Midwest and Great Plains Climate-Drought Outlook 15 September 2016

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National Drought Mitigation Center

NOAA National Oceanic and Atmospheric Administration U.S. Department of Commerce

Regional Climate Centers

AASC American Association of State Climatologists

USDA 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

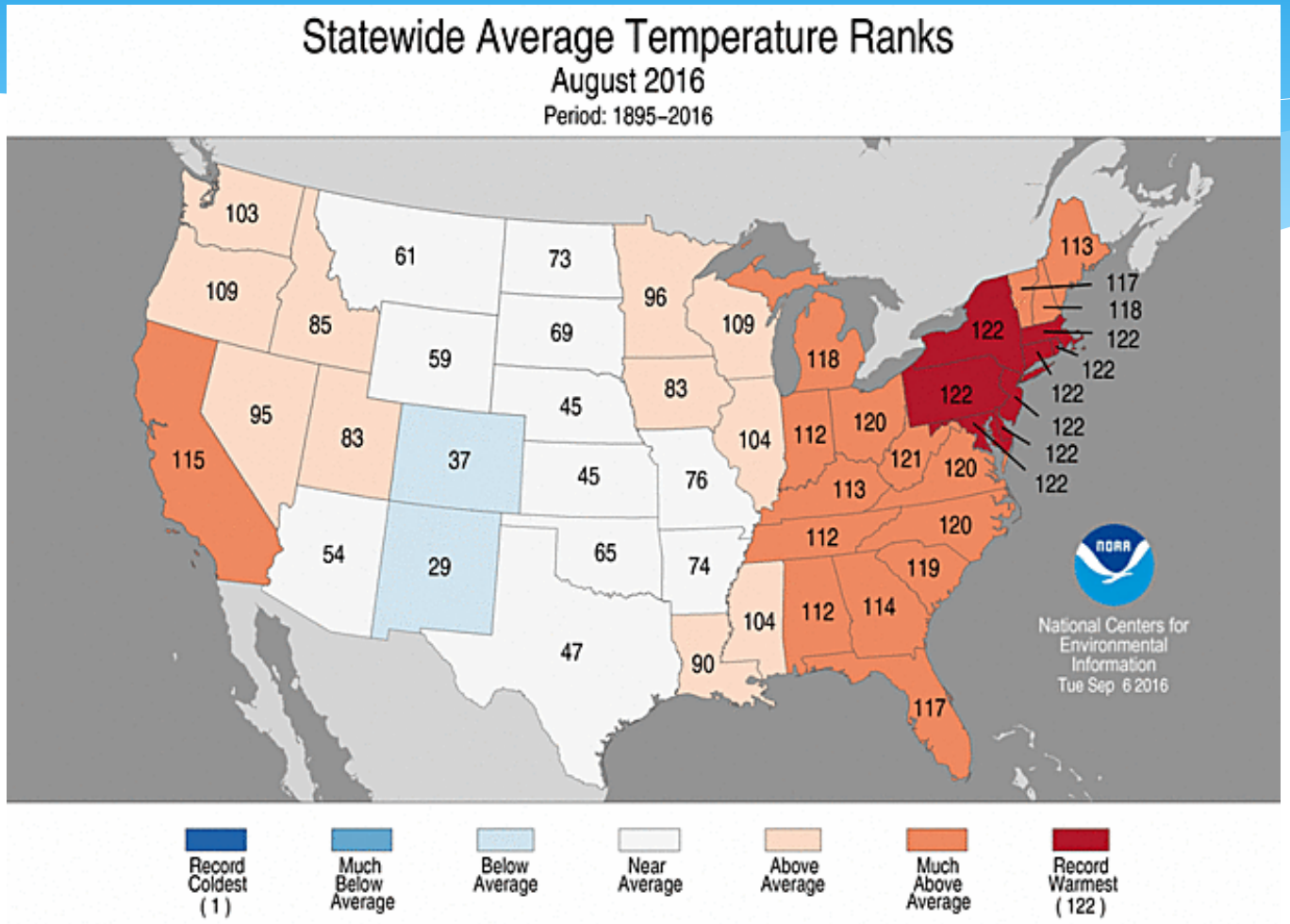
* Current Conditions
* Ag Review
  * Brad Rippey
* Outlooks
  * Non-La Niña
  * Fall - winter

OH Corn early August– Jim Noel NWS

Review/Current Conditions

August Temperature Recap

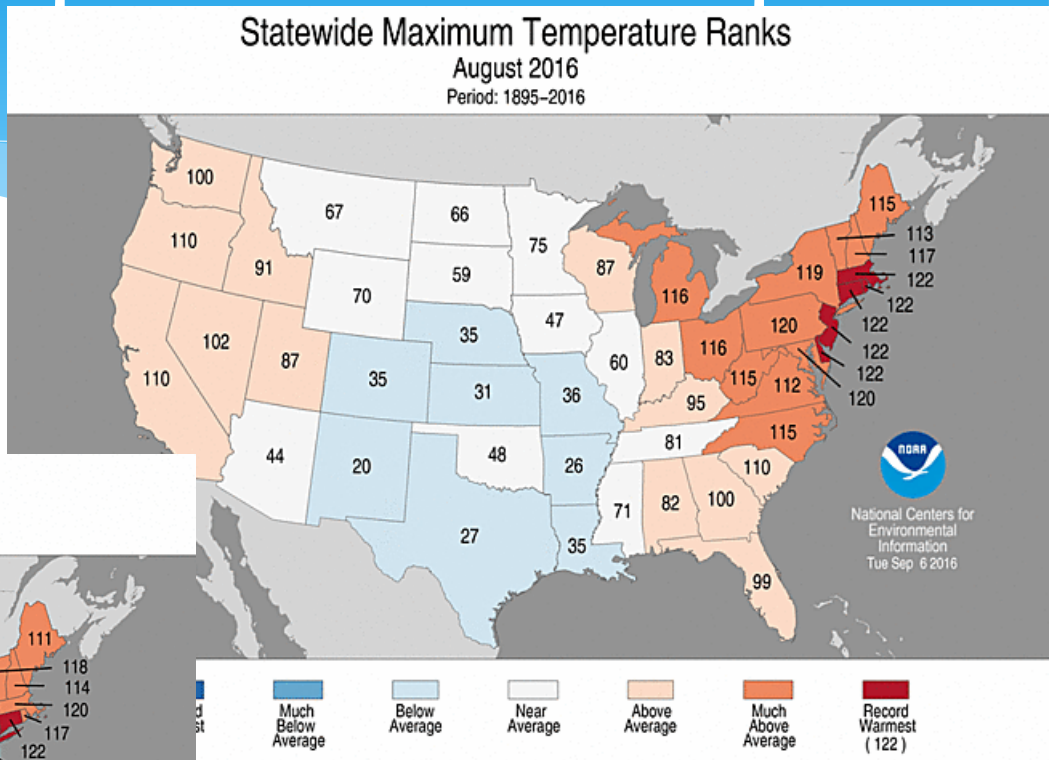
Warm across the east – moderate to cooler western region.

