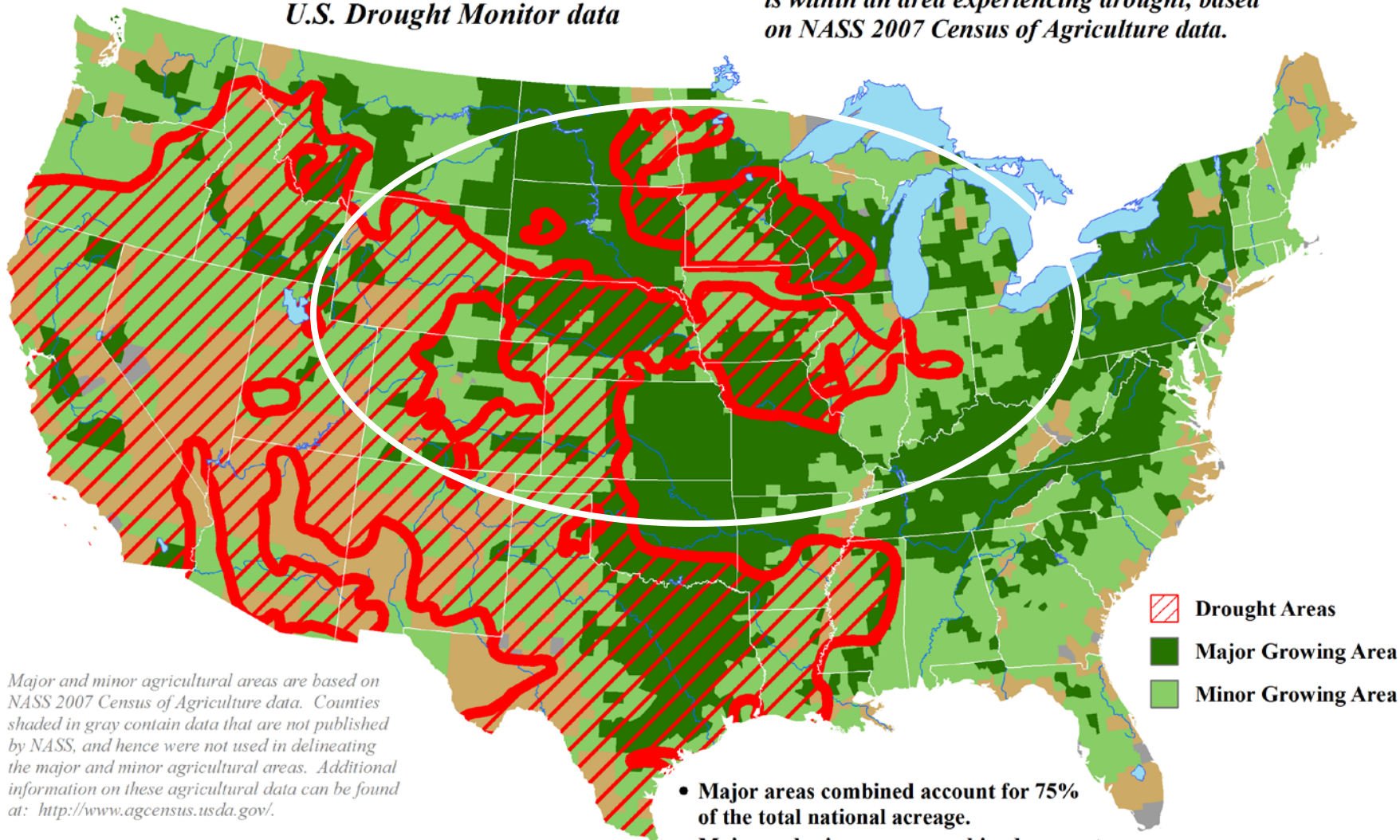
* Based on field surveys

Source: USDA

U.S. Hay Areas Experiencing Drought

Reflects September 17, 2013
U.S. Drought Monitor data

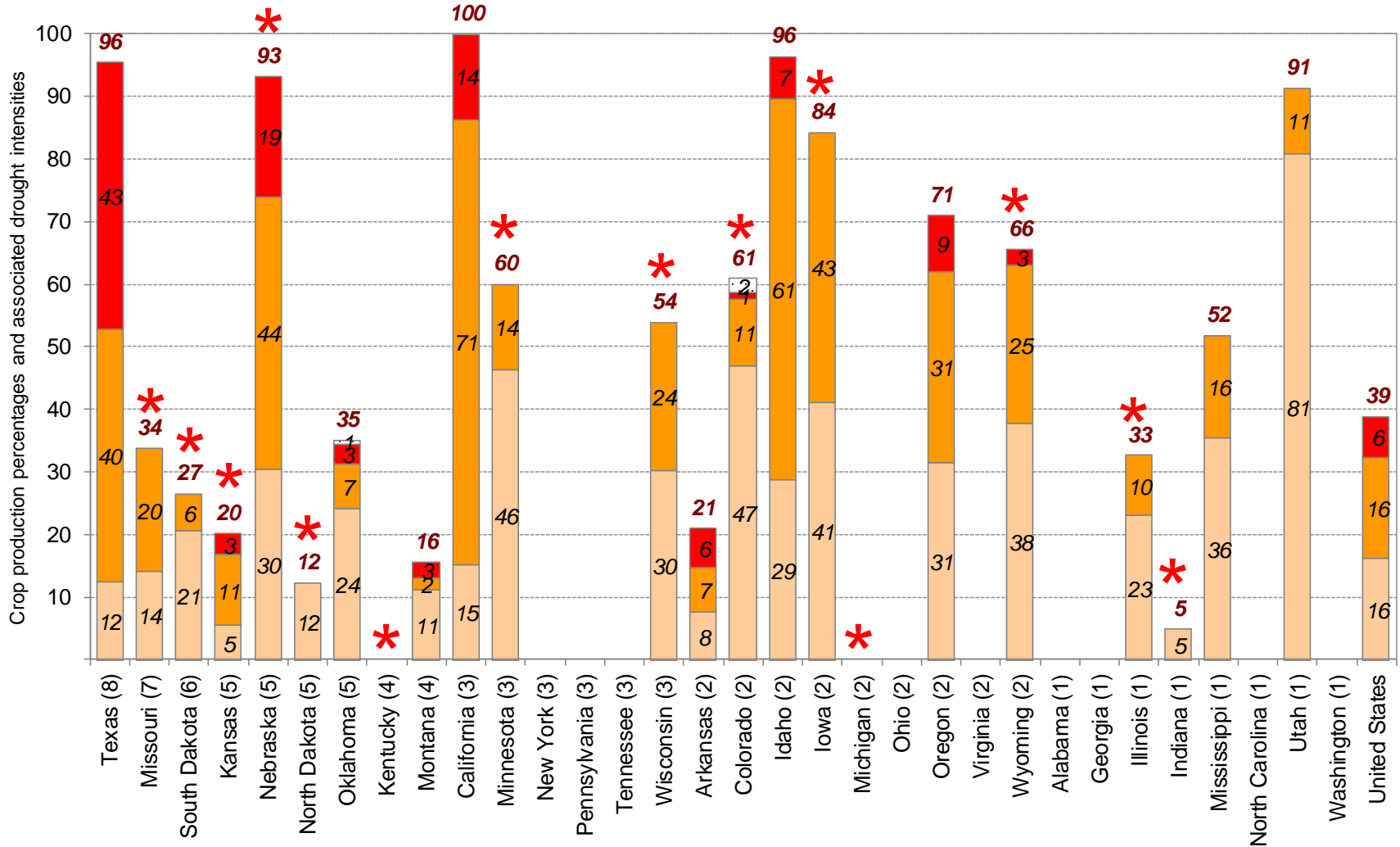
Approximately 39% of the domestic hay acreage
is within an area experiencing drought, based
on NASS 2007 Census of Agriculture data.



