

Midwest and Great Plains Climate- Drought Outlook 15 September 2016

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AASC
AMERICAN ASSOCIATION OF
STATE CLIMATOLOGISTS



**United States Department of Agriculture
Midwest Climate Hub**

General Information

- * **Providing climate services to the Central Region**

- * Collaboration Activity Between:

- * State Climatologists
 - * NOAA – NCEI
 - * USDA Climate Hubs
 - * American Association of State Climatologists
 - * Midwest and High Plains Regional Climate Centers
 - * National Drought Mitigation Center/USDA

- * **Next Regular Climate/Drought Outlook Webinar**

- * Oct. 20, 2016 (1 PM CDT) Laura Edwards Acting SC in SD

- * **Access to Future Climate Webinars and Information**

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

- * <http://mrcc.isws.illinois.edu/webinars.htm>

- * <http://www.hprcc.unl.edu/webinars.php>

- * **Open for questions at the end**

Agenda

- * **Current Conditions**

- * **Ag Review**

- * **Brad Rippey**

- * **Outlooks**

- * **Non-La Niña**

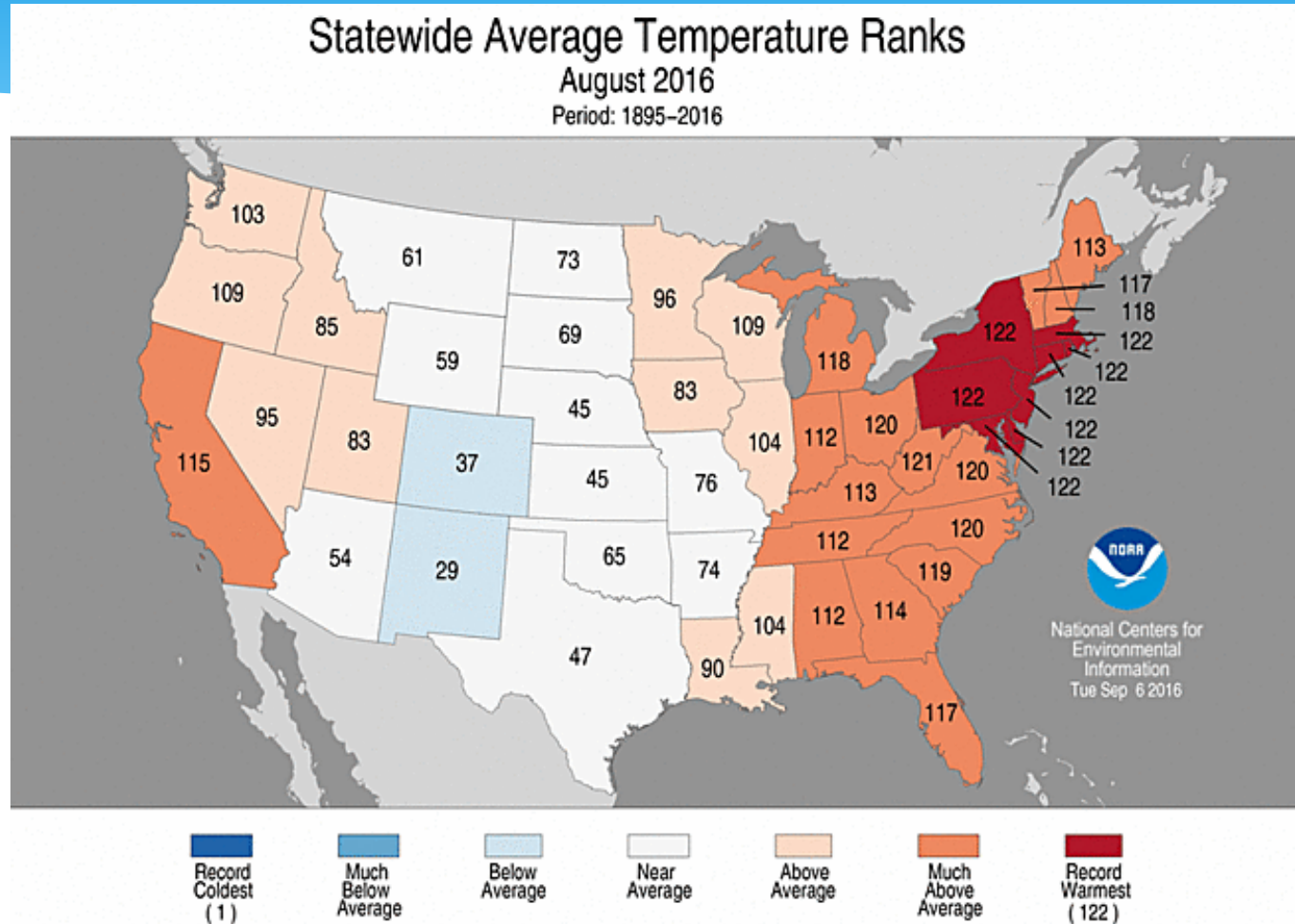
- * **Fall - winter**



Review/Current Conditions

August Temperature Recap

Warm across the east – moderate to cooler western region.



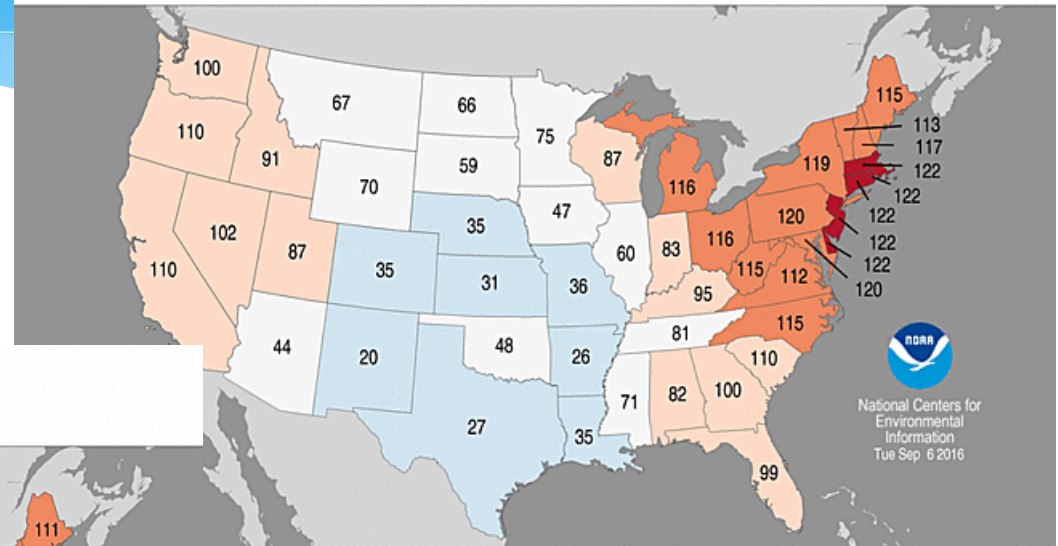
August Temperature Recap

**Different when
split out – much
warmer minimums,
lower maximums**

Statewide Maximum Temperature Ranks

August 2016

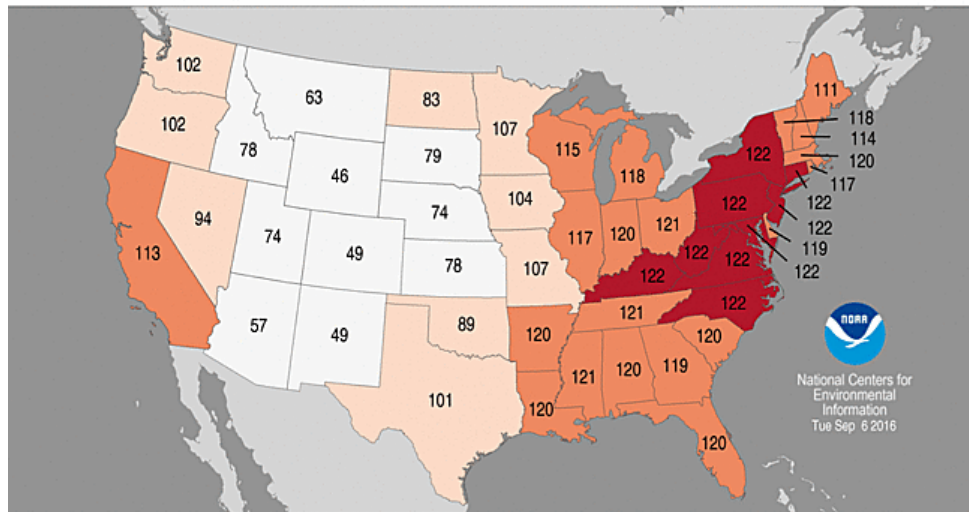
Period: 1895–2016



Statewide Minimum Temperature Ranks

August 2016

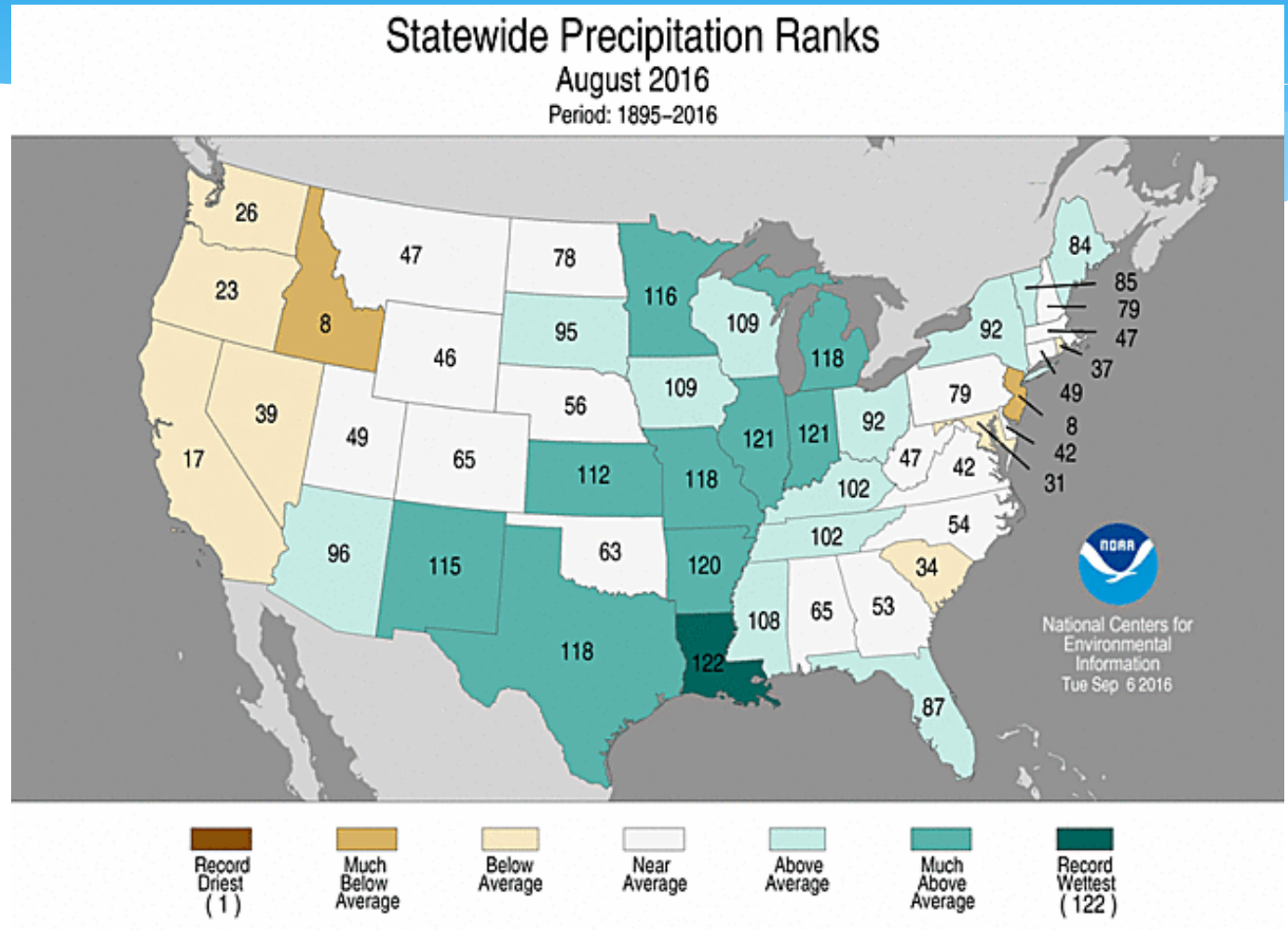
Period: 1895–2016



<http://www.ncdc.noaa.gov/temp-and-precip/us-maps/>

August Precipitation Recap

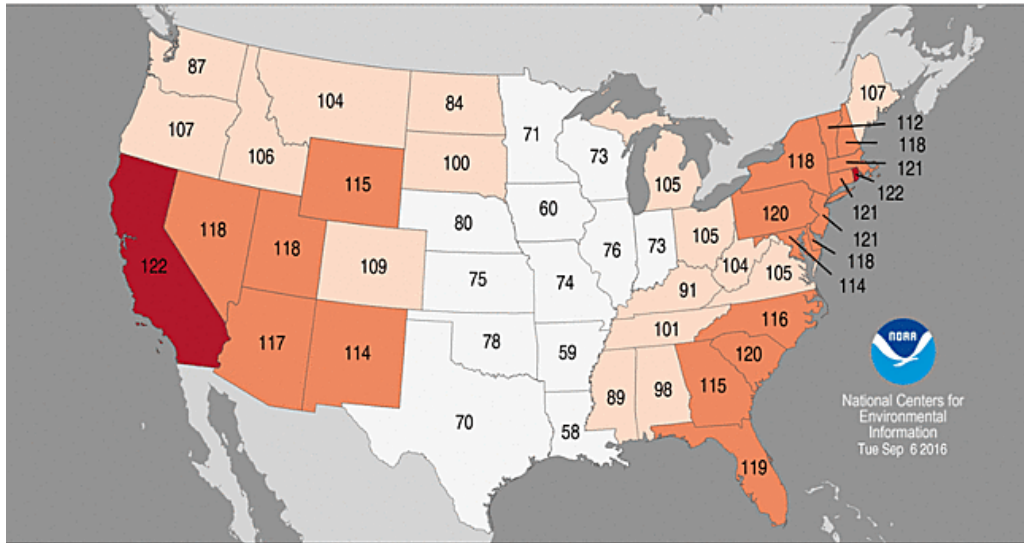
**Wet late season
most of region –
moderate to the
west.**



Statewide Maximum Temperature Ranks

June–August 2016

Period: 1895–2016

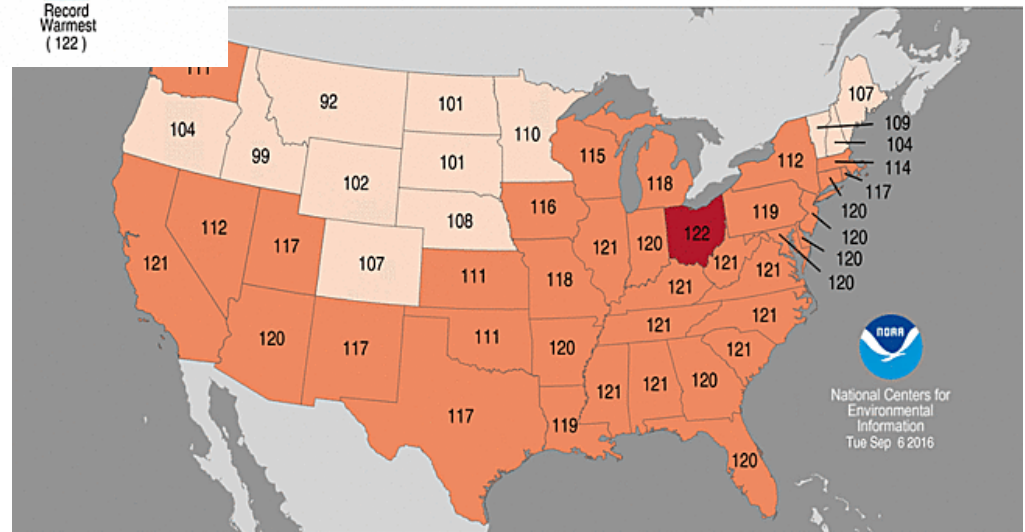


June – August temperature ranks

Statewide Minimum Temperature Ranks

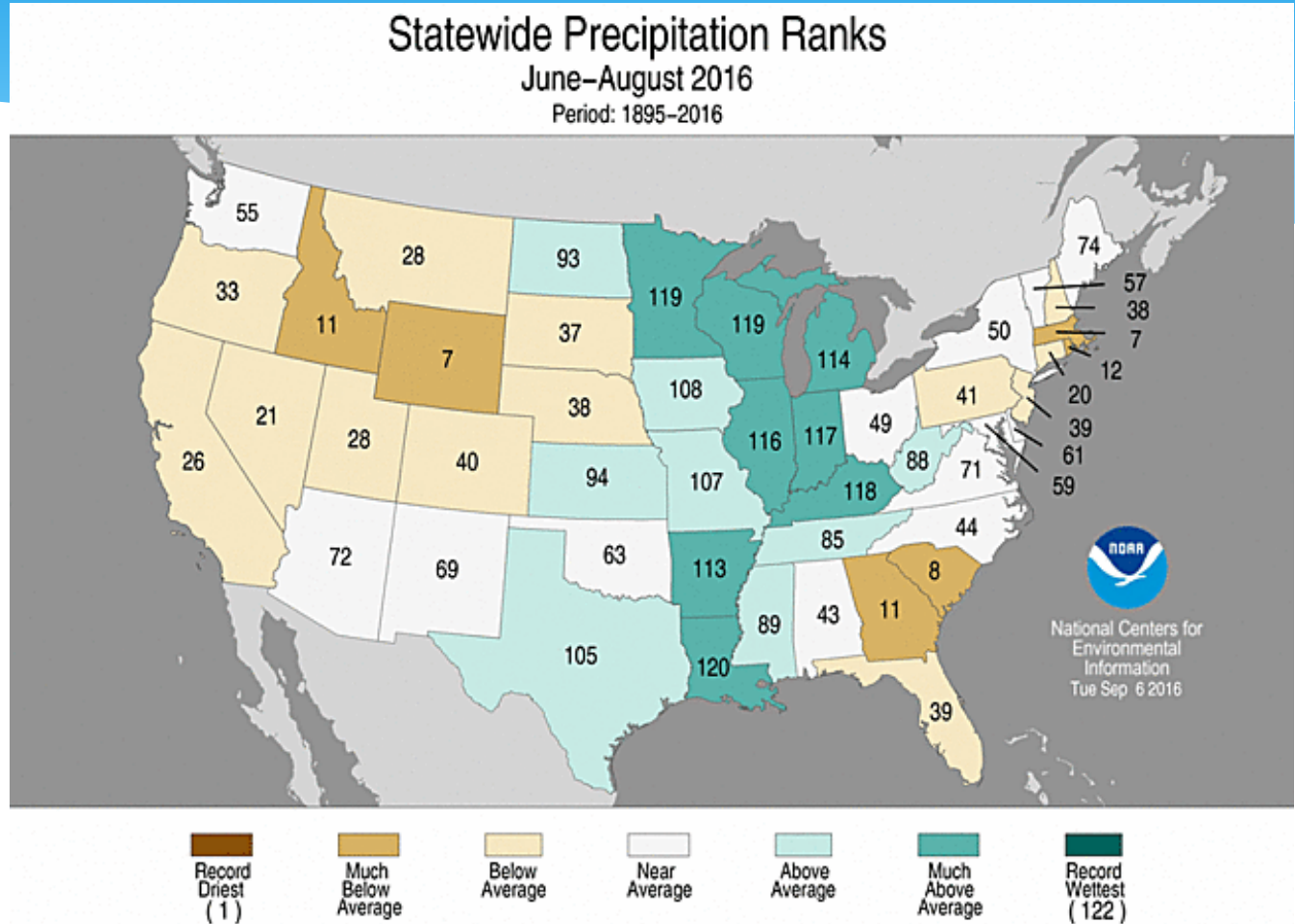
June–August 2016

Period: 1895–2016



June - August Precipitation

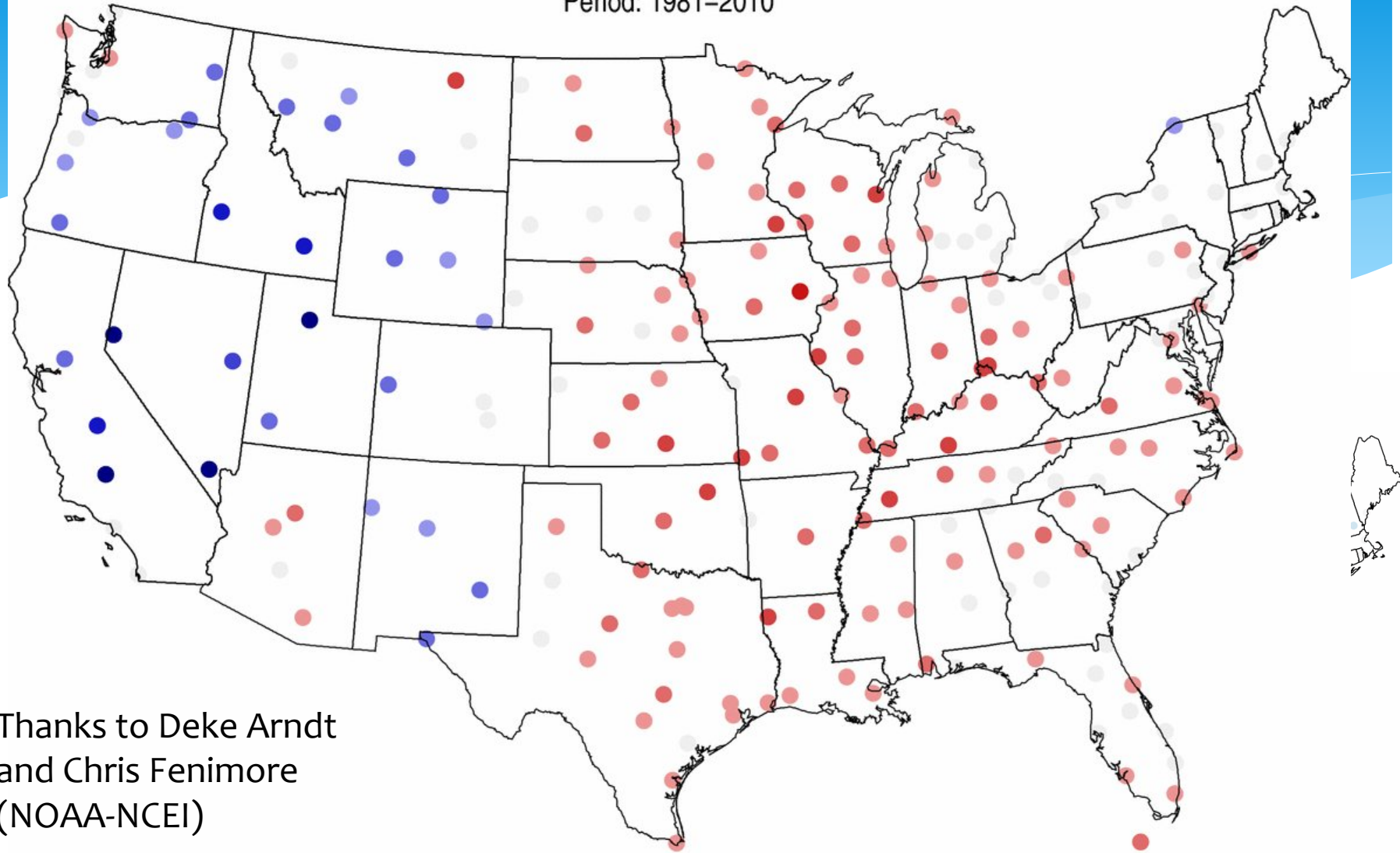
Wet summer Corn Belt. Drier west. Mid-late season recovery after warm dry June



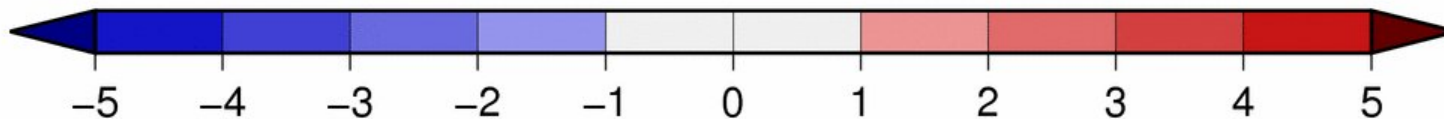
Average Dew Point Temperature Departures from Average