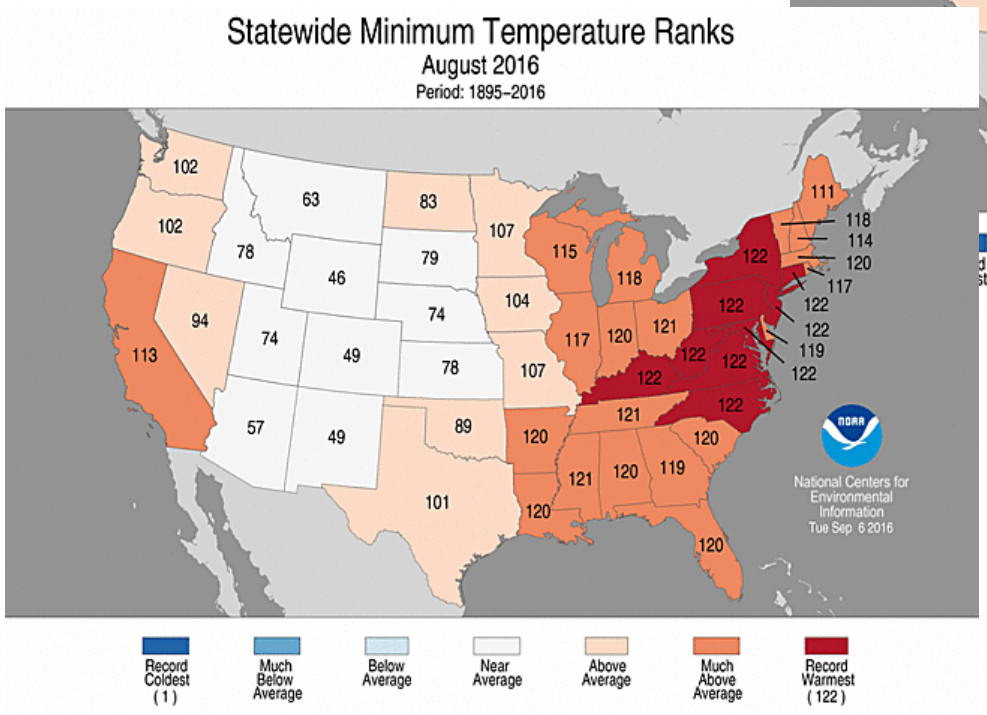


http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

August Temperature Recap

Different when split out – much warmer minimums, lower maximums

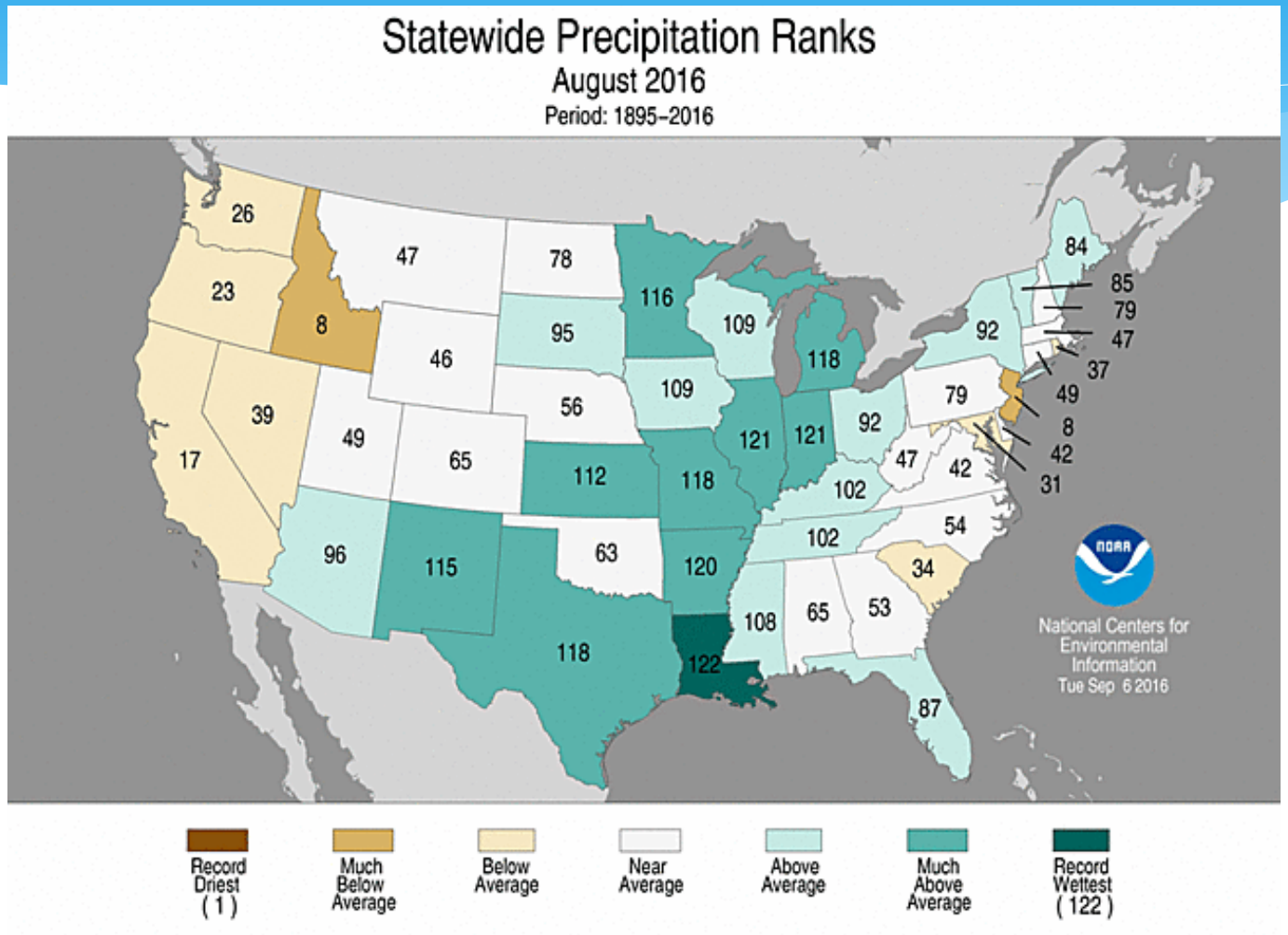