Major and minor agricultural areas are based on NASS 2007 Census of Agriculture data. Counties shaded in gray contain data that are not published by NASS, and hence were not used in delineating the major and minor agricultural areas. Additional information on these agricultural data can be found at: <http://www.agcensus.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

Approximate Percentage of Hay Located in Drought * September 17, 2013



* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.



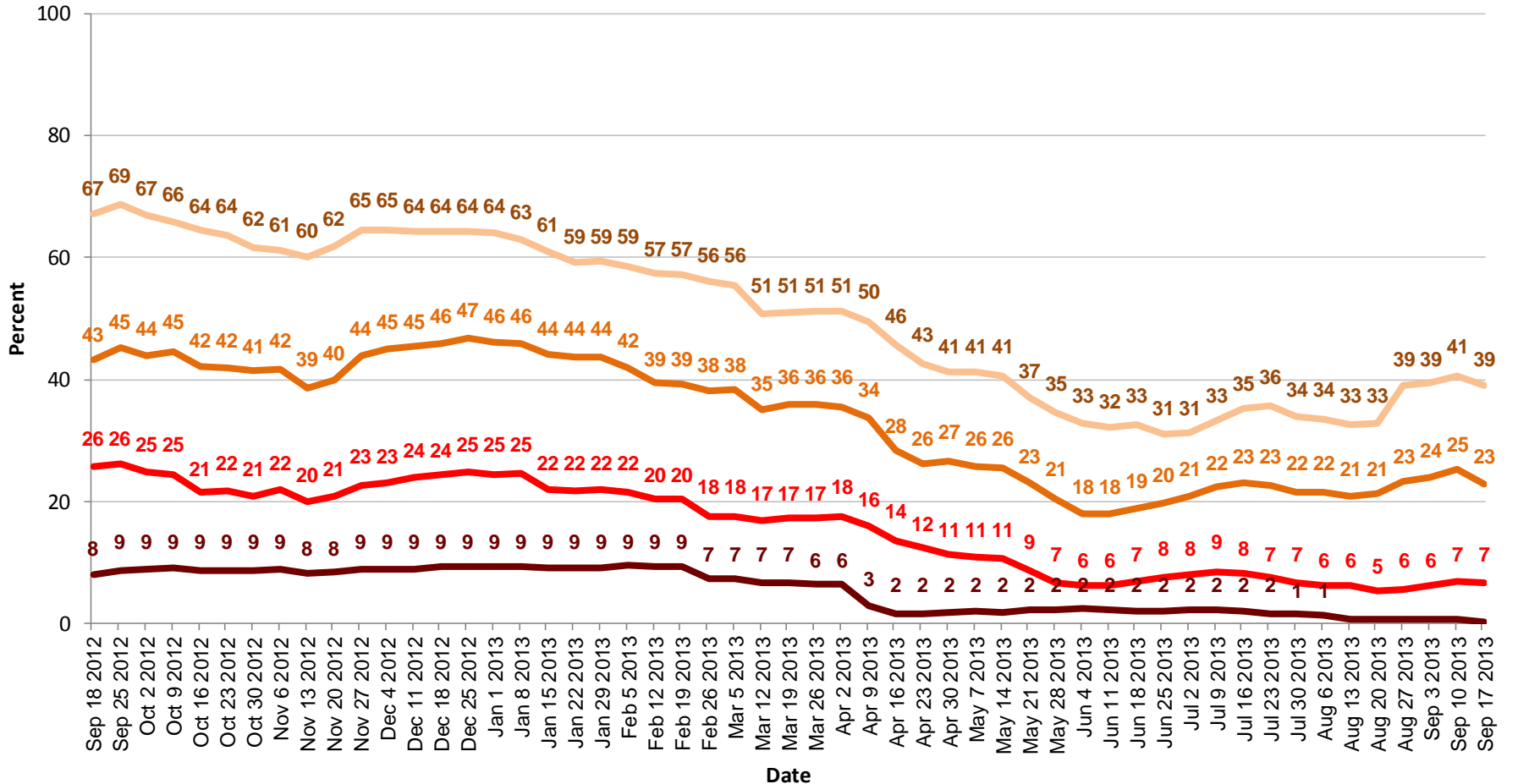
State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 2007 Census of Agriculture data. More information on NASS data can be found at <http://www.nass.usda.gov/>.