June–August 2016

Period: 1981–2010



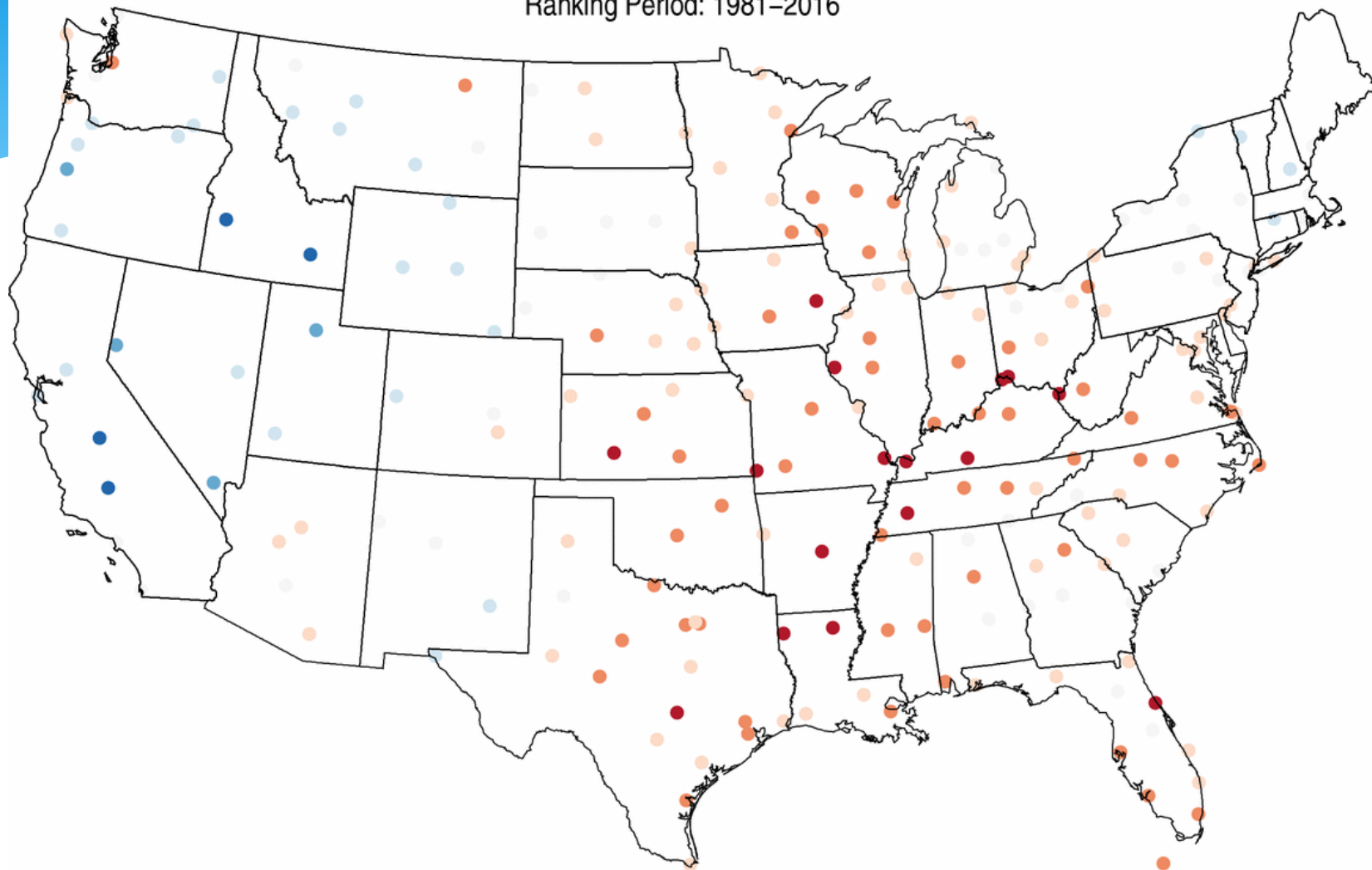
Thanks to Deke Arndt
and Chris Fenimore
(NOAA-NCEI)



Average Dew Point Temperature Percentiles

June–August 2016

Ranking Period: 1981–2016



Record
Low*



Much
Below
Normal



Below
Normal



Near
Normal



Above
Normal



Much
Above
Normal



Record
High*

*Includes Ties

Data Source: Integrated Surface Daily (ISD)



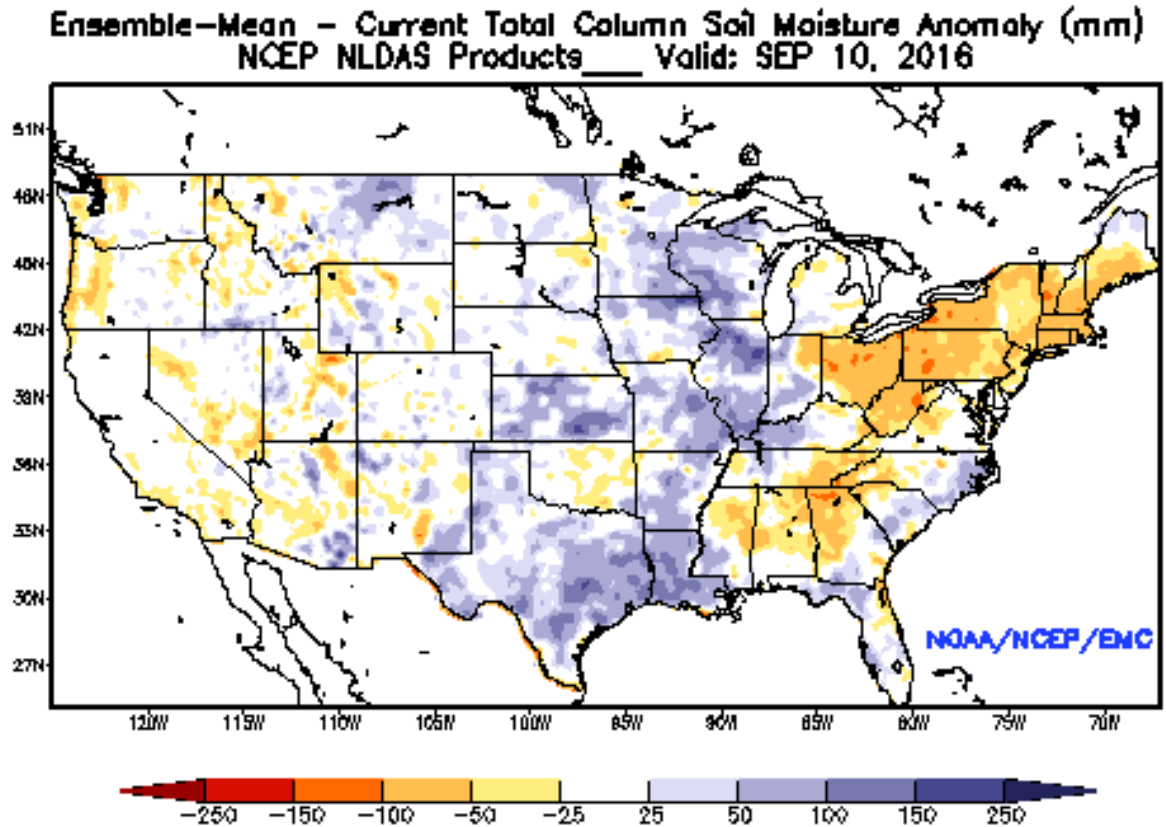
National Centers for
Environmental Information

Soil Moisture

Wet – late season
precip

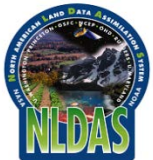
Potential issues

- Crop drydown
- Field access
- Carry-over Sp '17



Soil Moisture Anomaly in millimeters

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



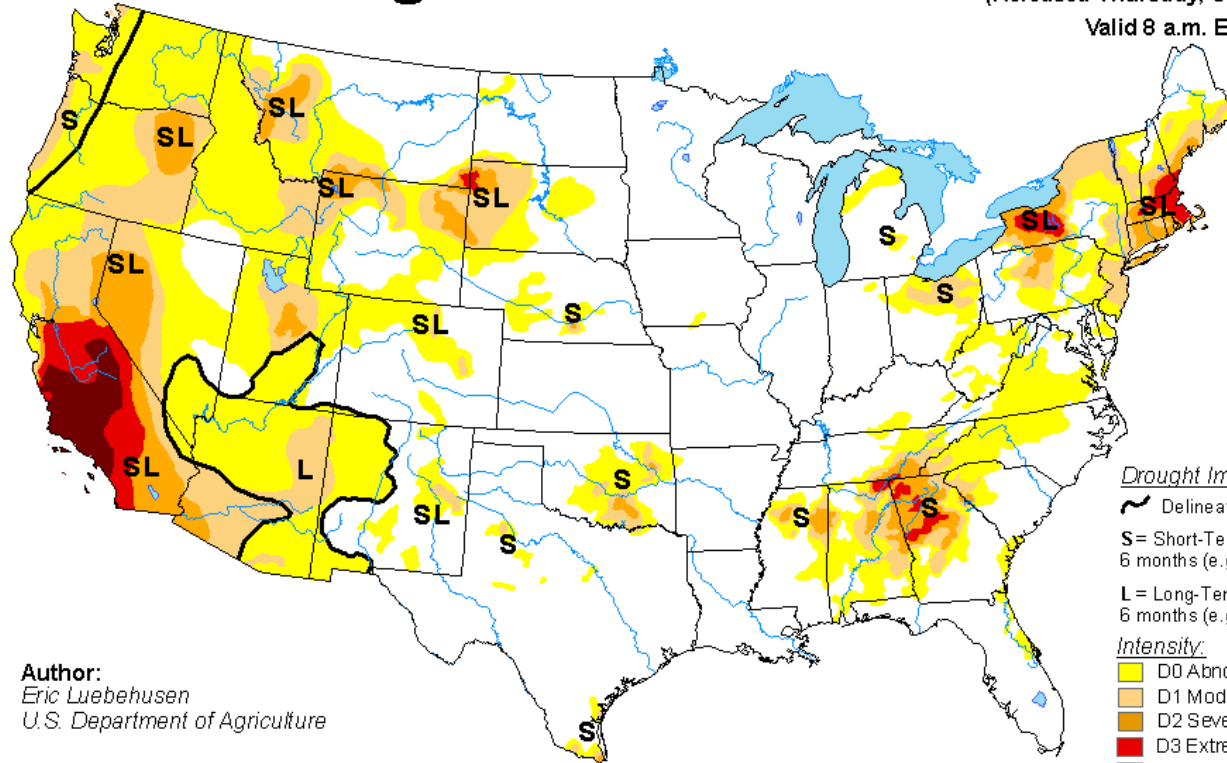
US Drought Monitor

U.S. Drought Monitor

September 13, 2016

(Released Thursday, Sep. 15, 2016)

Valid 8 a.m. EDT



Author:
Eric Luebehusen
U.S. Department of Agriculture

Drought Impact Types:

~ Delineates dominant impacts

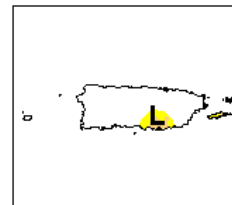
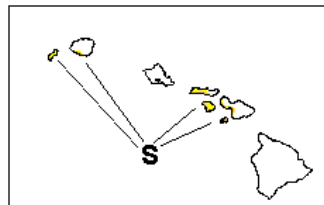
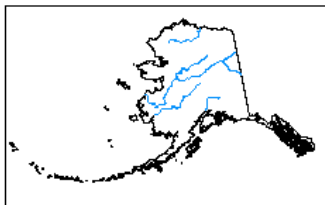
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

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.

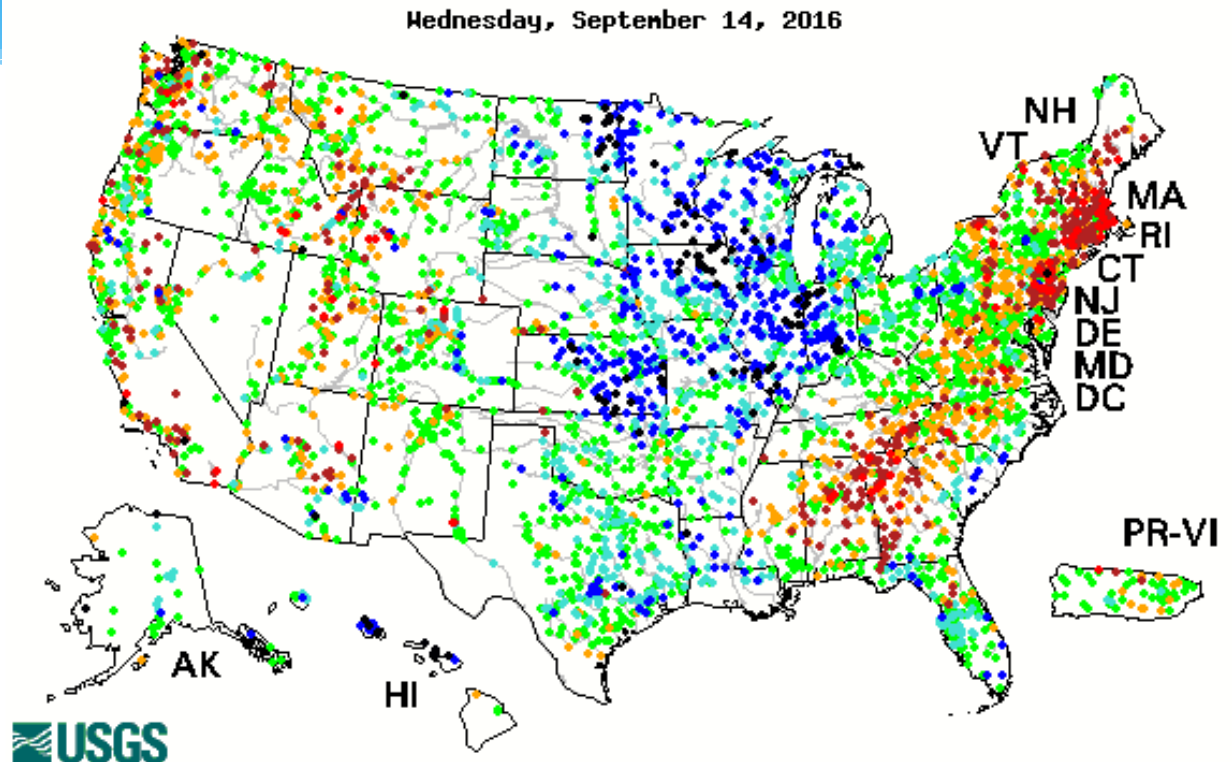


<http://droughtmonitor.unl.edu/>

7-Day Average Streamflow

Wednesday, 14 September 2016

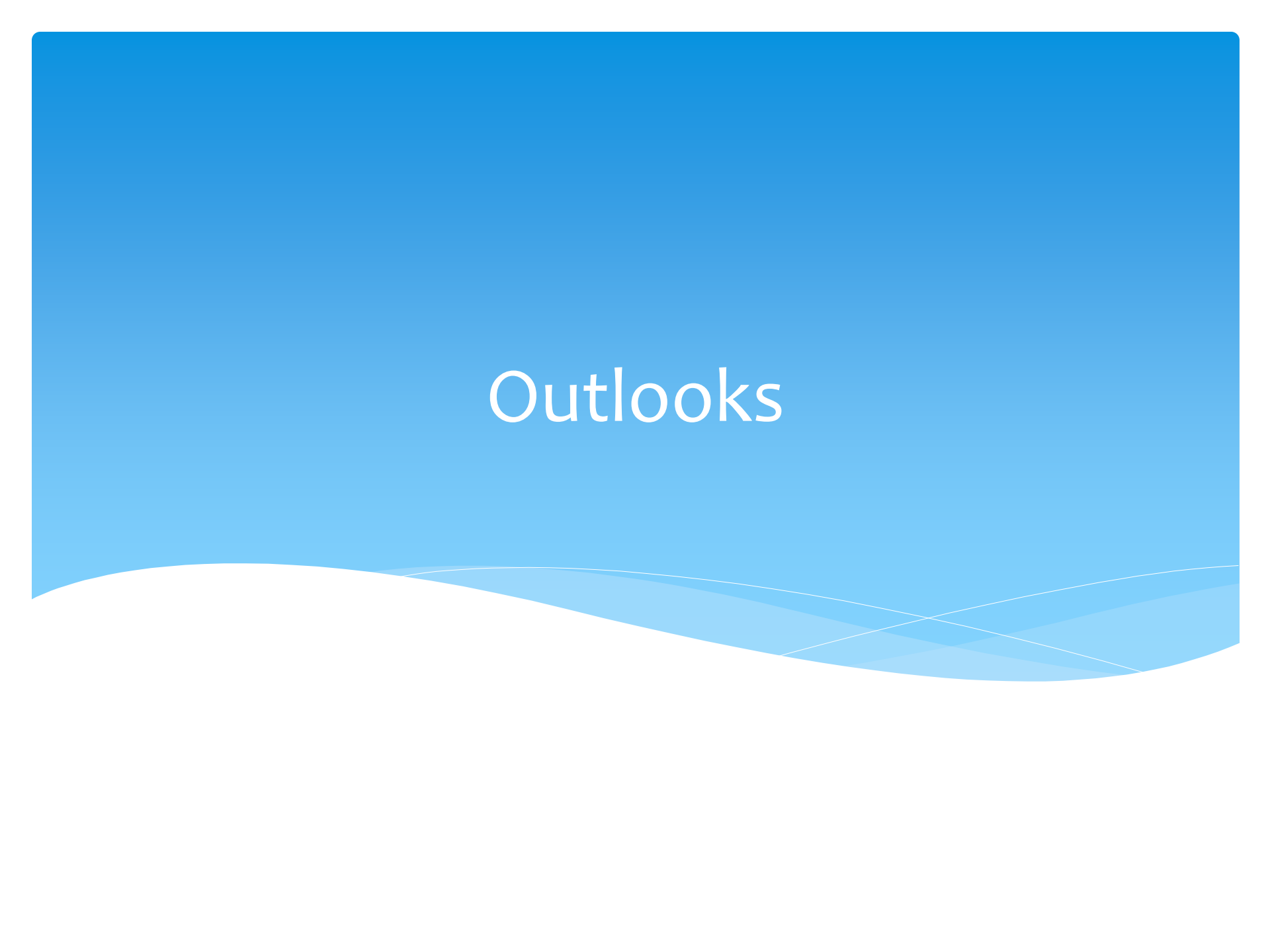
- Streamflows react to wetness
- Some increased potential for flooding in the fall due to flows
 - Upper Mississippi
 - Lower Missouri



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

<http://waterwatch.usgs.gov/index.php?id=pao7d>

Outlooks

The background of the slide is a solid blue color. At the bottom, there are several overlapping, wavy, light blue shapes that create a sense of depth and movement, resembling a stylized horizon or water waves.

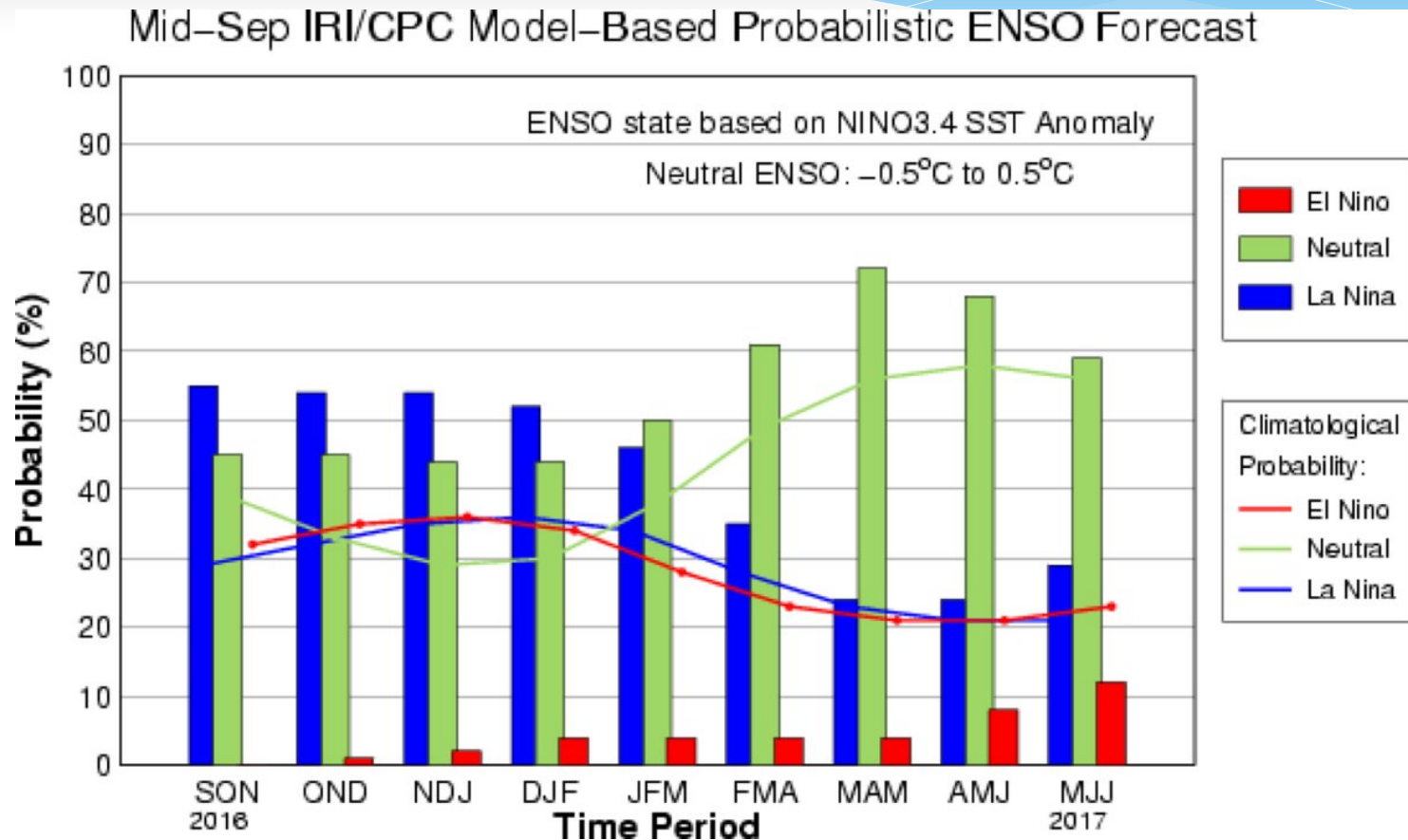
Climate Outlooks

- * **Non-La Niña**
- * **7-day precipitation forecast**
- * **8-14 day outlook**
- * **October**
- * **3 Months (October-December)**
- * **Seasonal Drought Outlooks**
- * **Winter – early look**

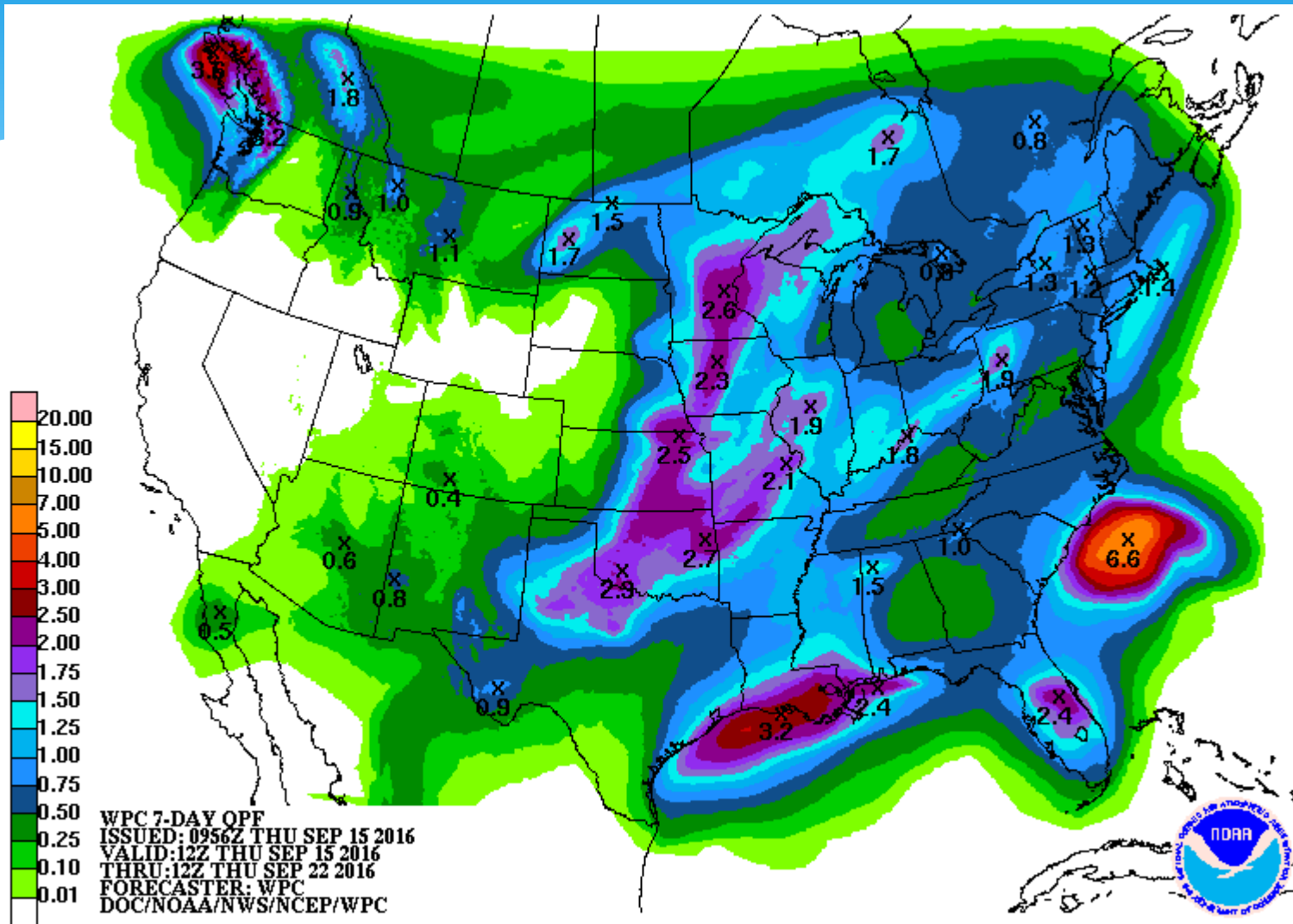
CPC/IRI Probabilistic ENSO Outlook

Updated: 8 September 2016

Neutral conditions most likely outcome winter 2016-17.

