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

National Drought Mitigation Center

NOAA

AASC AMERICAN ASSOCIATION OF STATE CLIMATOLOGISTS

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

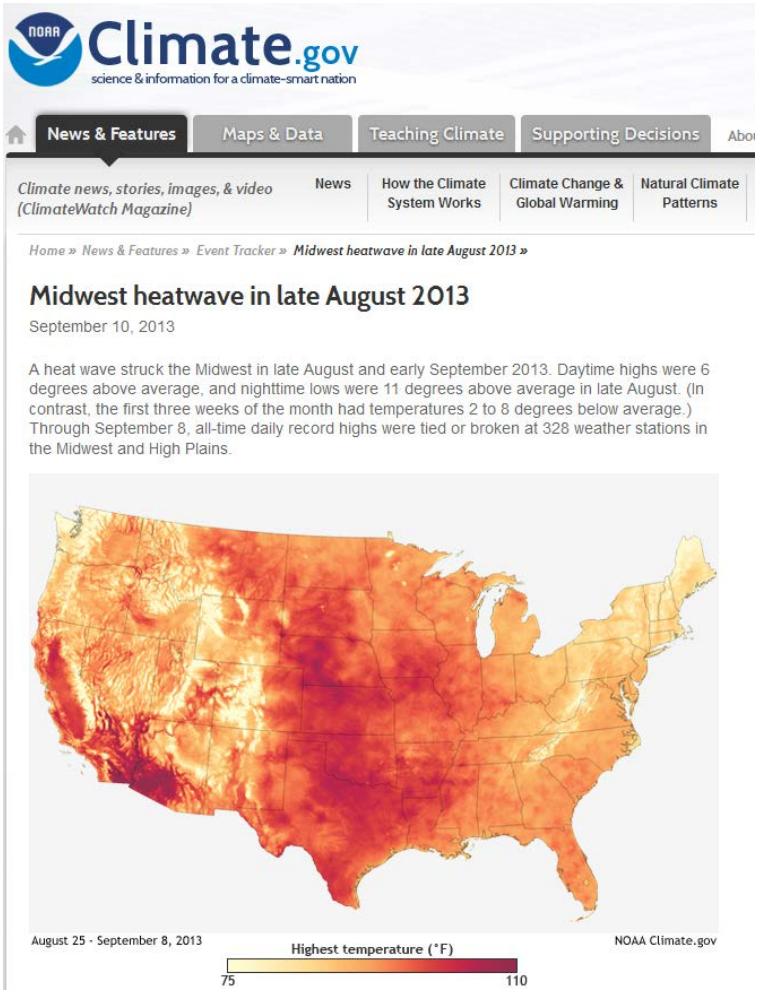
Recent events

Current conditions highlighting recent change

Historical context

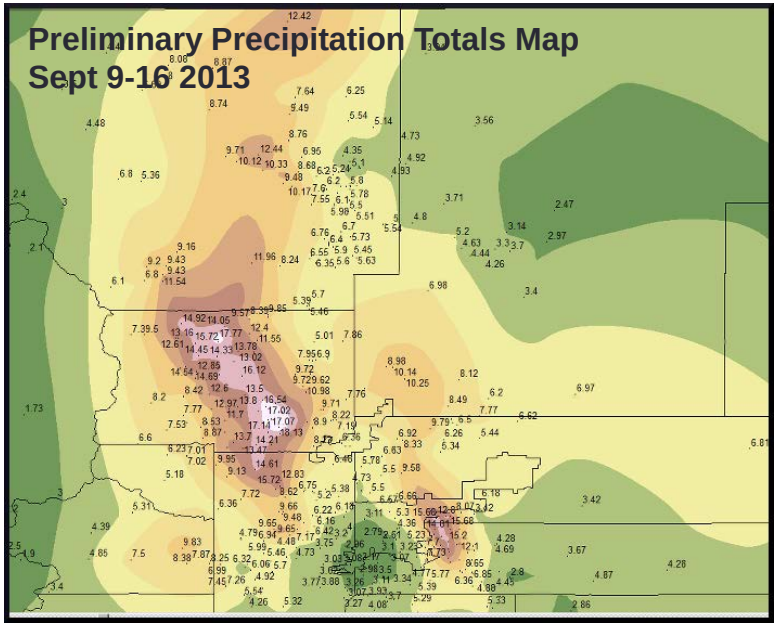
Outlooks

RECENT EVENTS

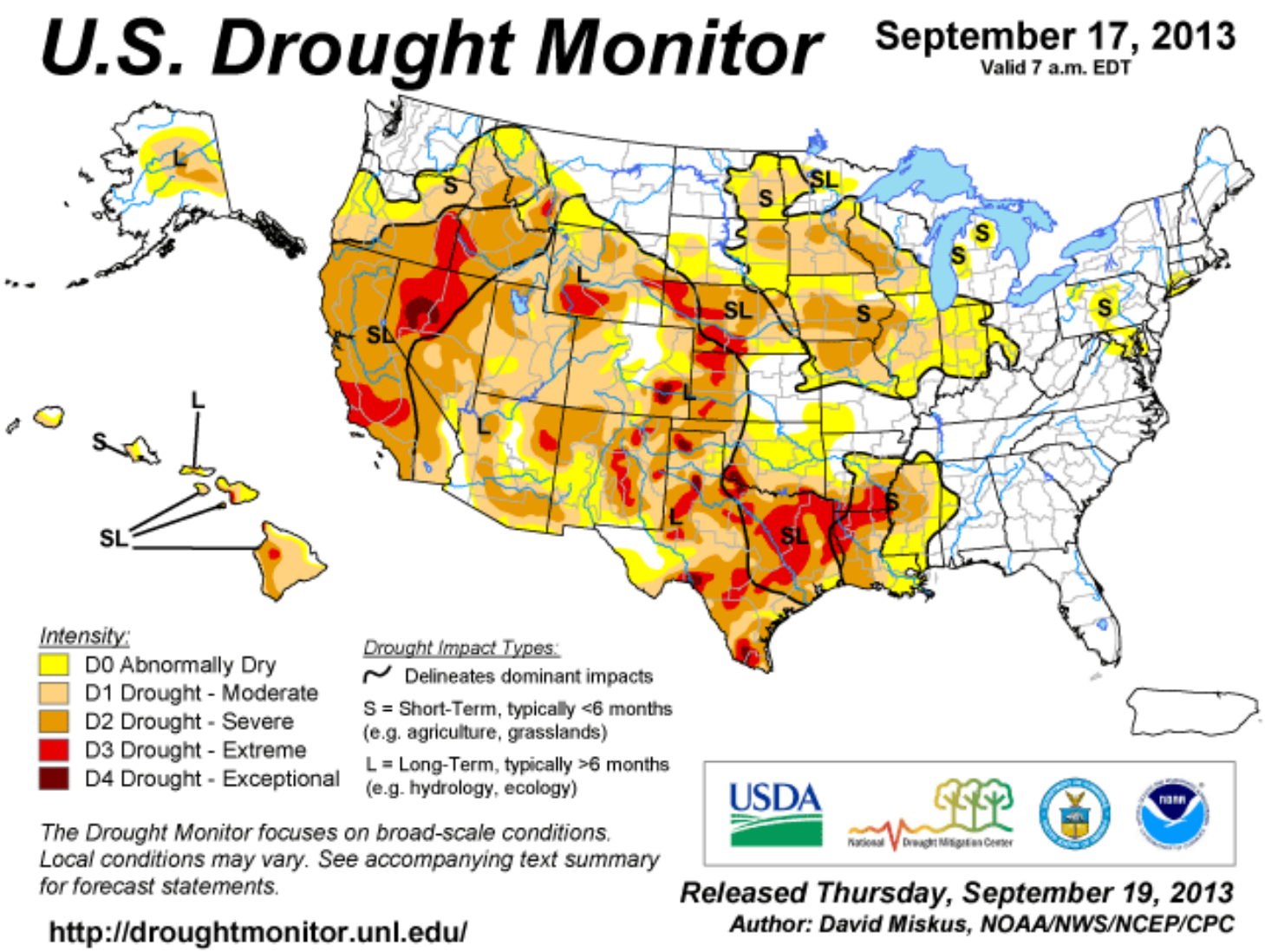


http://www.climate.gov/news-features/event-tracker/midwest-heatwave-late-august-2013

Flooding in Colorado

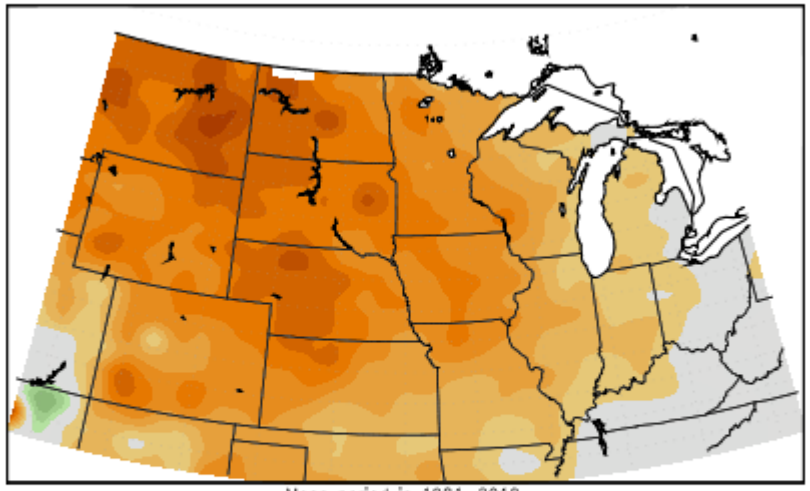


http://www.crh.noaa.gov/bou/?n=stormtotals_092013

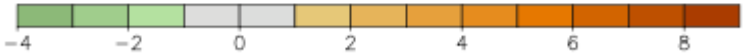

U.S. Drought Monitor
September 17, 2013
Valid 7 a.m. EDT
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically <6 months (e.g. agriculture, grasslands)
L = Long-Term, 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/
USDA
National Drought Mitigation Center
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

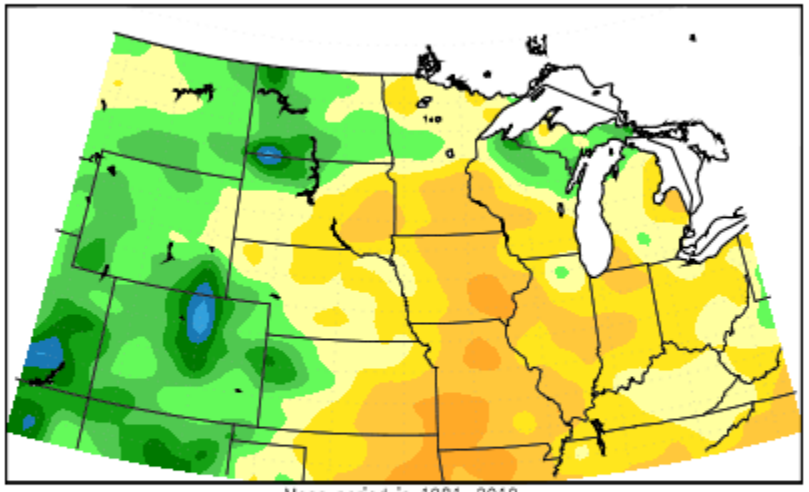


Mean period is 1981–2010.

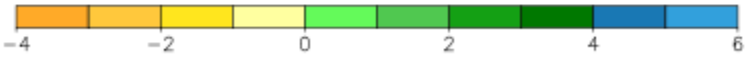


Midwestern Regional Climate Center
Illinois State Water Survey, Prairie Research Institute
University of Illinois at Urbana–Champaign

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



Mean period is 1981–2010.



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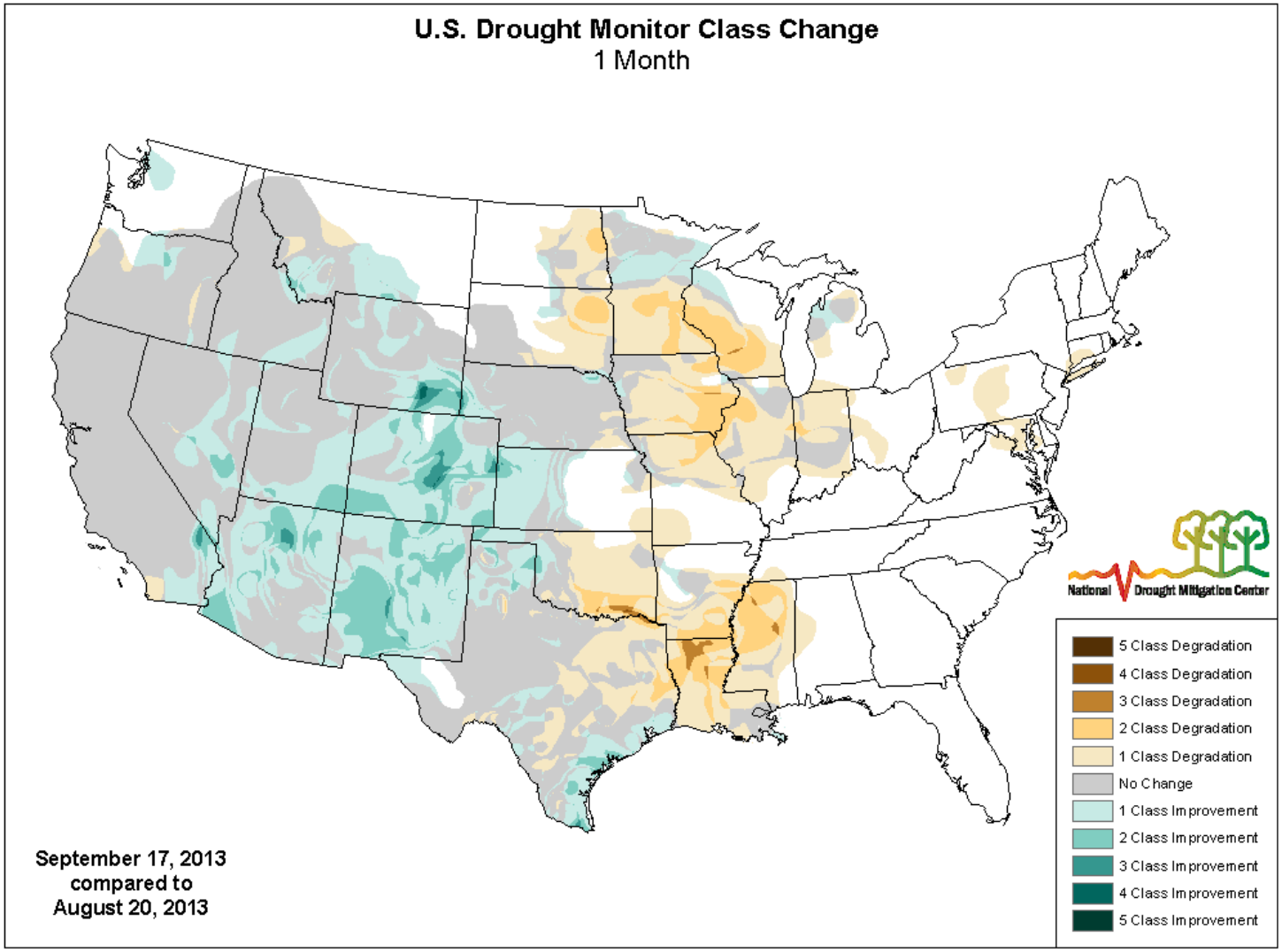
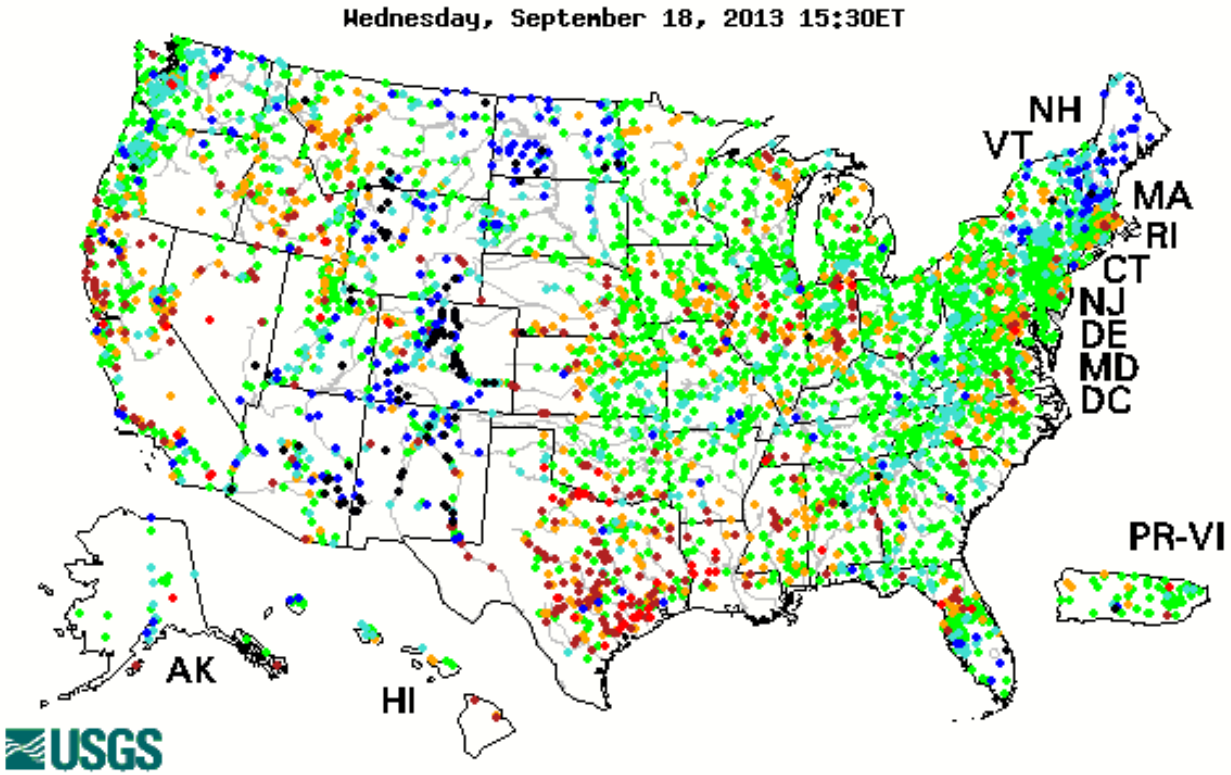