*** Central Region state**



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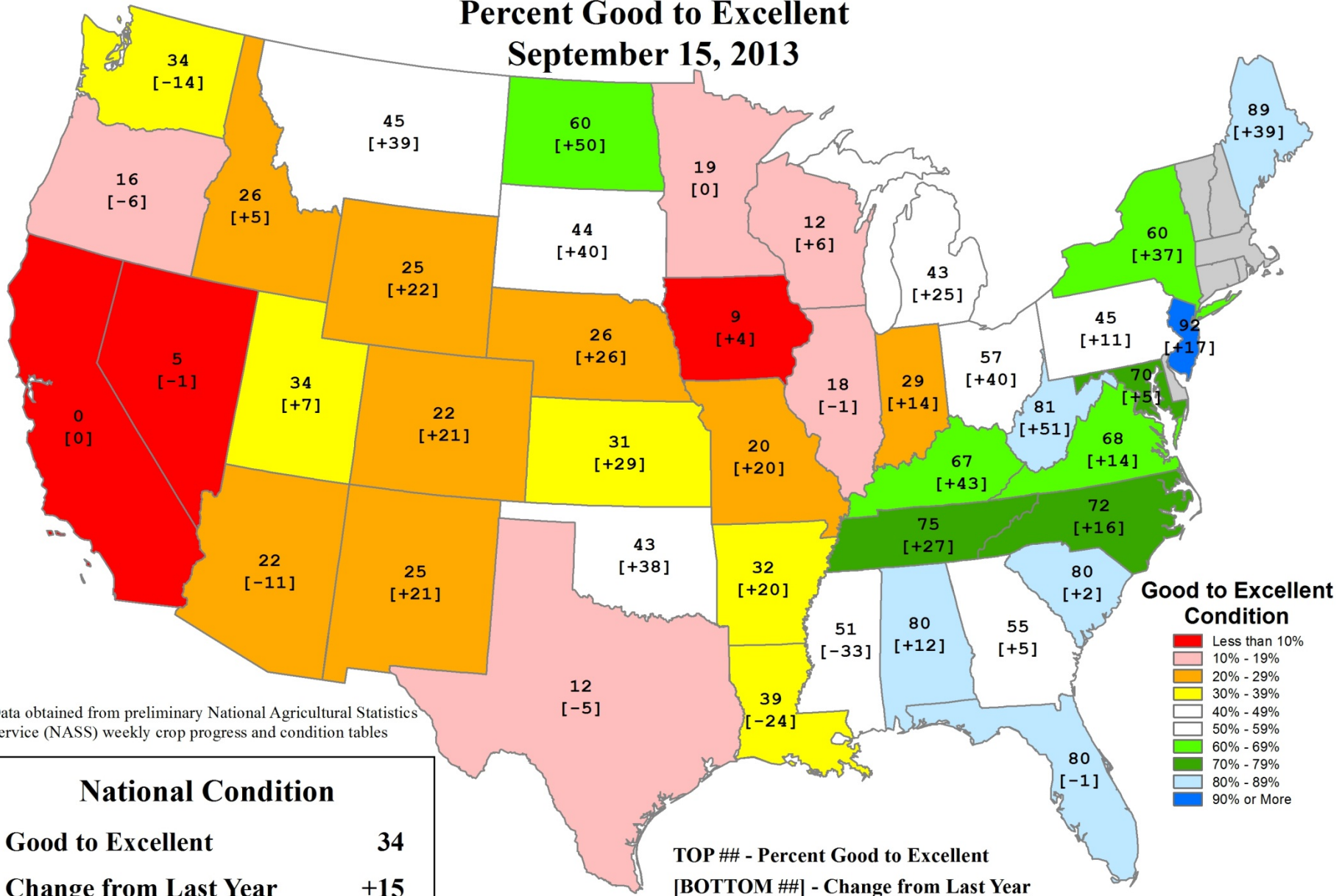
United States Hay Areas Located in Drought



- Moderate or more intense drought (D1+)
- Severe or more intense drought (D2+)
- Extreme or more intense drought (D3+)
- Exceptional drought (D4)

U.S. Pasture and Range Conditions

Percent Good to Excellent
September 15, 2013



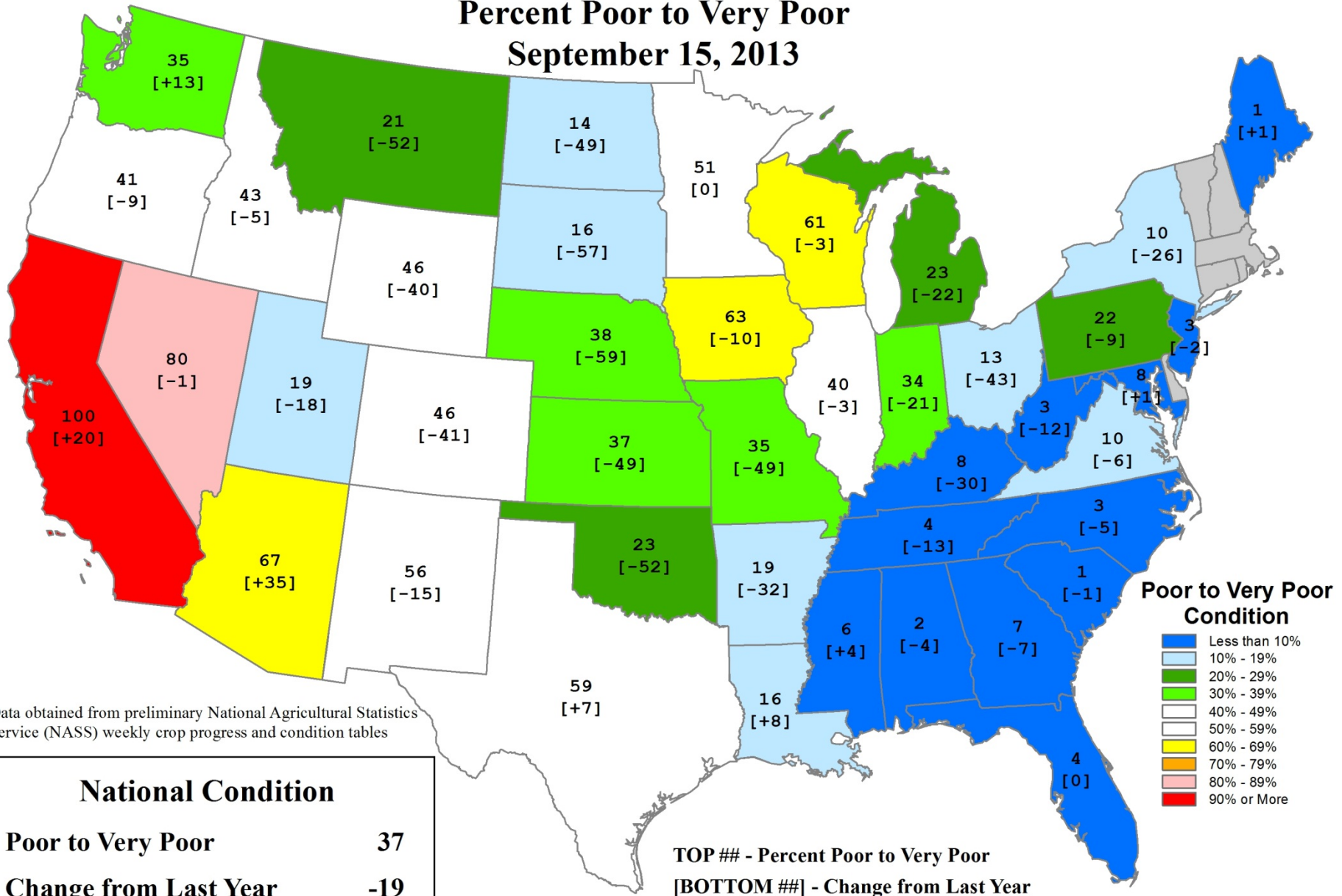
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Condition	
Good to Excellent	34
Change from Last Year	+15