http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

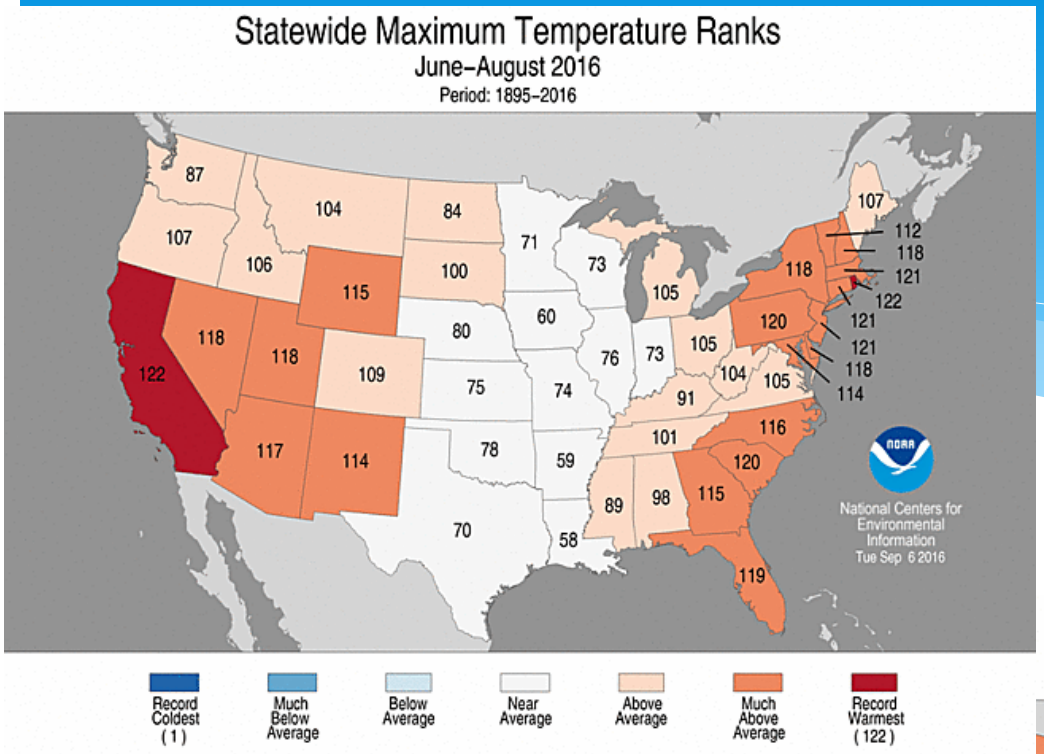
August Precipitation Recap

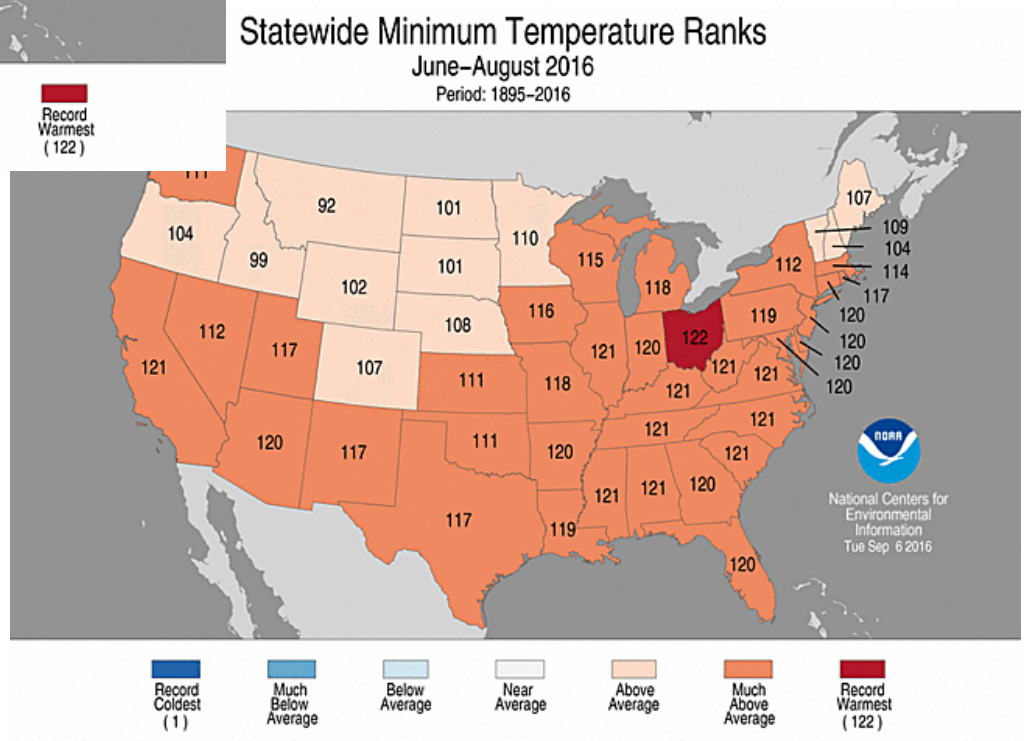
Wet late season most of region – moderate to the west.