http://droughtmonitor.unl.edu

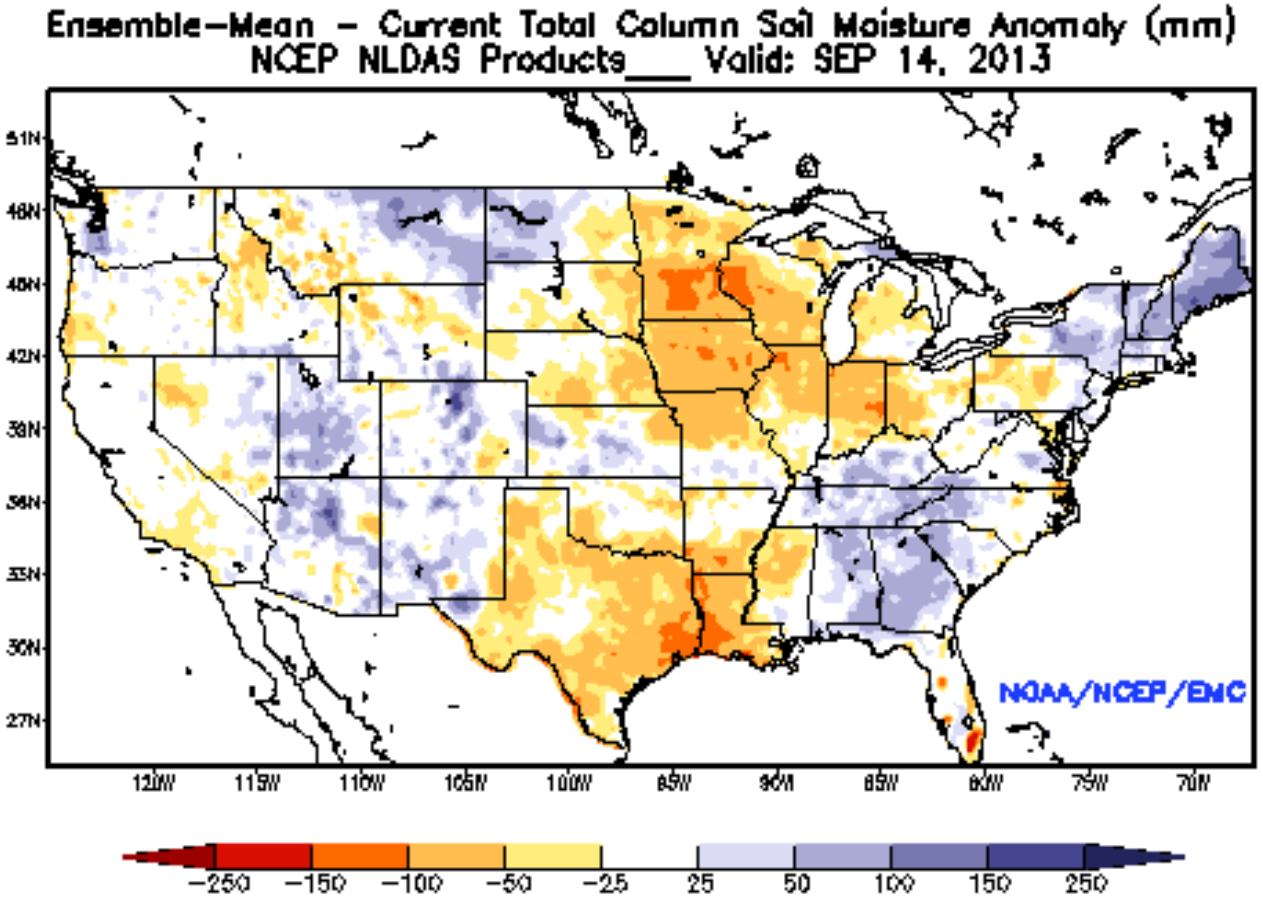
7-DAY AVERAGE STREAMFLOW



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

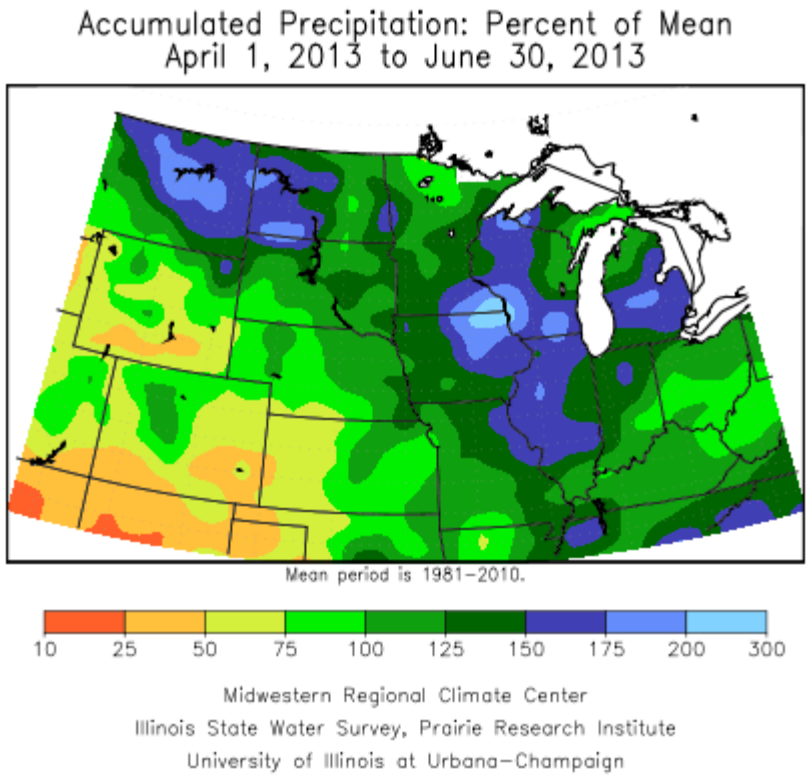
CURRENT SOIL MOISTURE ANOMALY

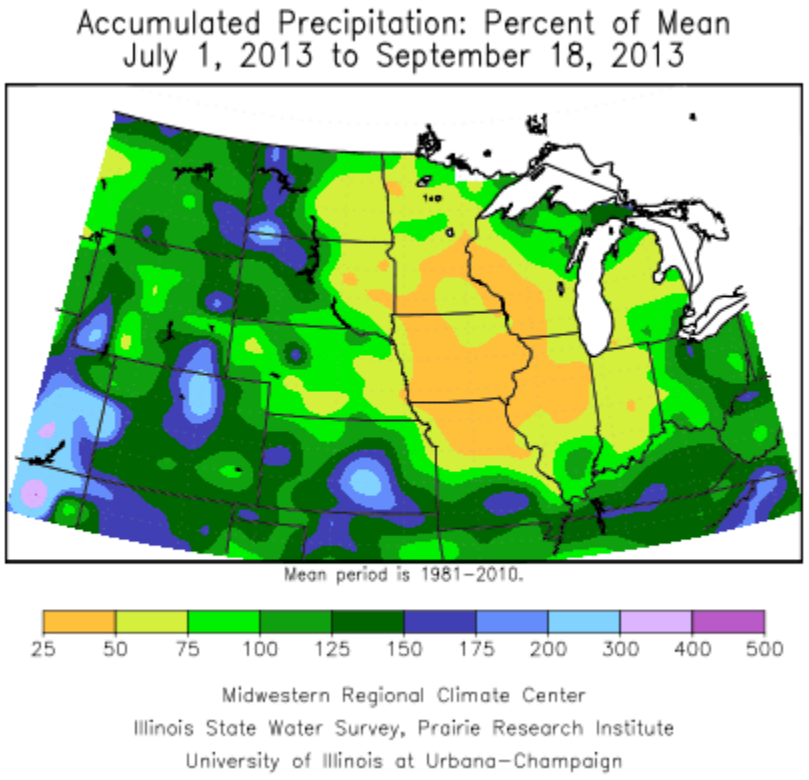


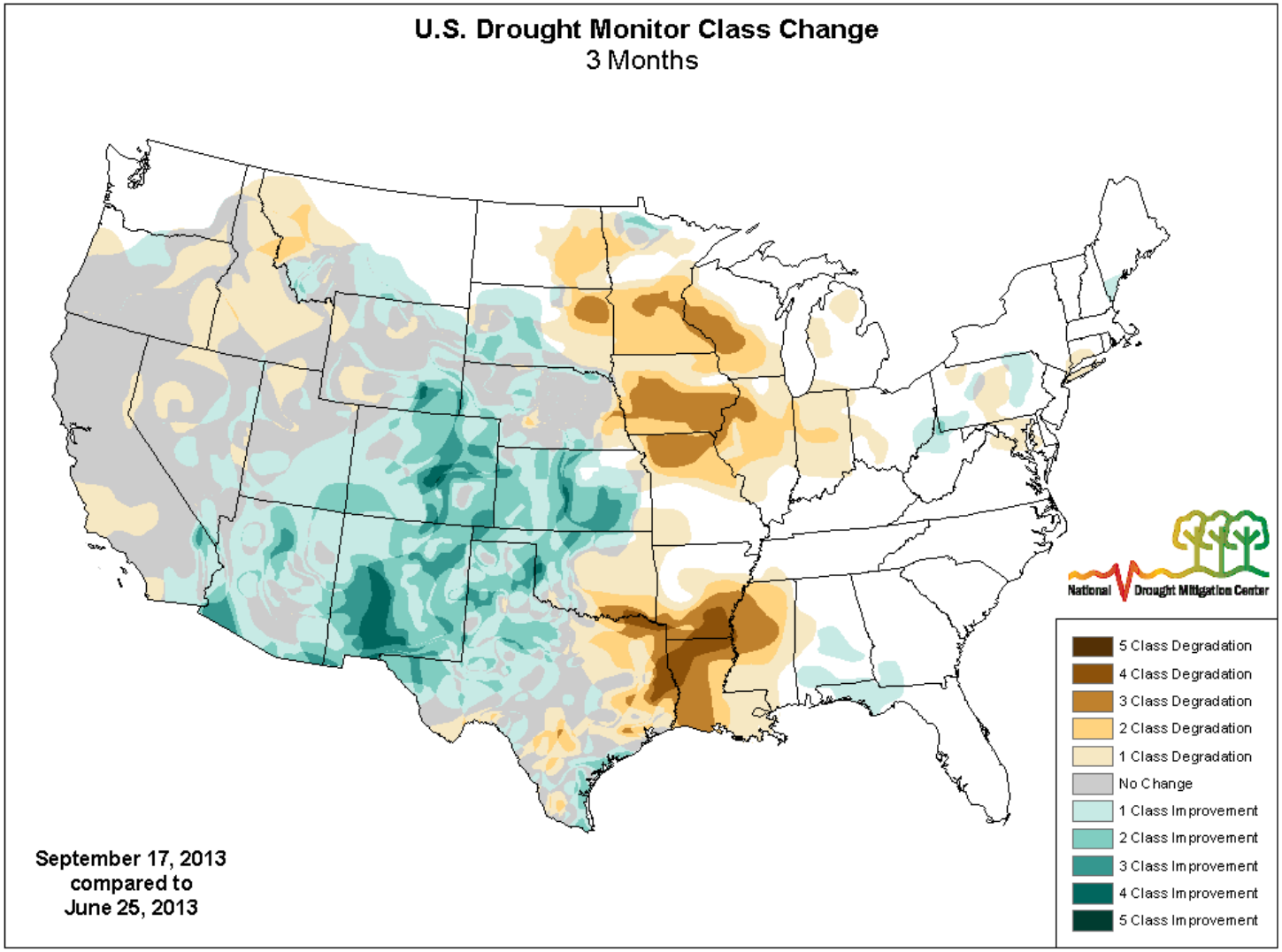
Soil Moisture Anomaly in millimeters

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

FROM ONE EXTREME TO ANOTHER



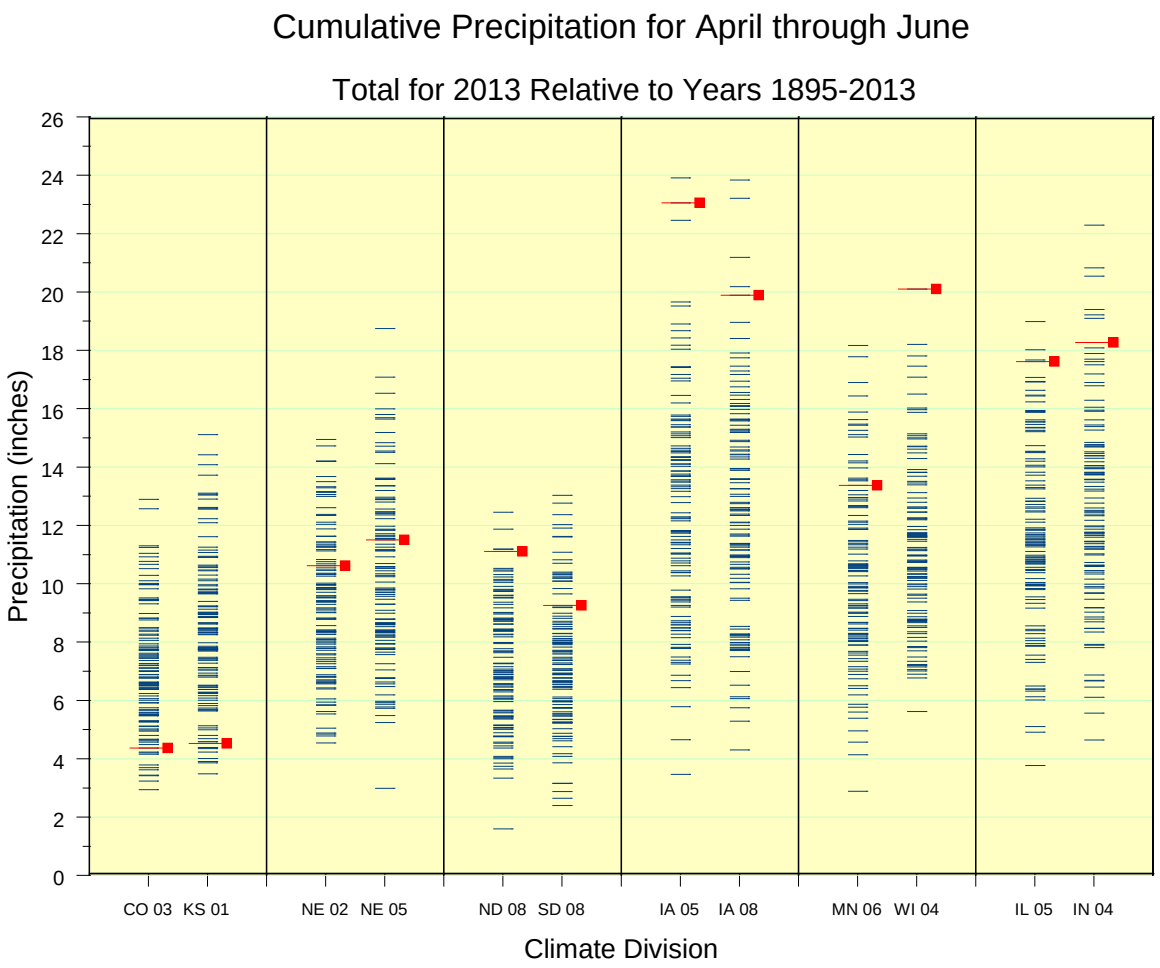




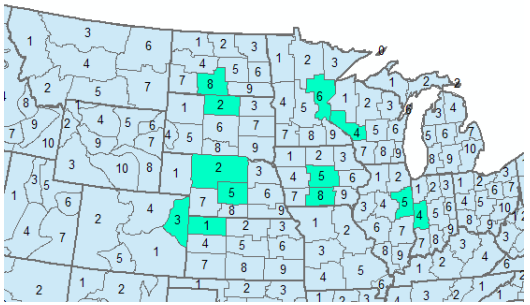
http://droughtmonitor.unl.edu

A TALE OF TWO SEASONS: FROM EARLY SPRING

Historical perspective from a spatial sample of climate divisions

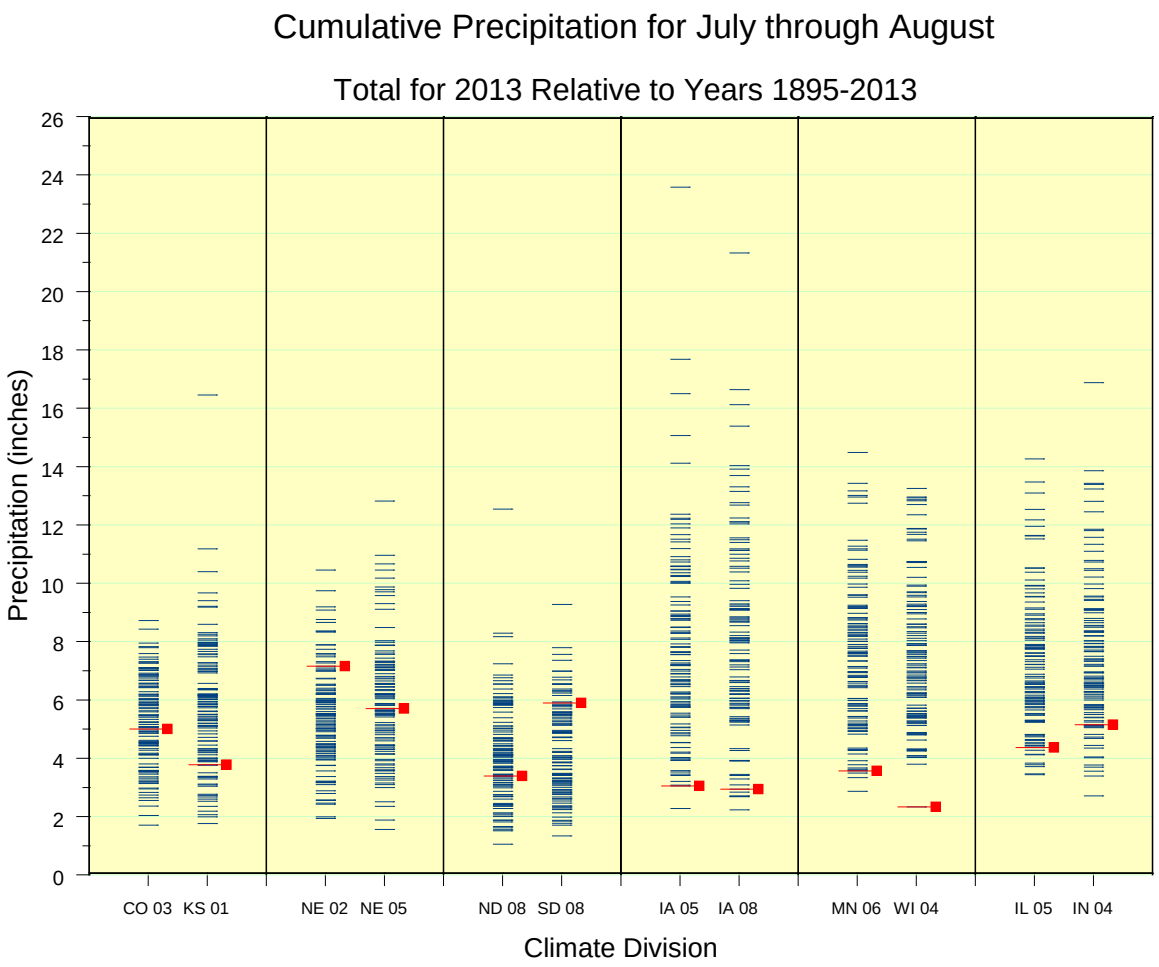


- Unusually to near record wet conditions in eastern portion
- Persistence of unusually dry conditions in western portion

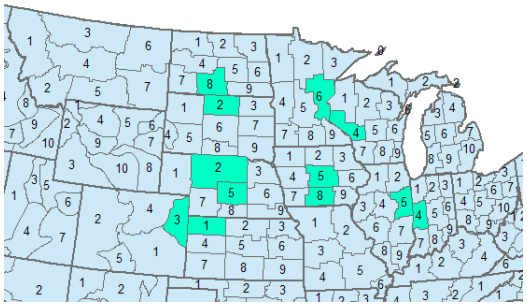


A TALE OF TWO SEASONS: TO LATE SUMMER

Historical perspective from a spatial sample of climate divisions

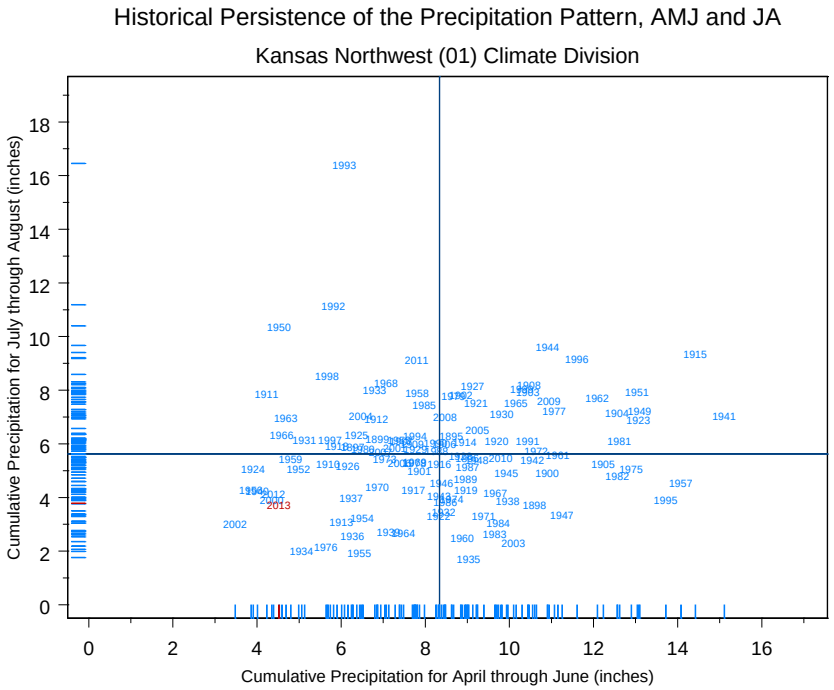


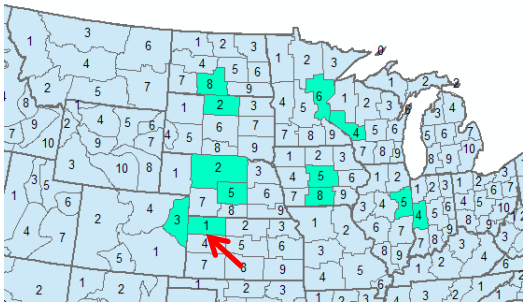
- Shift to below to near record dryness in eastern portion
- Below to near average precipitation in western portion

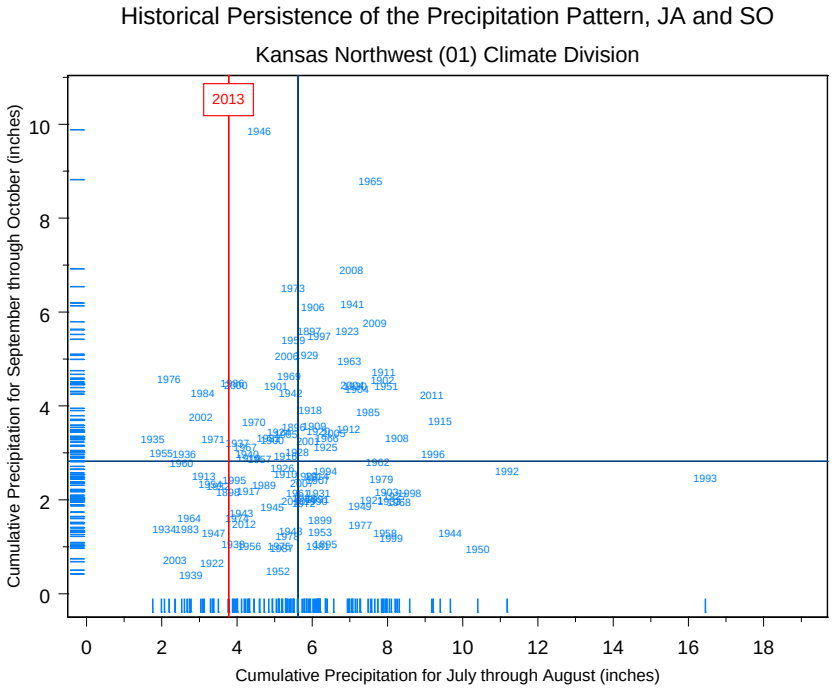


BEFORE AND AFTER

KANSAS, NORTHWEST DIVISION



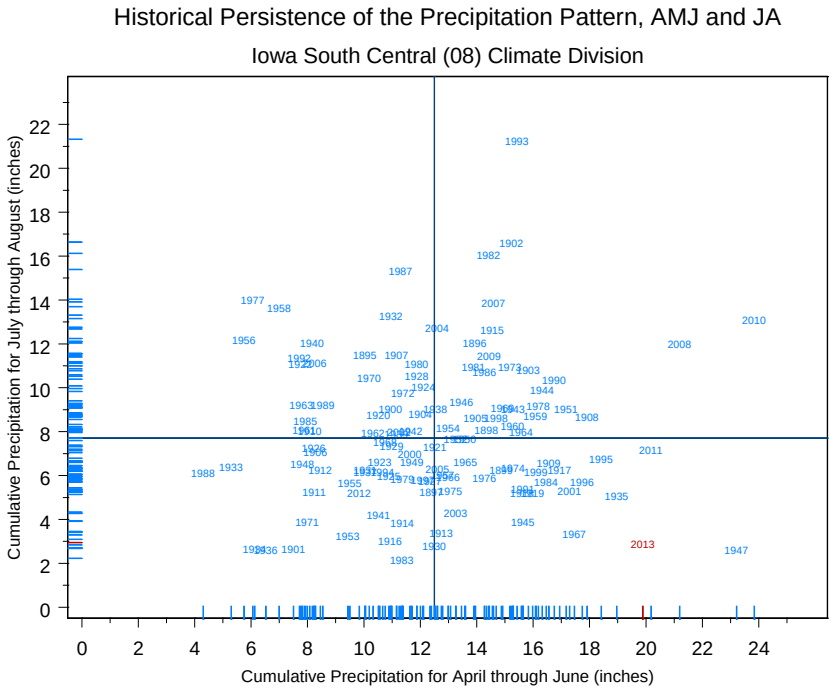


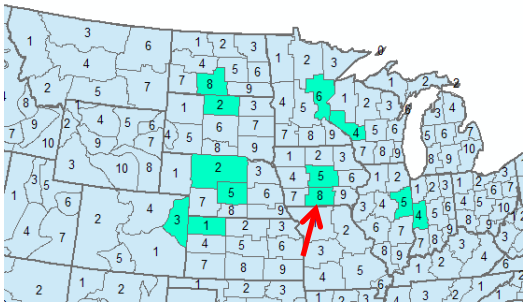


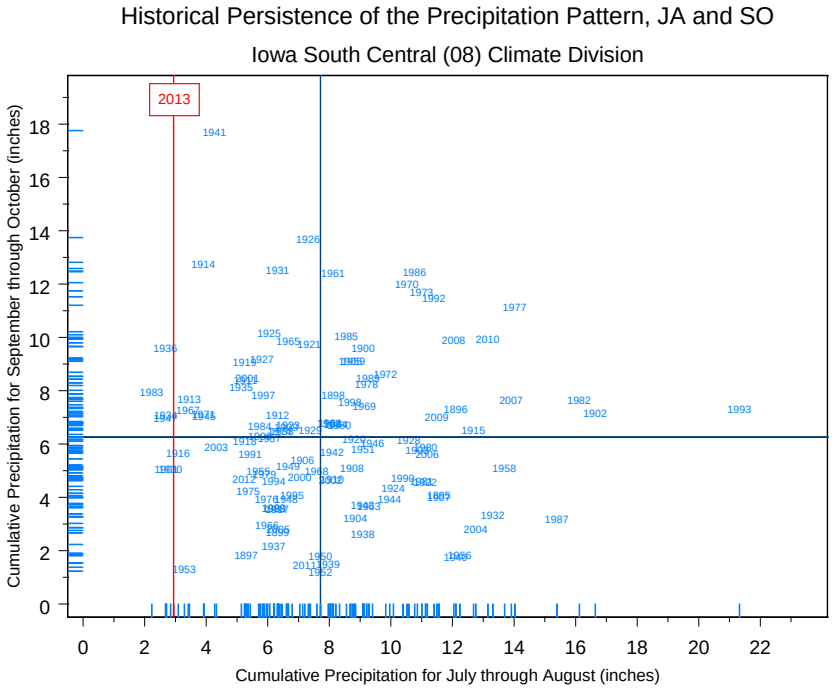
- AMJ-JA period is distinctive for persistent dryness relative to climatology
- Dryness during JA is not an effective predictor of SO precipitation, but may indicate reduced probability of extreme wetness