TOP ## - Percent Good to Excellent
[BOTTOM ##] - Change from Last Year

U.S. Pasture and Range Conditions

Percent Poor to Very Poor
September 15, 2013

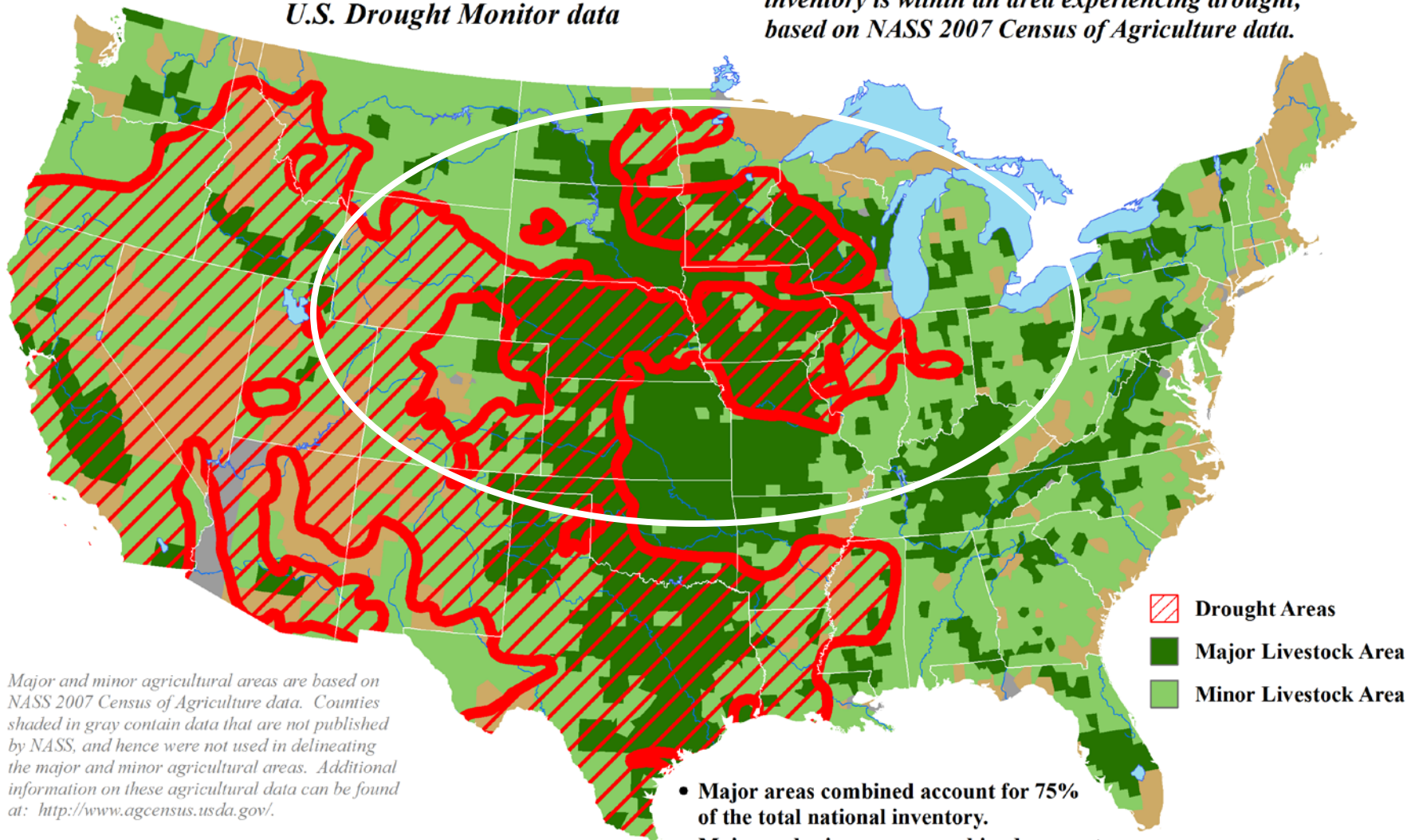


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

U.S. Cattle Areas Experiencing Drought

Reflects September 17, 2013
U.S. Drought Monitor data

Approximately 53% of the domestic cattle
inventory is within an area experiencing drought,
based on NASS 2007 Census of Agriculture data.