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

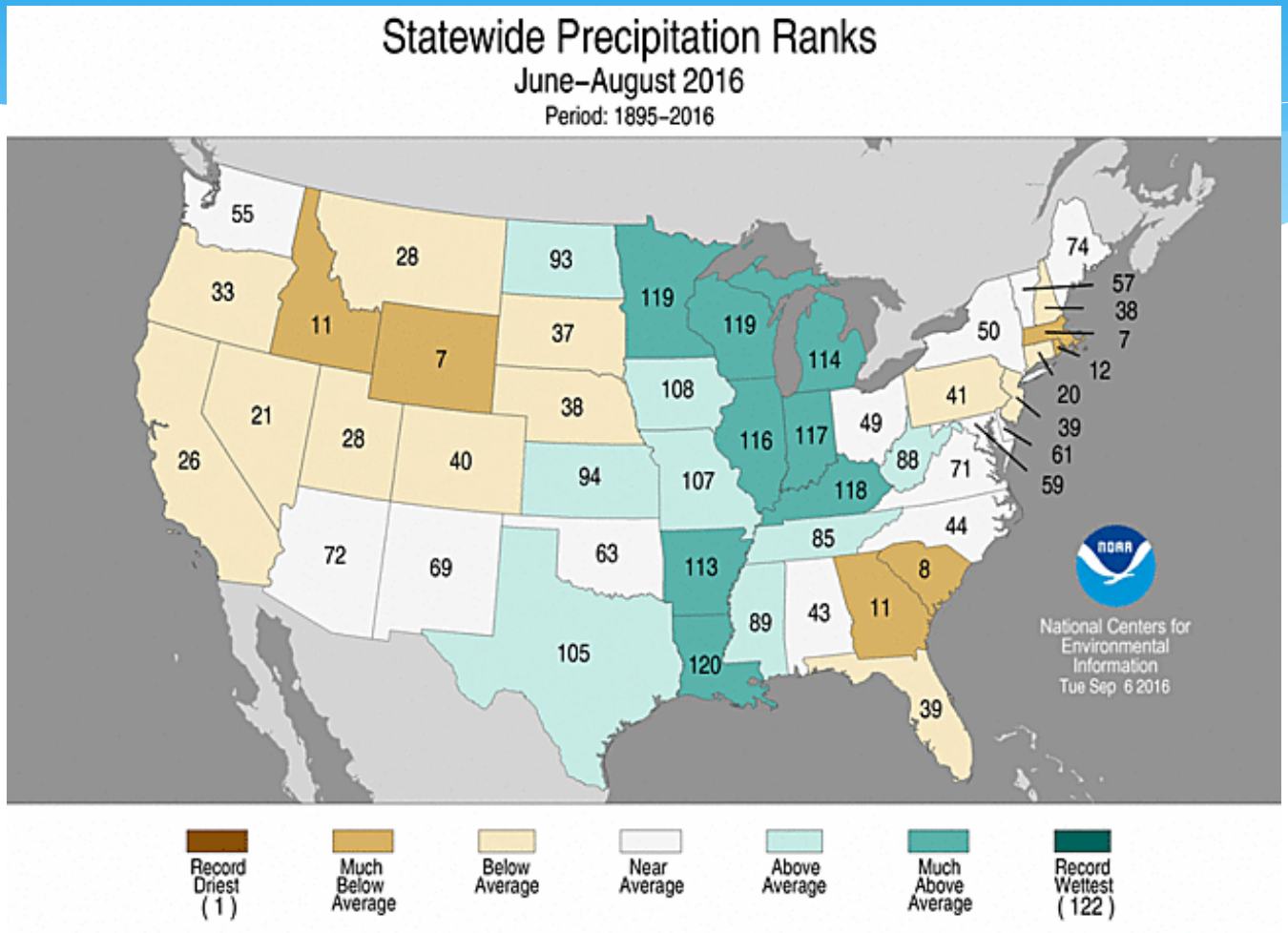
June – August temperature ranks





June - August Precipitation

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

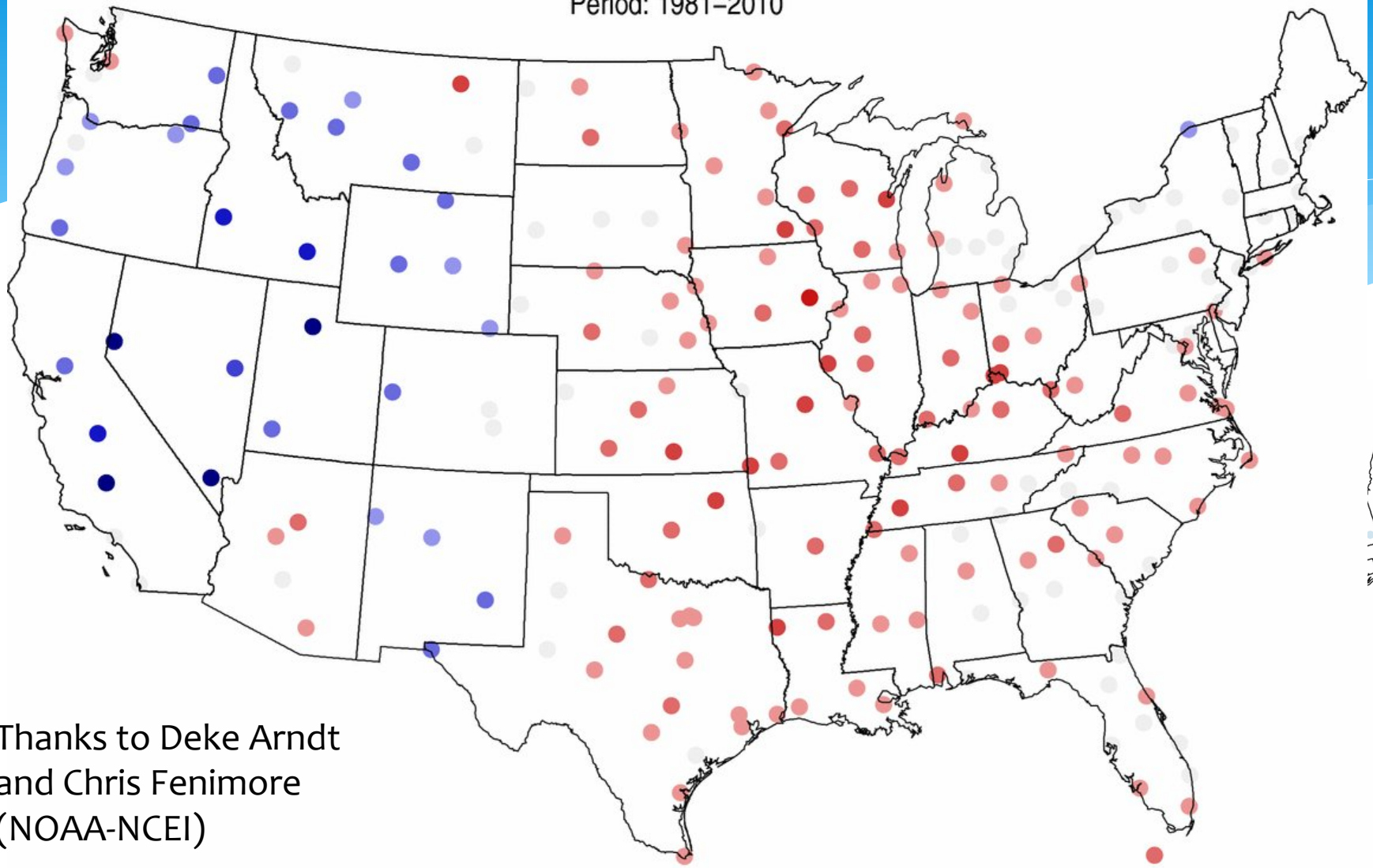


http://www.ncdc.noaa.gov/temp-and-precip/us-maps/

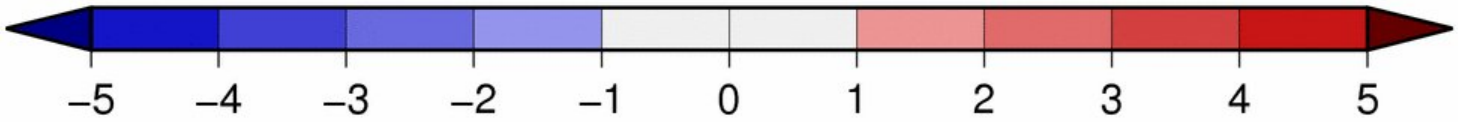