BEFORE AND AFTER

IOWA, SOUTH CENTRAL DIVISION

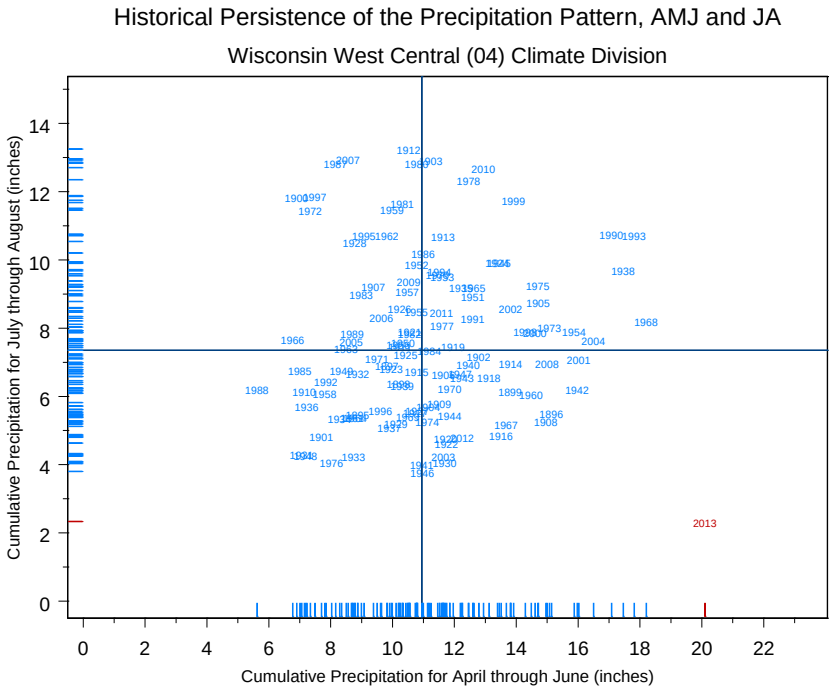


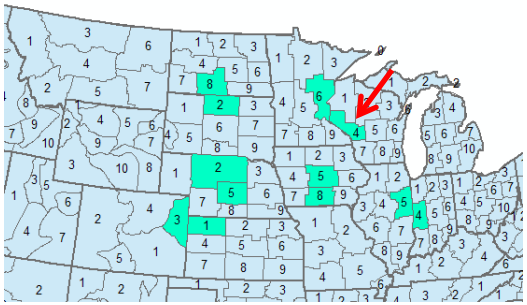


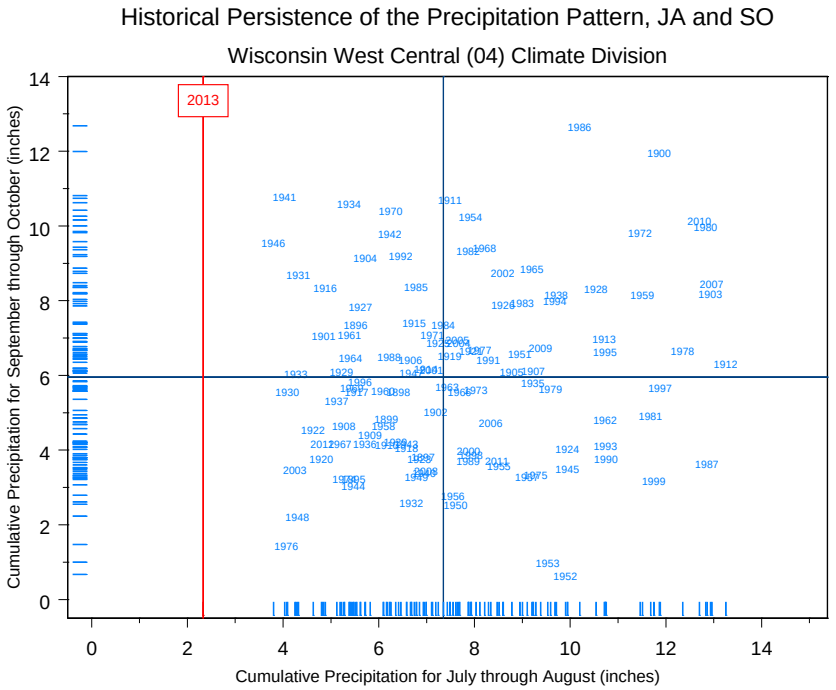


- AMJ-JA shows transition from extreme wetness to extreme dryness
- Dryness during JA is not an effective predictor of SO precipitation

BEFORE AND AFTER
WISCONSIN, WEST CENTRAL DIVISION

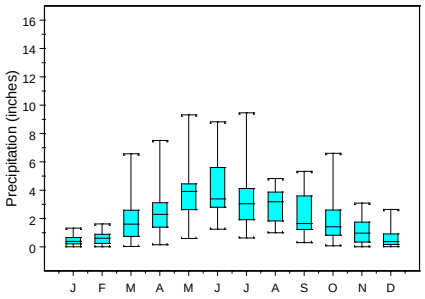


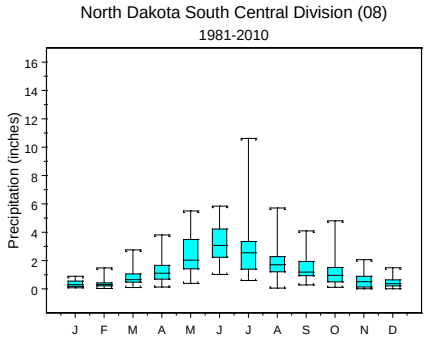


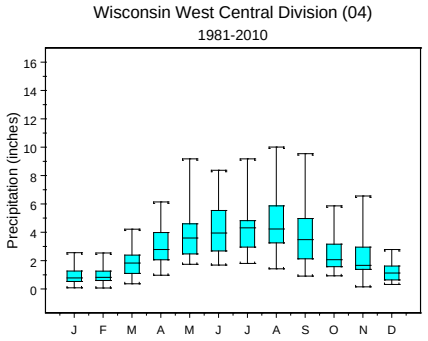


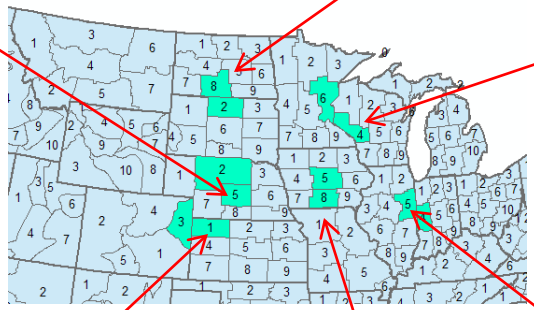
- AMJ-JA shows transition from *record* wetness to *record* dryness
- Dryness during JA is not an effective predictor of SO precipitation

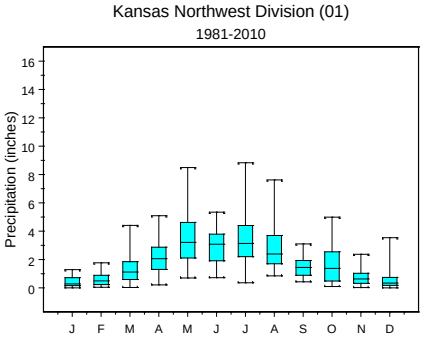
MONTHLY PRECIPITATION CLIMATOLOGY

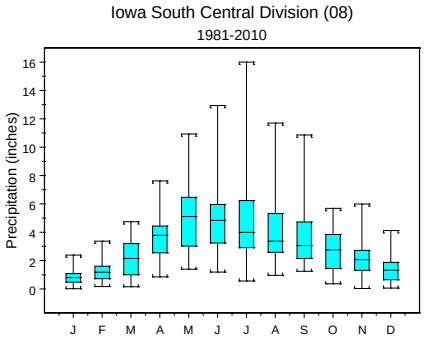


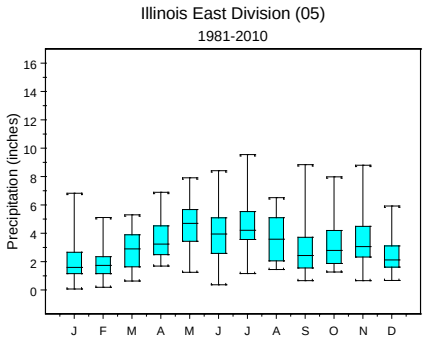




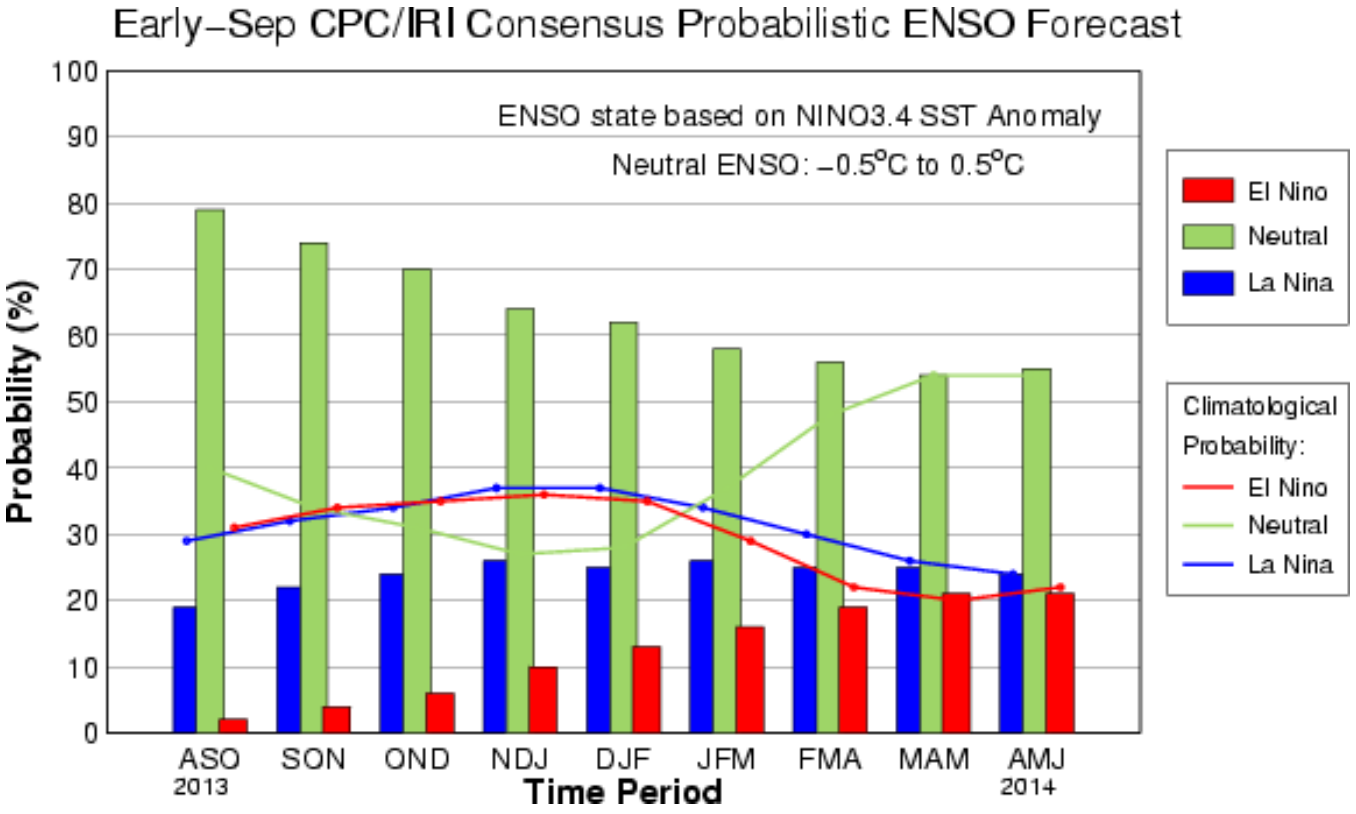








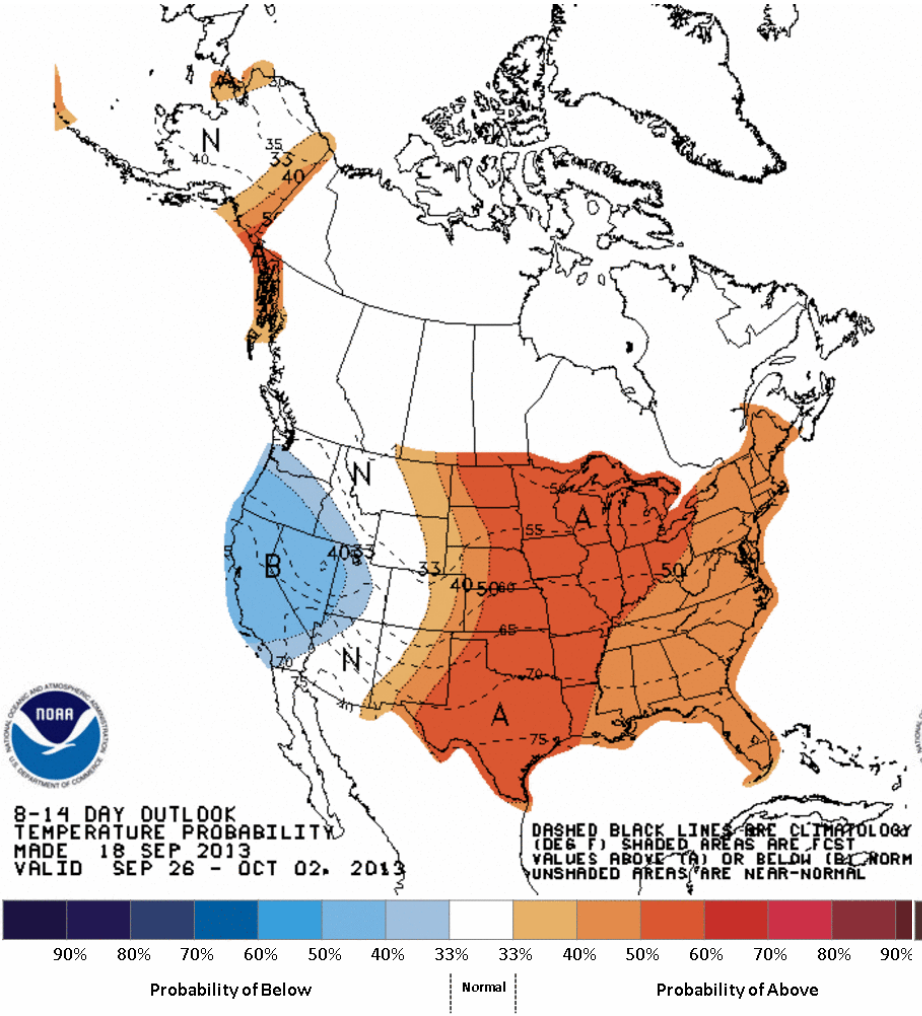
ENSO OUTLOOK



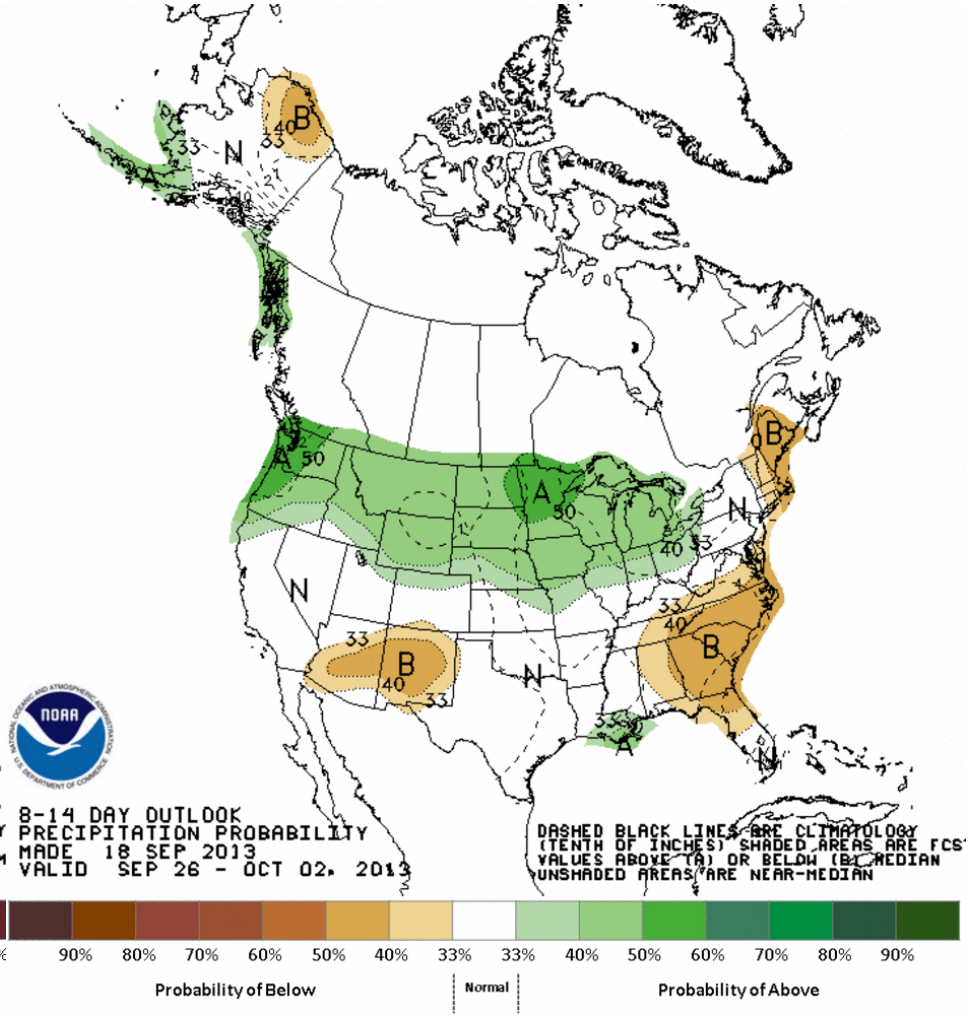
http://iri.columbia.edu/climate/ENSO/currentinfo/figure1.html

8-14 DAY CLIMATE OUTLOOK

Temperature



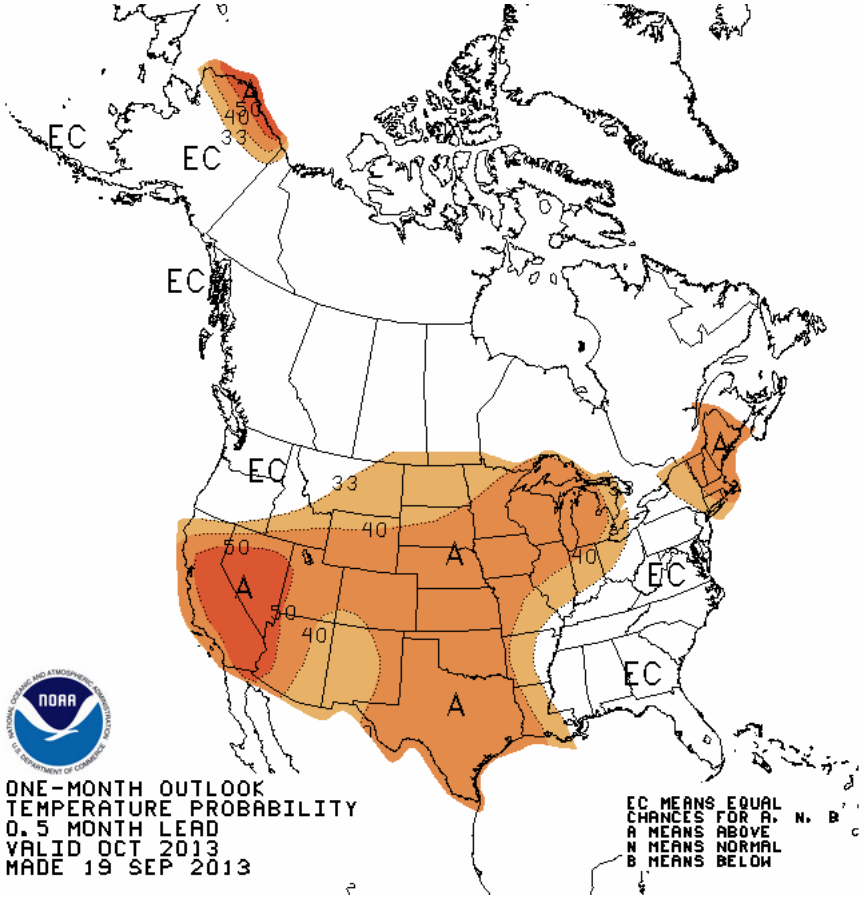
Precipitation



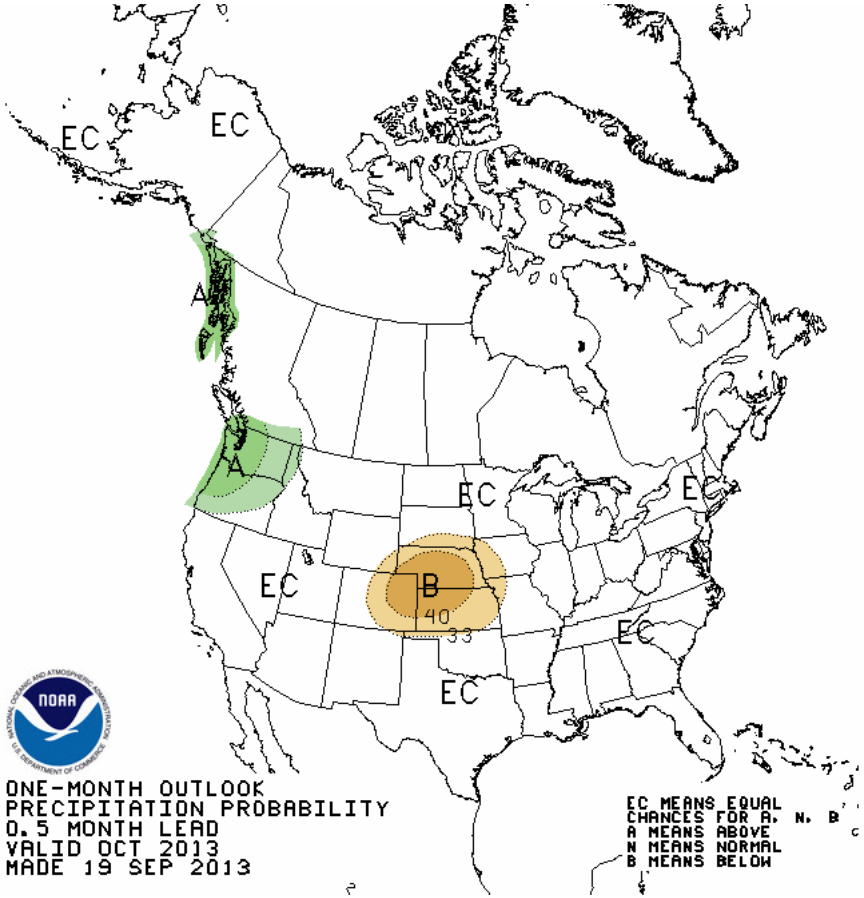
http://www.cpc.ncep.noaa.gov/products/predictions/814day/