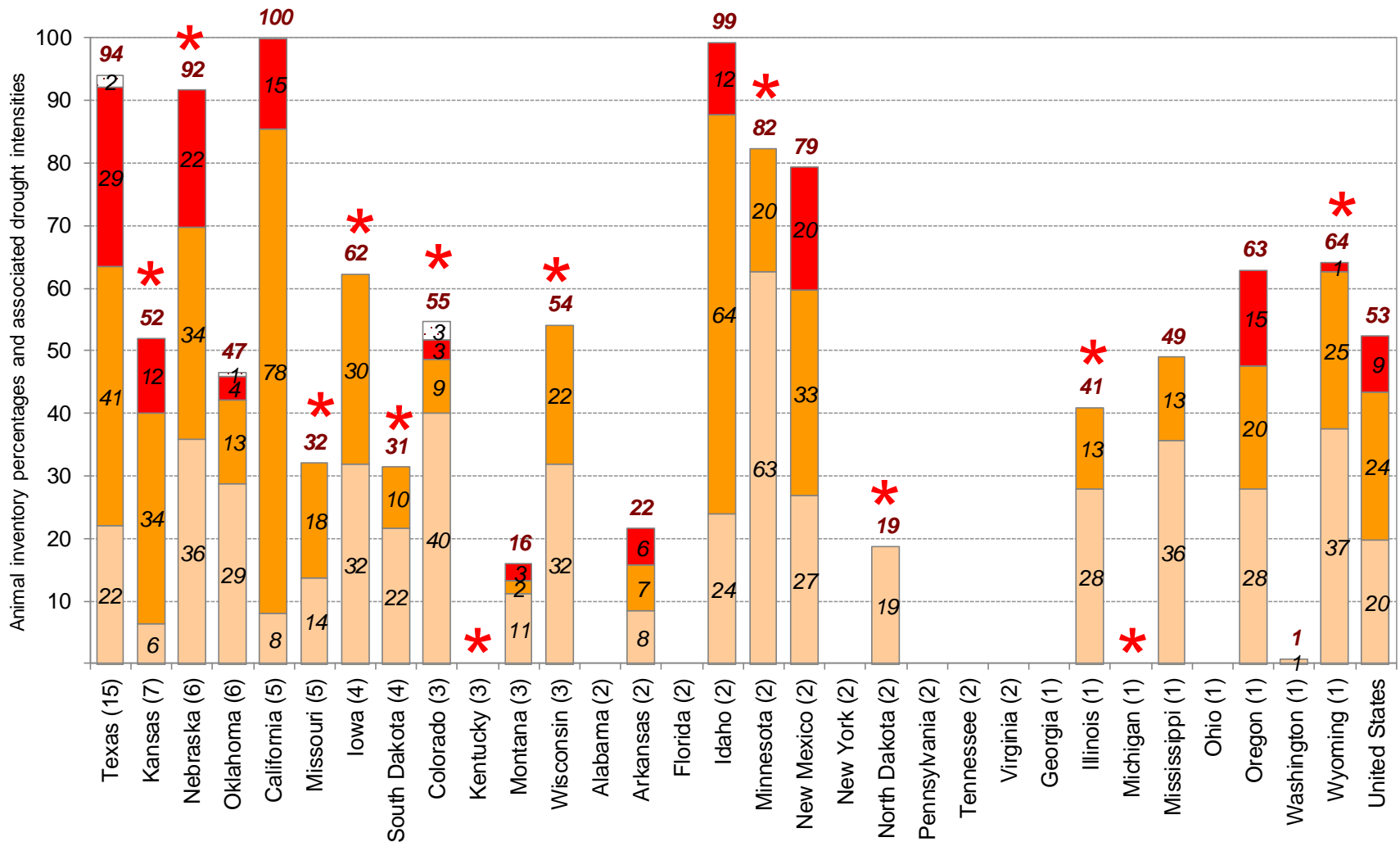


Major and minor agricultural areas are based on NASS 2007 Census of Agriculture data. Counties shaded in gray contain data that are not published by NASS, and hence were not used in delineating the major and minor agricultural areas. Additional information on these agricultural data can be found at: <http://www.agcensus.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national inventory.
- Major and minor areas combined account for 99% of the total national inventory.

Approximate Percentage of Cattle Located in Drought * September 17, 2013



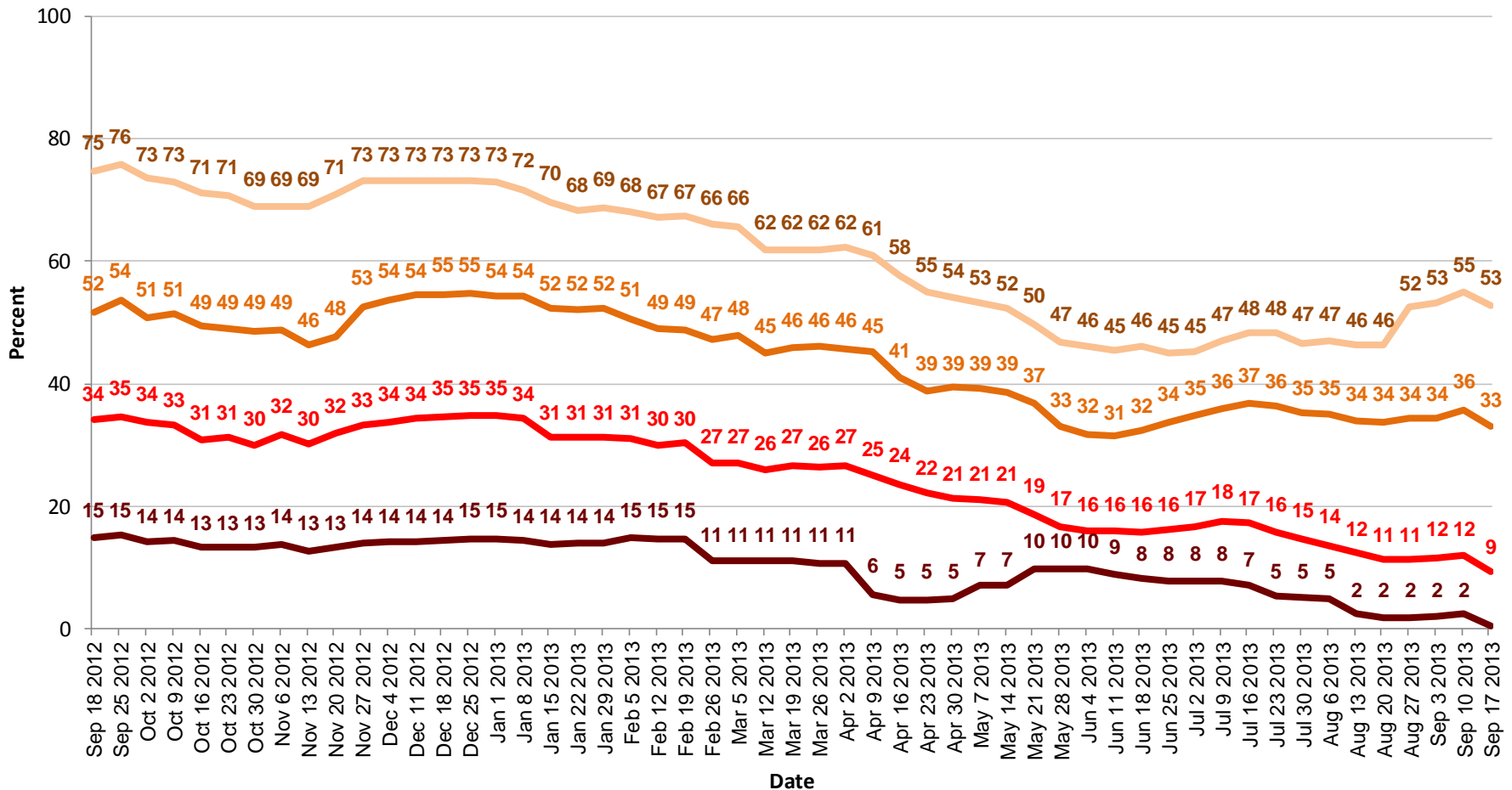
* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.