Average Dew Point Temperature Departures from Average

June–August 2016

Period: 1981–2010



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



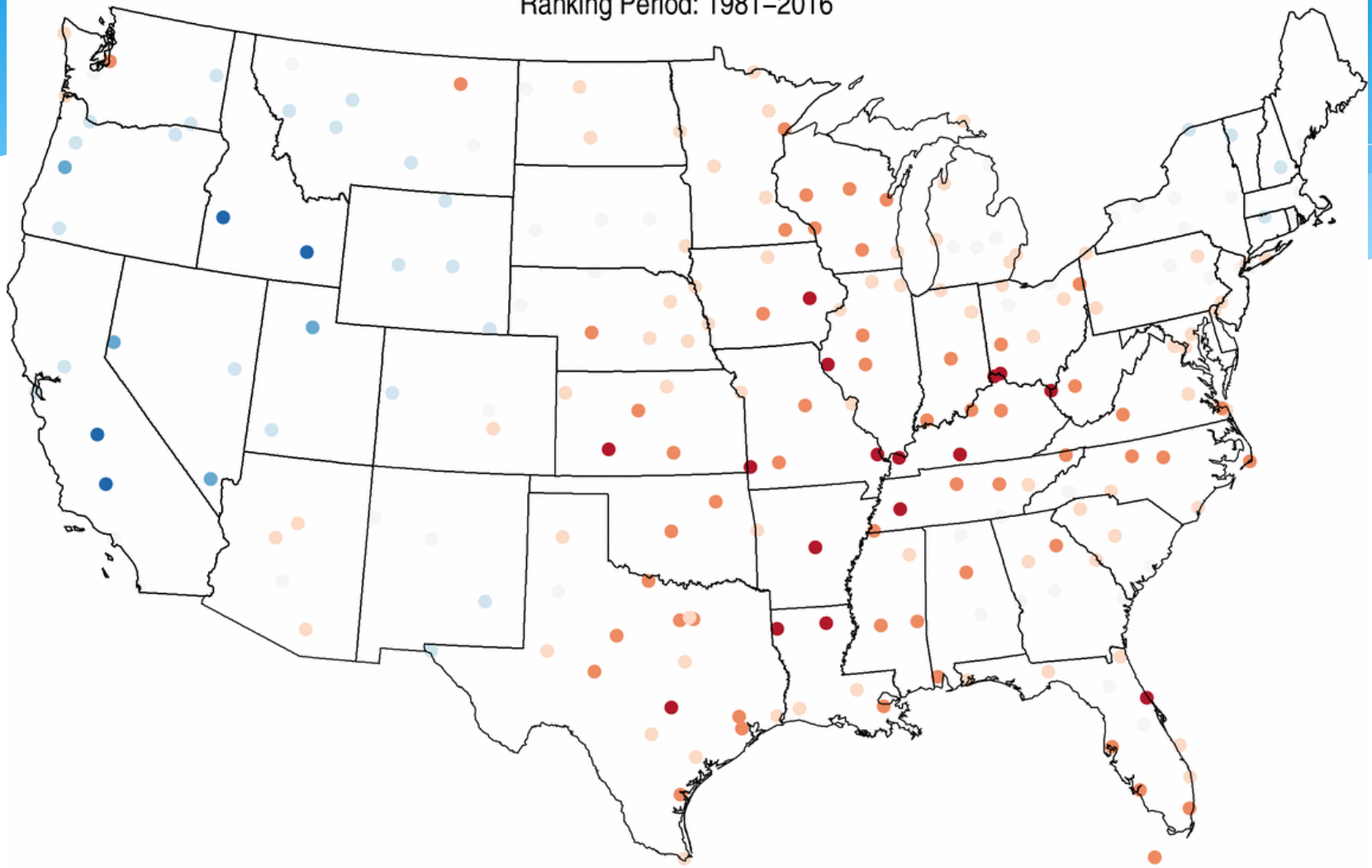
Data Source: Integrated Surface Daily (ISD)

National Centers for Environmental Information

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)