OCTOBER CLIMATE OUTLOOK

Temperature



Precipitation

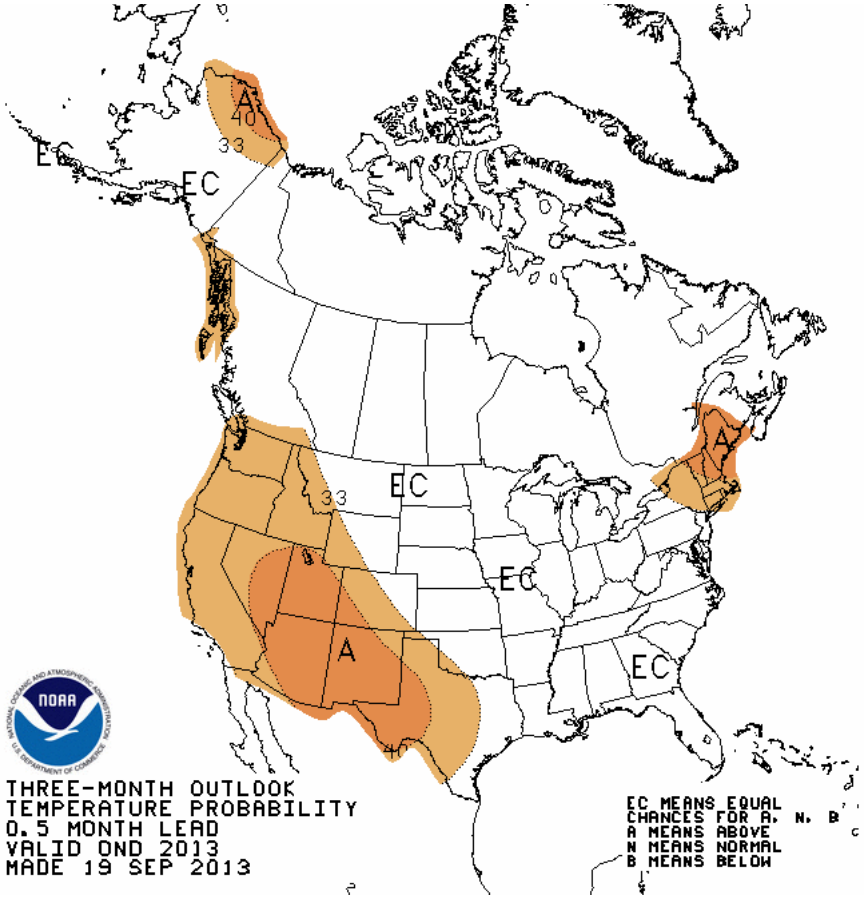


http://www.cpc.ncep.noaa.gov/products/predictions/30day/

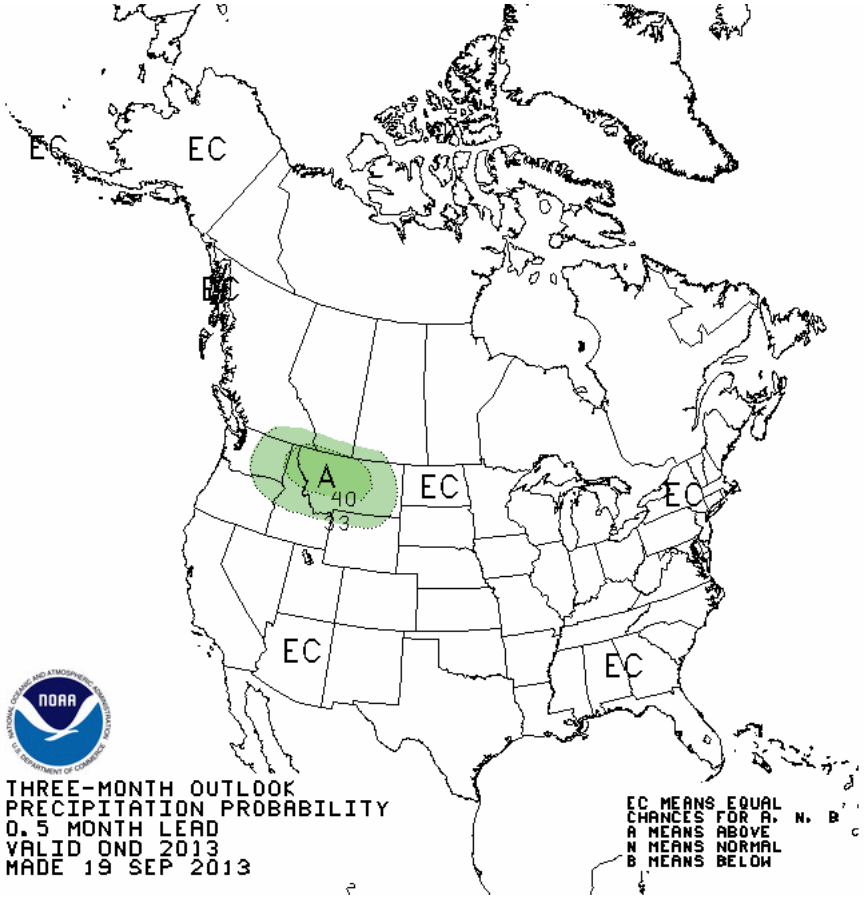
SEASONAL CLIMATE OUTLOOK

OCTOBER – DECEMBER

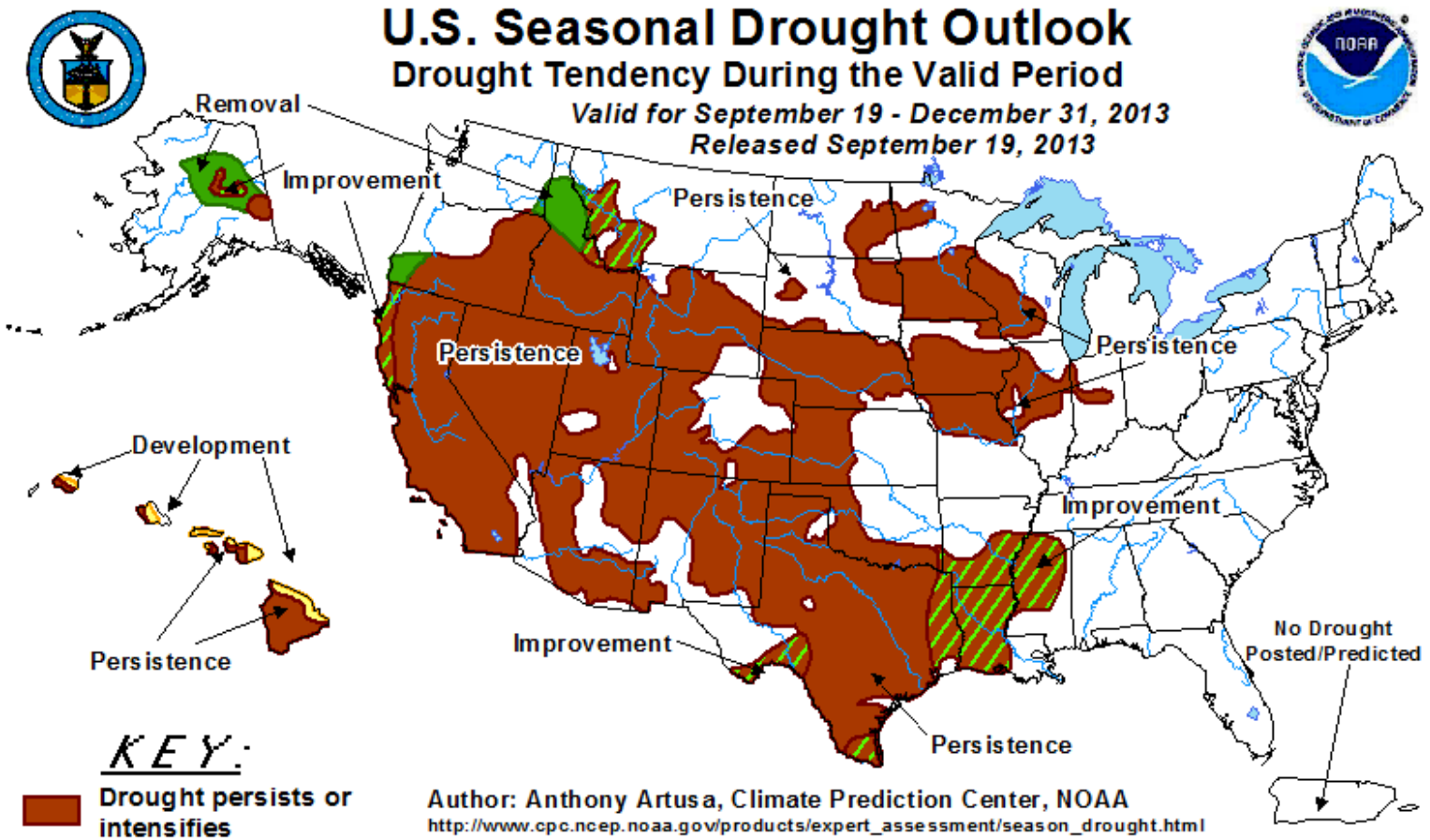
Temperature



Precipitation



http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1



http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

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

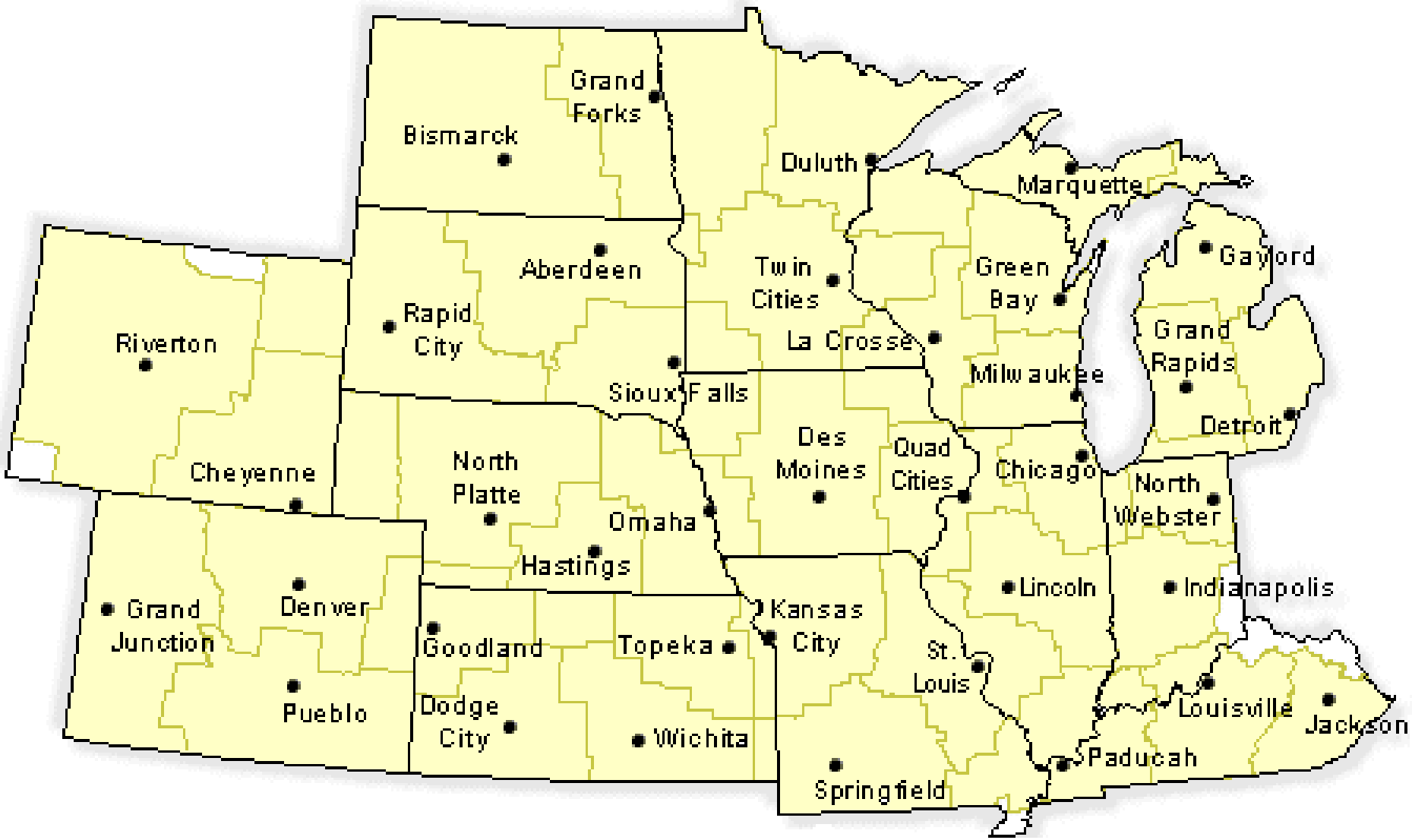
September 19, 2013

"Central Region Agricultural Update"

Brad Rippey
USDA Meteorologist
Washington, D.C.

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

NWS Central Region

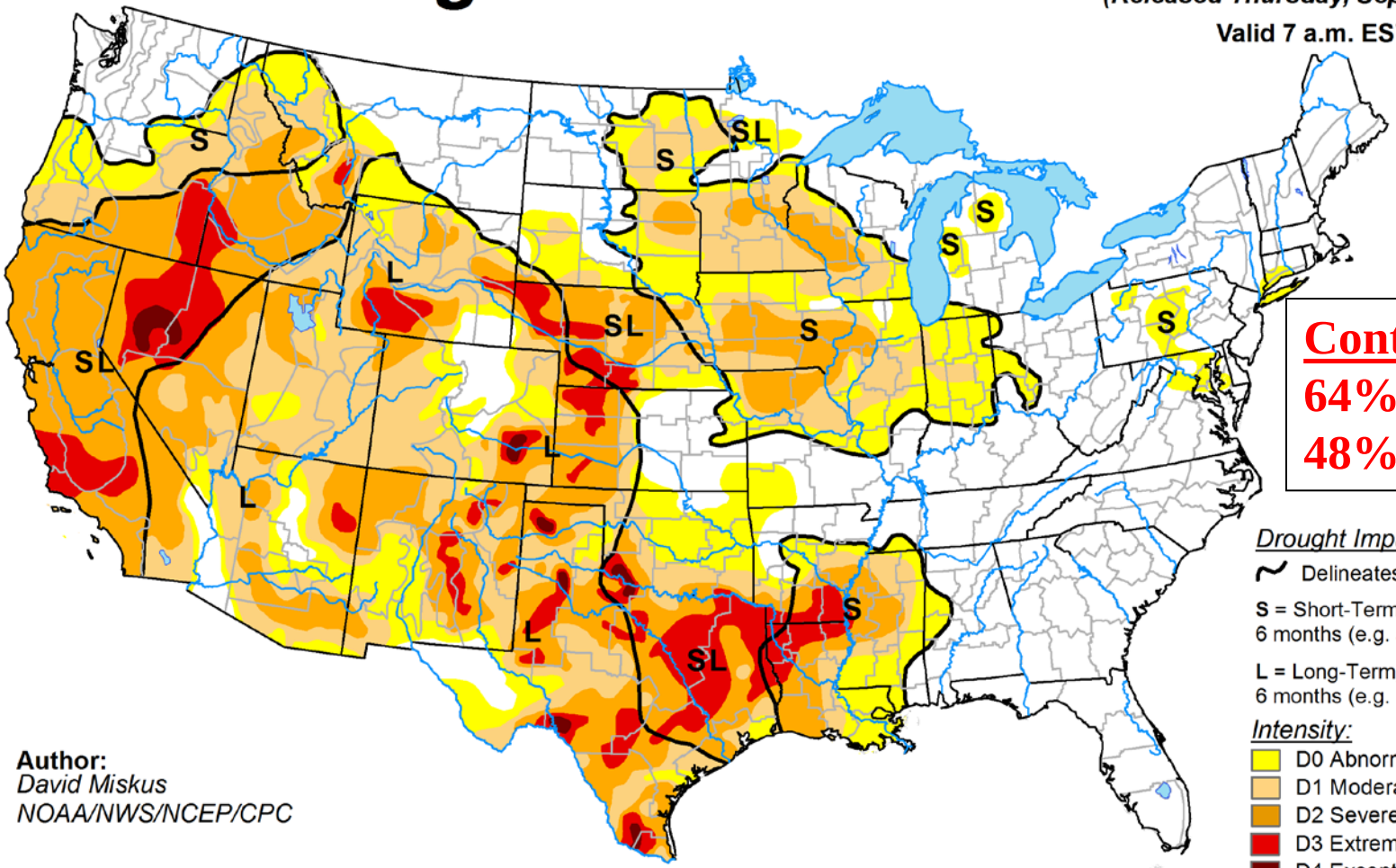


U.S. Drought Monitor

September 17, 2013

(Released Thursday, Sep. 19, 2013)

Valid 7 a.m. EST



Contiguous U.S.

64% D0 – D4

48% D1 – D4

Drought Impact Types:

~ Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

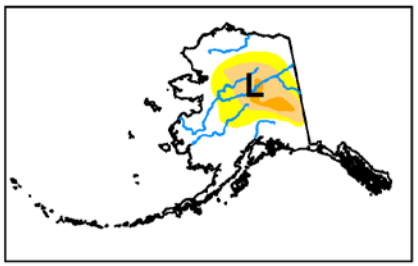
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

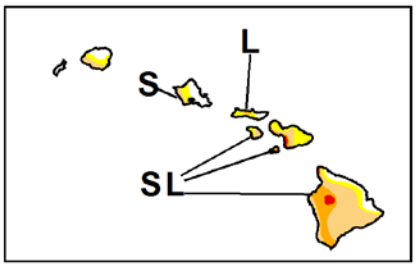
Intensity:

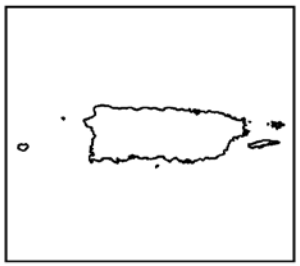
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author:
David Miskus
NOAA/NWS/NCEP/CPC







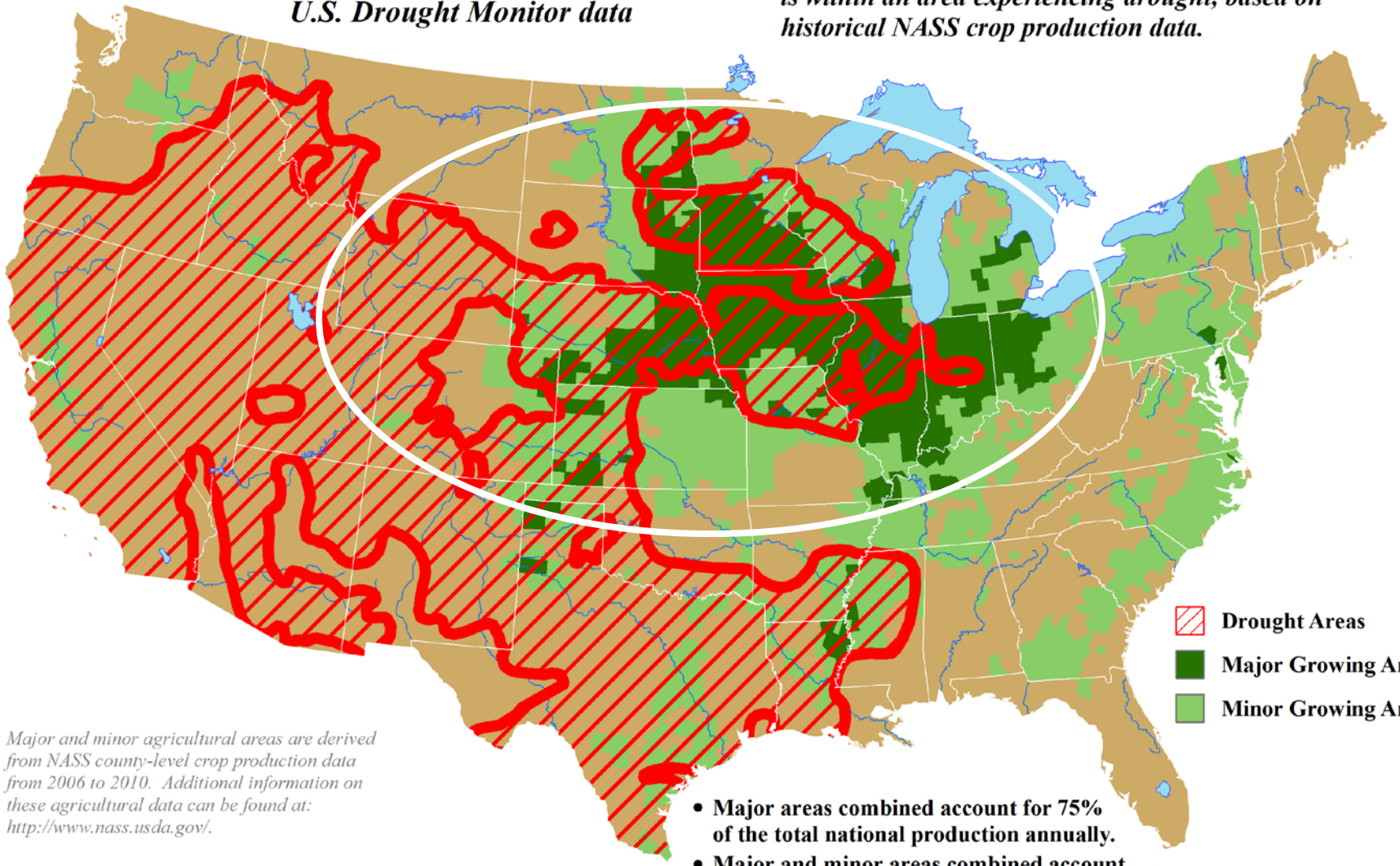
USDA National Drought Mitigation Center

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 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.**

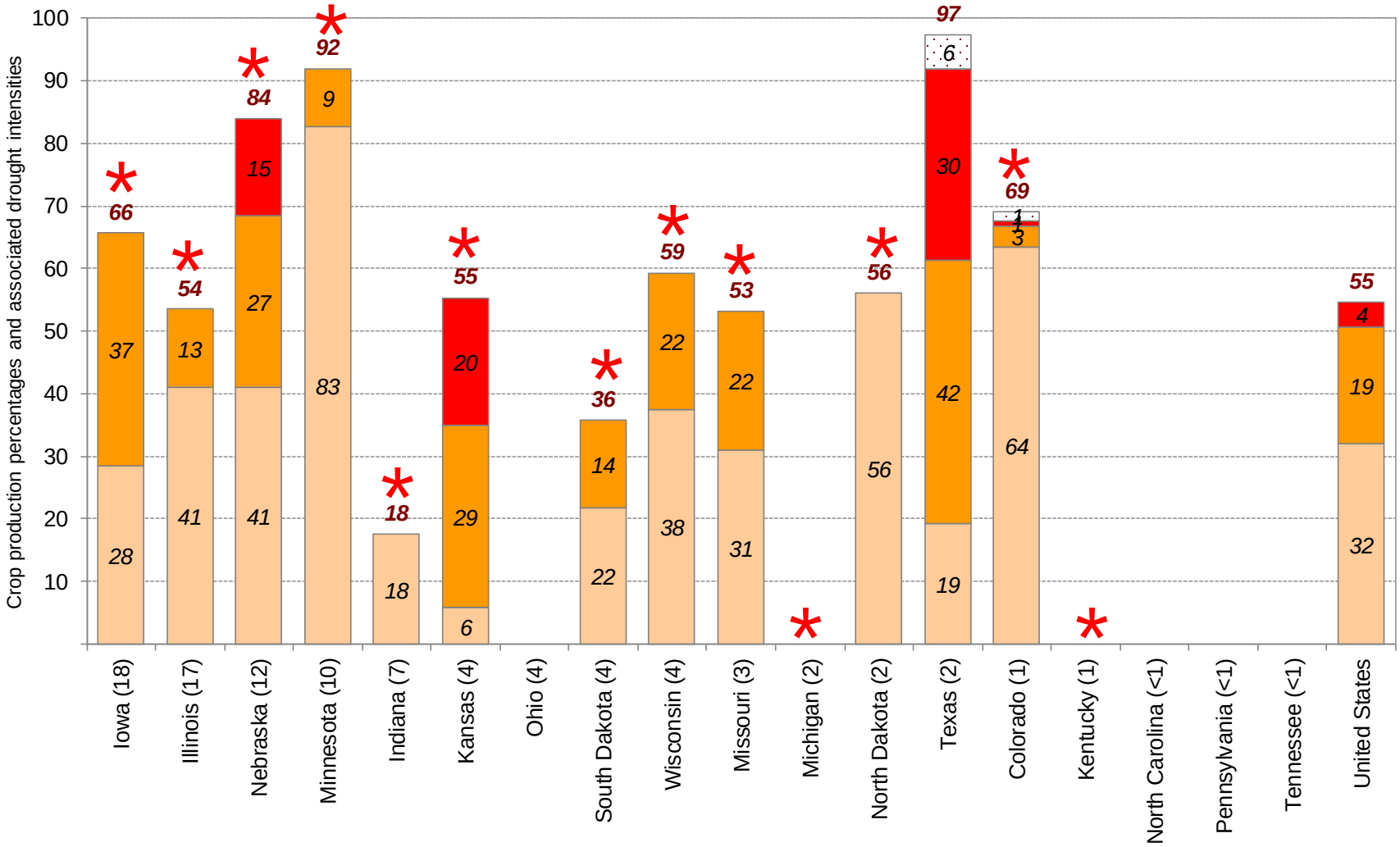
Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: http://www.nass.usda.gov/.

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/.

USDA **Agricultural Weather Assessments**
World Agricultural Outlook Board

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/.