State contributions to the total national inventory (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 2007 Census of Agriculture data. More information on NASS data can be found at <http://www.nass.usda.gov/>.

*** Central Region state**

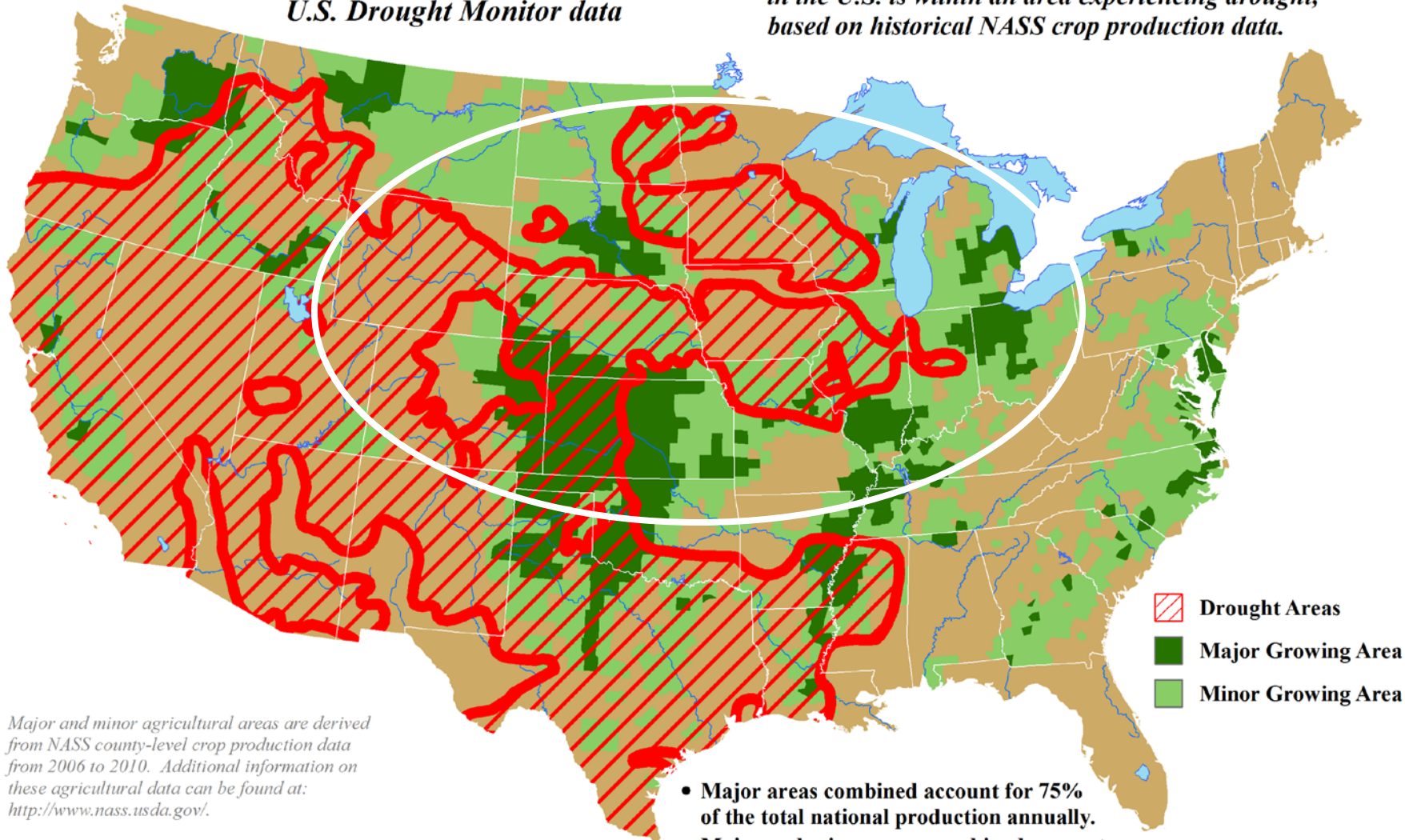
United States Cattle Areas Located in Drought



U.S. Winter Wheat Areas Experiencing Drought

Reflects September 17, 2013
U.S. Drought Monitor data

Approximately 43% of the winter wheat grown
in the U.S. is within an area experiencing drought,
based on historical NASS crop production data.