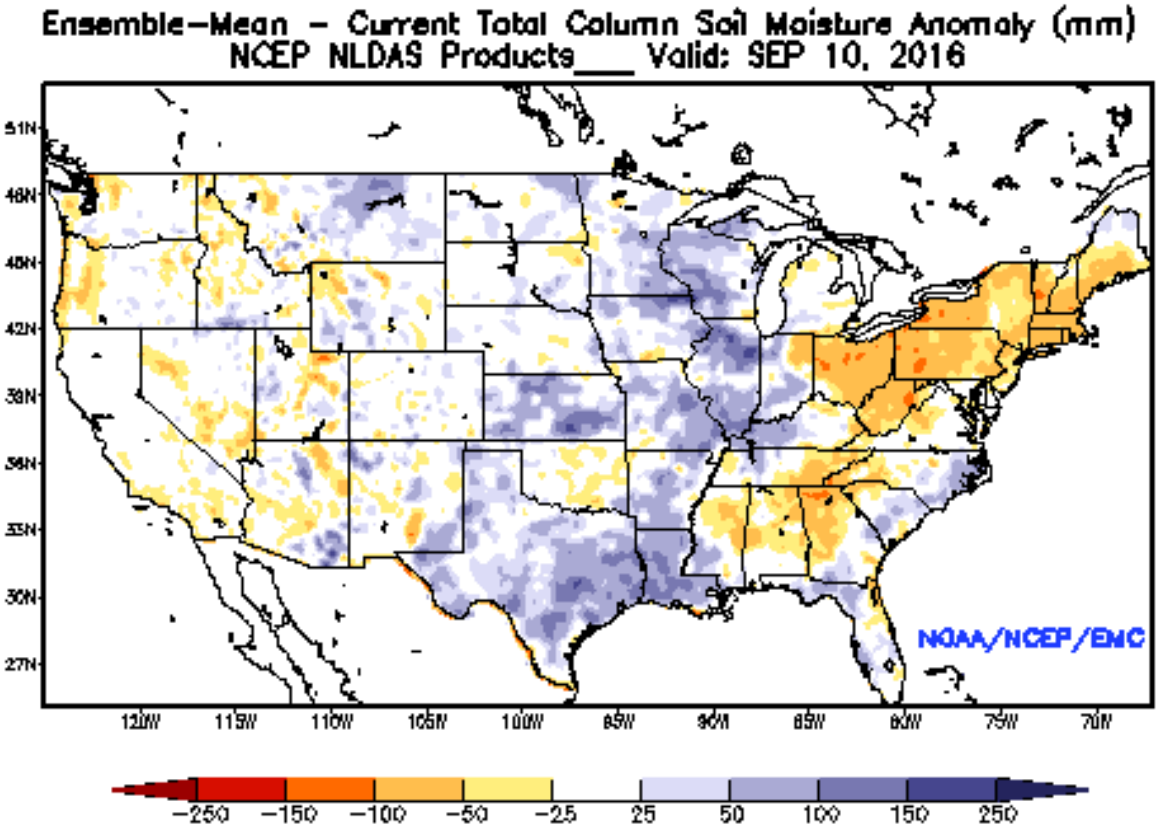
National Centers for Environmental Information

Soil Moisture

Wet – late season precip

Potential issues

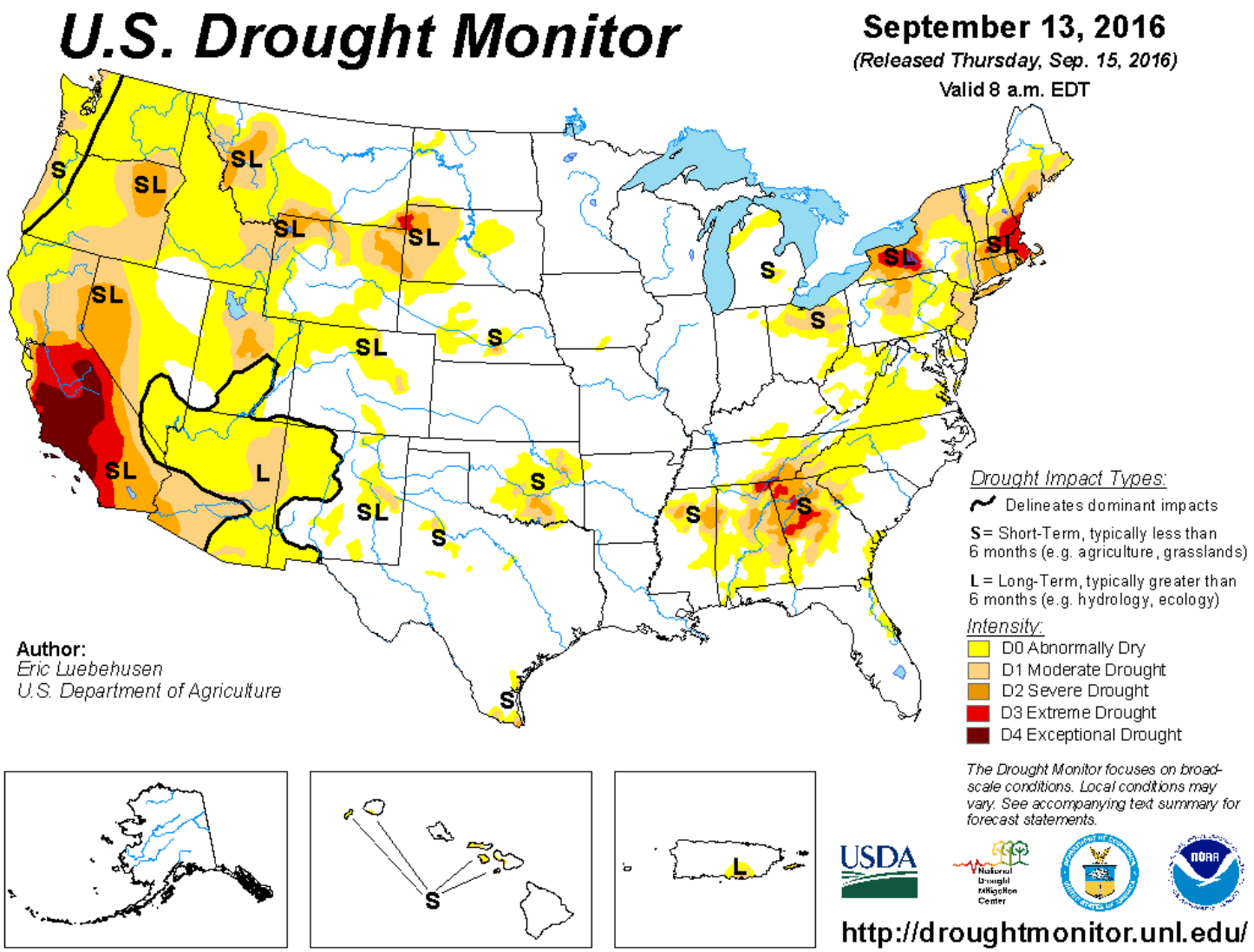
- Crop drydown
- Field access
- Carry-over Sp ‘17