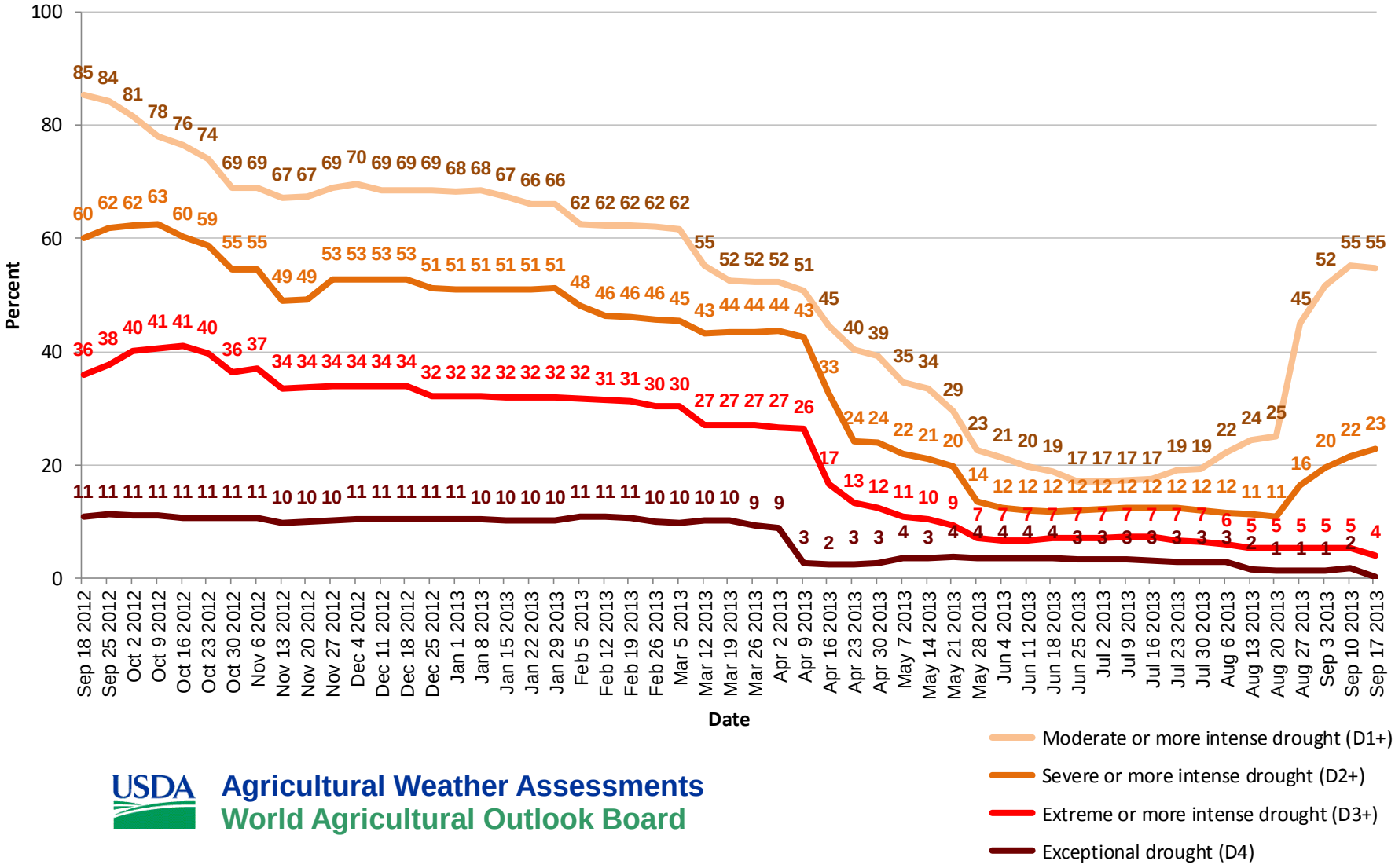
Percent in Moderate Drought (D1) | Percent in Severe Drought (D2) | Percent in Extreme Drought (D3) | Percent in Exceptional Drought (D4)

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

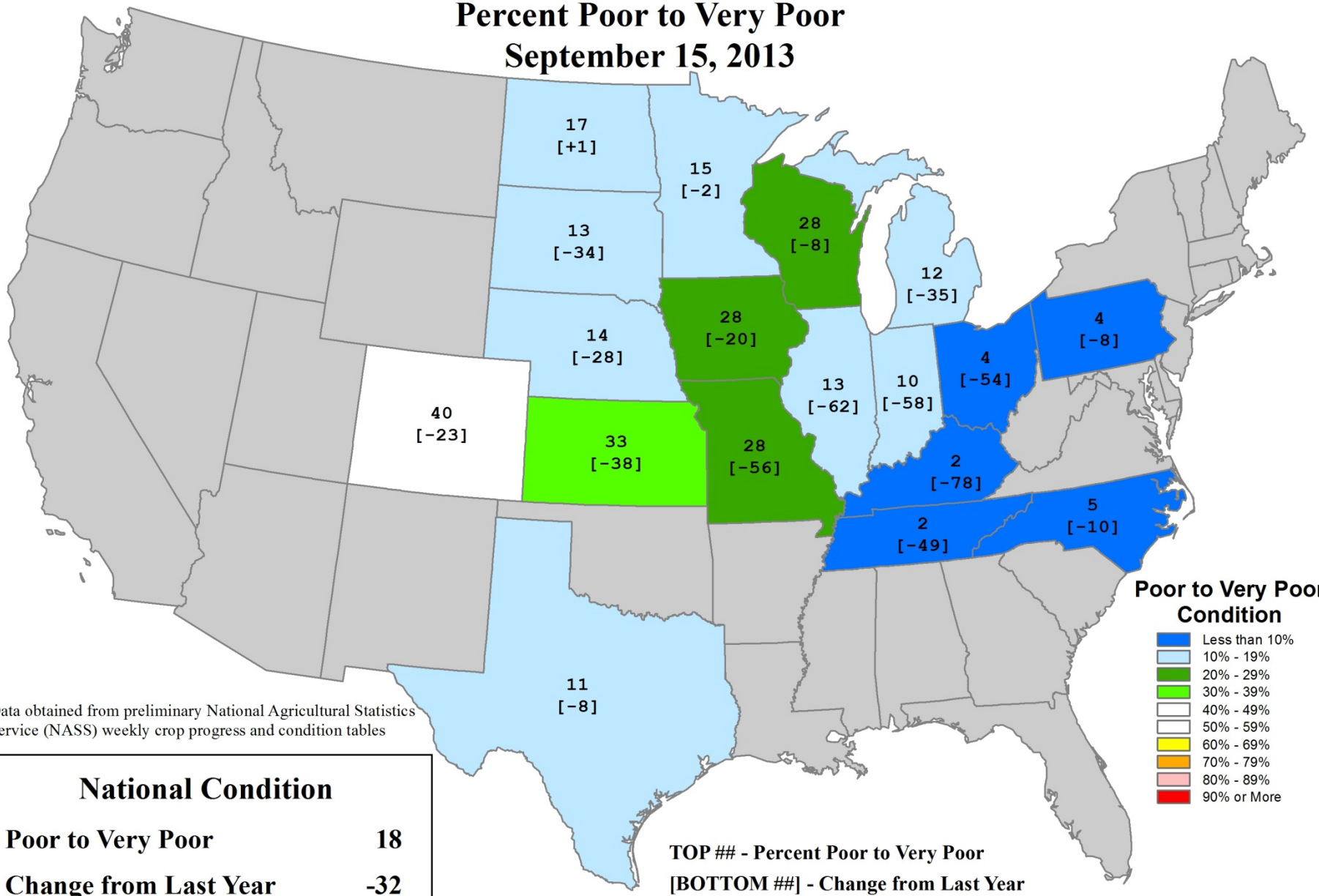
United States Corn Areas Located in Drought



USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Corn Conditions

Percent Poor to Very Poor
September 15, 2013



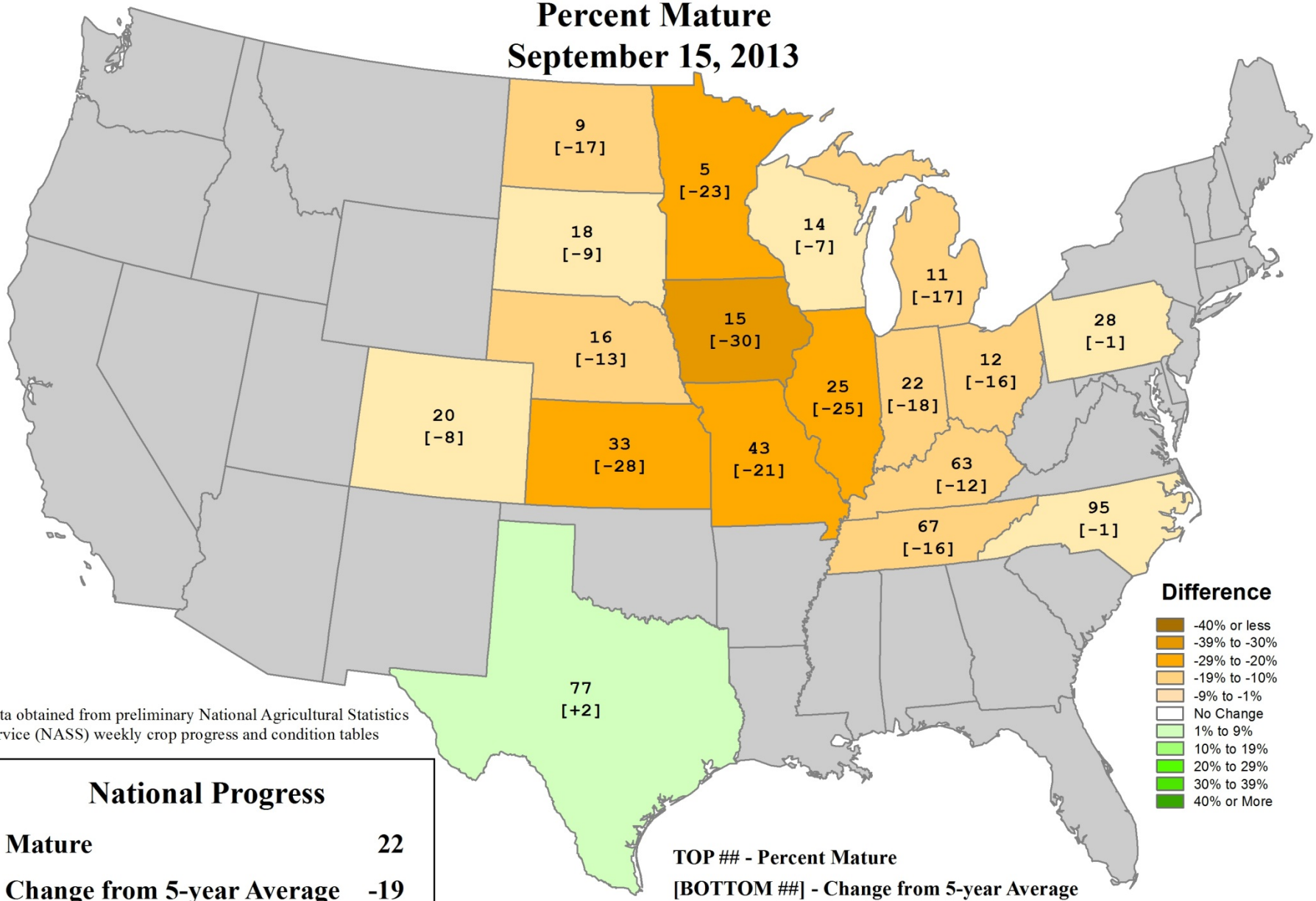
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Condition	
Poor to Very Poor	18
Change from Last Year	-32

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Corn Progress

Percent Mature
September 15, 2013

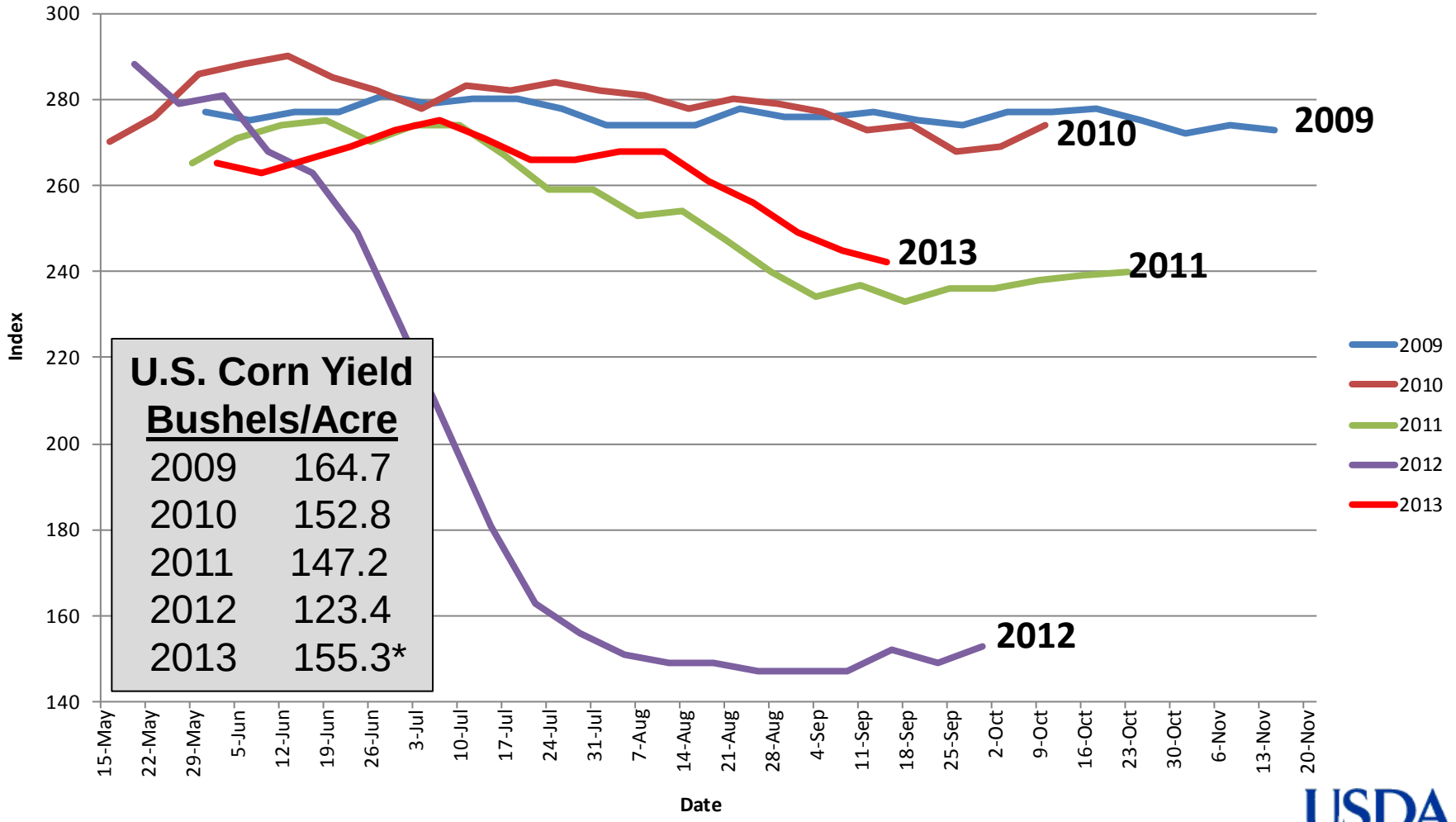


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Progress	
Mature	22
Change from 5-year Average	-19

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. CORN Condition Index



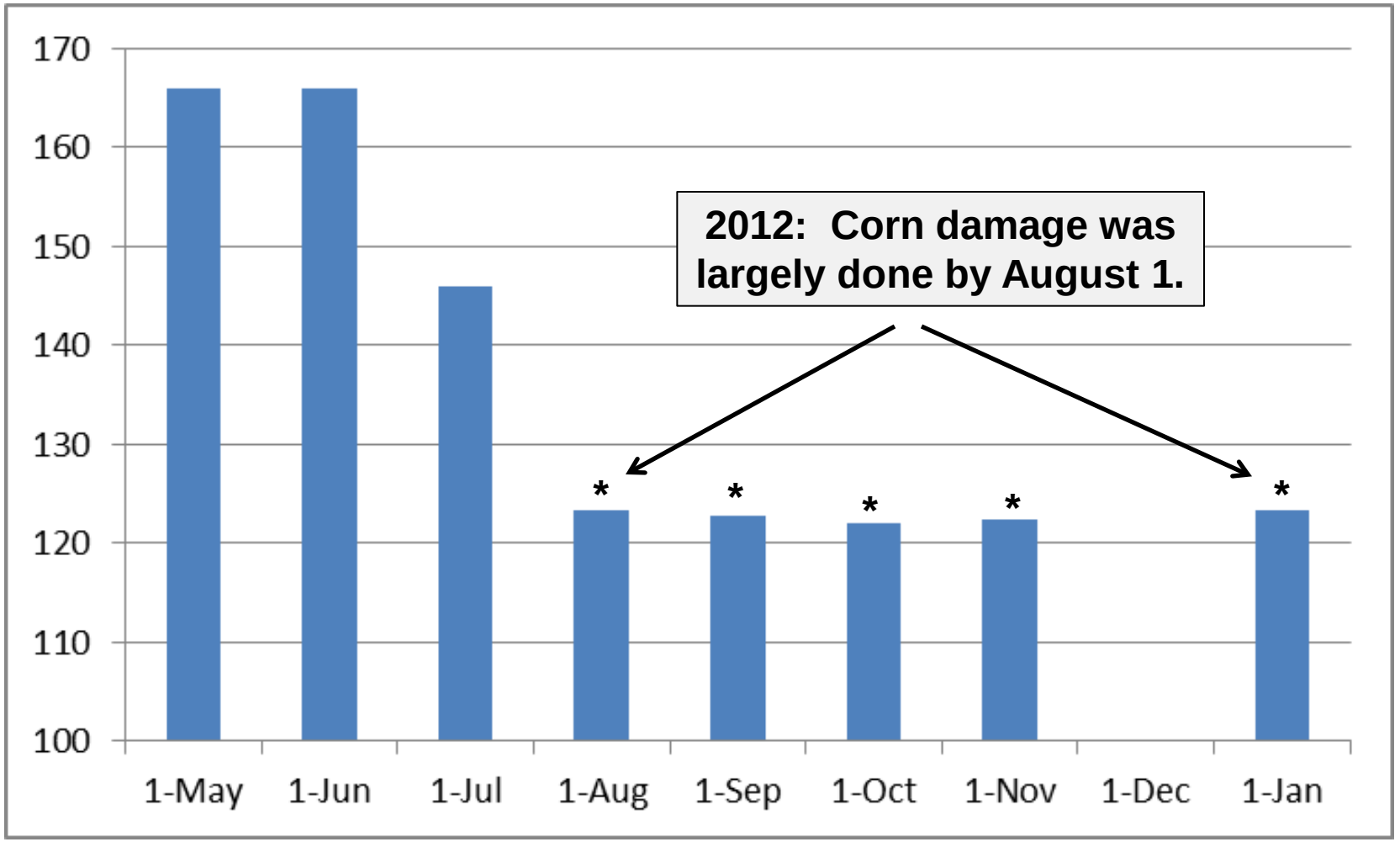
U.S. Corn Yield Bushels/Acre	
2009	164.7
2010	152.8
2011	147.2
2012	123.4
2013	155.3*

Based on NASS crop progress data.

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

USDA

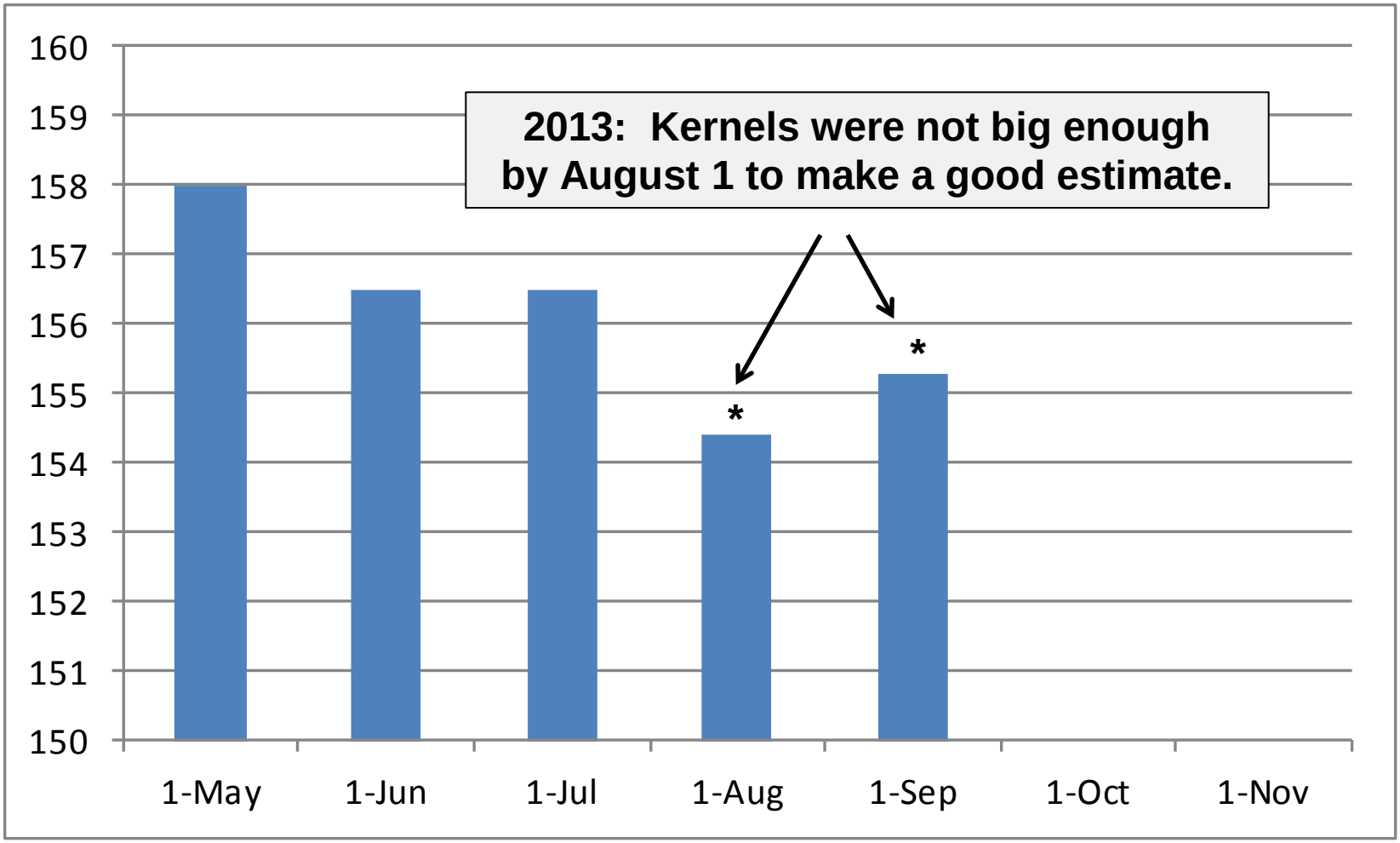
2012 U.S. Corn Yield Forecast
(Bushels / Acre)



*** Based on field surveys**

Source: USDA

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



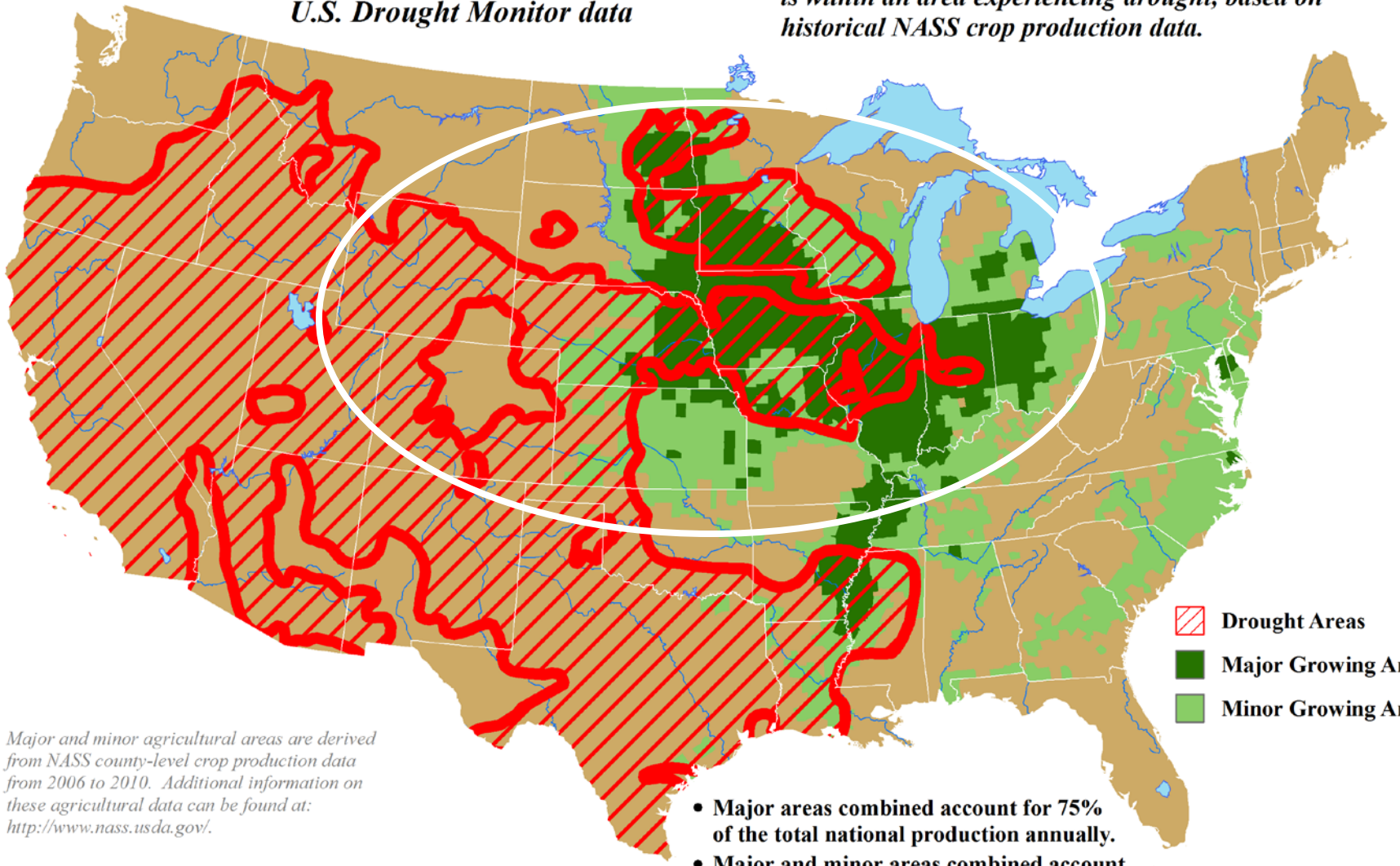
*** Based on field surveys**

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 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.**