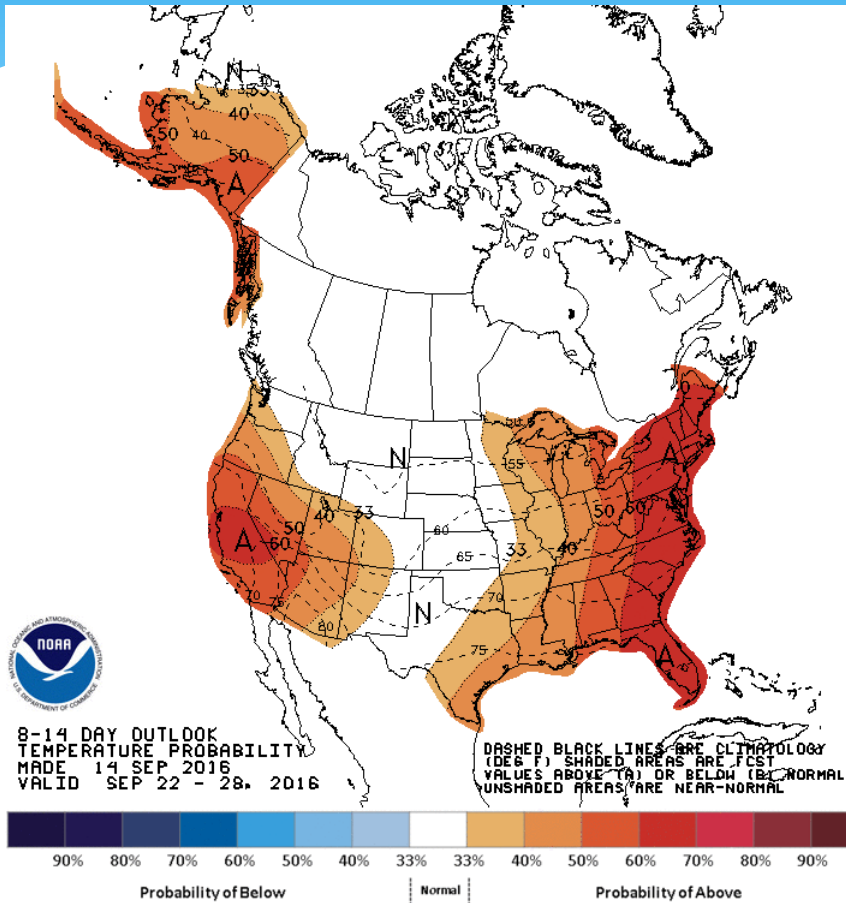


7-day Quantitative Precipitation Forecast

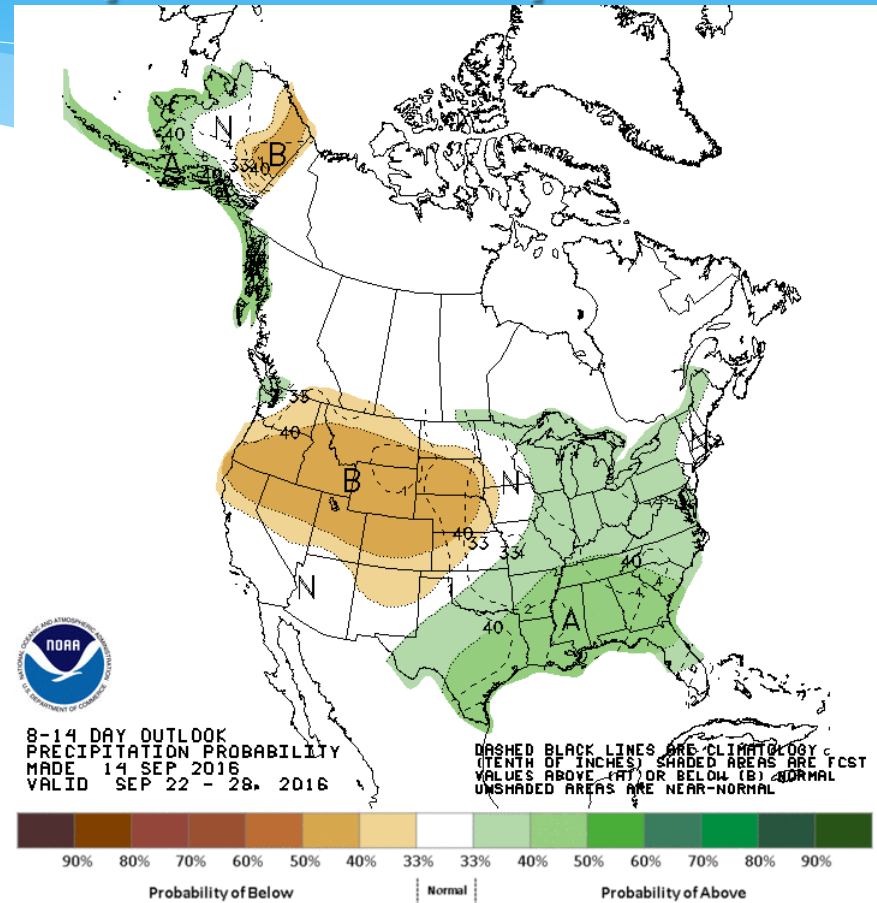


<http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml>

Temperature and Precipitation Probabilities for 22 Sep. – 28 Sep. 2016

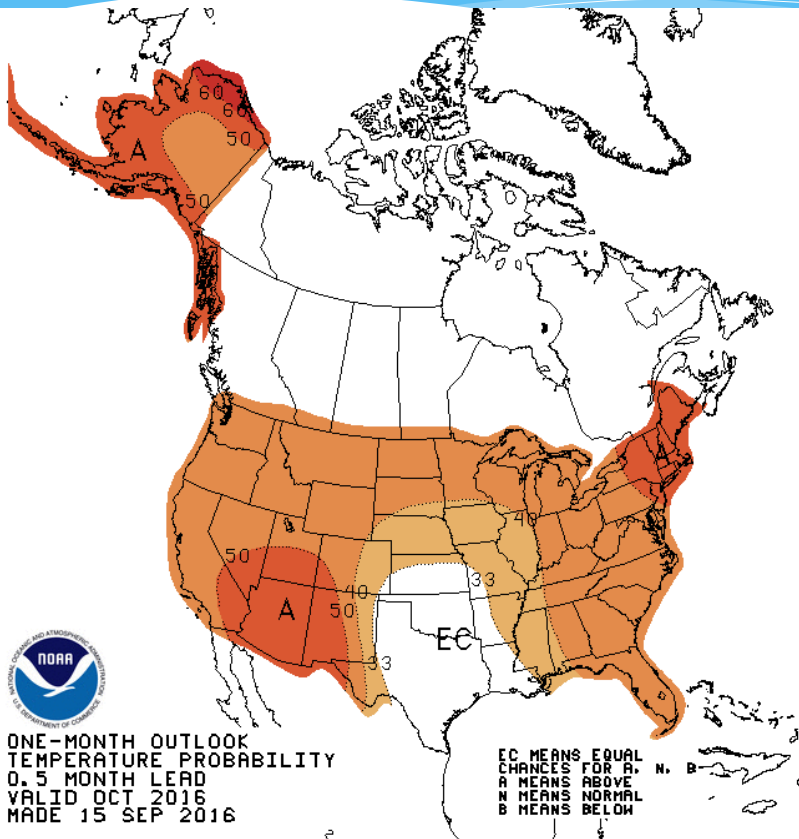


Temperature

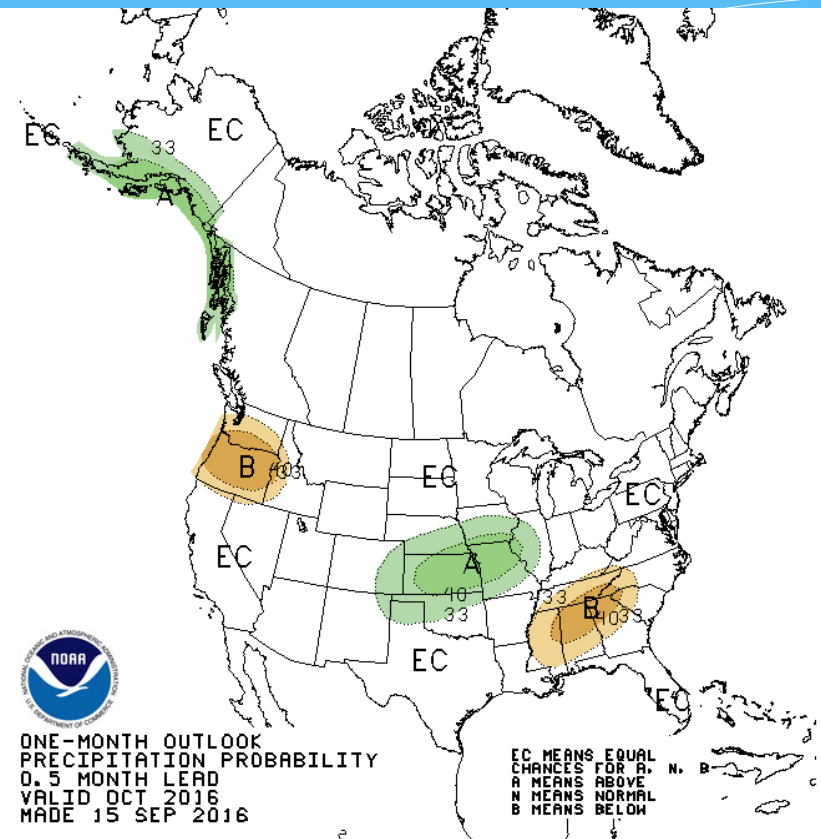


Precipitation

October Temperature and Precipitation Probabilities



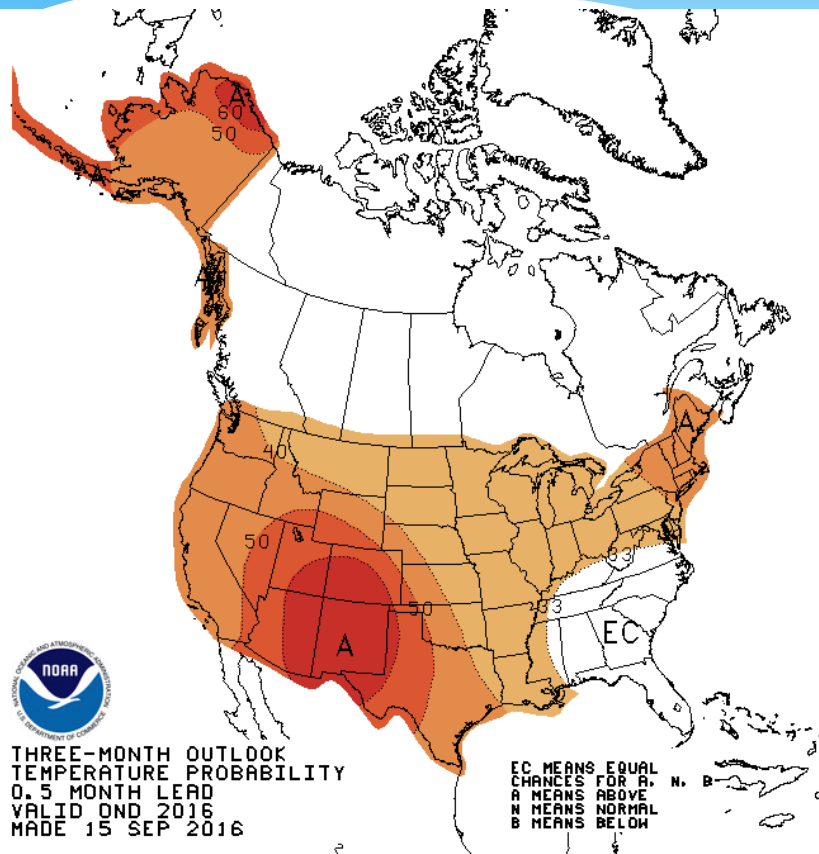
Temperature



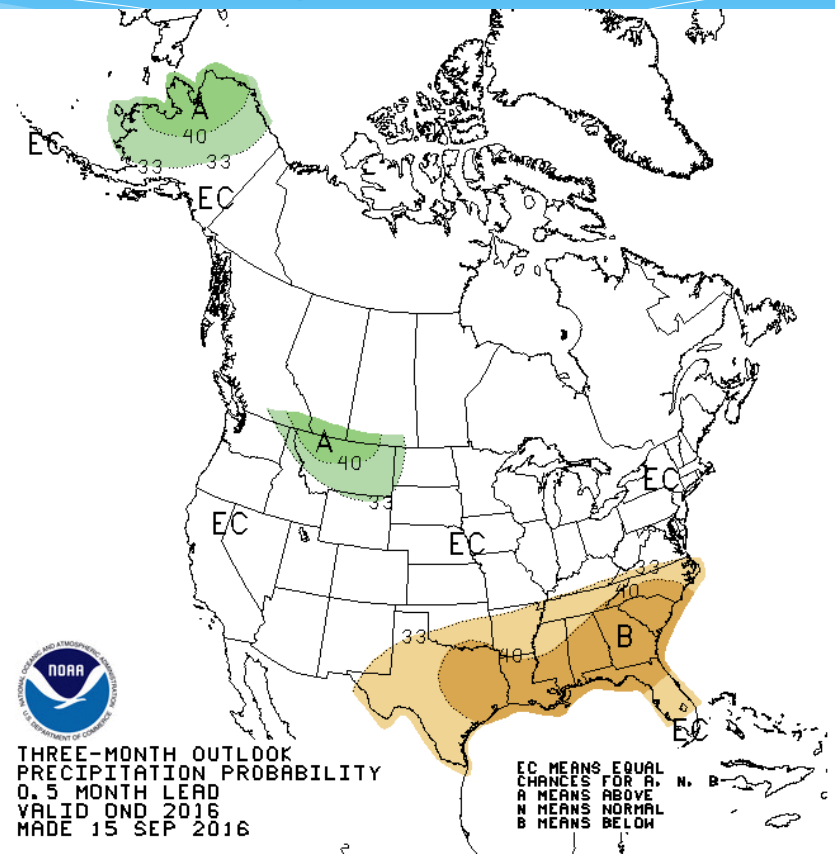
Precipitation

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

3 Month Temperature and Precipitation Probabilities (October - December)

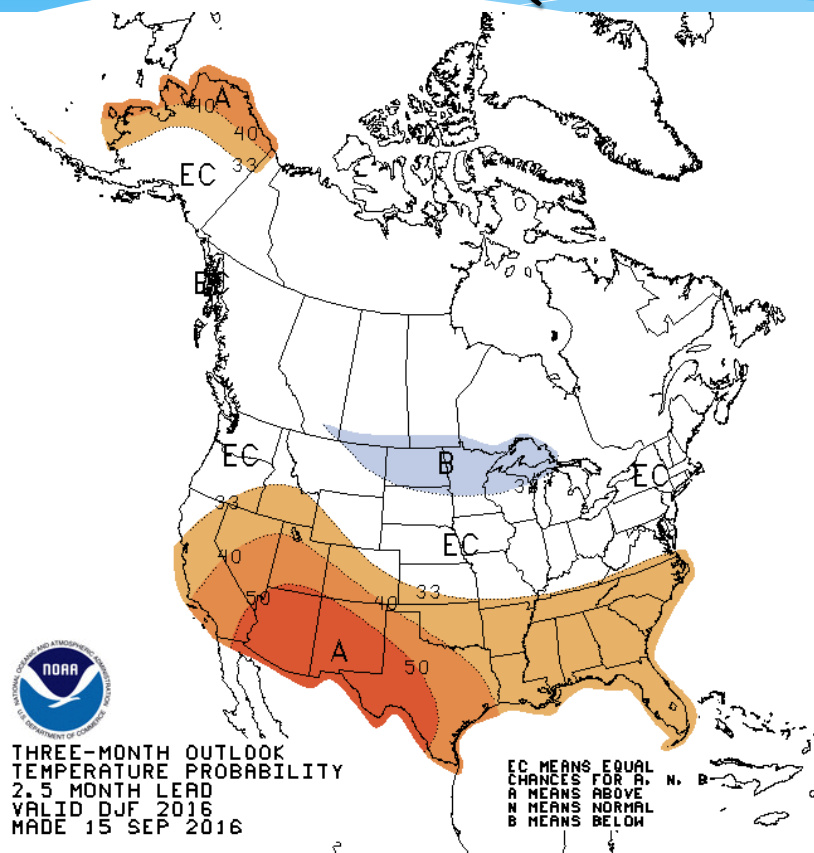


Temperature

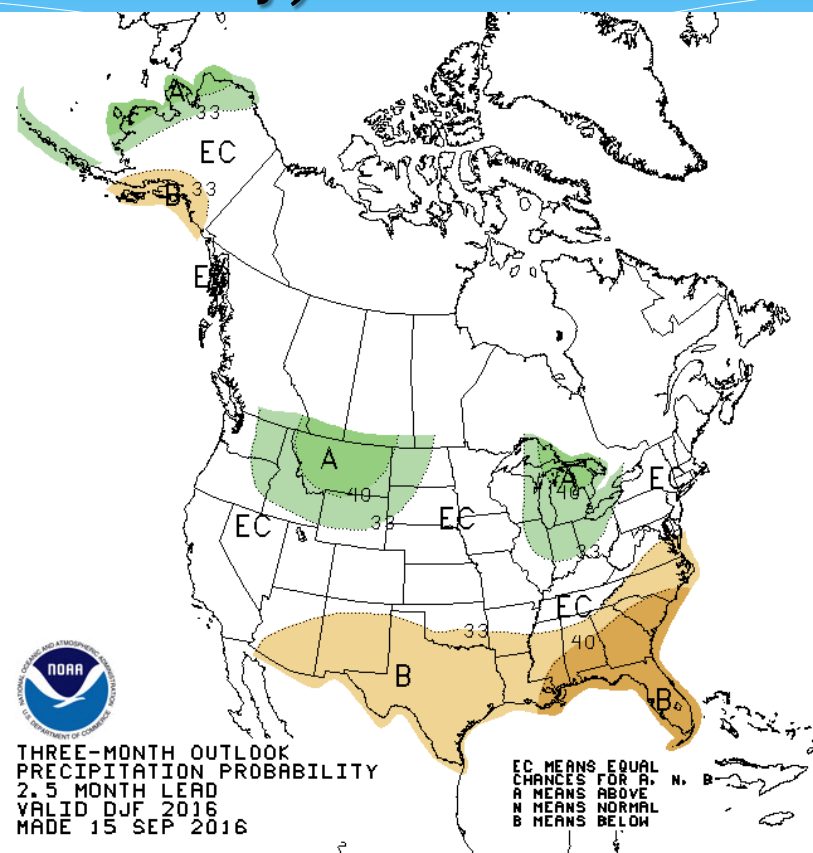


Precipitation

3 Month Temperature and Precipitation Probabilities (December - February)



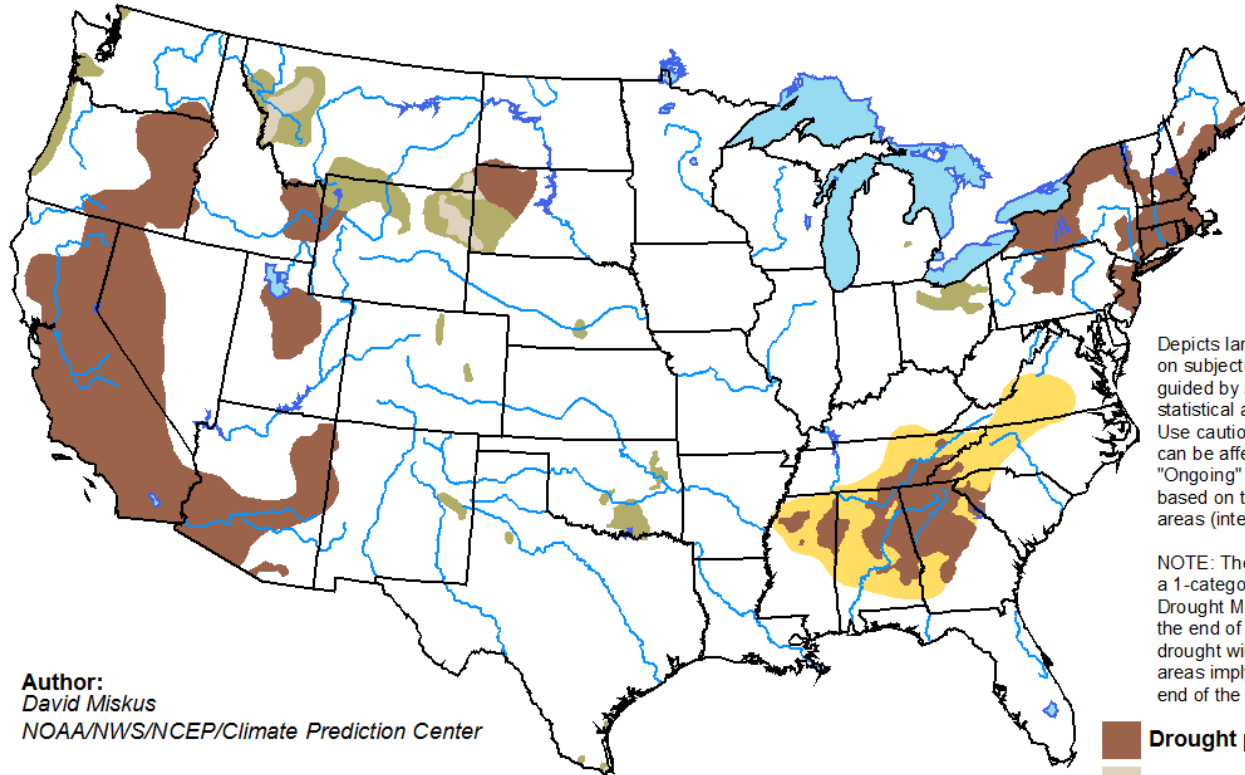
Temperature



Precipitation

Drought Outlook through 31 Dec.

U.S. Seasonal Drought Outlook valid for September 15 - December 31, 2016
Drought Tendency During the Valid Period
Released September 15, 2016



Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

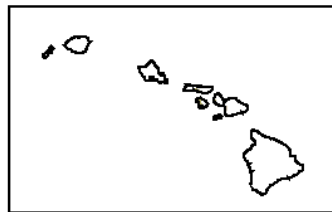
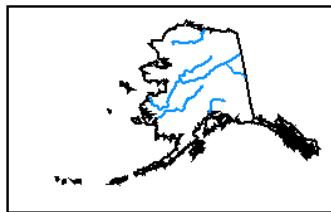
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan 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).