Soil Moisture Anomaly in millimeters

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

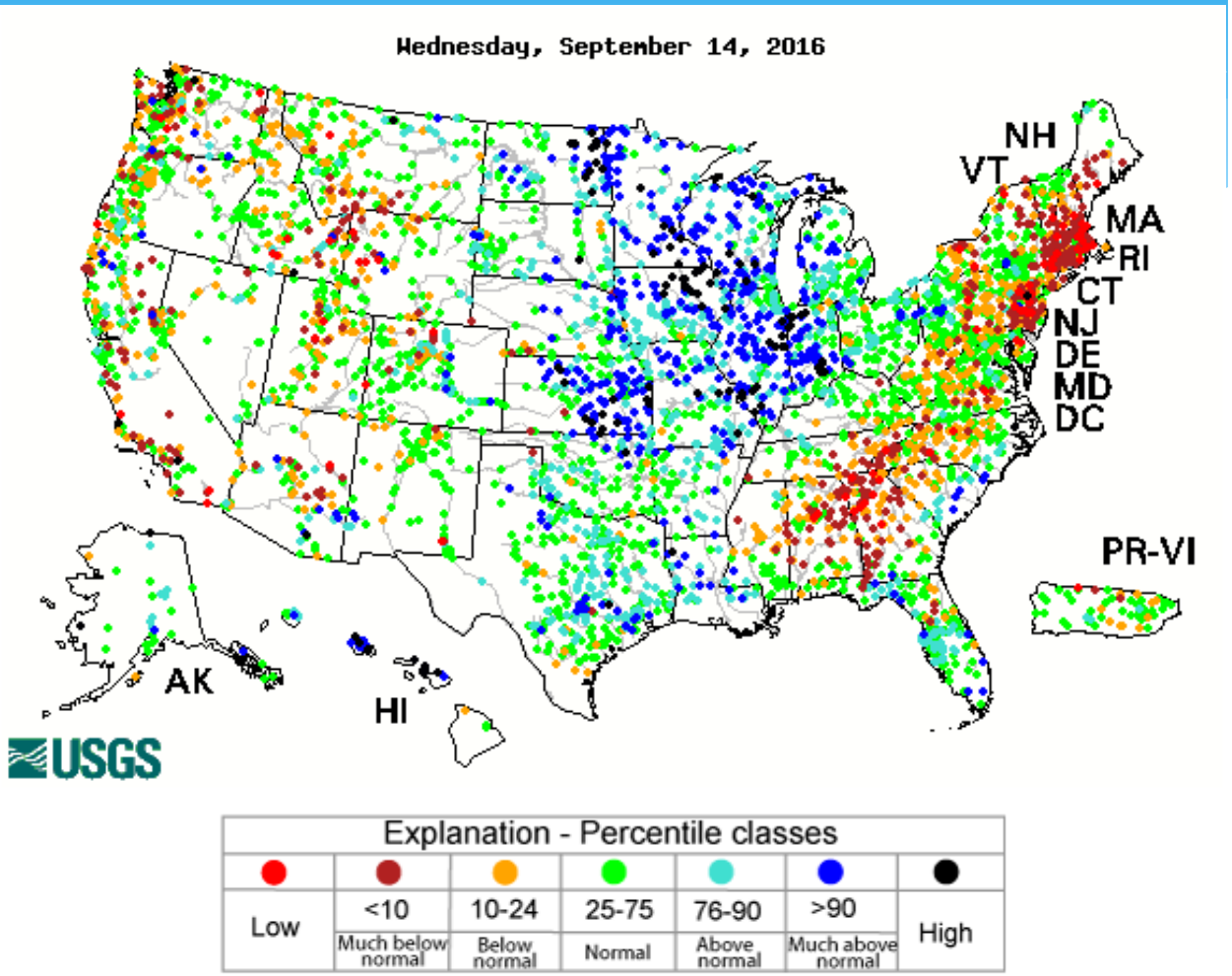
US Drought Monitor



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



http://waterwatch.usgs.gov/index.php?id=pa07d

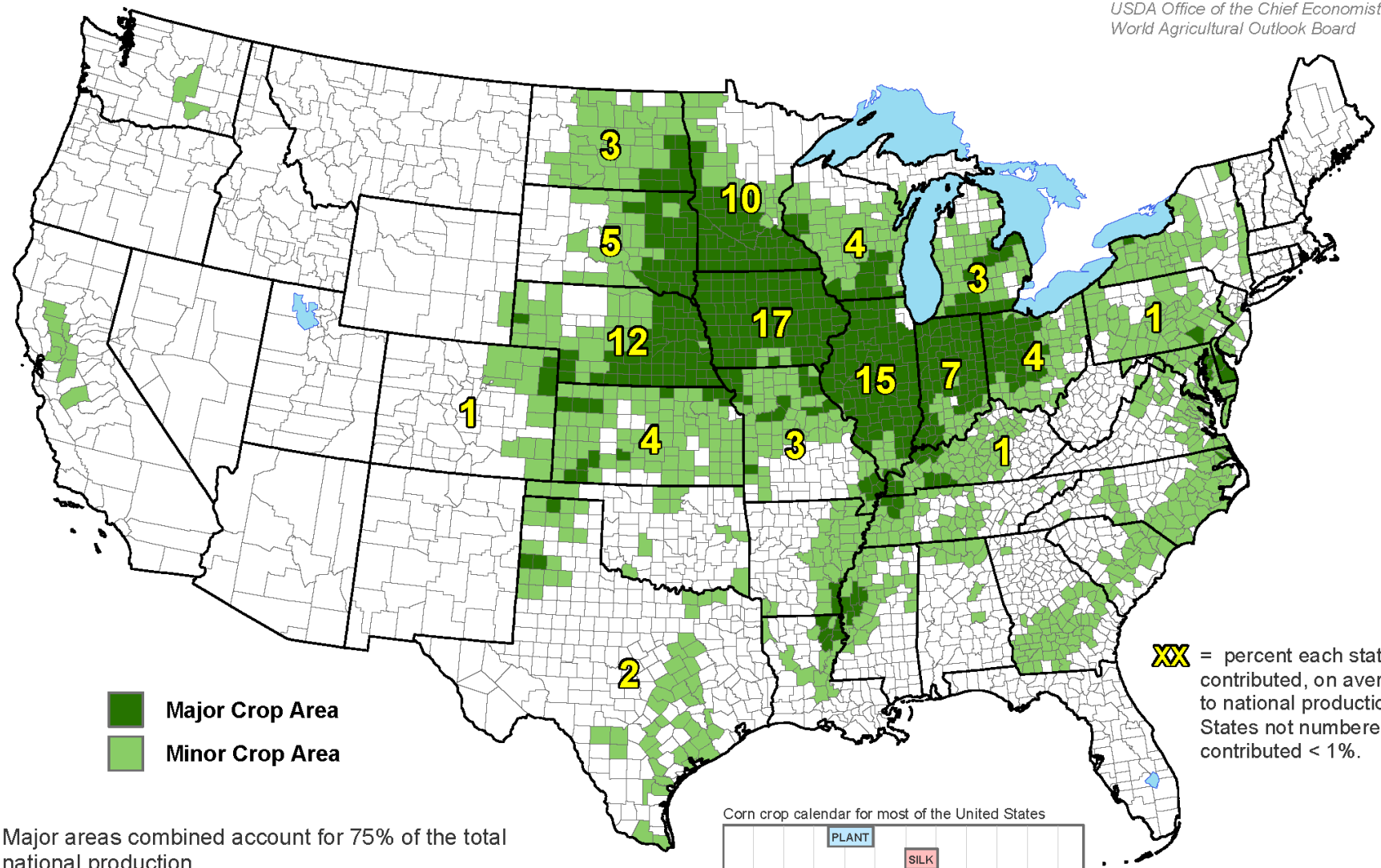
NOAA Central Region Webinar, September 15, 2016

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

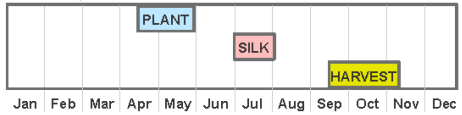
United States: Corn

United States Department of Agriculture