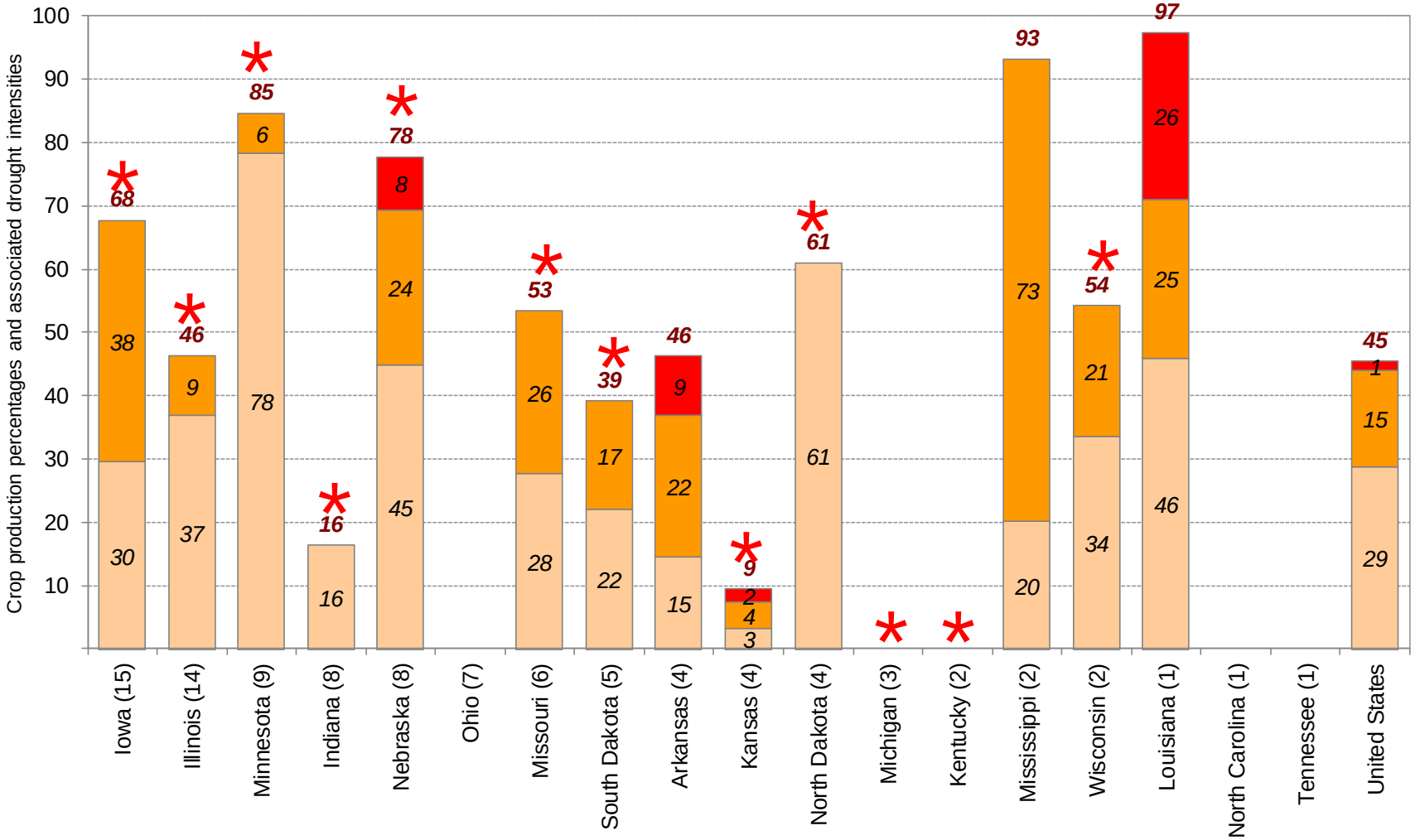
Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: http://www.nass.usda.gov/.

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/.

USDA **Agricultural Weather Assessments**
World Agricultural Outlook Board

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/.

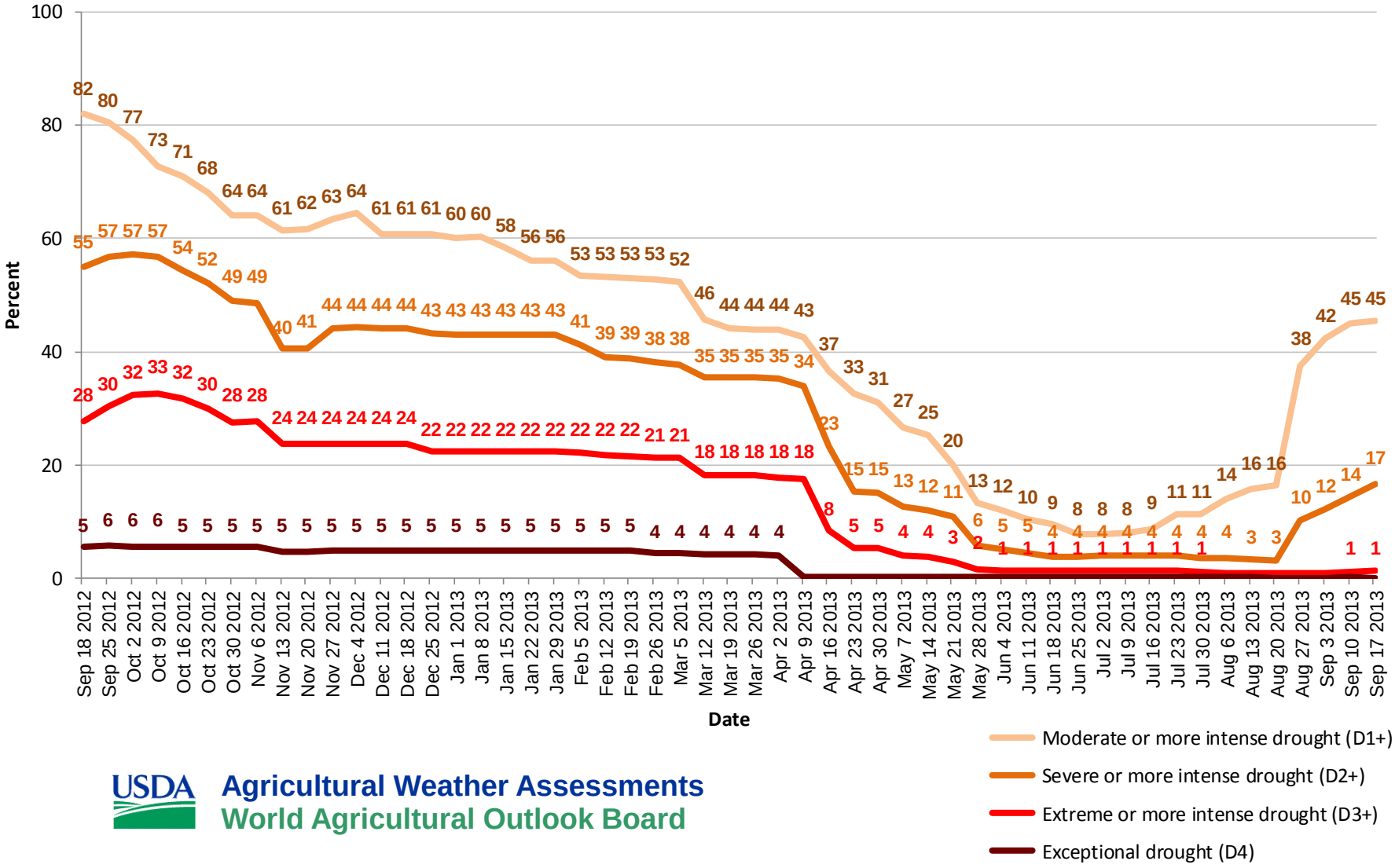
Percent in Moderate Drought (D1)
Percent in Severe Drought (D2)
Percent in Extreme Drought (D3)
Percent in Exceptional Drought (D4)

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

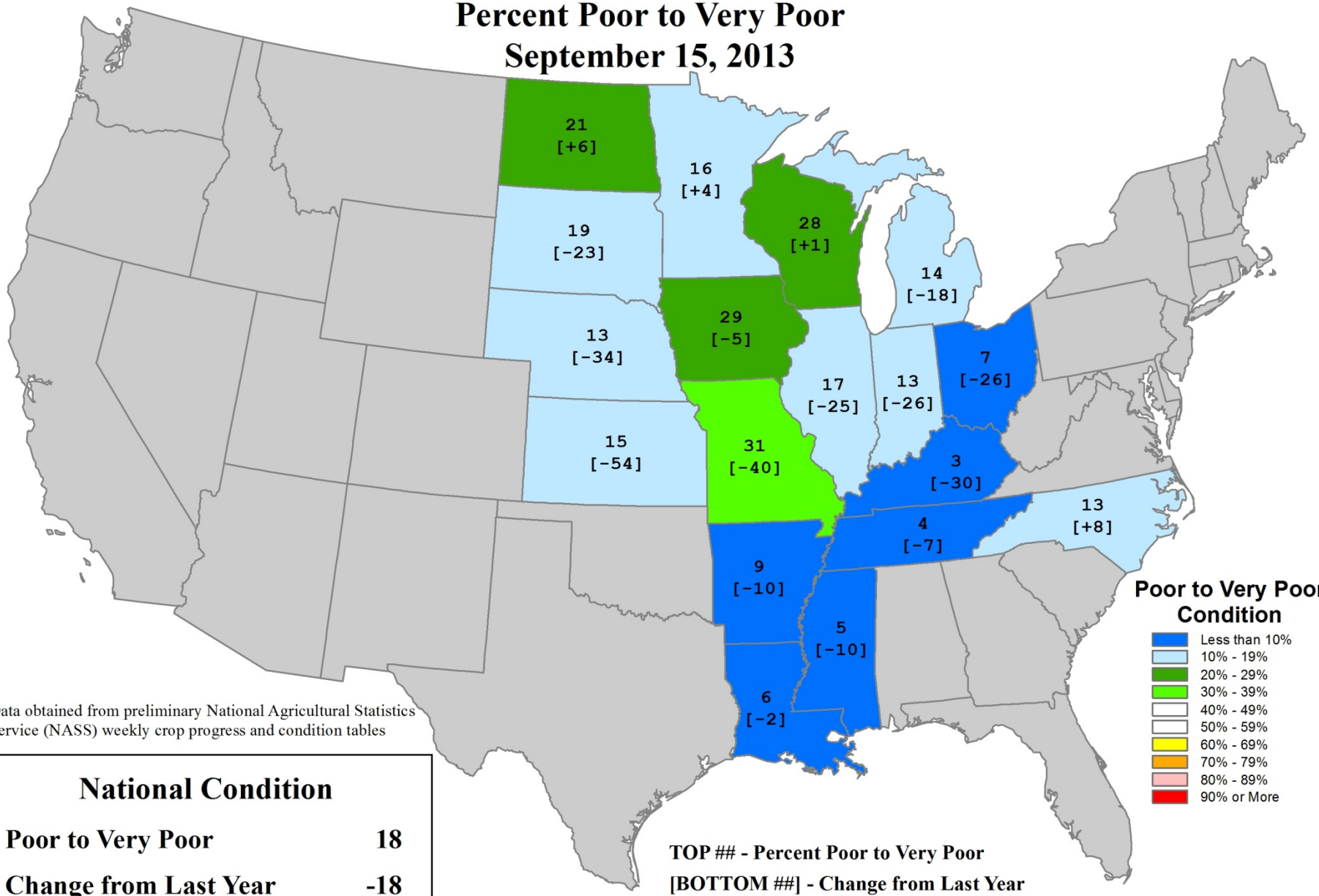
United States Soybean Areas Located in Drought



USDA **Agricultural Weather Assessments**
World Agricultural Outlook Board

U.S. Soybean Conditions

Percent Poor to Very Poor
September 15, 2013



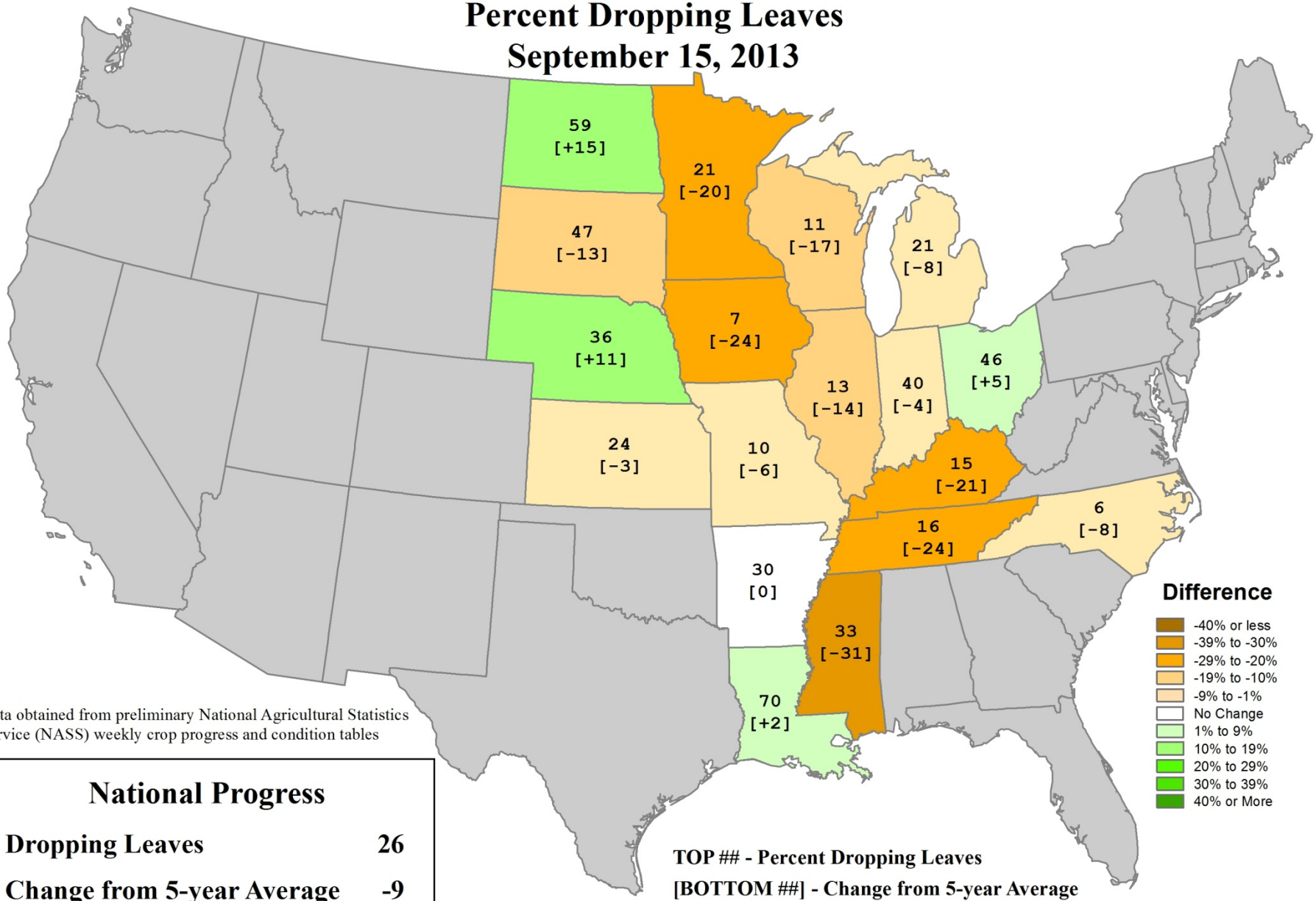
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Condition	
Poor to Very Poor	18
Change from Last Year	-18

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Soybeans Progress

Percent Dropping Leaves
September 15, 2013



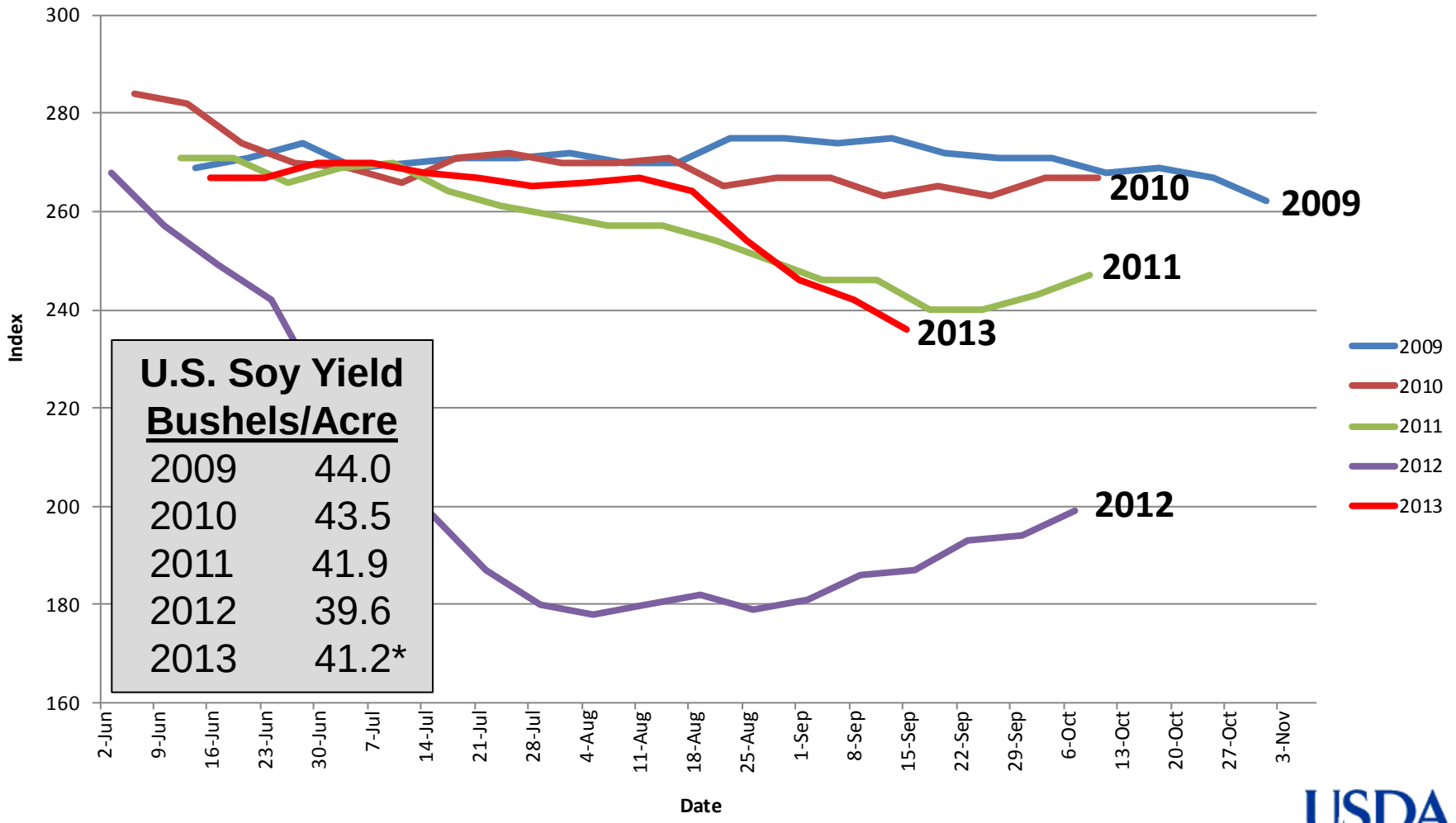
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Progress	
Dropping Leaves	26
Change from 5-year Average	-9

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. SOYBEAN Condition Index



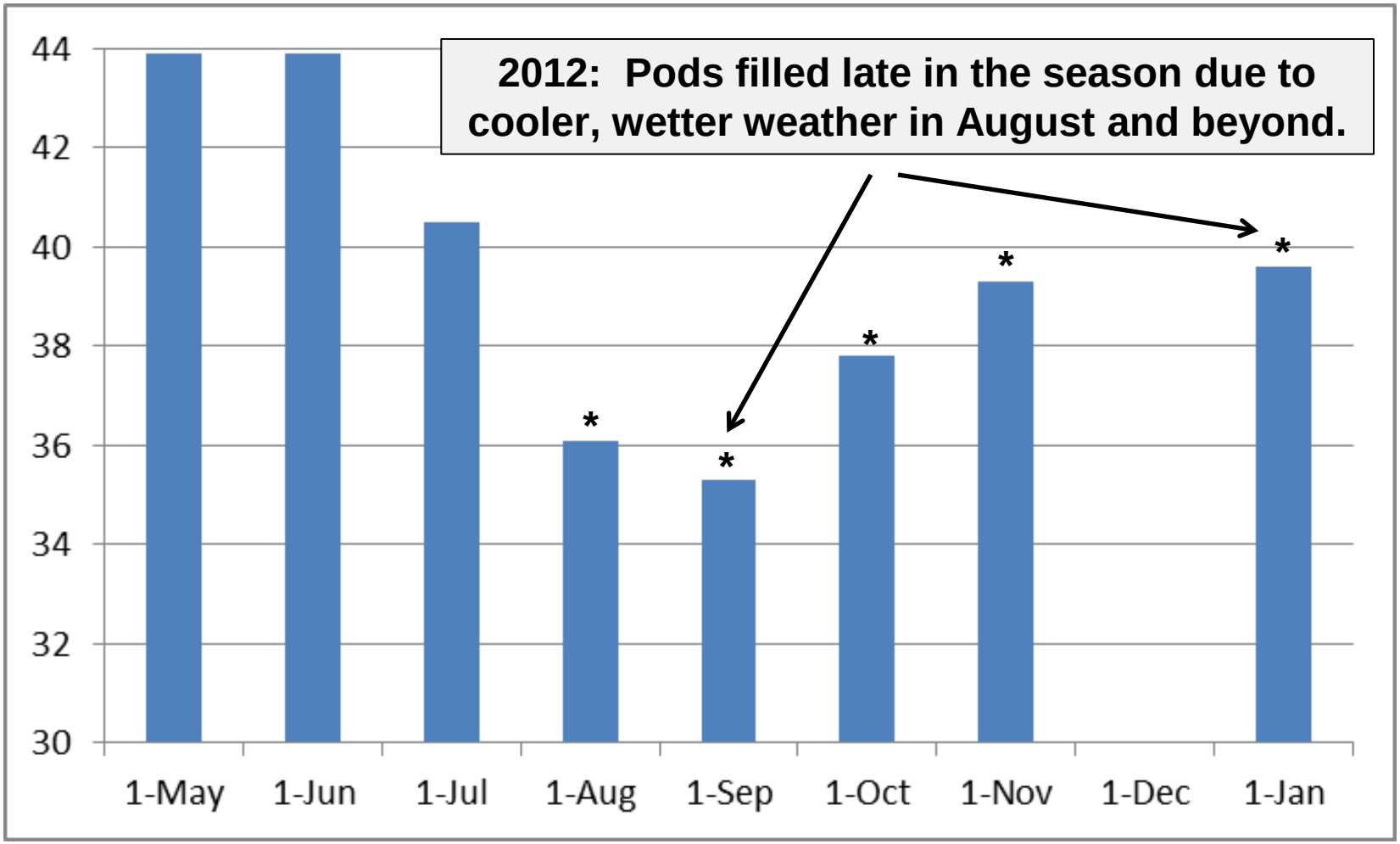
U.S. Soy Yield Bushels/Acre	
2009	44.0
2010	43.5
2011	41.9
2012	39.6
2013	41.2*

Based on NASS crop progress data.