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



<http://go.usa.gov/3eZ73>



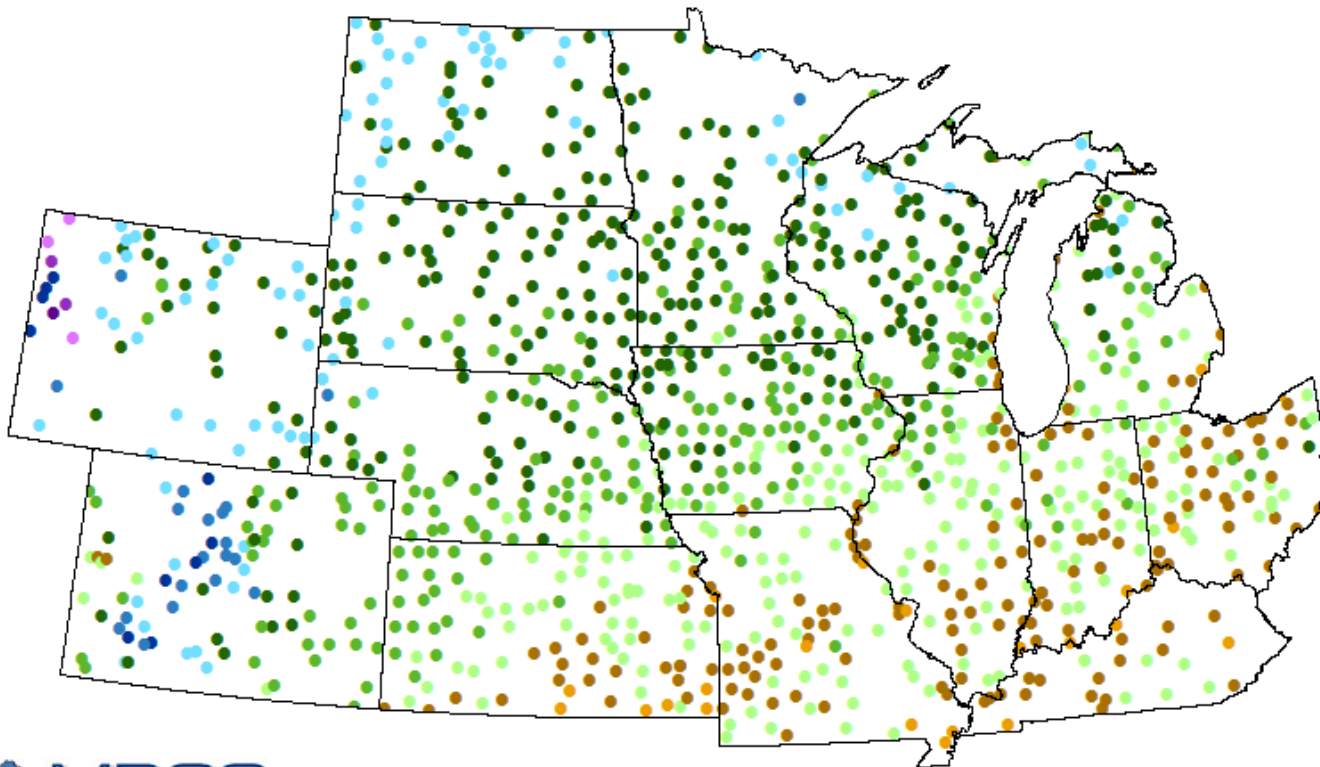
Median Fall Freeze Date (32 F)

Fall Freeze

Median Date Of 28°F Freeze

Based on 1981-2010 Average

- | | | | |
|---------------------|---------------|---------------|-------------------|
| ● Aug 10 or Earlier | ● Sep 1 - 10 | ● Oct 1 - 10 | ● Nov 1 - 10 |
| ● Aug 11 - 20 | ● Sep 11 - 20 | ● Oct 11 - 20 | ● Nov 11 - 20 |
| ● Aug 21 - 31 | ● Sep 21 - 30 | ● Oct 21 - 31 | ● Nov 21 or Later |



Summary - Conditions

- * Warm summer – more so from minimums
 - * Very wet across much of corn belt – late season recovery
 - * High dew points linked to this
-
- * Generally good crop conditions – minor problems in areas
 - * Late season disease
 - * Crop development near to ahead of average

Summary - Outlooks

- * La Niña – no advisory. Still some possible impact – included in outlooks
- * Overall less confidence in outlooks
- * Warm conditions more likely until winter – slight chance of cooler conditions further north then
- * Some spotty wetness possible into winter
- * Drought conditions will probably improve a little
- * Limited concern of frost/freeze

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/>
- State climatologists
 - * <http://www.stateclimate.org>
- Regional climate centers
 - * <http://mrcc.isws.illinois.edu>
 - * <http://www.hprcc.unl.edu>

Thank You and Questions?

- * Questions:

- * **Climate:**

- * Dennis Todey: dennis.todey@ars.usda.gov , 515-294-2013
 - * Doug Kluck: doug.kluck@noaa.gov, 816-994-3008
 - * 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



NOAA Central Region Webinar, September 15, 2016

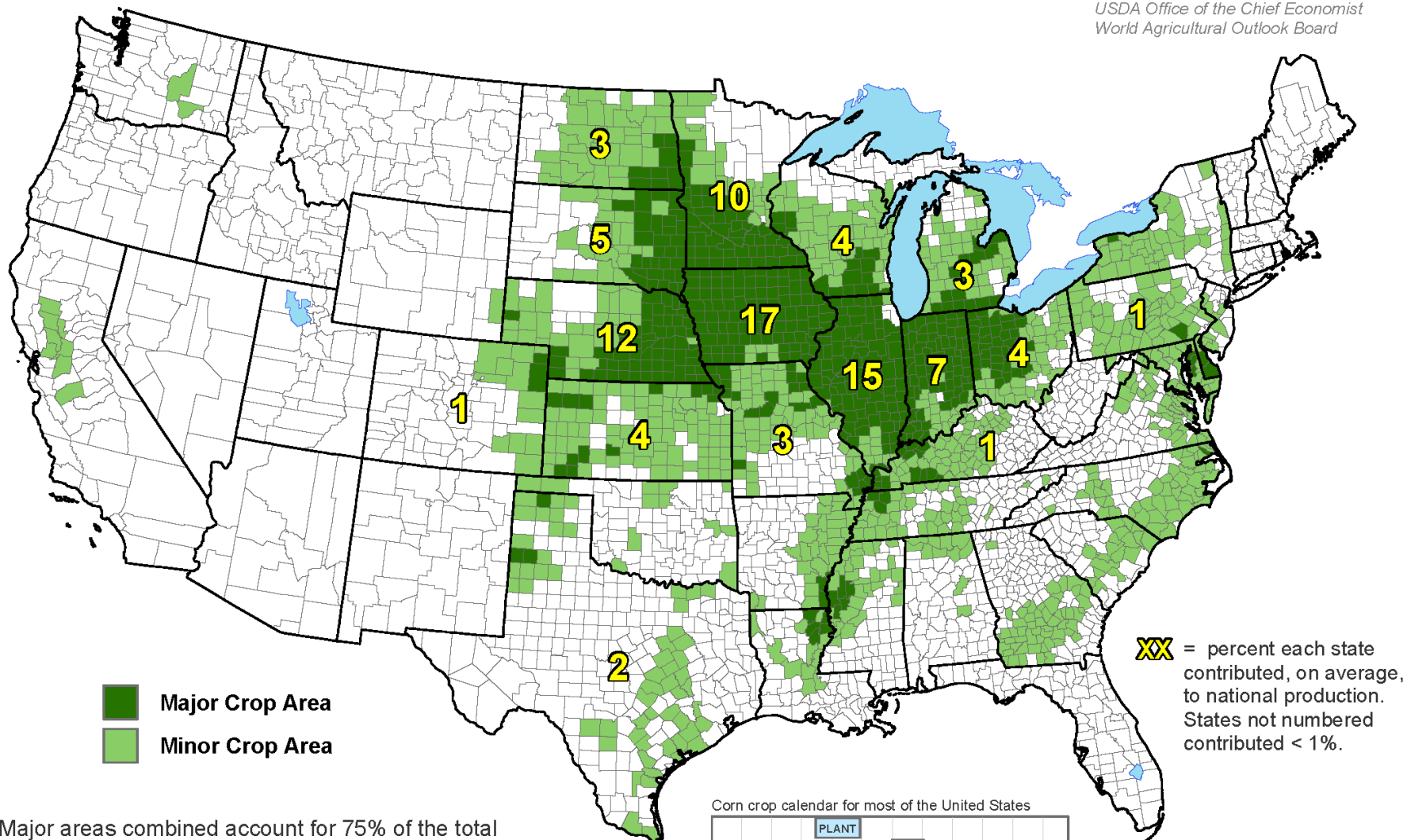
Winter Wheat in St. Joseph Co., IN, June 27, 2016. Photo by B. Rippey, USDA

United States: Corn



United States
Department of
Agriculture

*This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board*



- Major areas combined account for 75% of the total national production.
- Major and minor areas combined account for 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

Corn crop calendar for most of the United States



The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

St. Joseph Co., IN, June 27, 2016
Photo by Brad Rippey, USDA



- **It was a mostly good year for corn, especially in the upper Midwest.**
- **September 1 estimates, if realized, indicate record-high corn production in Illinois, Iowa, Kentucky, North Dakota, and Wisconsin.**
- **If September 1 estimates are realized, 2016 will feature the highest U.S. corn yield (174.4 bushels/acre) and production (15.1 billion bushels) on record.**
- **Drought affected 0 to 7% of the U.S. corn production area during the 2016 growing season.**
- **Currently, nearly three-fourths (74%) of the U.S. corn crop is rated good to excellent.**

U.S. Corn Areas Experiencing Drought

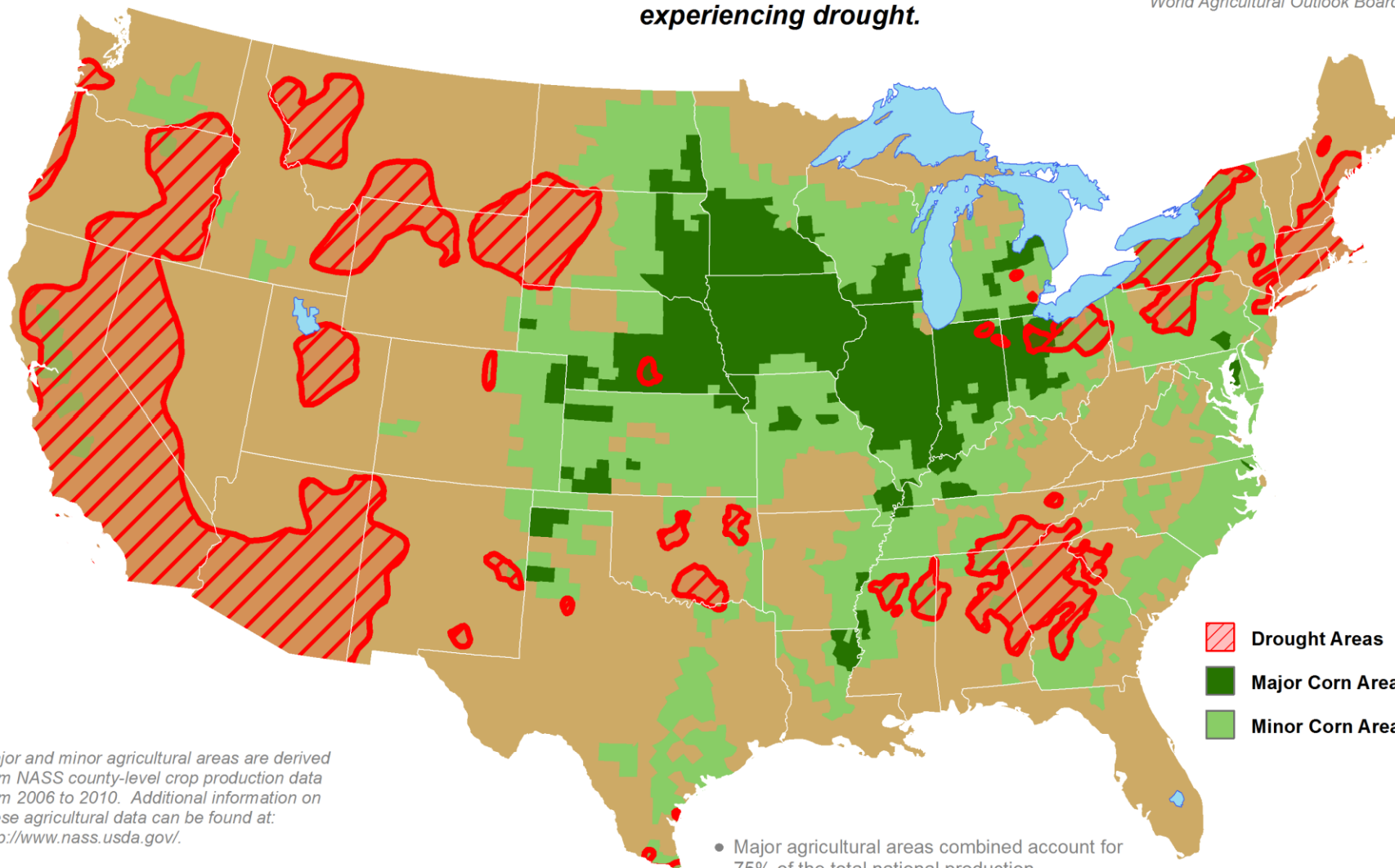


United States
Department of
Agriculture

Reflects **September 6, 2016**
U.S. Drought Monitor data

Approximately **3%** of corn
production is within an area
experiencing drought.

*This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board*



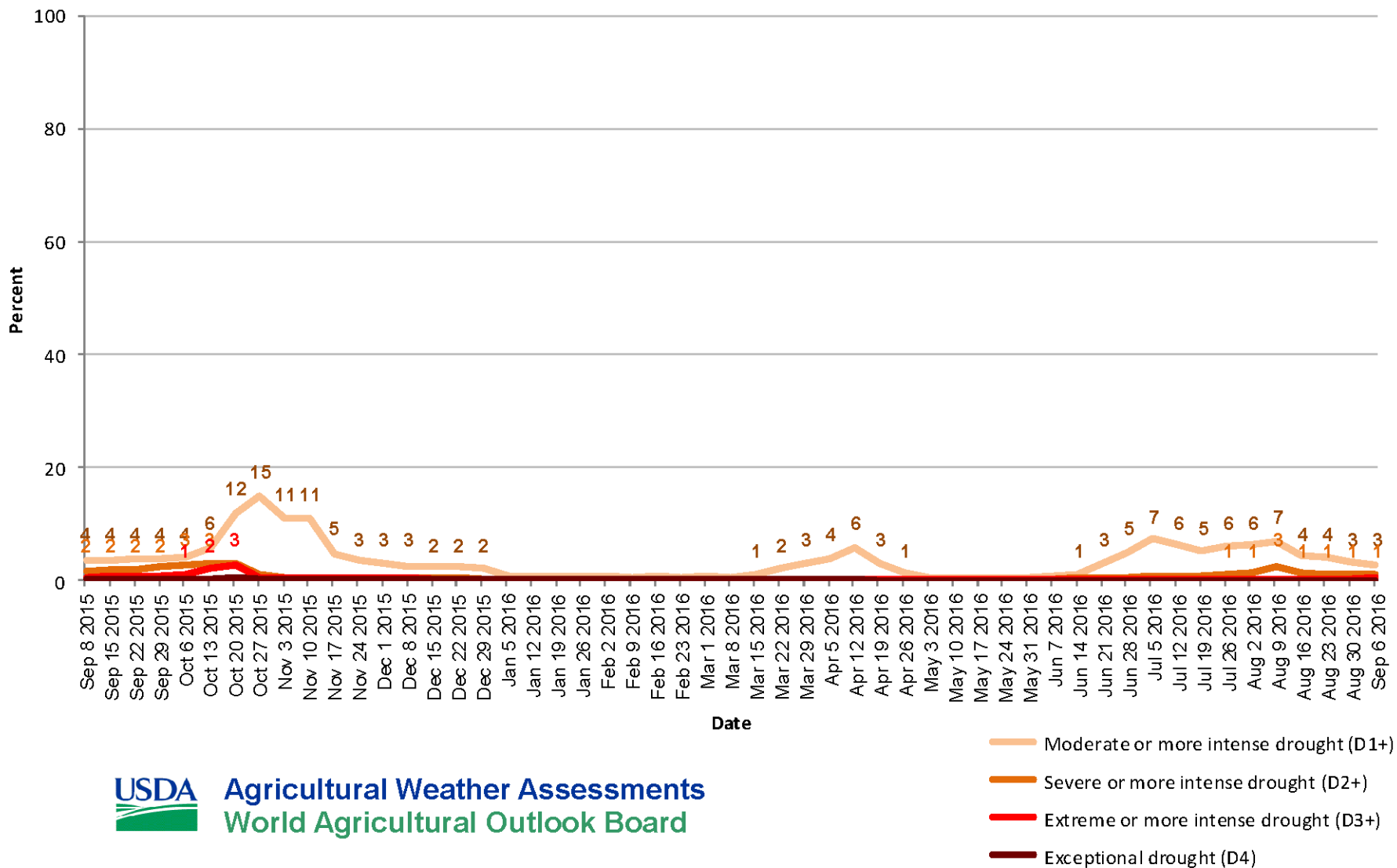
-  Drought Areas
-  Major Corn Area
-  Minor Corn Area

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

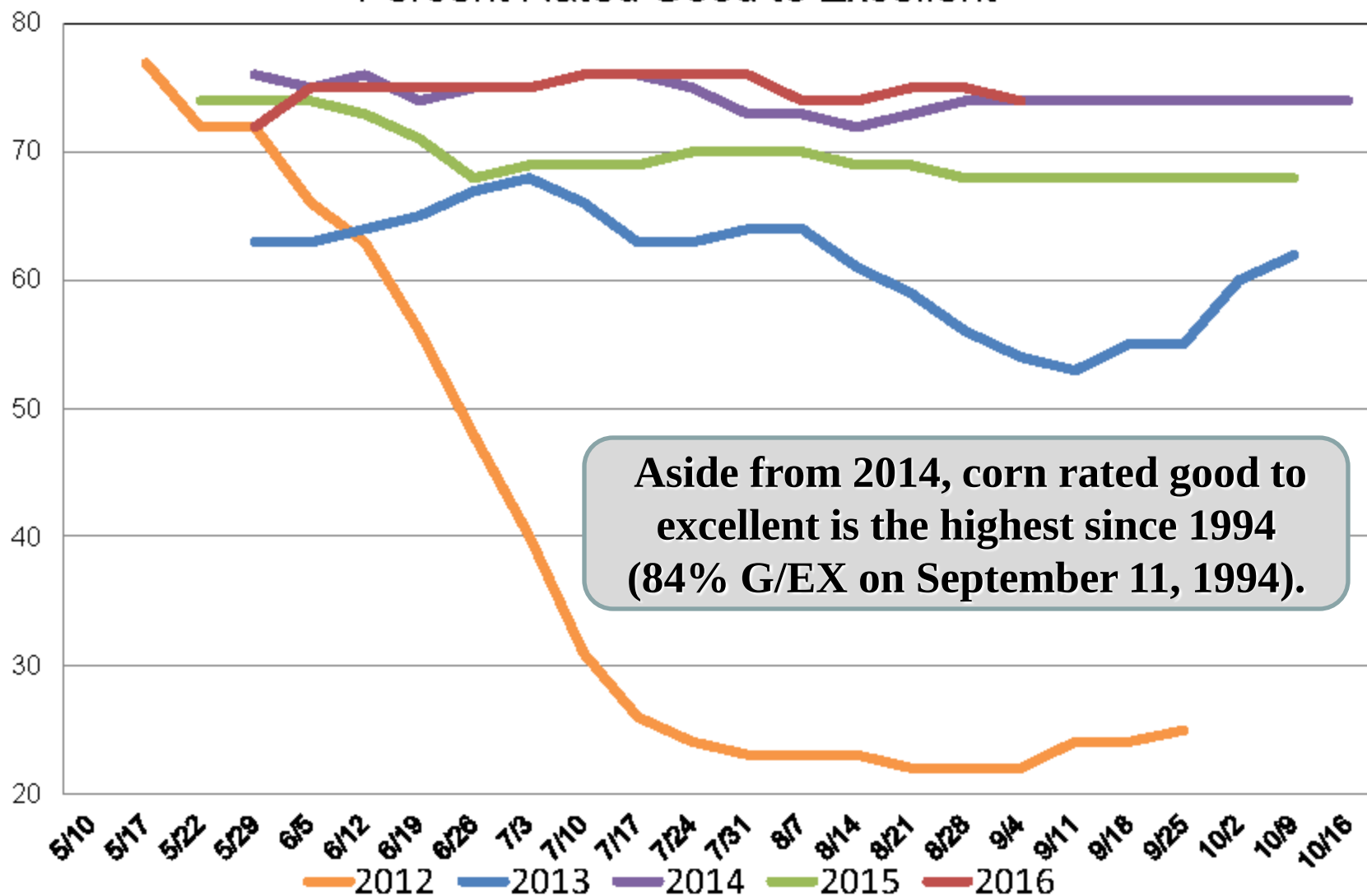
United States Corn Areas Located in Drought