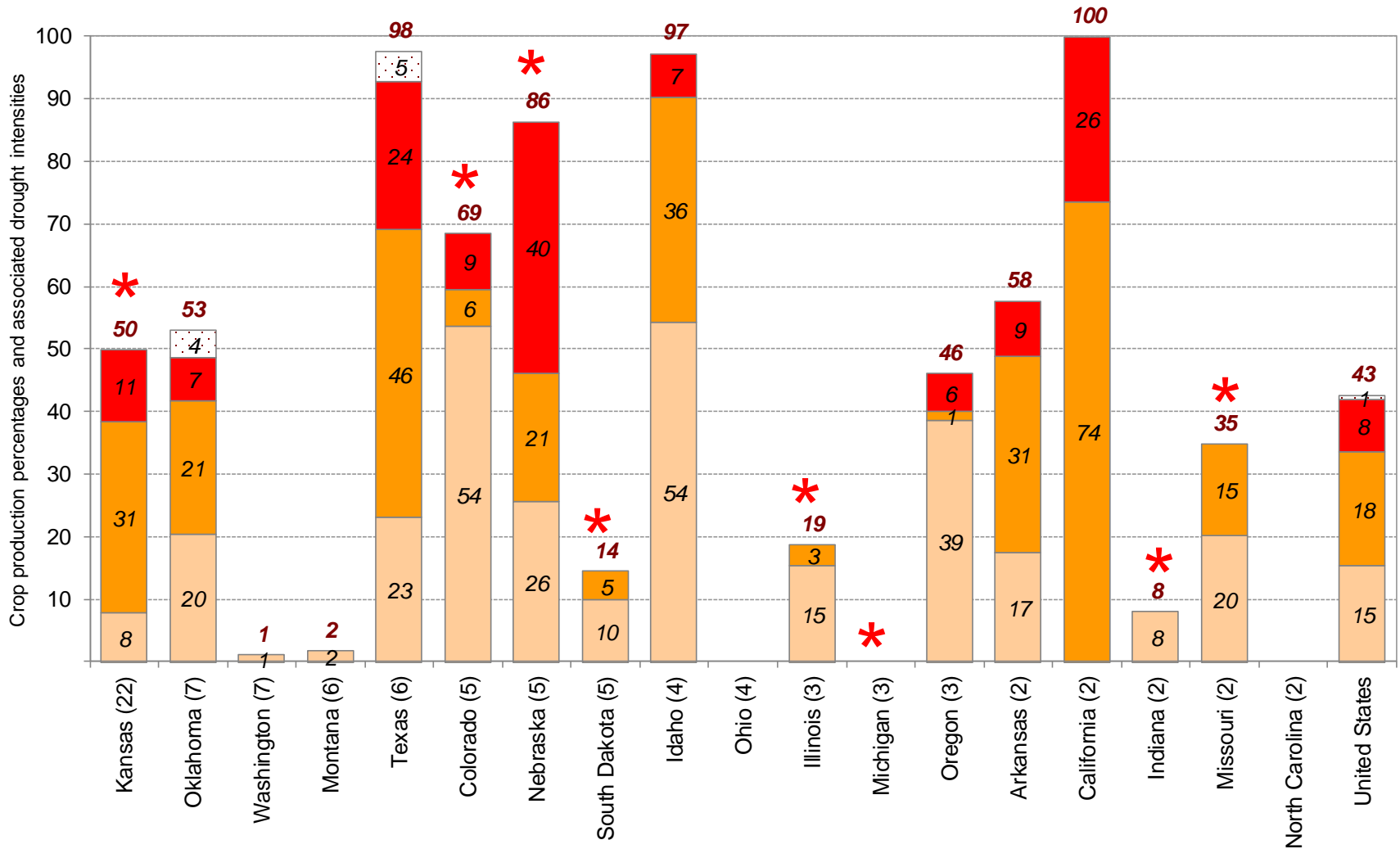


Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major areas combined account for 75% of the total national production annually.
- Major and minor areas combined account for 99% of the total national production annually.

Approximate Percentage of Winter Wheat Located in Drought * September 17, 2013



* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.

Percent in Moderate Drought (D1)
 Percent in Severe Drought (D2)
 Percent in Extreme Drought (D3)
 Percent in Exceptional Drought (D4)

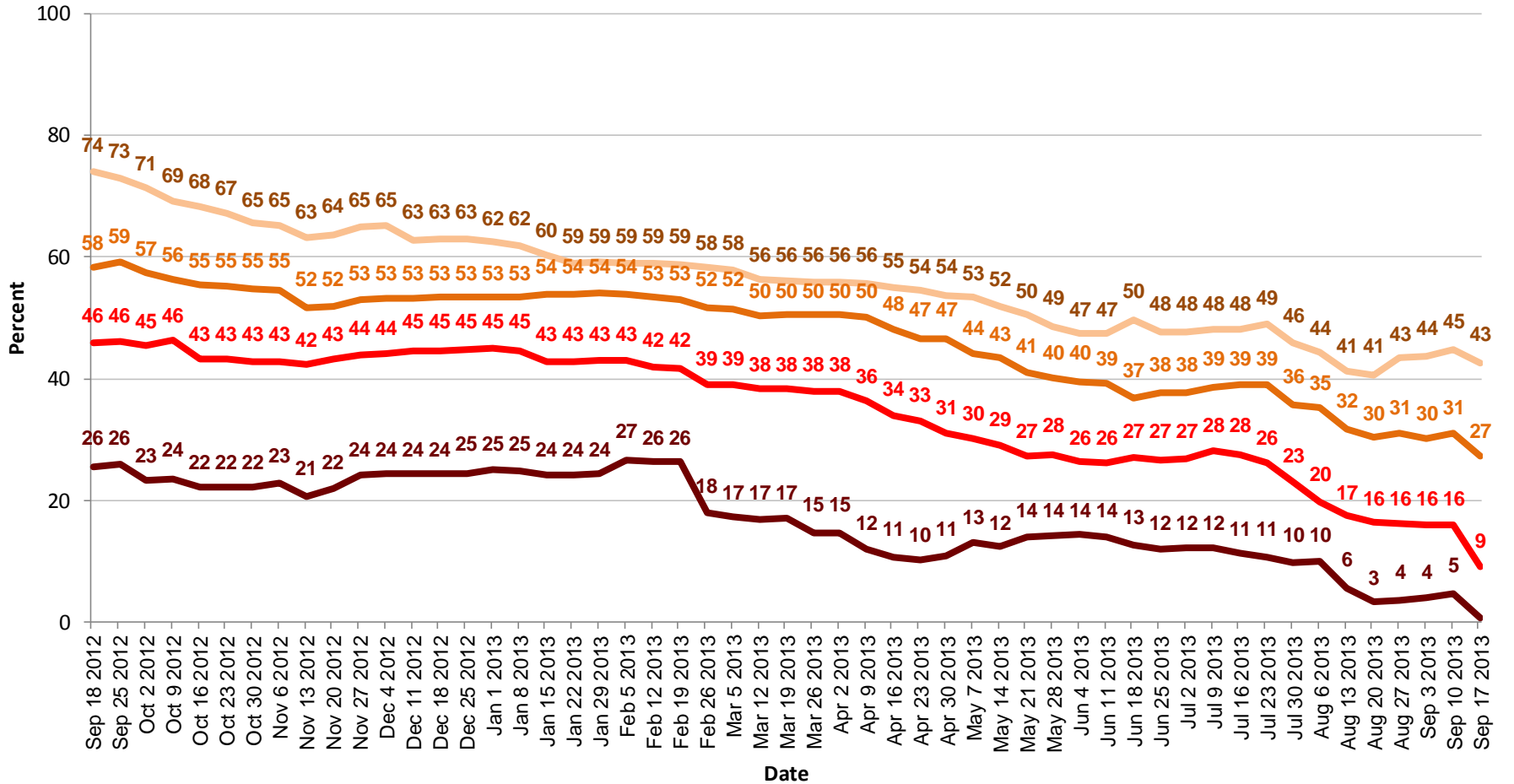
State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 5-year averages from 2006-2010. More information on NASS data can be found at <http://www.nass.usda.gov/>.