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

USDA

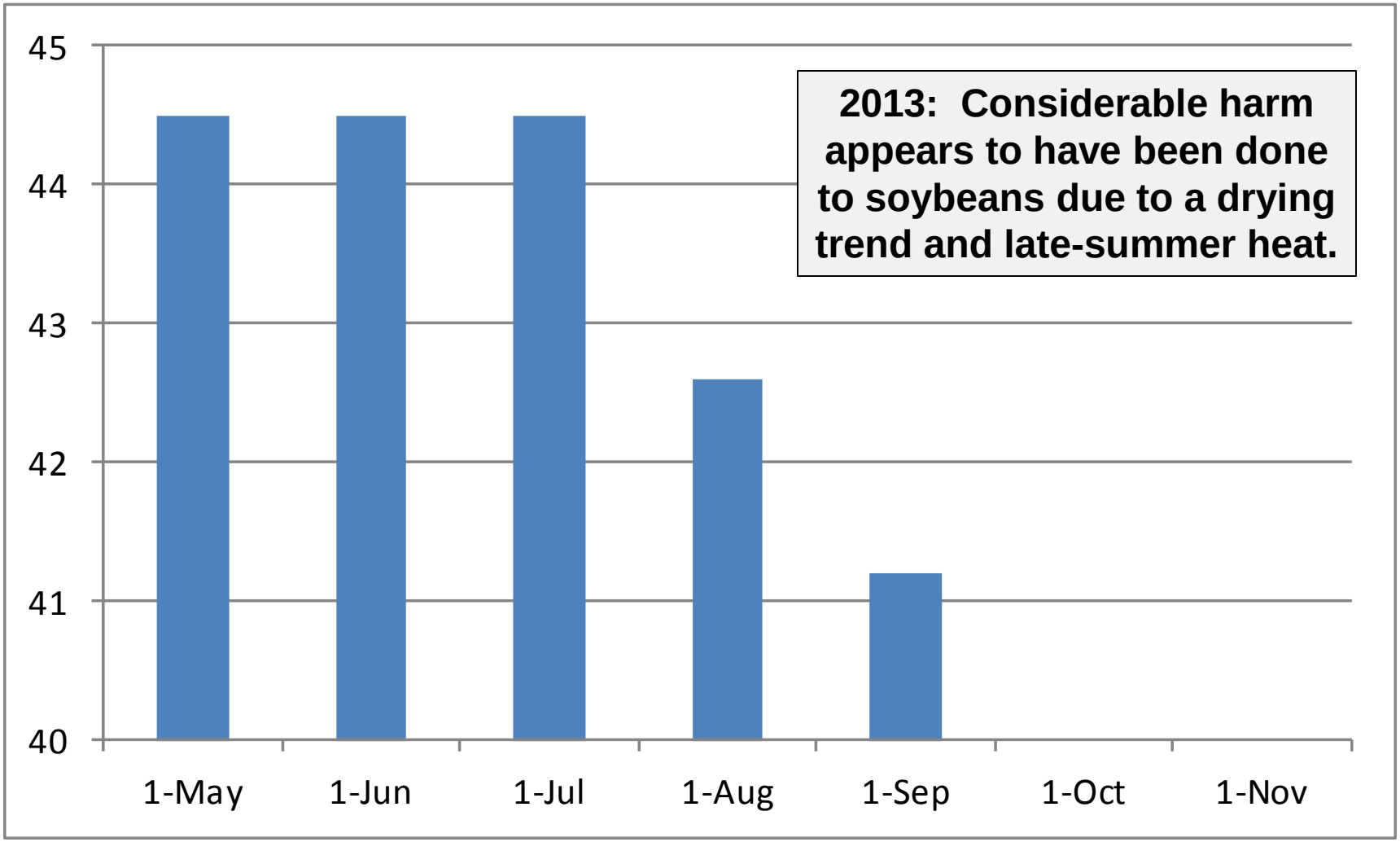
2012 U.S. Soybean Yield Forecast (Bushels / Acre)



*** Based on field surveys**

Source: USDA

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



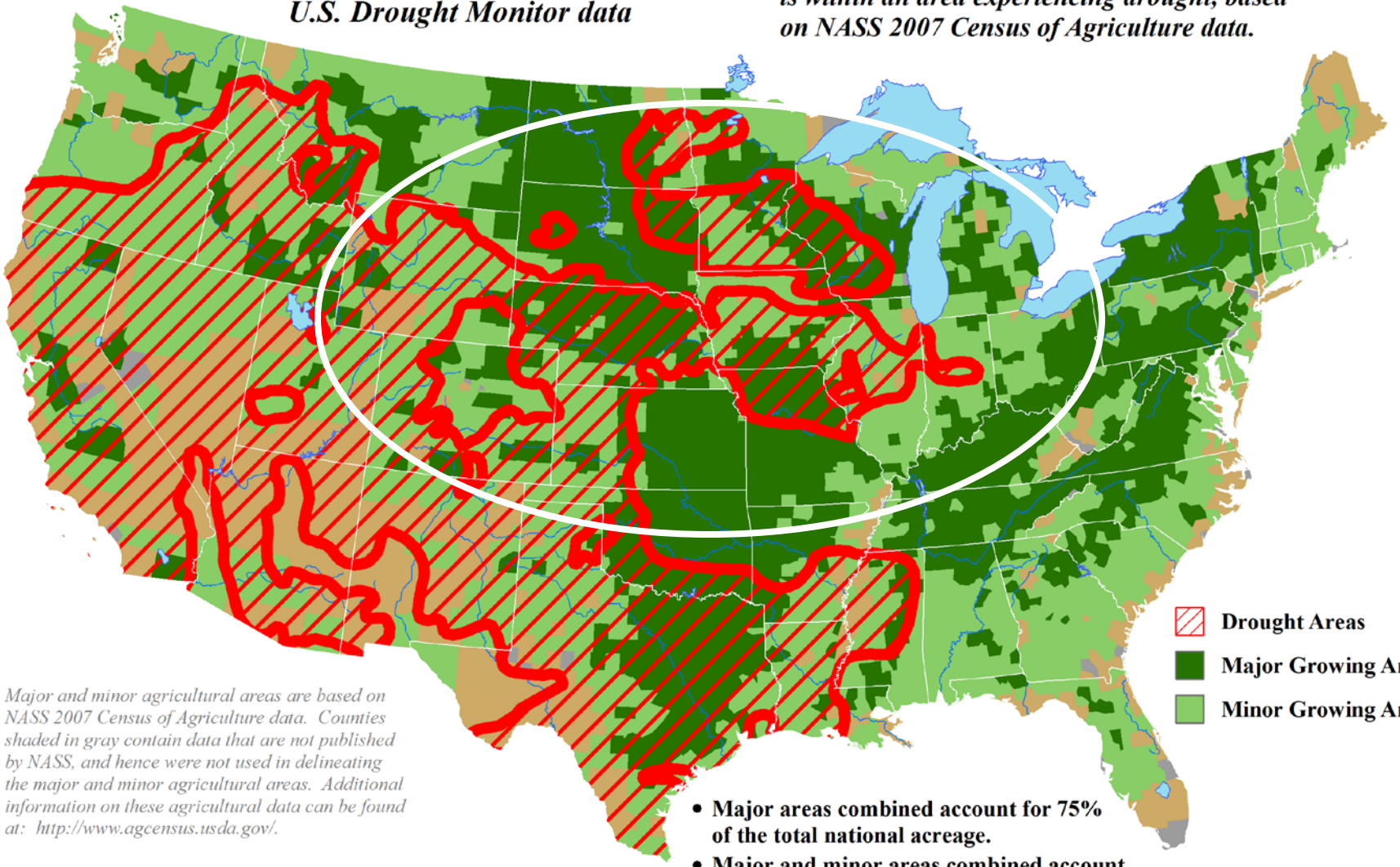
*** Based on field surveys**

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/.

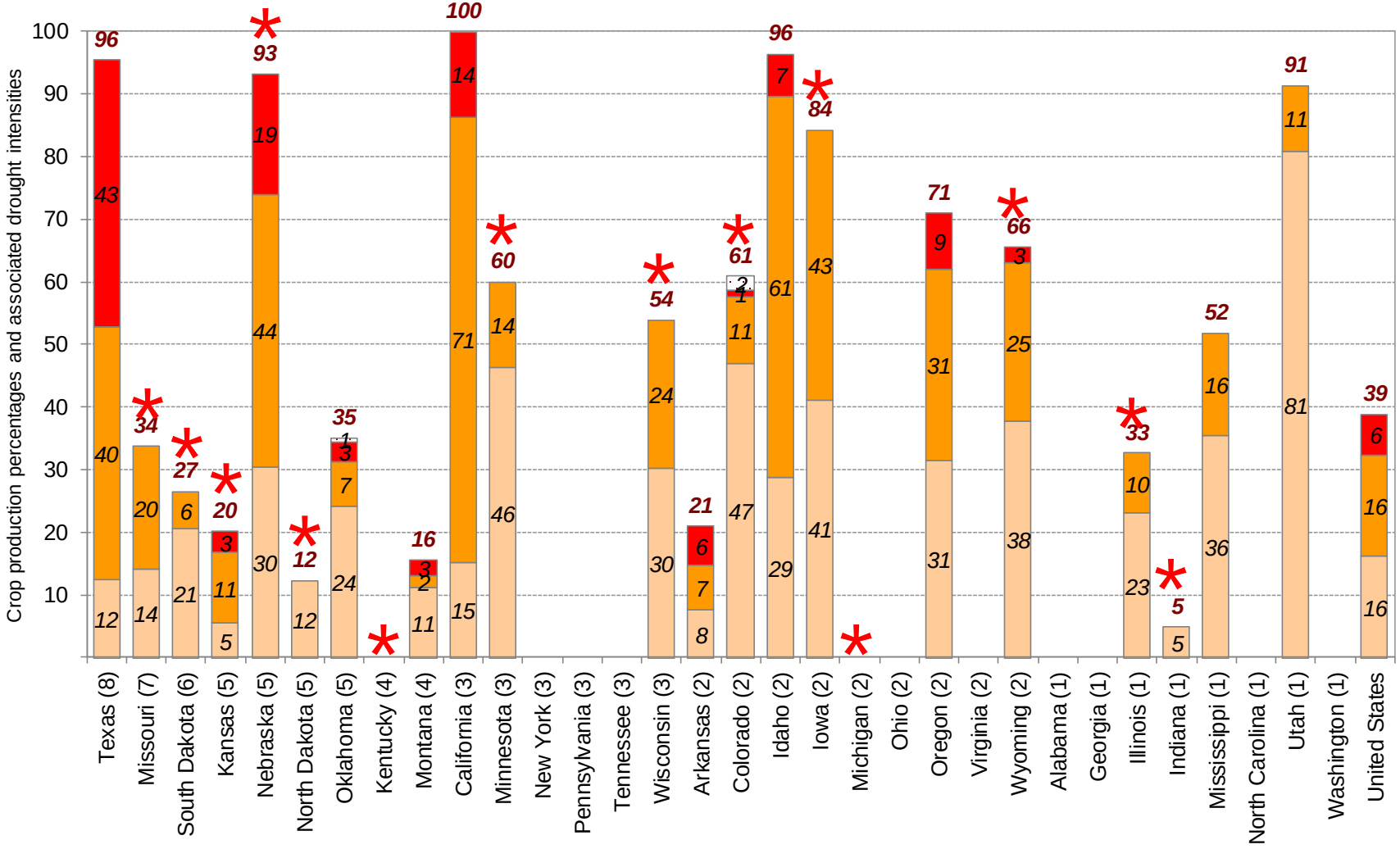
- **Major areas combined account for 75% of the total national acreage.**
- **Major and minor areas combined account for 99% of the total national acreage.**

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/.

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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/.

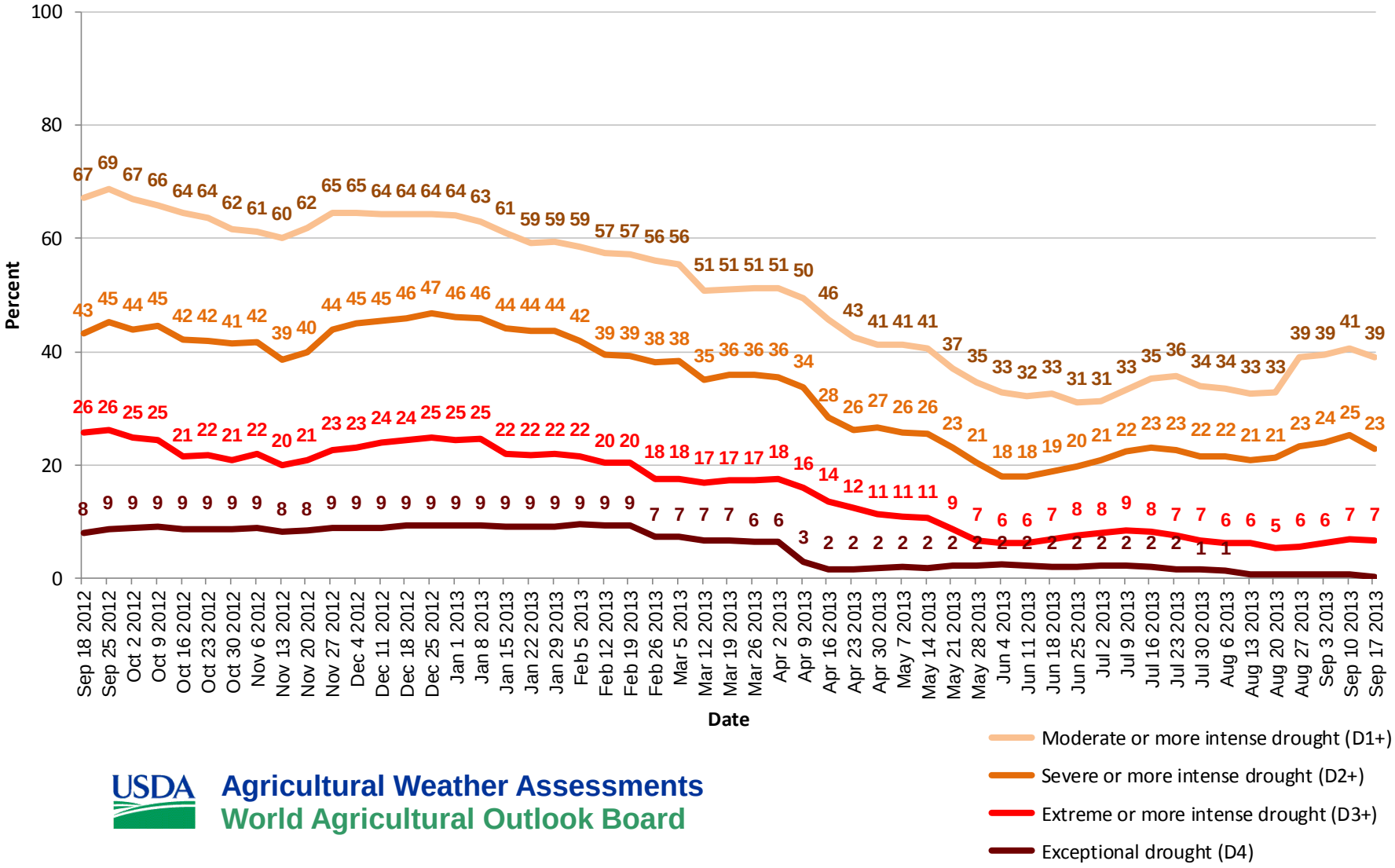
Percent in Moderate Drought (D1)
Percent in Severe Drought (D2)
Percent in Extreme Drought (D3)
Percent in Exceptional Drought (D4)

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

* Central Region state

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

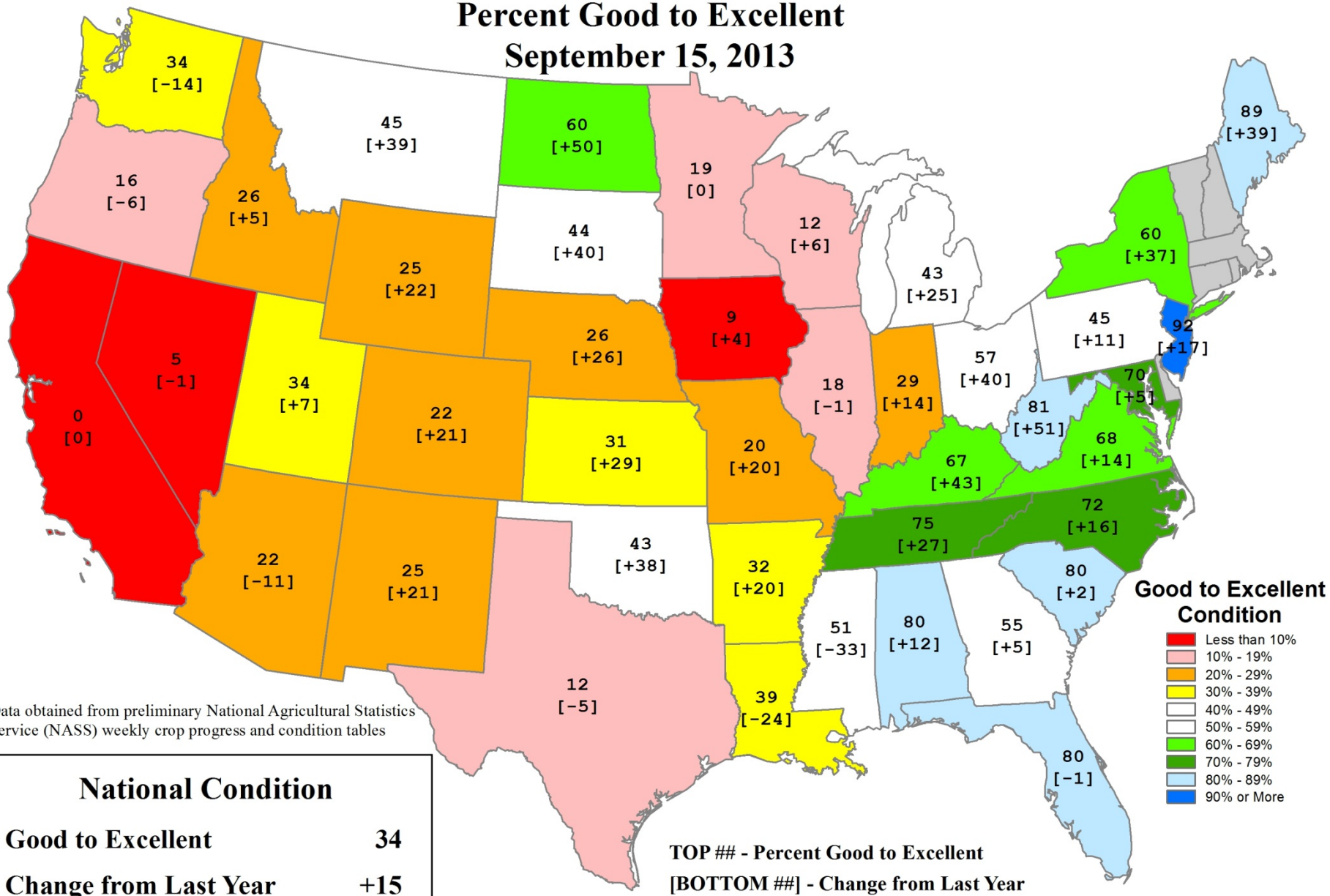
United States Hay Areas Located in Drought



USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Pasture and Range Conditions

Percent Good to Excellent
September 15, 2013



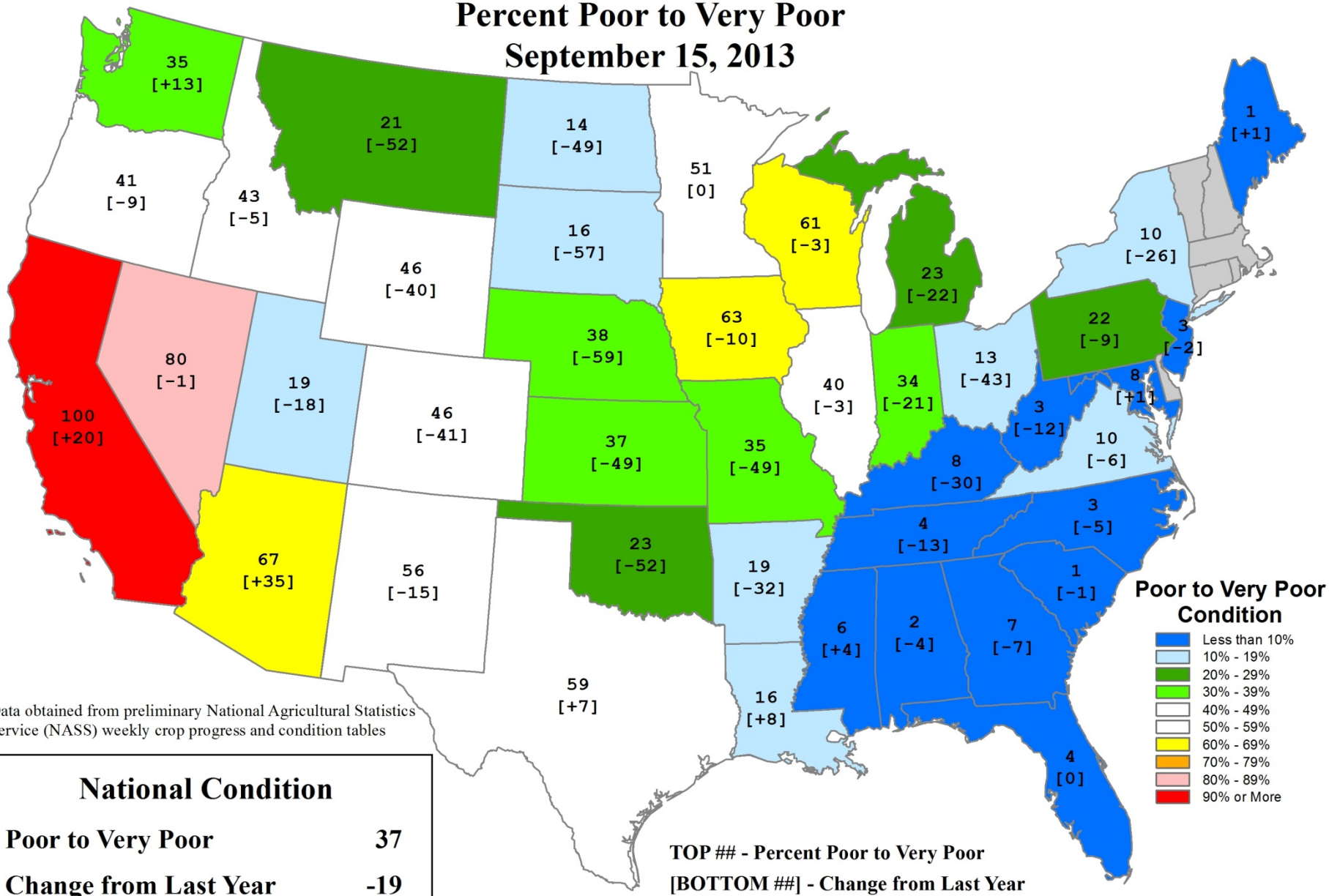
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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

National Condition	
Poor to Very Poor	37
Change from Last Year	-19

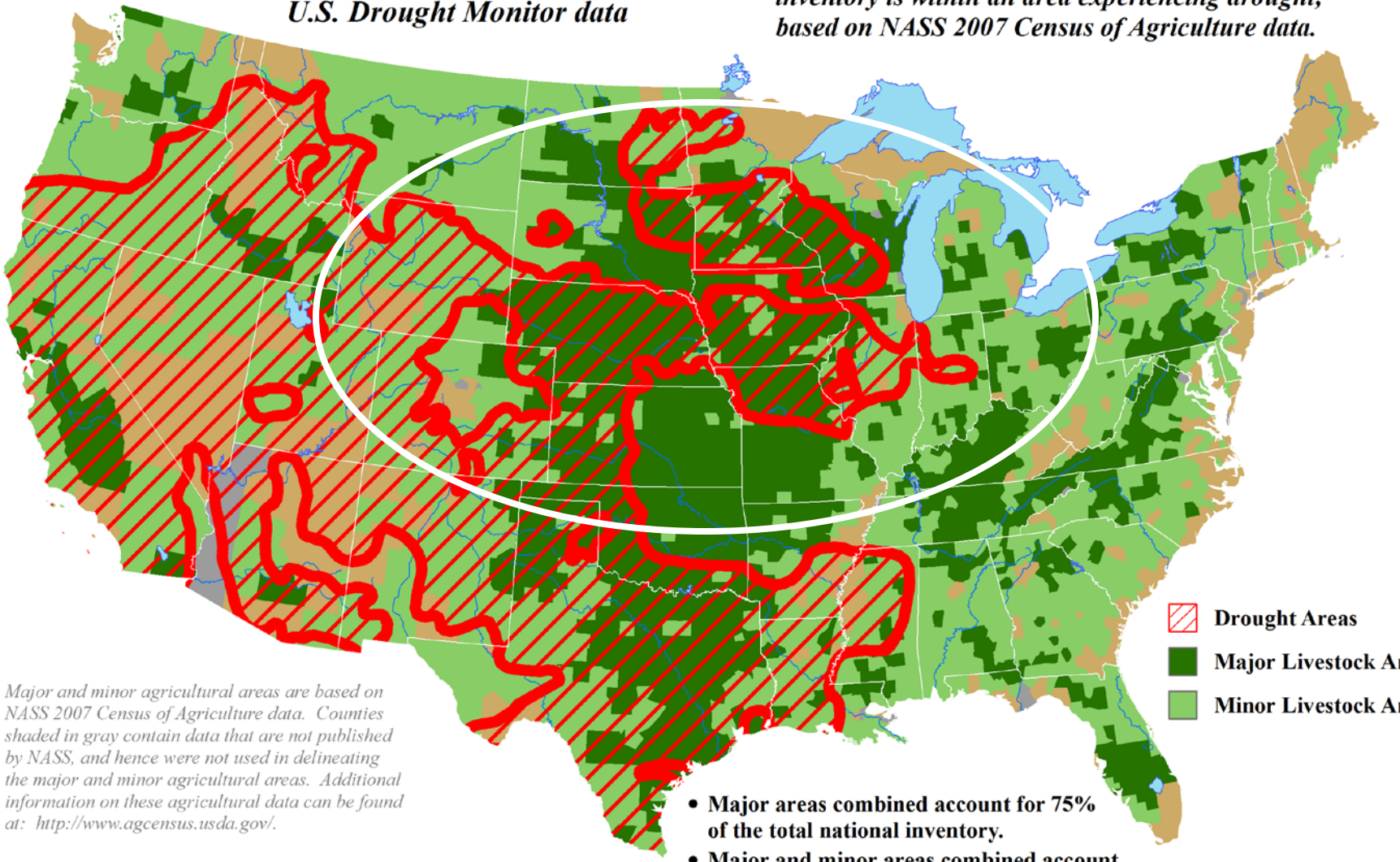
TOP ## - Percent Poor to Very Poor
[BOTTOM ##] - Change from Last Year

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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/.