U.S. Corn Condition

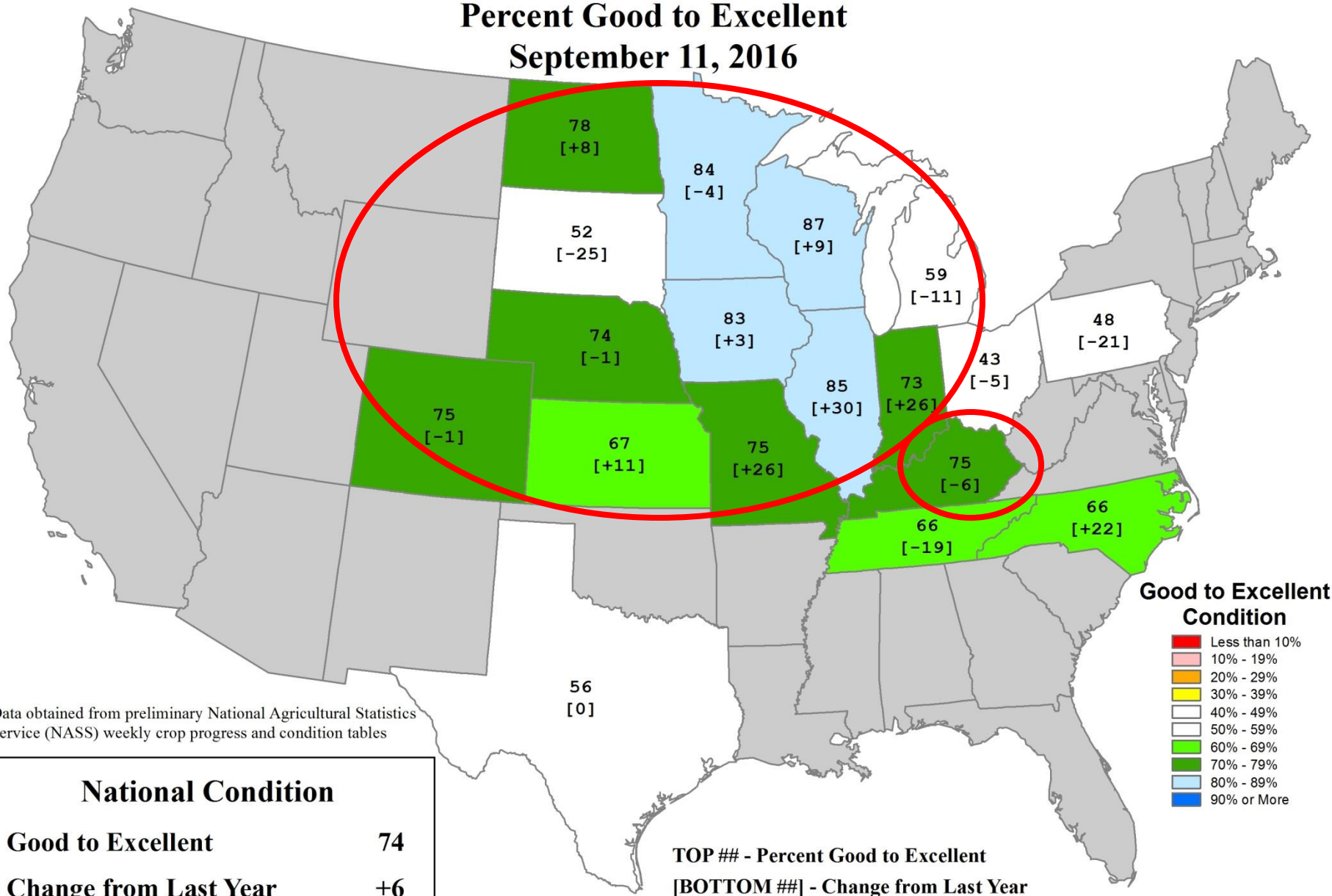
Percent Rated Good to Excellent

Percent



U.S. Corn Conditions

Percent Good to Excellent
September 11, 2016



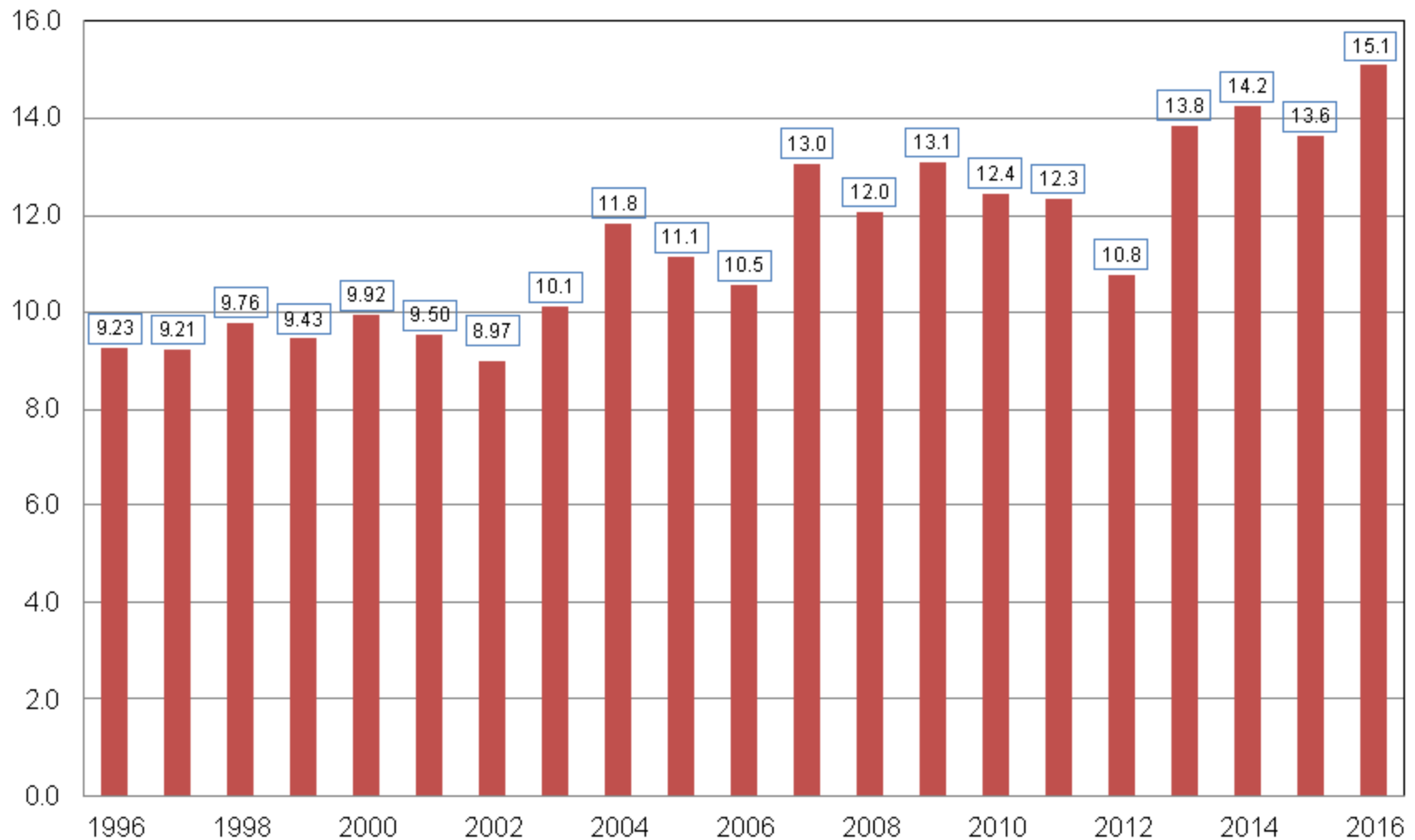
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables



Agricultural Weather Assessments
World Agricultural Outlook Board

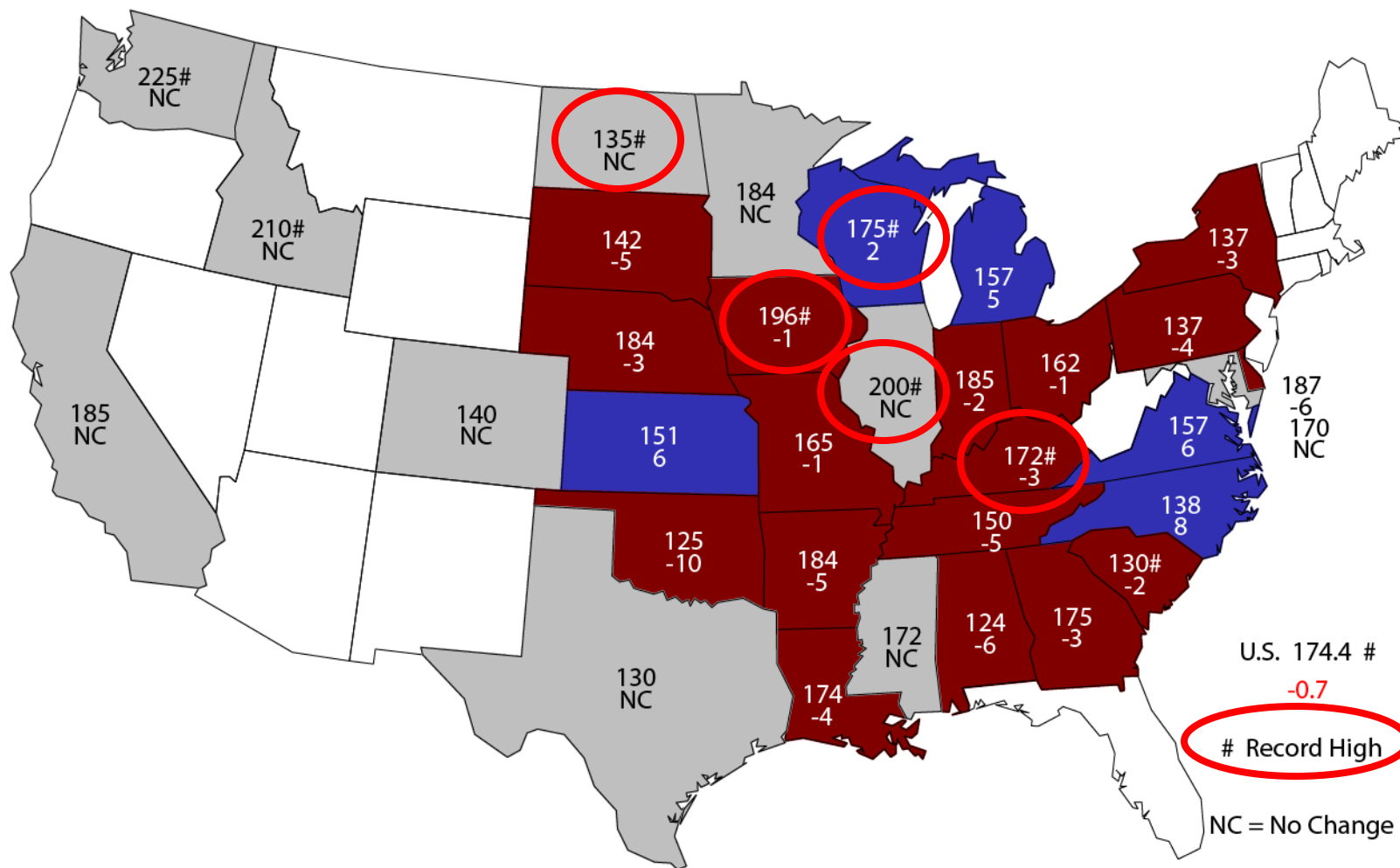
Corn for Grain Production United States

Billion Bushels



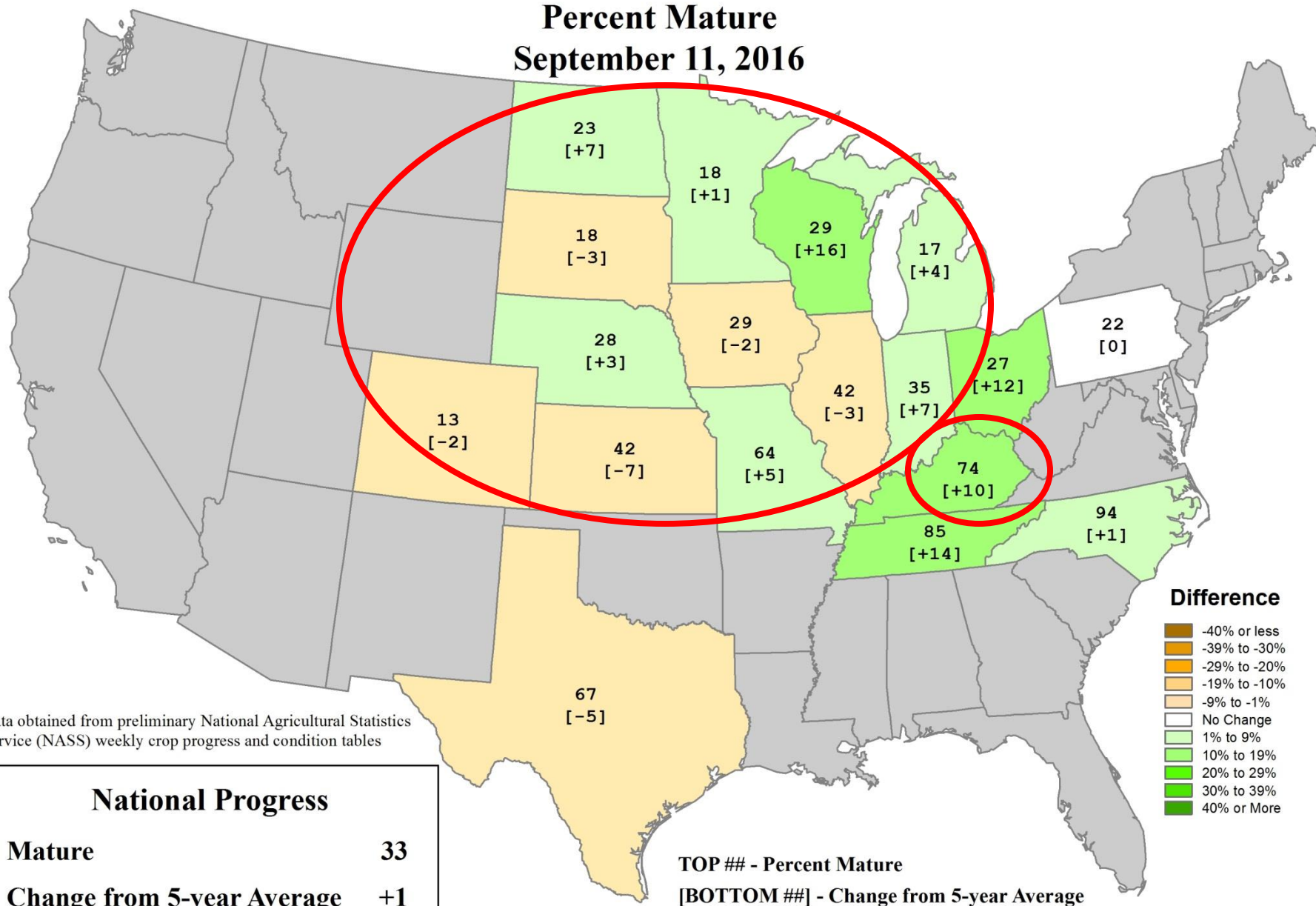
September 1, 2016 Corn Yield

Bushels and Change From Previous Month



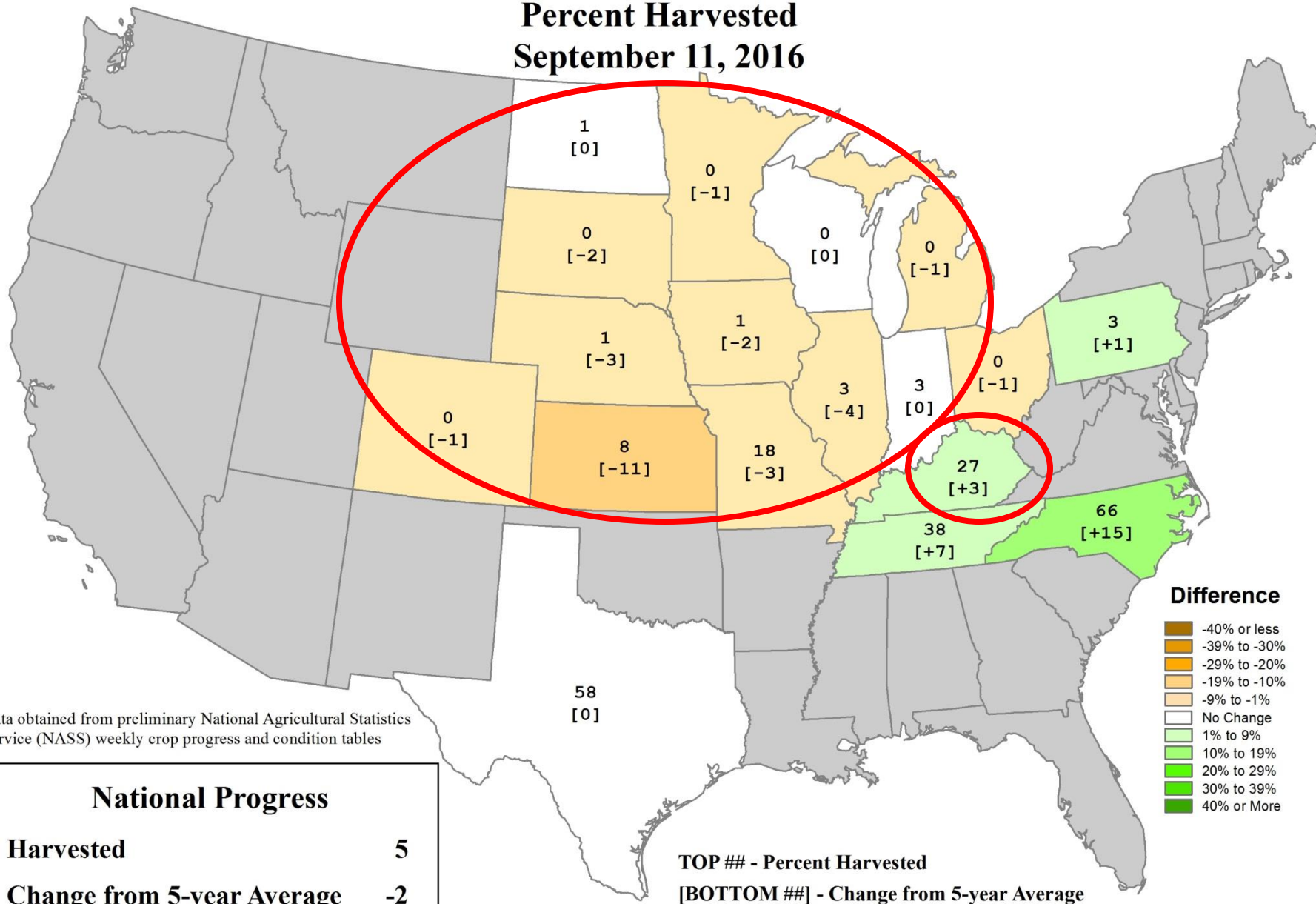
U.S. Corn Progress

Percent Mature
September 11, 2016



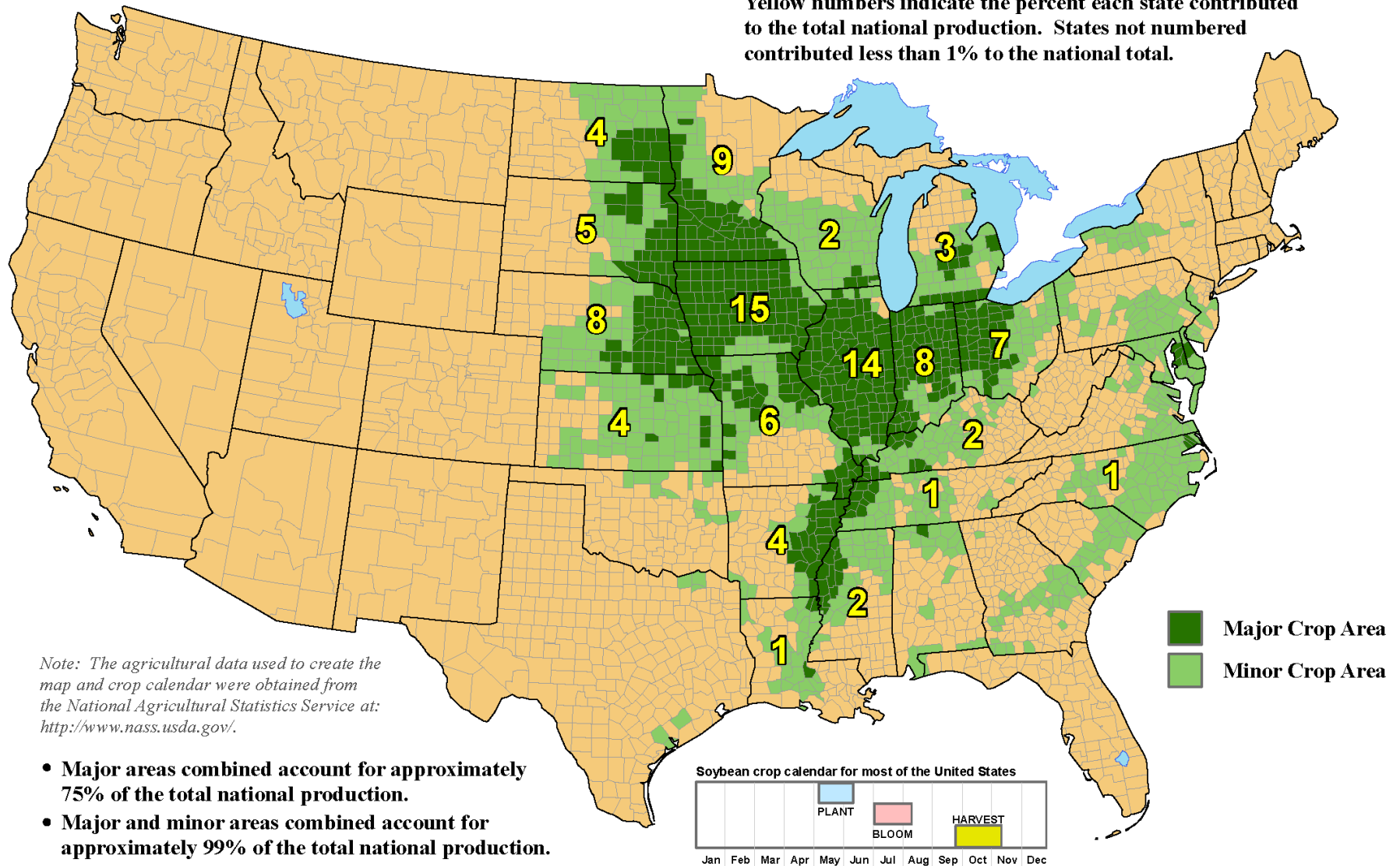
U.S. Corn Progress

Percent Harvested
September 11, 2016



United States: Soybeans

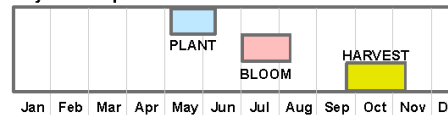
Yellow numbers indicate the percent each state contributed to the total national production. States not numbered contributed less than 1% to the national total.



Note: The agricultural data used to create the map and crop calendar were obtained from the National Agricultural Statistics Service at: <http://www.nass.usda.gov/>.

- Major areas combined account for approximately 75% of the total national production.
- Major and minor areas combined account for approximately 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS county- and state-level production data from 2006-2010.

Soybean crop calendar for most of the United States



Crop calendar dates are based upon NASS crop progress data from 2006-2010. The field activities and crop development stages illustrated in the crop calendar represent the average time period when national progress advanced from 10 to 90 percent.



- It was a mostly good year for soybeans, except in far eastern and western areas.
- September 1 estimates, if realized, indicate record-high soybean production in seven states (IL, IN, IA, KY, MO, NE, and WI) in the north-central U.S.
- If September 1 estimates are realized, 2016 will feature the highest U.S. soybean yield (50.6 bushels/acre) and production (4.20 billion bushels) on record.
- Drought affected 0 to 8% of the U.S. soybean production area during the 2016 growing season.
- Currently, 73% of the U.S. soybean crop is rated good to excellent – the highest amount at this time of year since 1994 (74%).