*** Central Region state**



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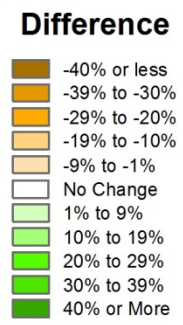
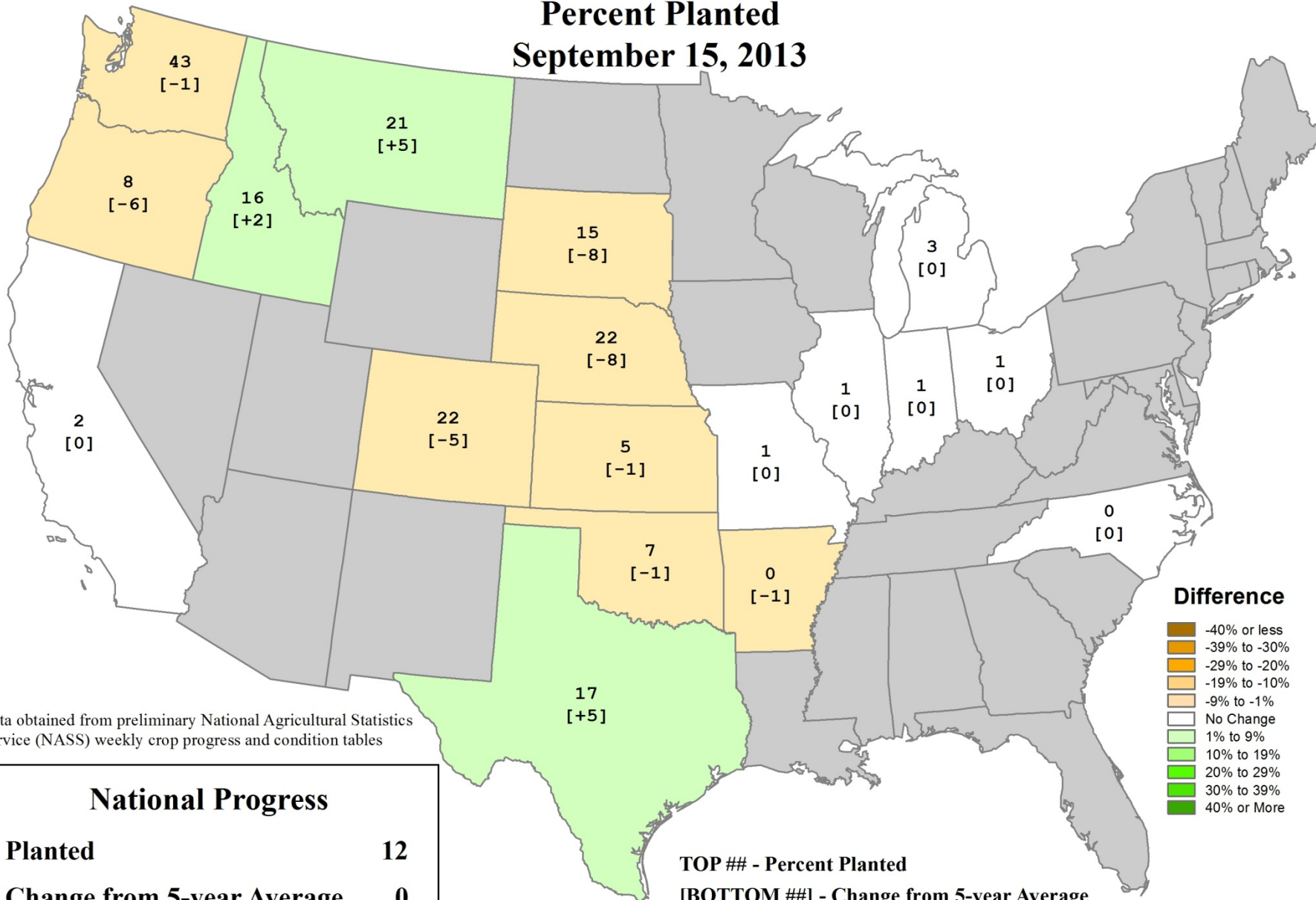
United States Winter Wheat Areas Located in Drought



- Moderate or more intense drought (D1+)
- Severe or more intense drought (D2+)
- Extreme or more intense drought (D3+)
- Exceptional drought (D4)

U.S. Winter Wheat Progress

Percent Planted
September 15, 2013



Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Progress	
Planted	12
Change from 5-year Average	0

TOP ## - Percent Planted
[BOTTOM ##] - Change from 5-year Average

Comments? Questions?

- **Contact info:**

- e-mail: brippyey@oce.usda.gov

- phone: (202) 720-2397

Photo by B. Rippey
Saline Co., Nebraska

April 18, 2013