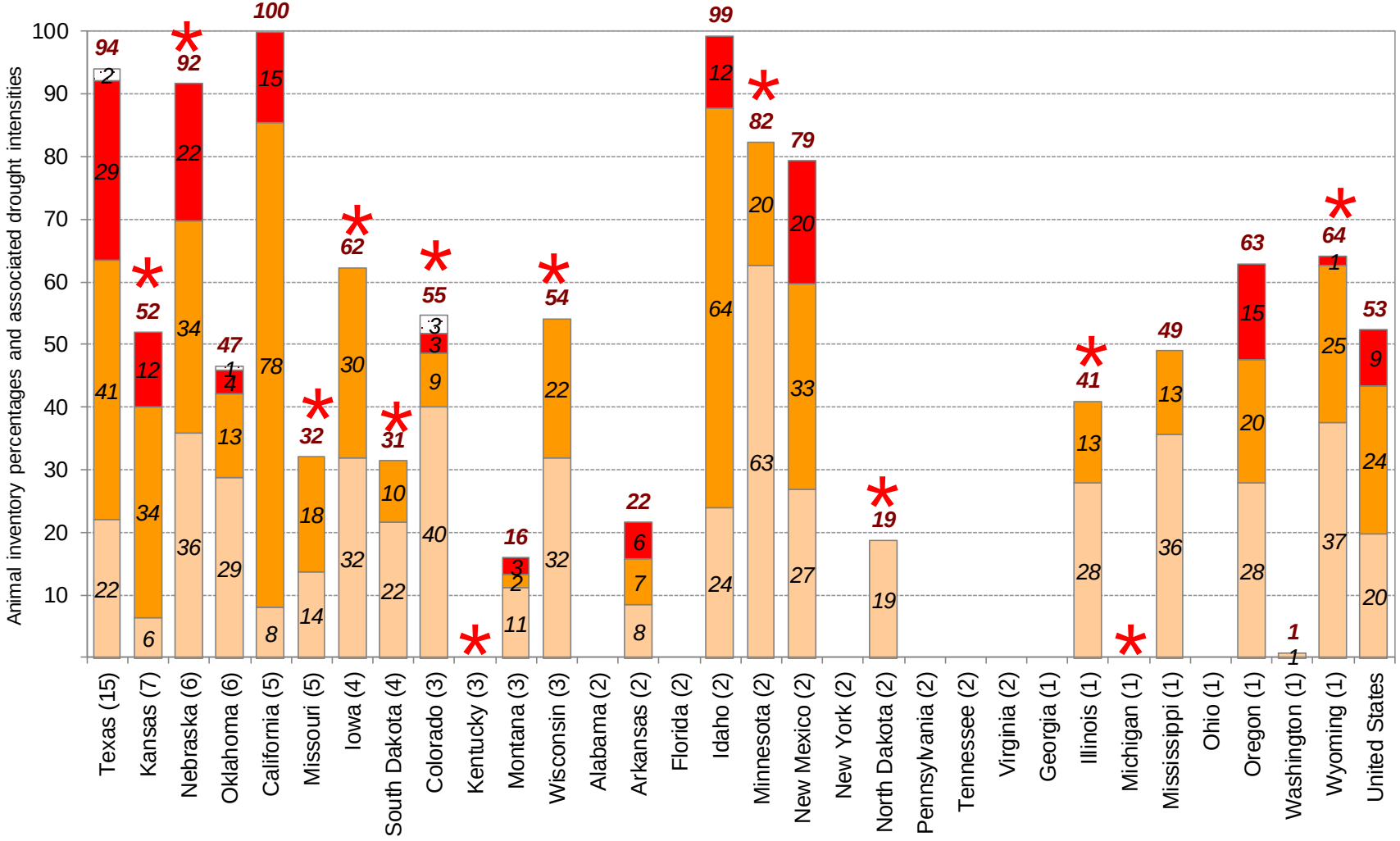
- **Major areas combined account for 75% of the total national inventory.**
- **Major and minor areas combined account for 99% of the total national inventory.**

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/.

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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/.

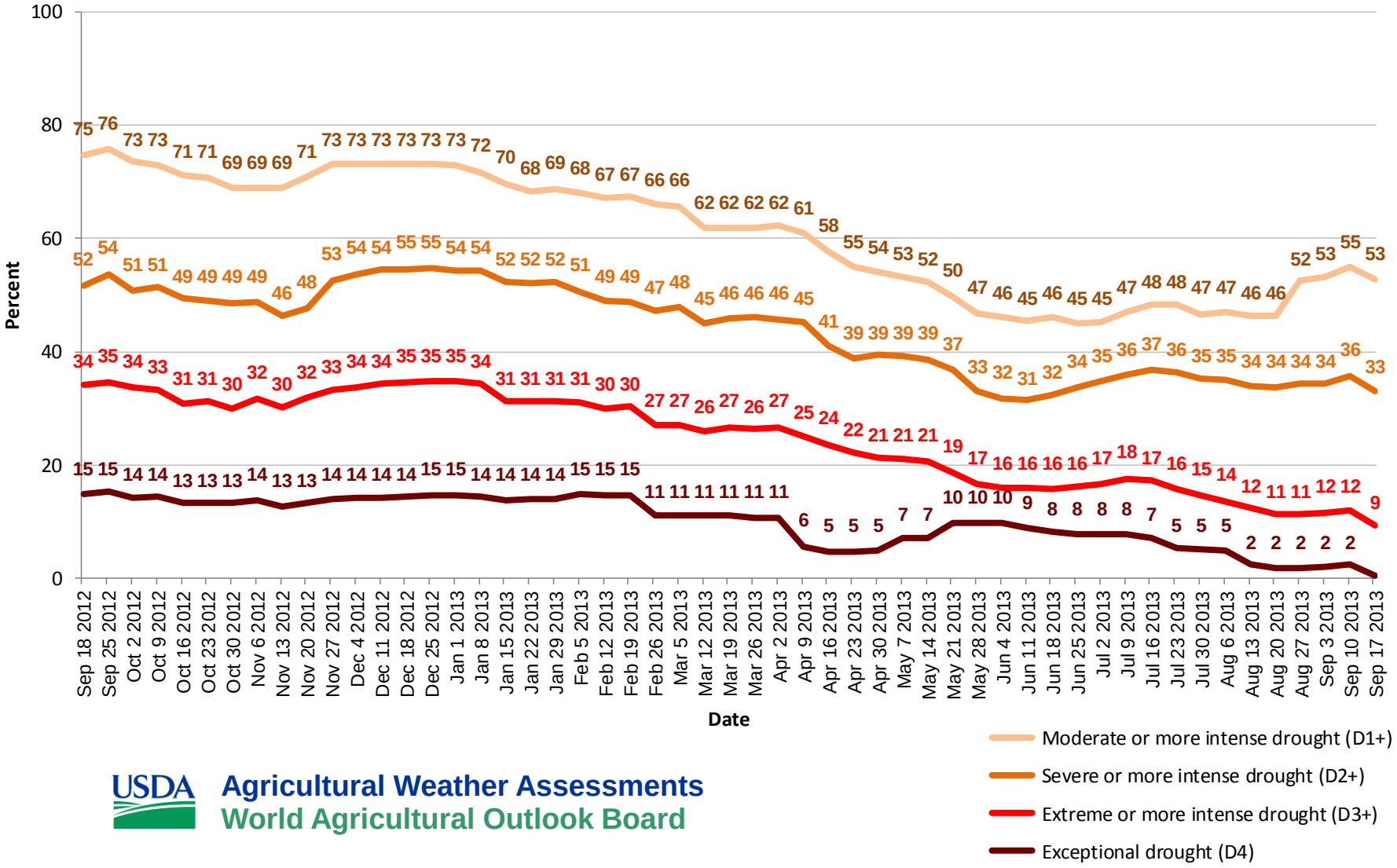
Percent in Moderate Drought (D1) | Percent in Severe Drought (D2) | Percent in Extreme Drought (D3) | Percent in Exceptional Drought (D4)

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

United States Cattle Areas Located in Drought

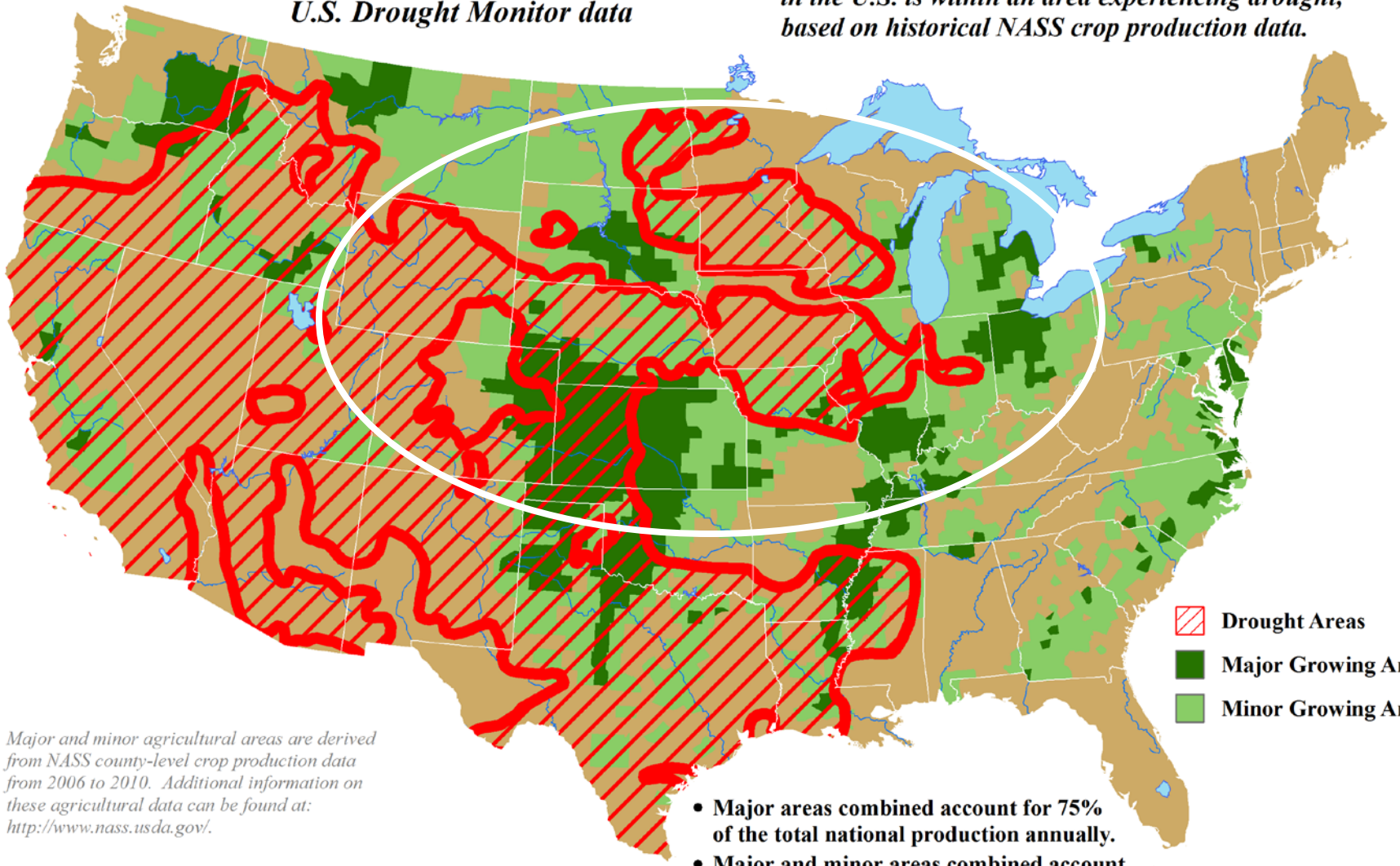


USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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 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.**

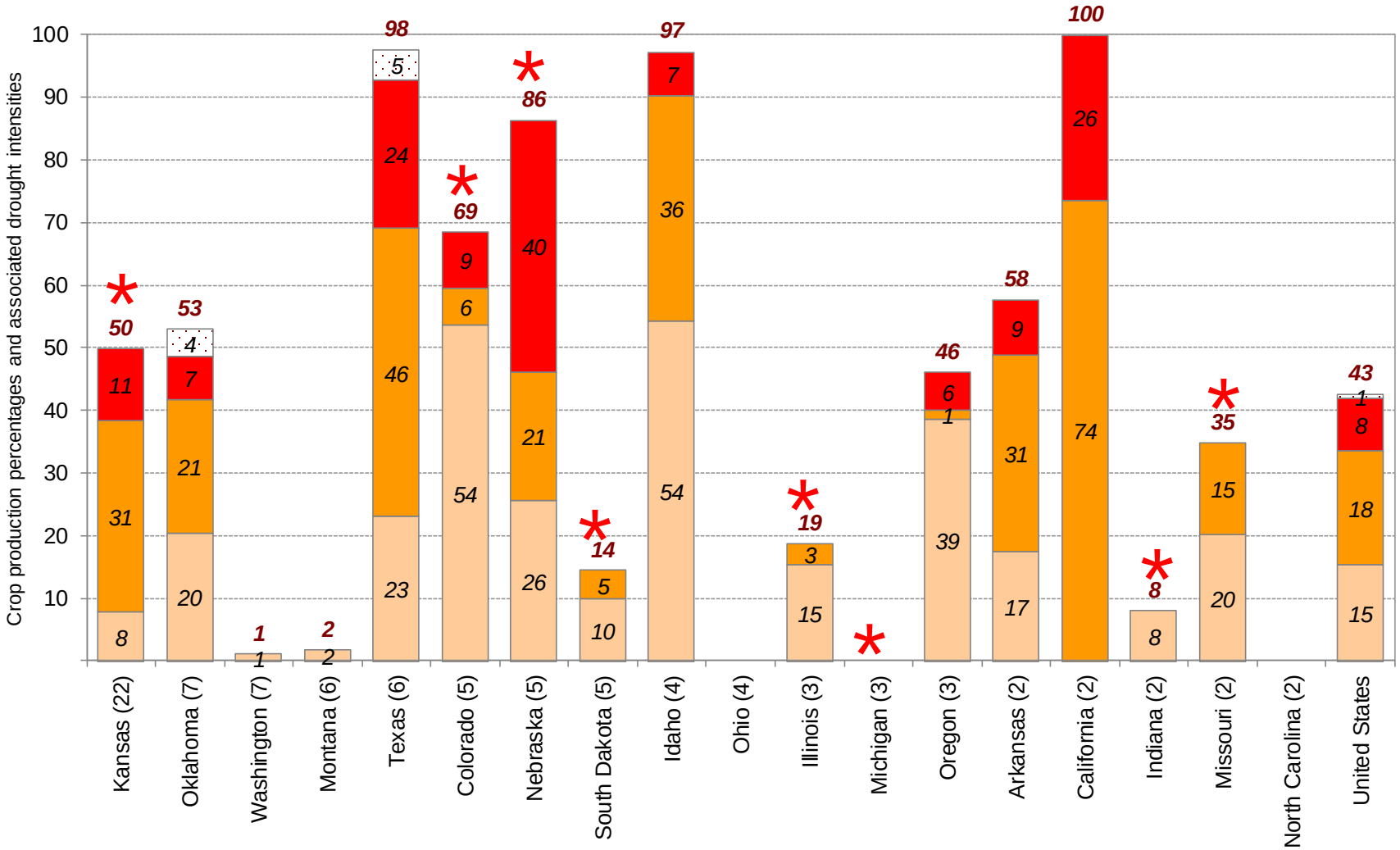
Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: http://www.nass.usda.gov/.

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/.

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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/.

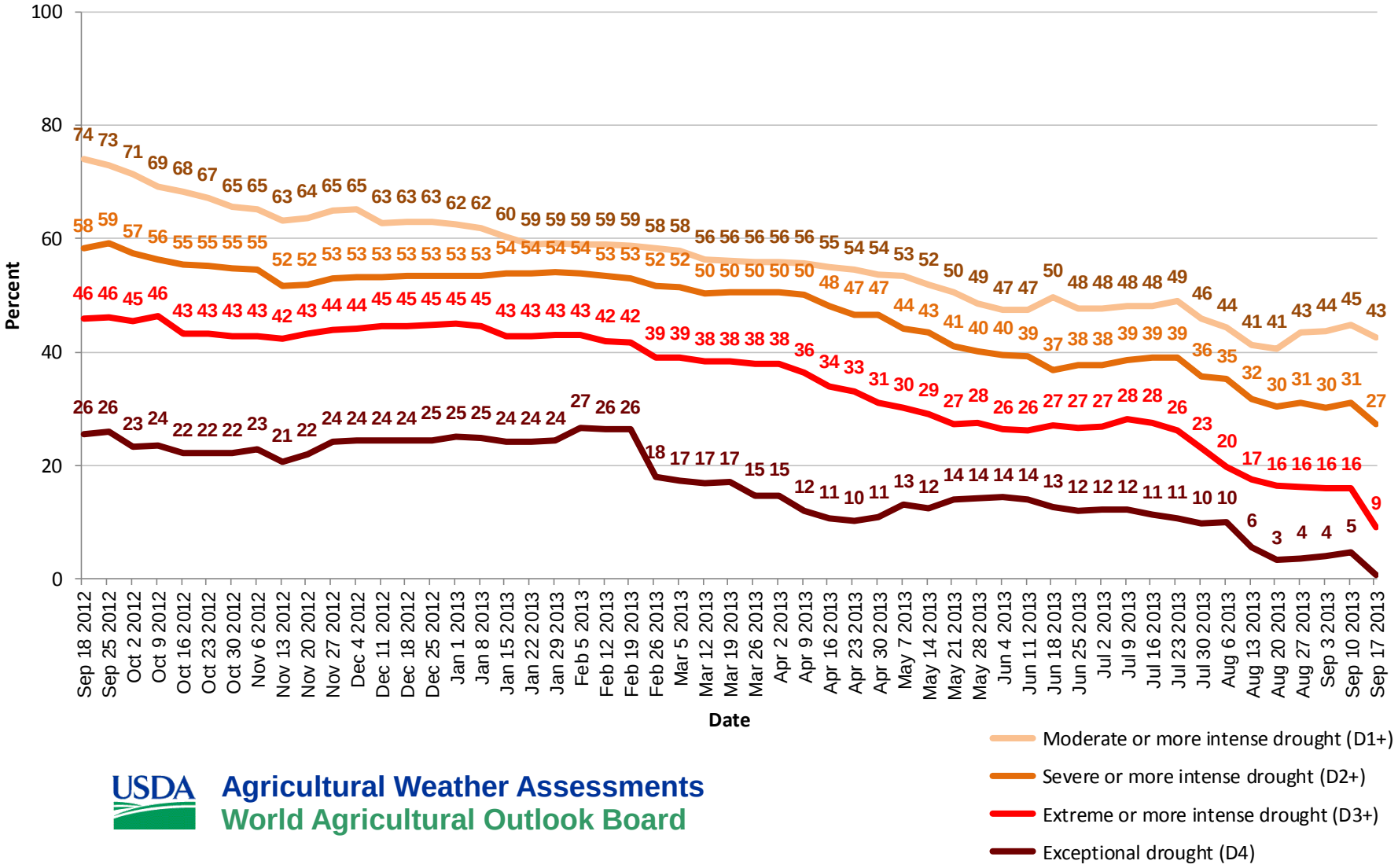
Percent in Moderate Drought (D1)
Percent in Severe Drought (D2)
Percent in Extreme Drought (D3)
Percent in Exceptional Drought (D4)

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

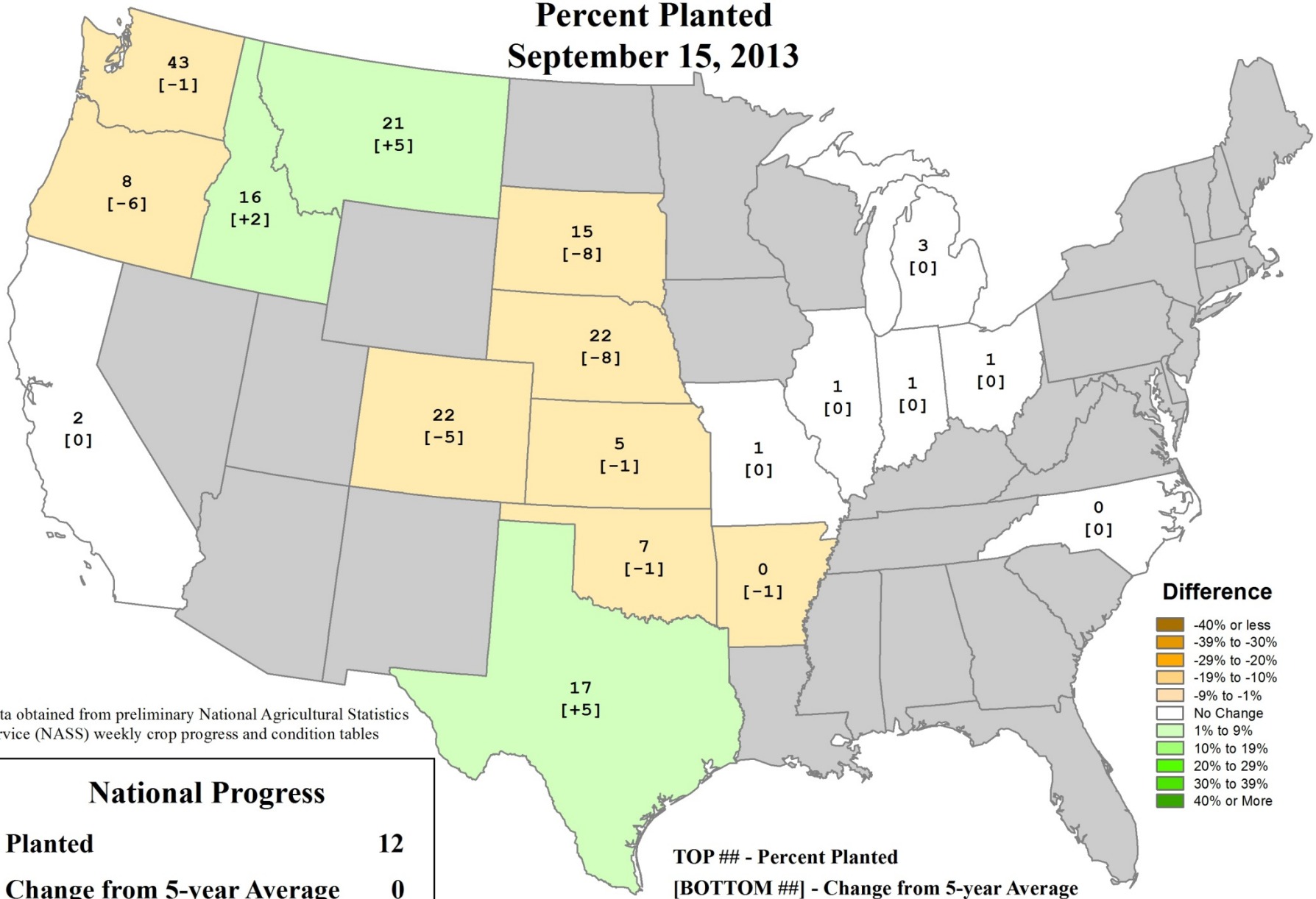
United States Winter Wheat Areas Located in Drought



USDA **Agricultural Weather Assessments**
World Agricultural Outlook Board

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

Comments? Questions?

- **Contact info:**
  - **e-mail: brippey@oce.usda.gov**
  - **phone: (202) 720-2397**

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