U.S. Soybean Areas Experiencing Drought

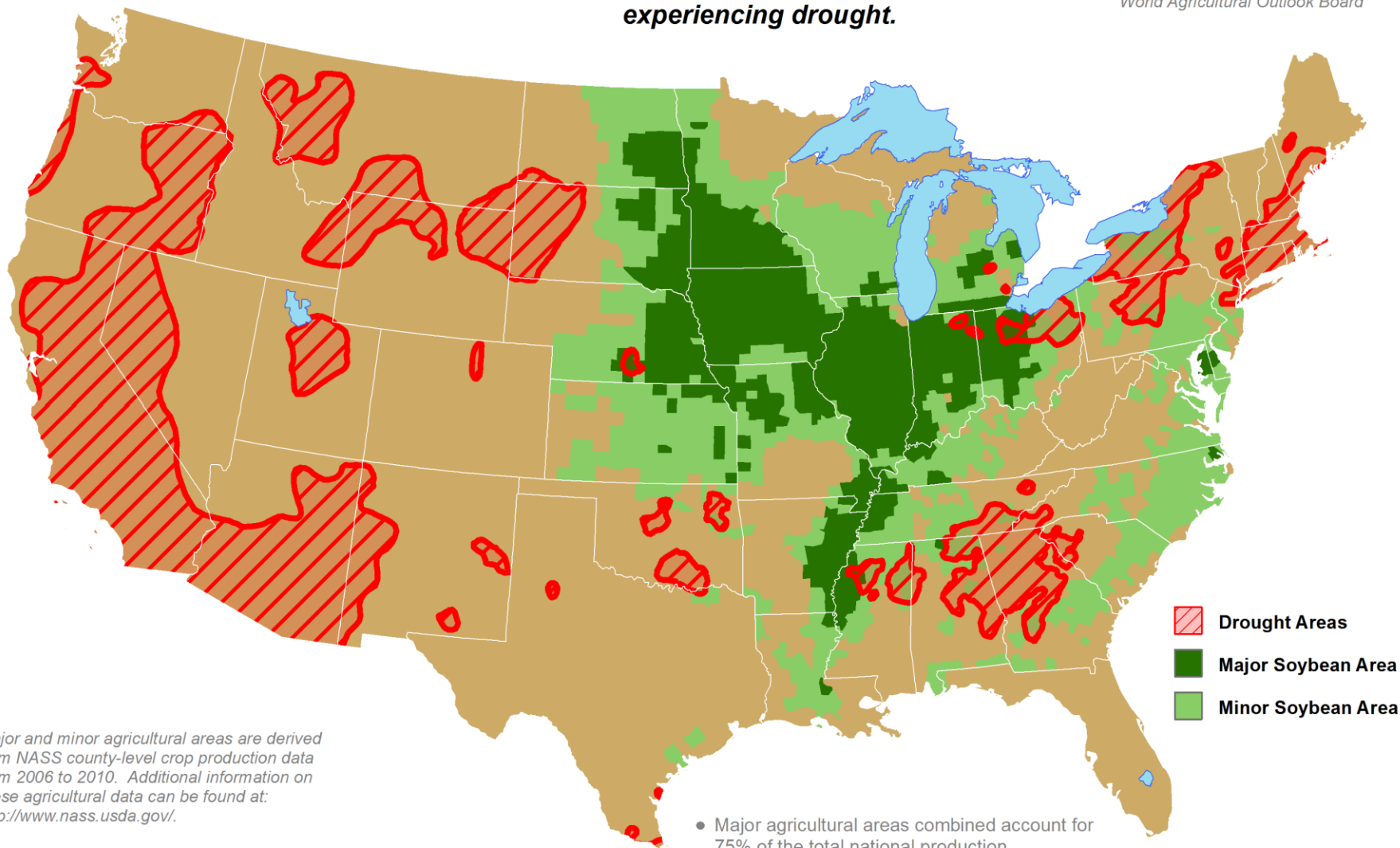


United States
Department of
Agriculture

Reflects **September 6, 2016**
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Approximately **3%** of soybean
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This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board

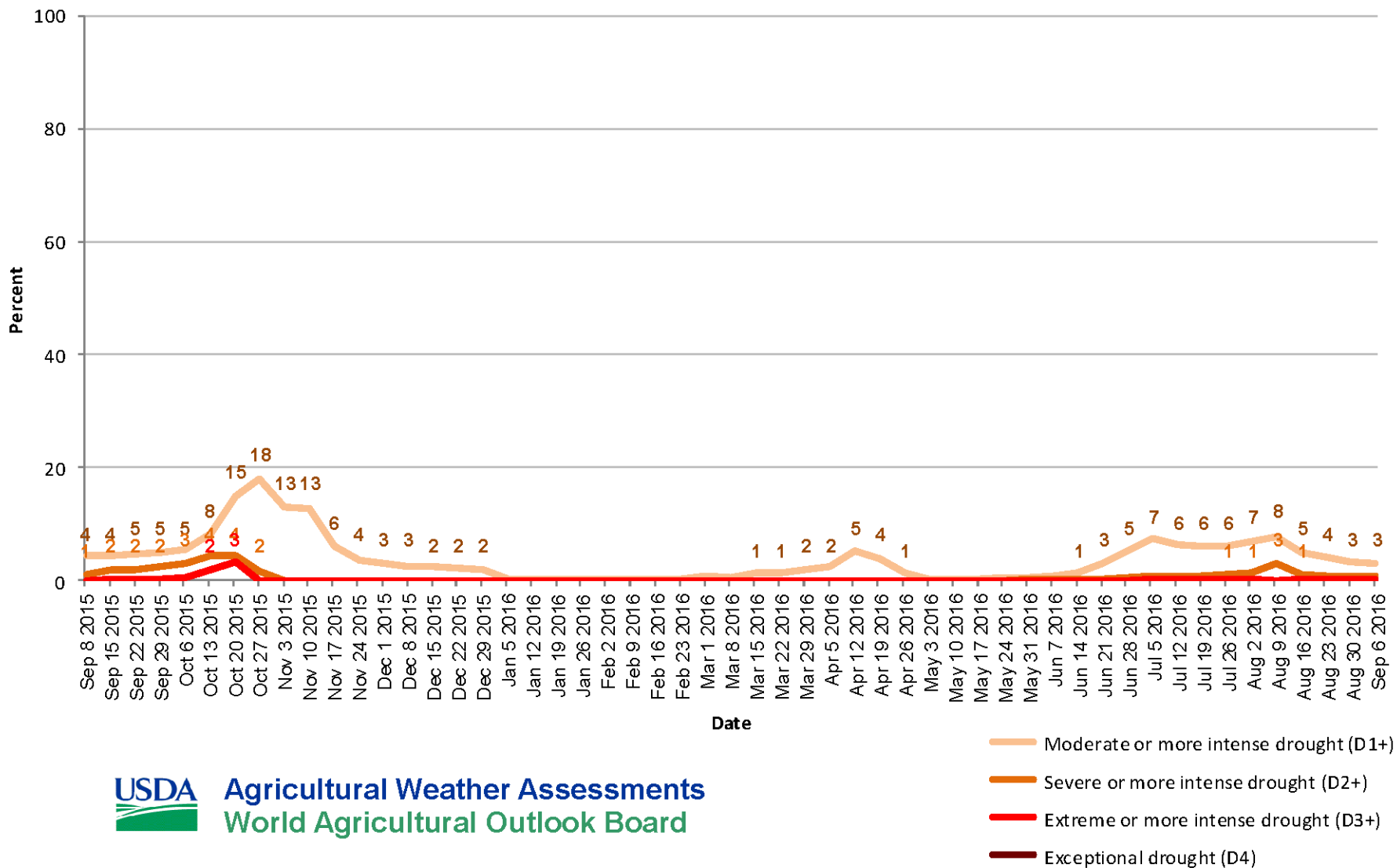


Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

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/>.

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

United States Soybean Areas Located in Drought



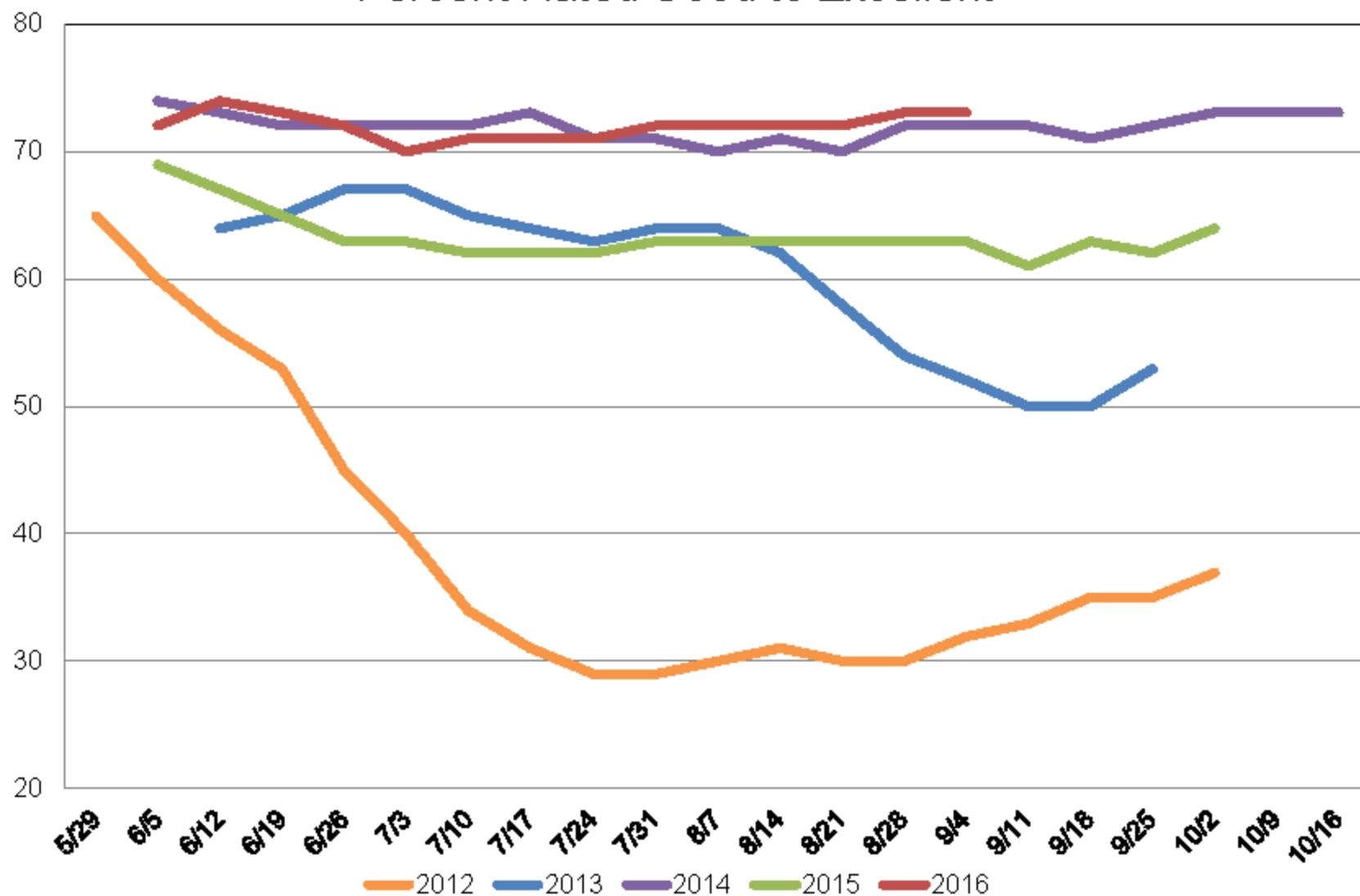
Agricultural Weather Assessments
World Agricultural Outlook Board



U.S. Soybean Condition

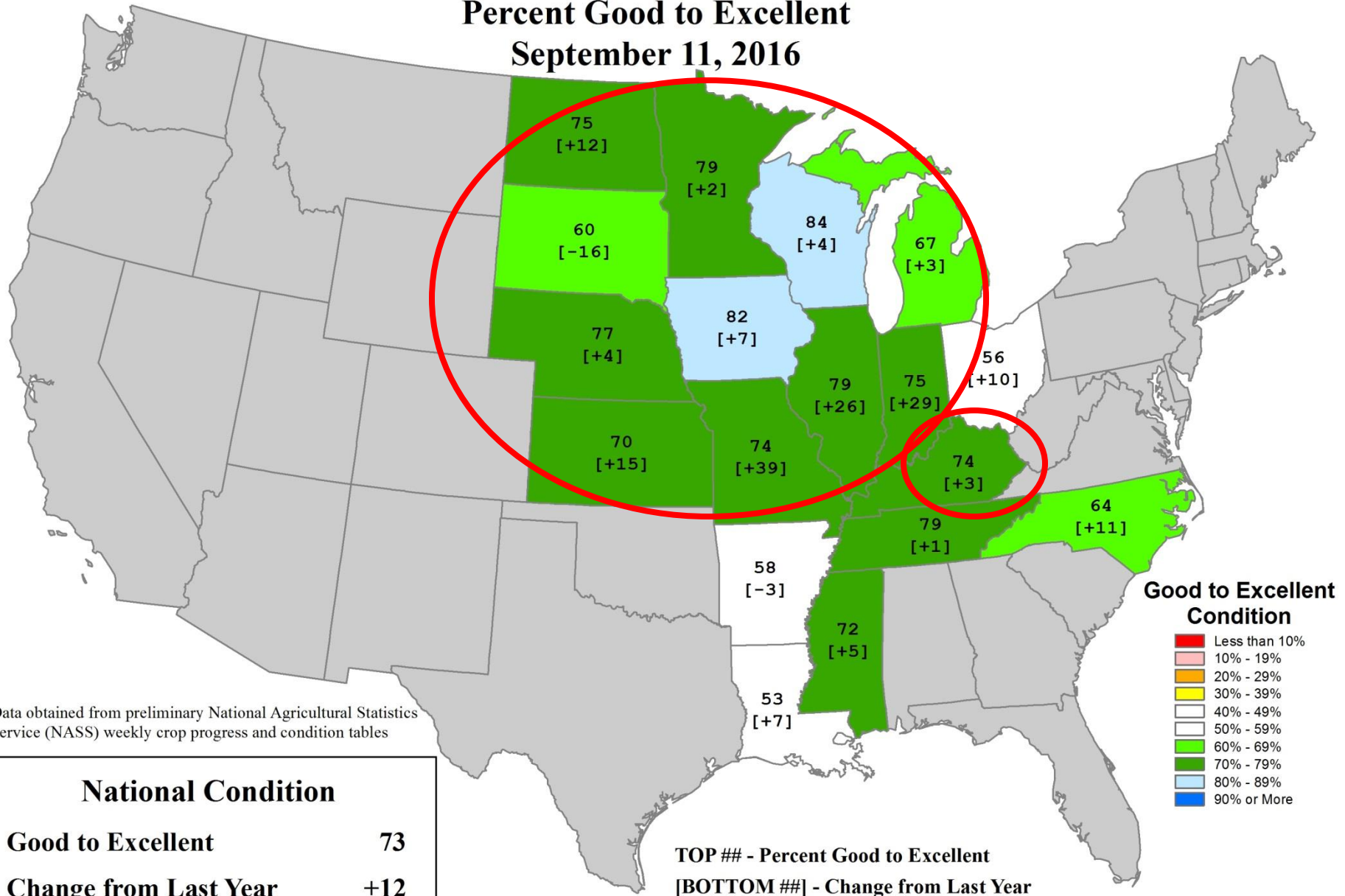
Percent Rated Good to Excellent

Percent



U.S. Soybean Conditions

Percent Good to Excellent
September 11, 2016



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

National Condition

Good to Excellent 73

Change from Last Year +12

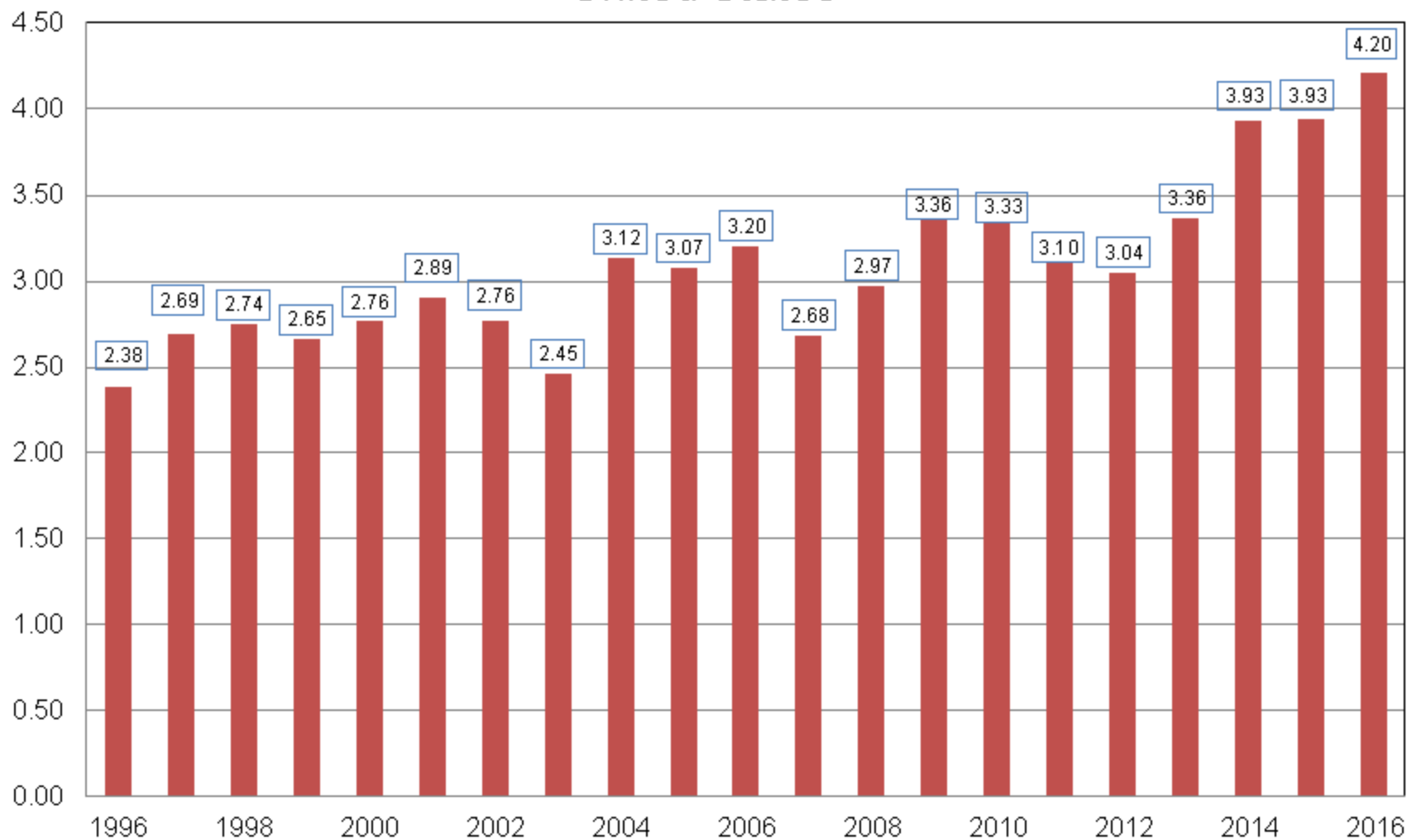
TOP ## - Percent Good to Excellent

[BOTTOM ##] - Change from Last Year



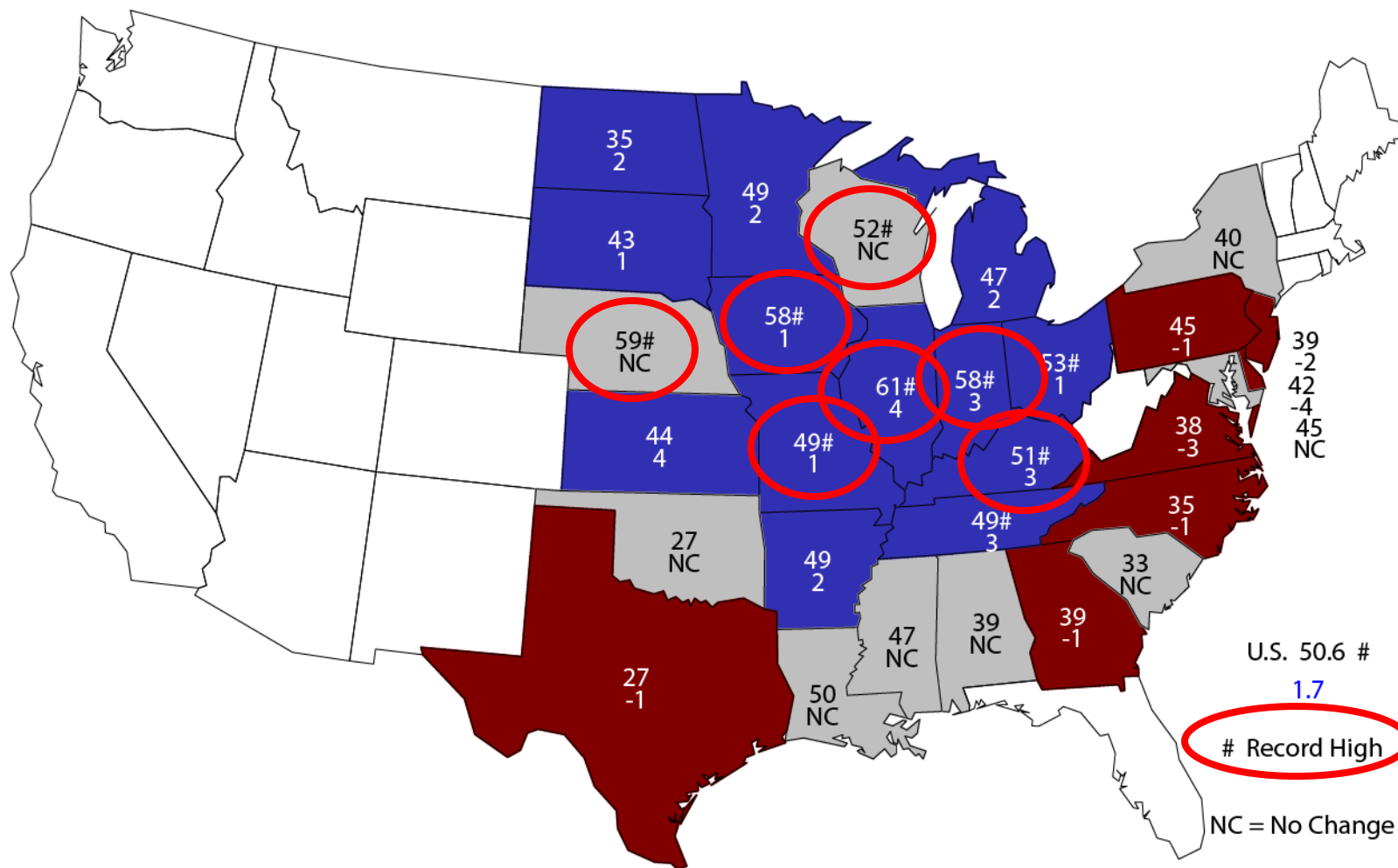
Soybean Production United States

Billion Bushels



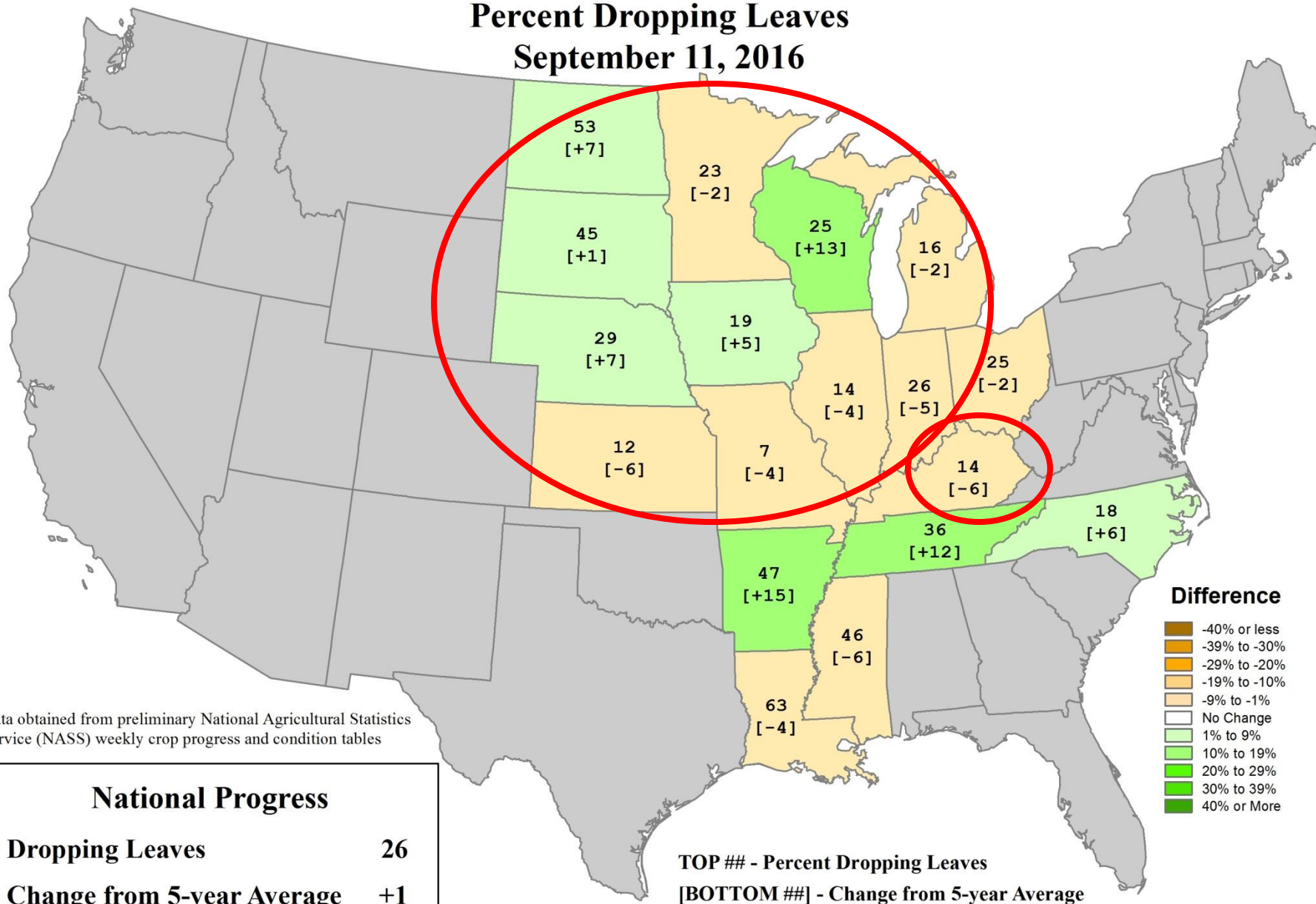
September 1, 2016 Soybean Yield

Bushels and Change From Previous Month



U.S. Soybeans Progress

Percent Dropping Leaves
September 11, 2016



Other Current Agricultural Highlights

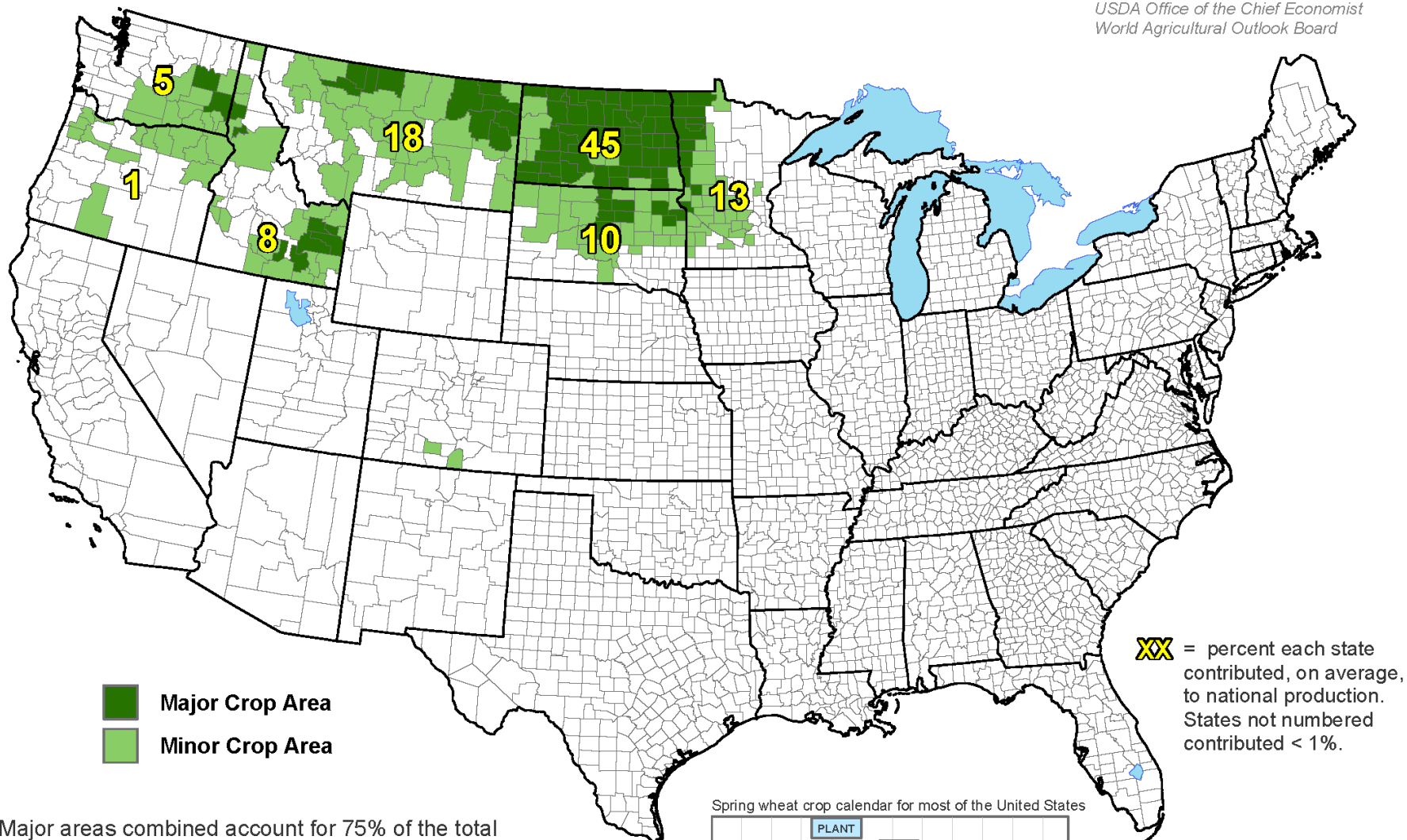
- The spring wheat harvest is wrapping up early.
- Hard Red Winter wheat planting is underway on the Plains.
- The sugarbeet harvest is underway. The production estimate is up more than 1% from last year.
- Sorghum production down 18% – all due to an 18% decrease in harvested acres.
- Fruits/vegetables mostly recovered from last year's losses, which were mainly due to a harsh winter (2014-15) and/or spring (2015). For example, Michigan's tart cherry production – accounting for nearly three-fourths of the U.S. total – was up 66% from 2015. Michigan's sweet cherry production was up 32% from last year.
- Rangeland and pastures are mostly in great shape; Illinois led the U.S. with 82% rated good to excellent on September 11.

United States: Spring Wheat



United States
Department of
Agriculture

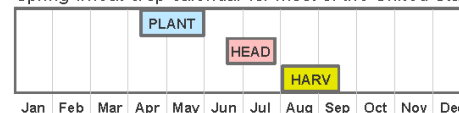
*This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board*



XX = percent each state contributed, on average, to national production. States not numbered contributed < 1%.

- Major areas combined account for 75% of the total national production.
- Major and minor areas combined account for 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

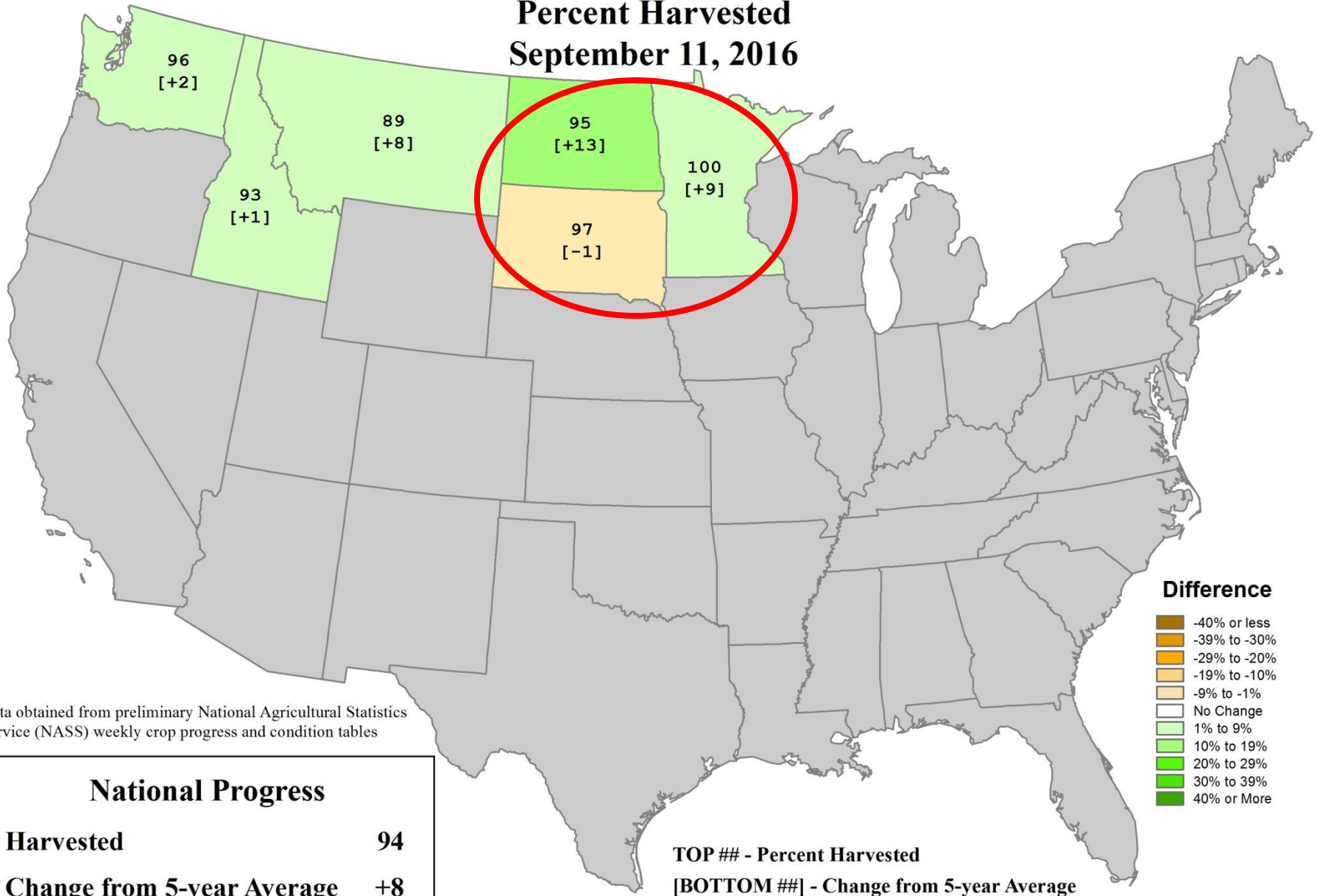
Spring wheat crop calendar for most of the United States



The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

U.S. Spring Wheat Progress

Percent Harvested
September 11, 2016



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



Agricultural Weather Assessments
World Agricultural Outlook Board

**United States
Department of
Agriculture**

USDA Office of the Chief Economist
World Agricultural Outlook Board

Major Crop Area
Minor Crop Area

XXX = percent each state contributed, on average, to national production of winter wheat. States not numbered contributed < 1%.

Major areas combined account for 75% of the total

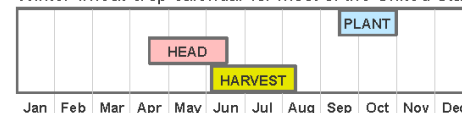
Winter wheat crop calendar for most of the United States

PLANT

XX = percent each state contributed, on average, to national production. States not numbered contributed < 1%.

- Major areas combined account for 75% of the total national production.
- Major and minor areas combined account for 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

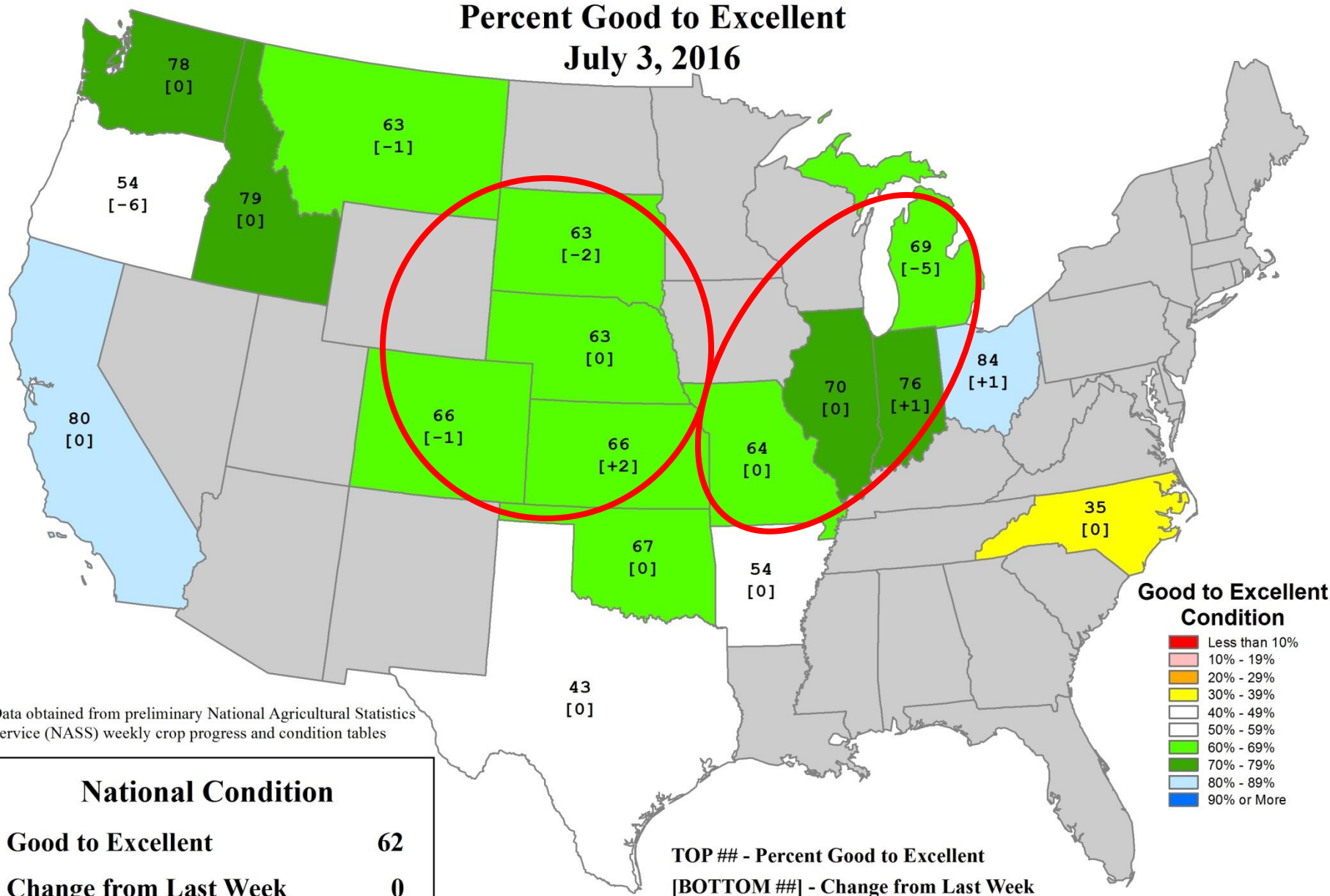
Winter wheat crop calendar for most of the United States



The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

U.S. Winter Wheat Conditions

Percent Good to Excellent
July 3, 2016



Percent Planted September 11, 2016



U.S. Winter Wheat Areas Experiencing Drought

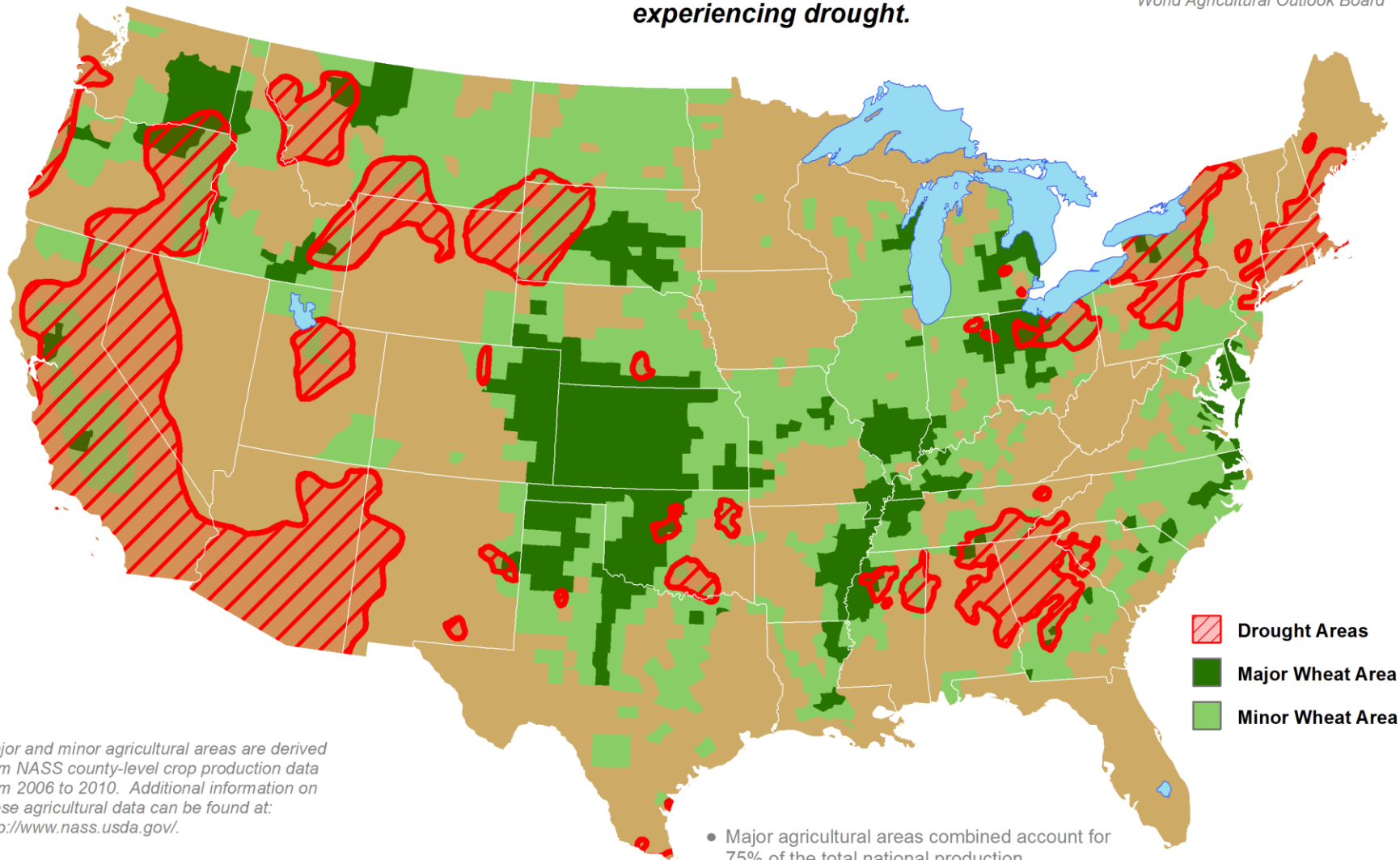


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Agriculture

Reflects **September 6, 2016**
U.S. Drought Monitor data

Approximately **10%** of winter wheat
production is within an area
experiencing drought.

This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board



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/>.

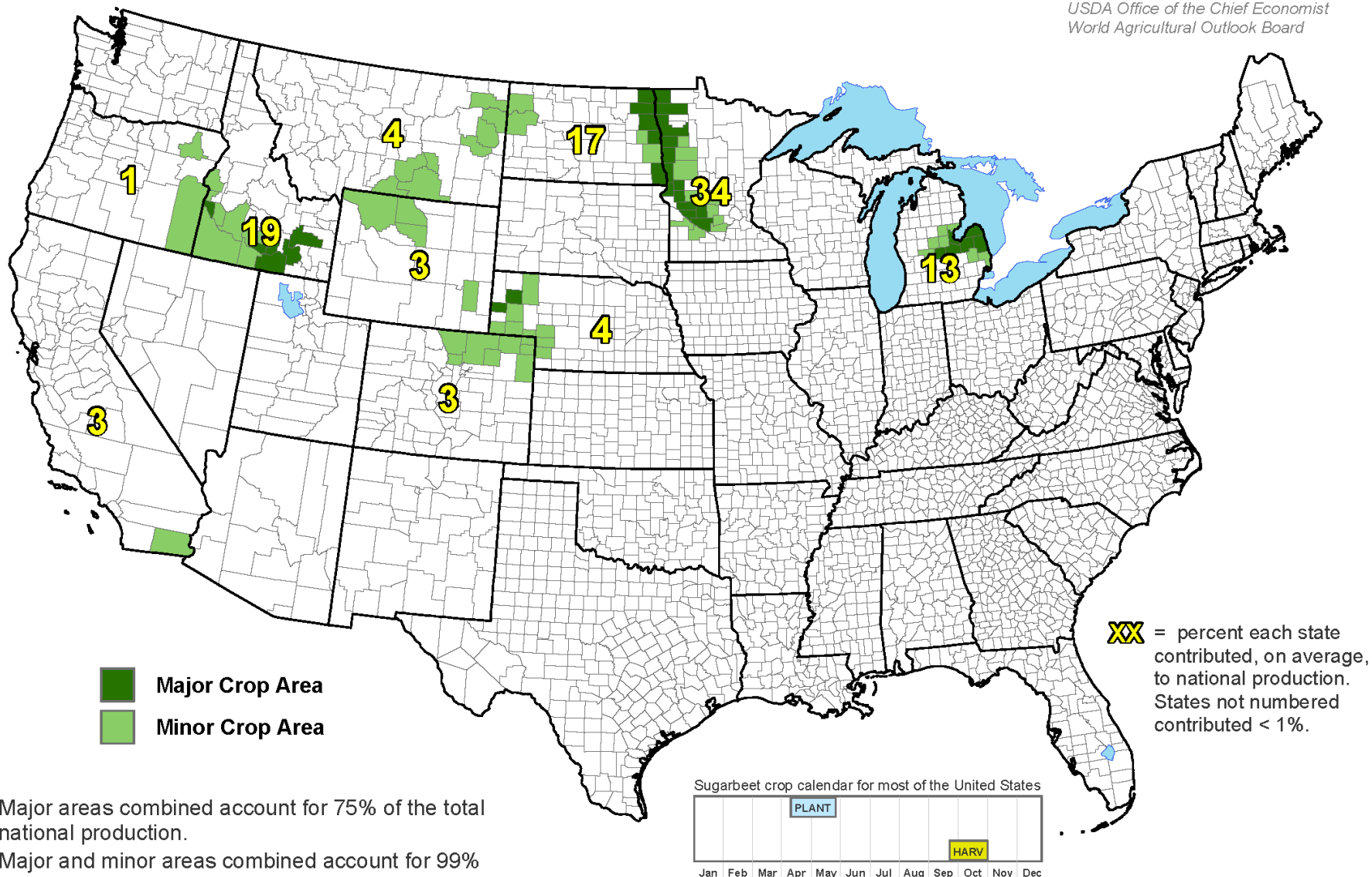
- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.

United States: Sugarbeets



United States
Department of
Agriculture

*This product was prepared by the
USDA Office of the Chief Economist
World Agricultural Outlook Board*

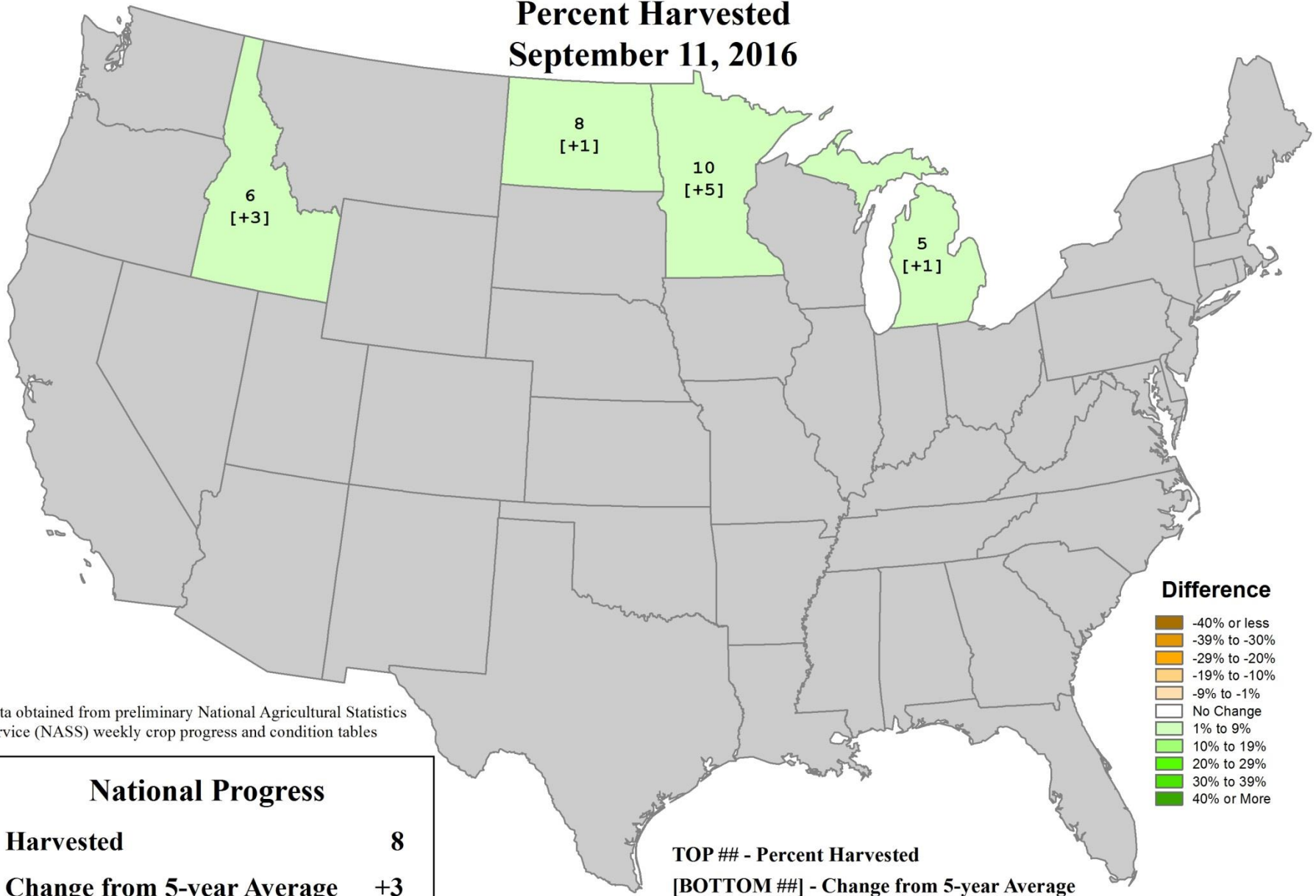


- Major areas combined account for 75% of the total national production.
- Major and minor areas combined account for 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

U.S. Sugarbeets Progress

Percent Harvested
September 11, 2016



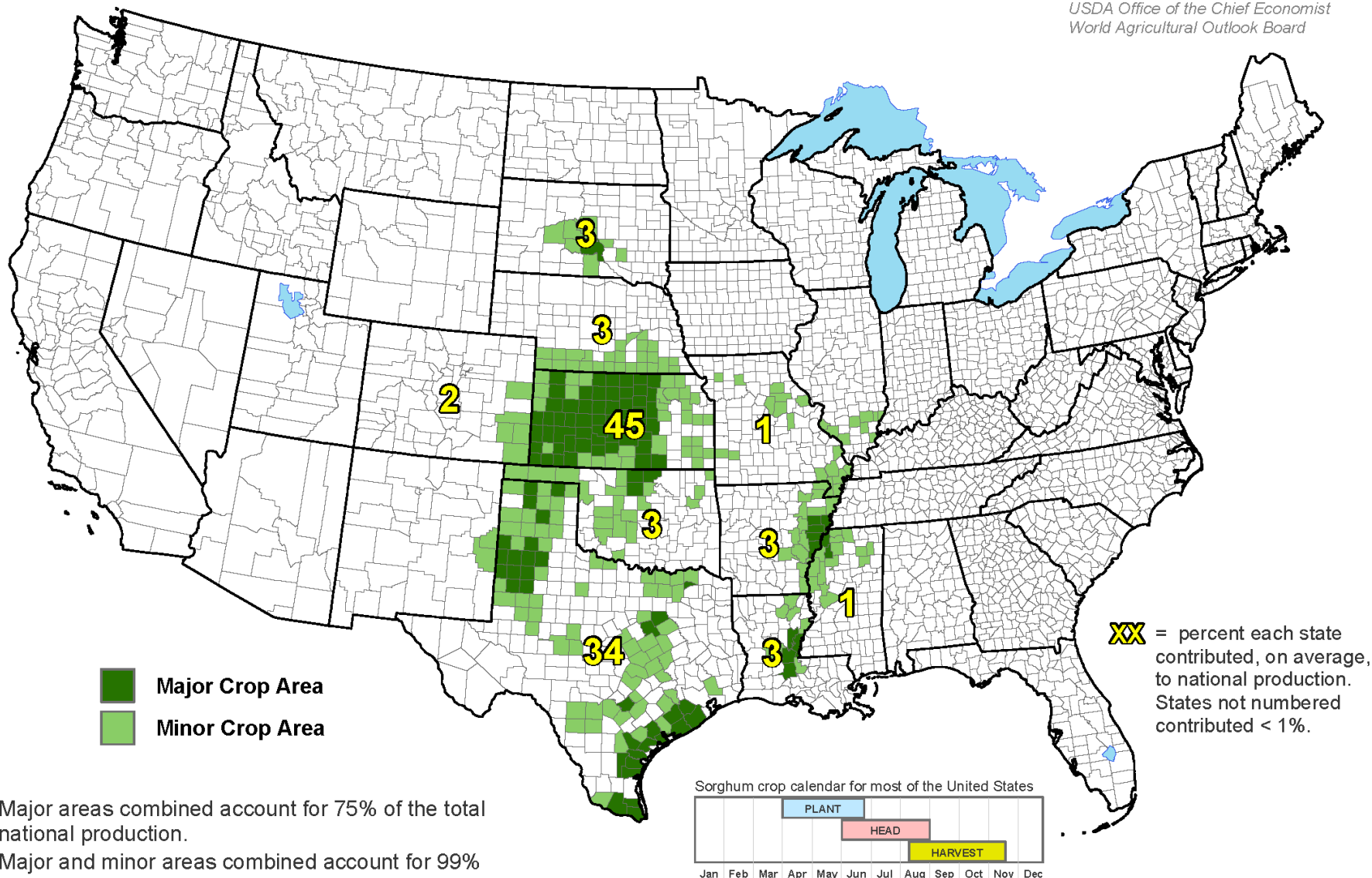
Agricultural Weather Assessments
World Agricultural Outlook Board

United States: Sorghum



United States
Department of
Agriculture

*This product was prepared by the
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World Agricultural Outlook Board*

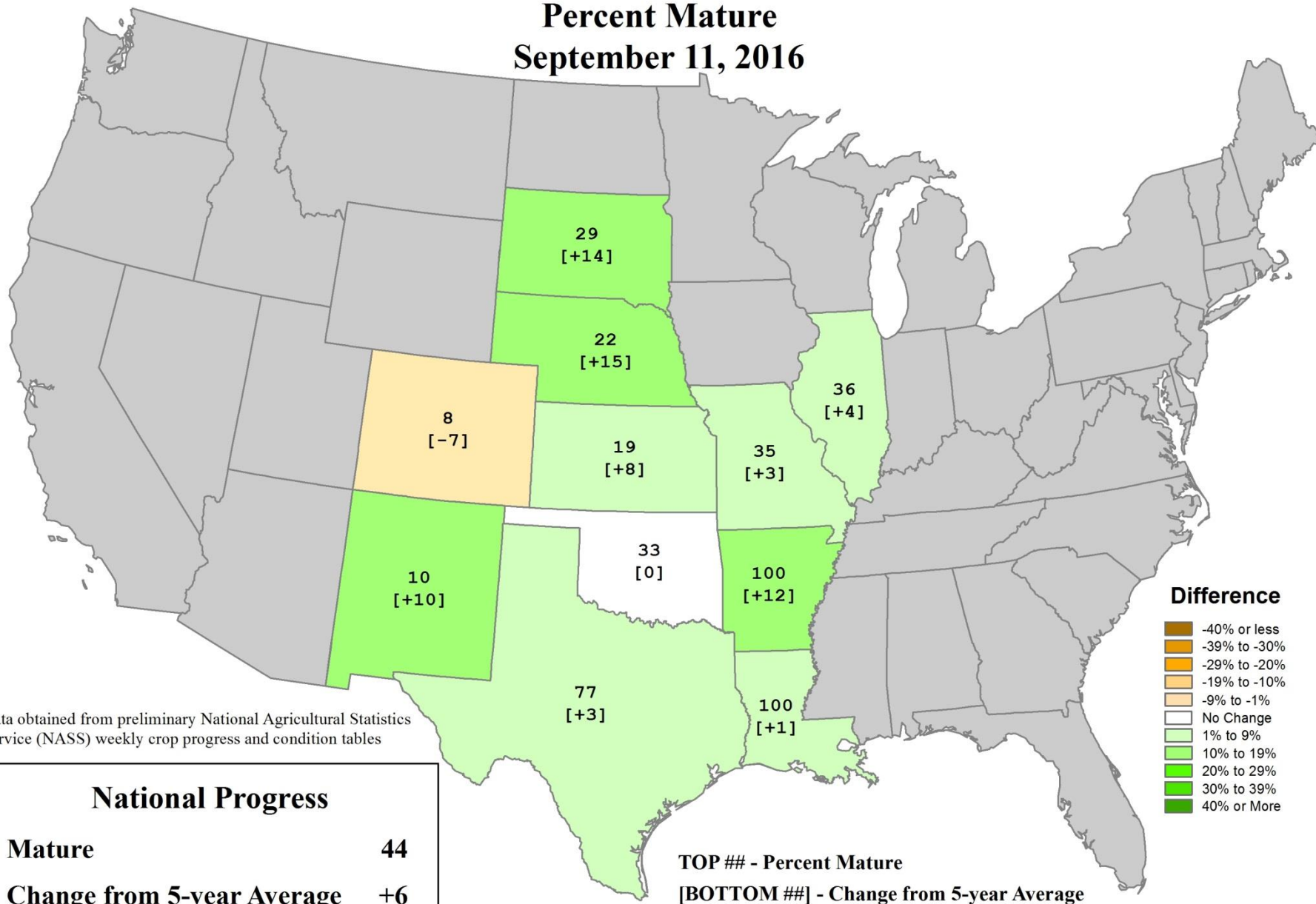


- Major areas combined account for 75% of the total national production.
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- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

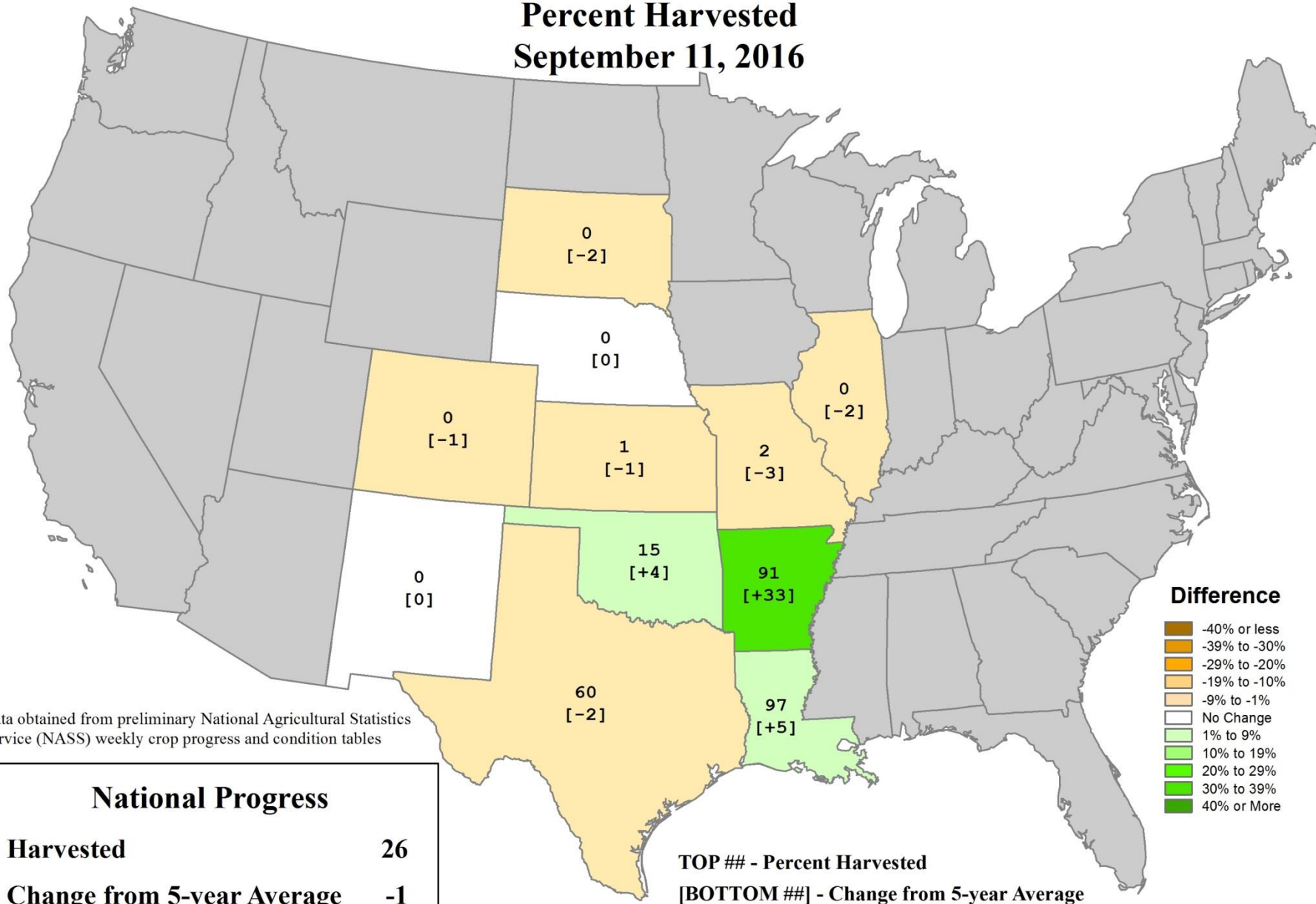
U.S. Sorghum Progress

Percent Mature
September 11, 2016



U.S. Sorghum Progress

Percent Harvested
September 11, 2016





Berrien County, MI, June 29, 2016
Photo by Brad Rippey, USDA

Tart Cherry Production Up 39 Percent

United States tart cherry production is forecast at 309 million pounds, up 39 percent from the 2015 production.

In Michigan, the largest producing State, growers were confident about the tart cherry crop with higher forecasted yields than last year. The crop was developing on schedule with good growth on trees reported throughout the State.

Utah growers reported a crop that will result in relatively good production. Favorable conditions contributed to good yields. In Wisconsin, the major tart cherry growing area of the State escaped a late frost and growers were looking forward to a good year.

In Washington, growers reported a record early harvest this year due to warm weather.

New York growers anticipate a less than average crop this year. Most growers reporting low production cited freeze and frost at bloom.

Tart Cherry Production – States and United States: 2014, 2015, and Forecasted 2016

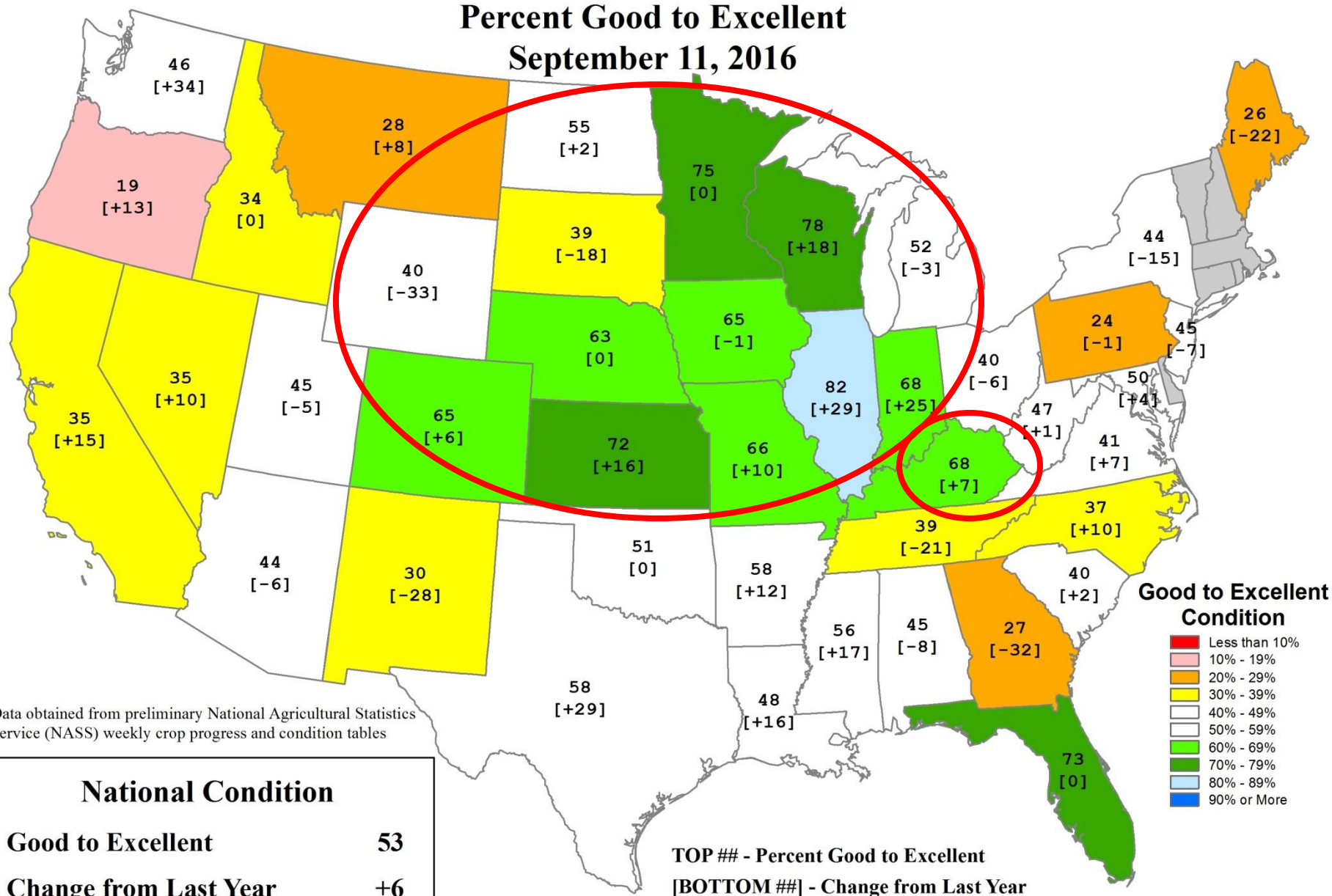
State	Total production		
	2014	2015	2016
	(million pounds)	(million pounds)	(million pounds)
Michigan	203.0	134.0	222.7
New York	10.0	8.2	8.0
Oregon ¹	2.4	2.8	(NA)
Pennsylvania ¹	0.9	3.2	(NA)
Utah	51.0	40.0	43.0
Washington	24.3	25.0	24.4
Wisconsin	12.3	9.4	11.0
United States	303.9	222.6	309.1

(NA) Not available.

¹ Estimates discontinued in 2016.

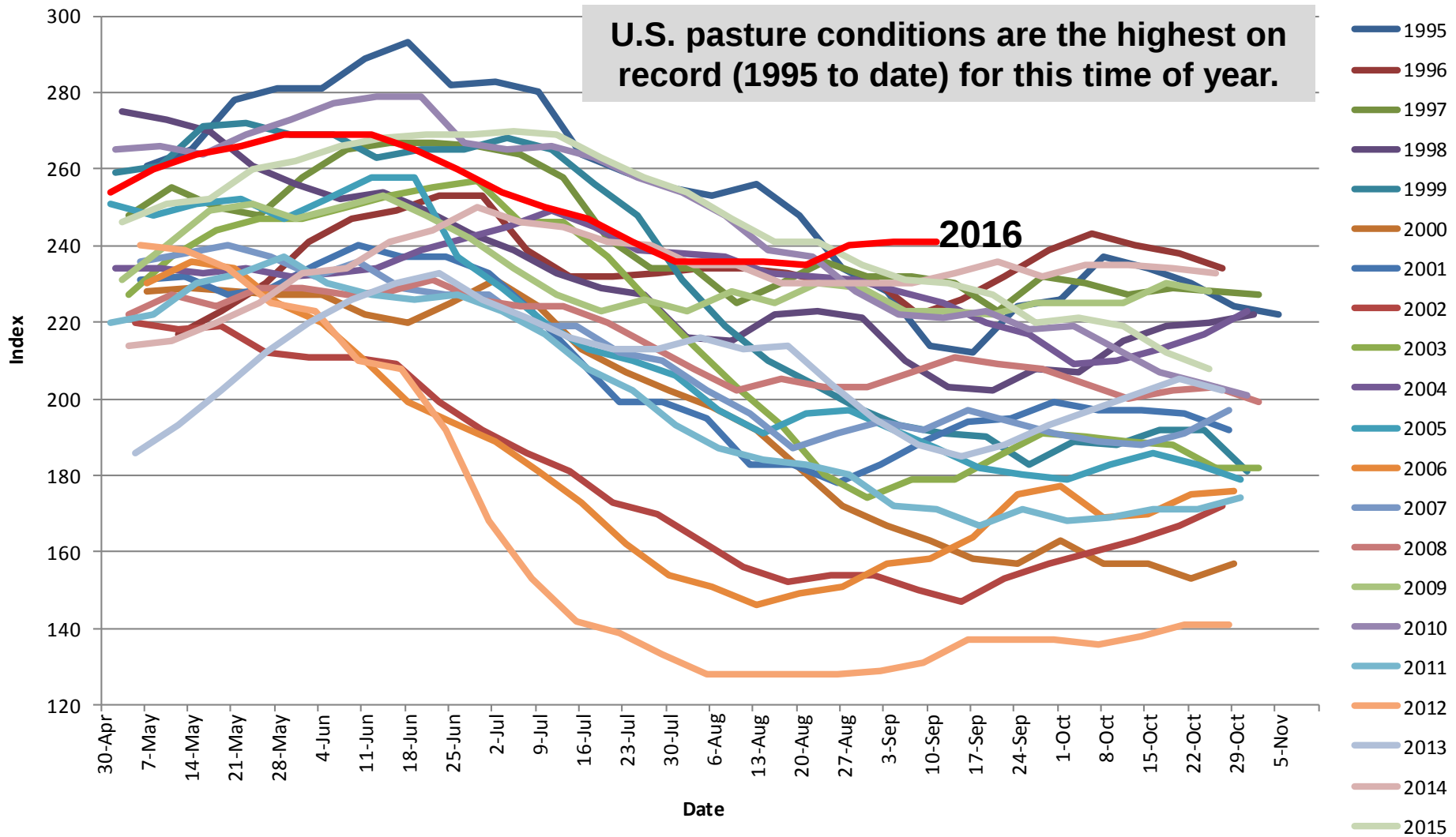
U.S. Pasture and Range Conditions

Percent Good to Excellent
September 11, 2016



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

U.S. PASTURE AND RANGE Condition Index



Based on NASS crop progress data.

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



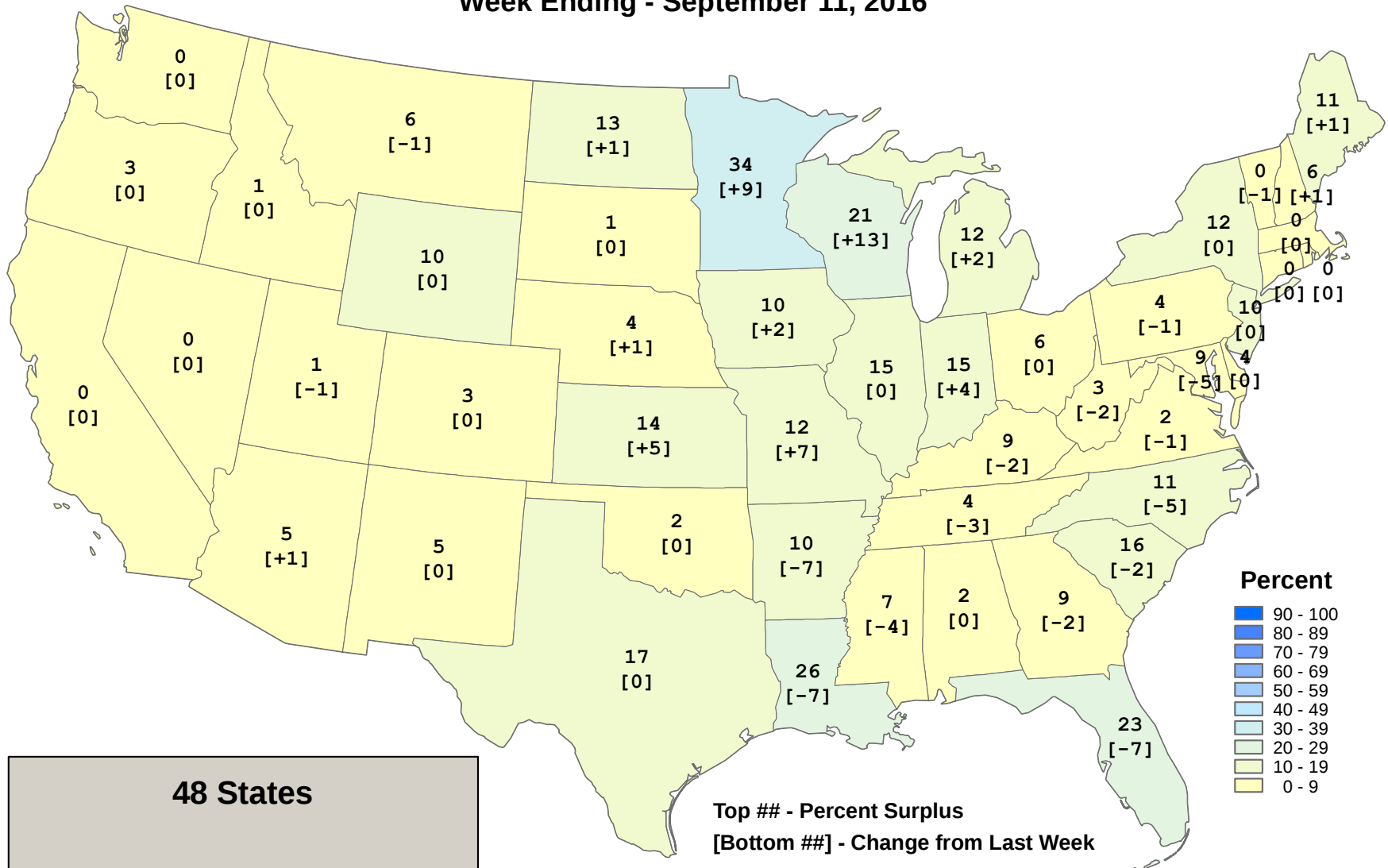
United States
Department of
Agriculture

This product was prepared by the
USDA Office of the Chief Economist (OCE)
World Agricultural Outlook Board (WAOB)

Topsoil Moisture

Percent Surplus

Week Ending - September 11, 2016



Data obtained from USDA National Agricultural Statistics Service weekly Crop Progress reports. These reports are available through <http://www.nass.usda.gov/Publications/>.



Berrien County, MI, July 1, 2016
Photo by Brad Rippey, USDA

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World Agricultural Outlook Board
Washington, D.C.

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Chicago Skyline
from Mt. Tom, IN
June 29, 2016
(Brad Rippey photo)