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



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.

- 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.

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.

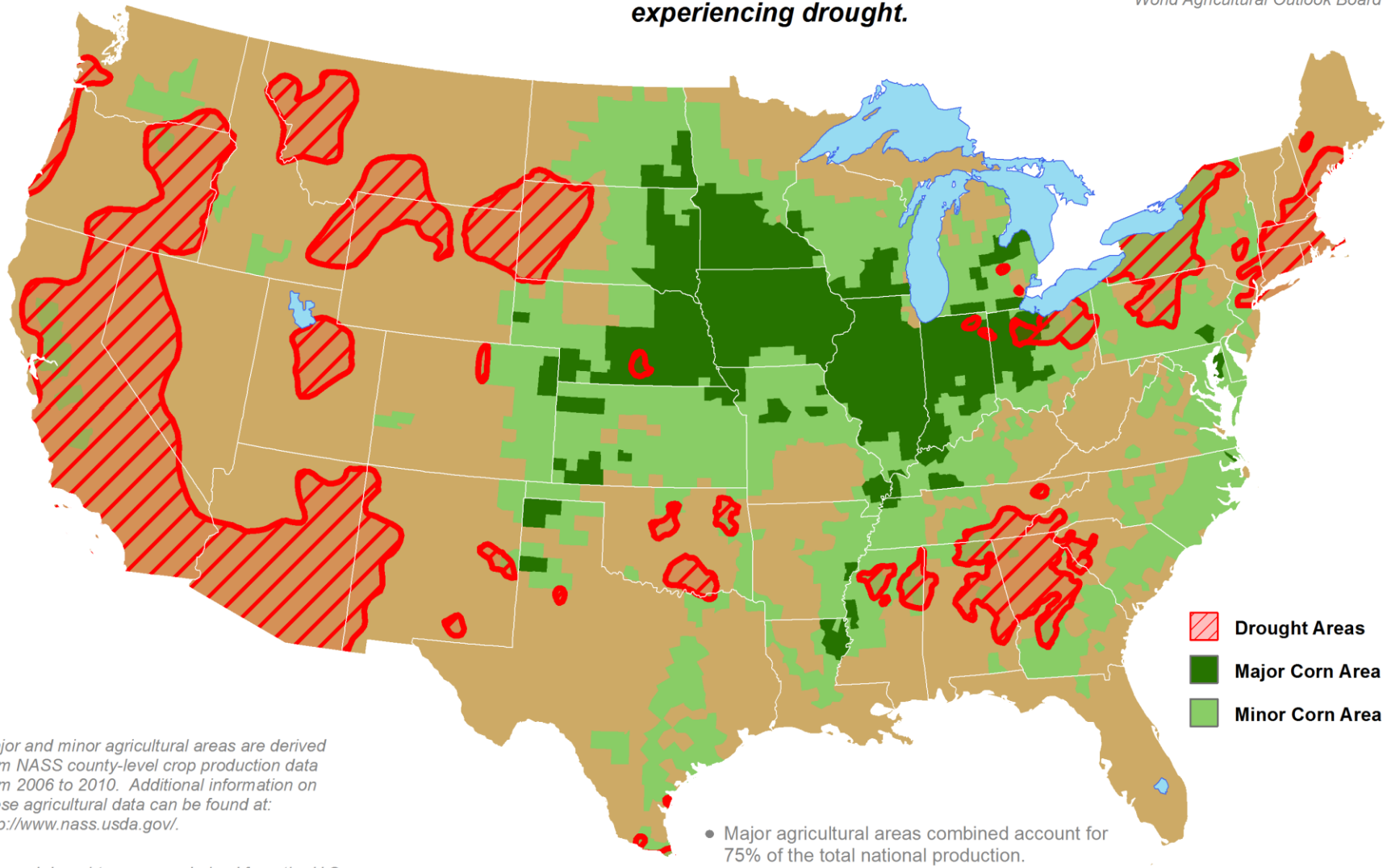
U.S. Corn Areas Experiencing Drought

United States Department of Agriculture

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

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

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

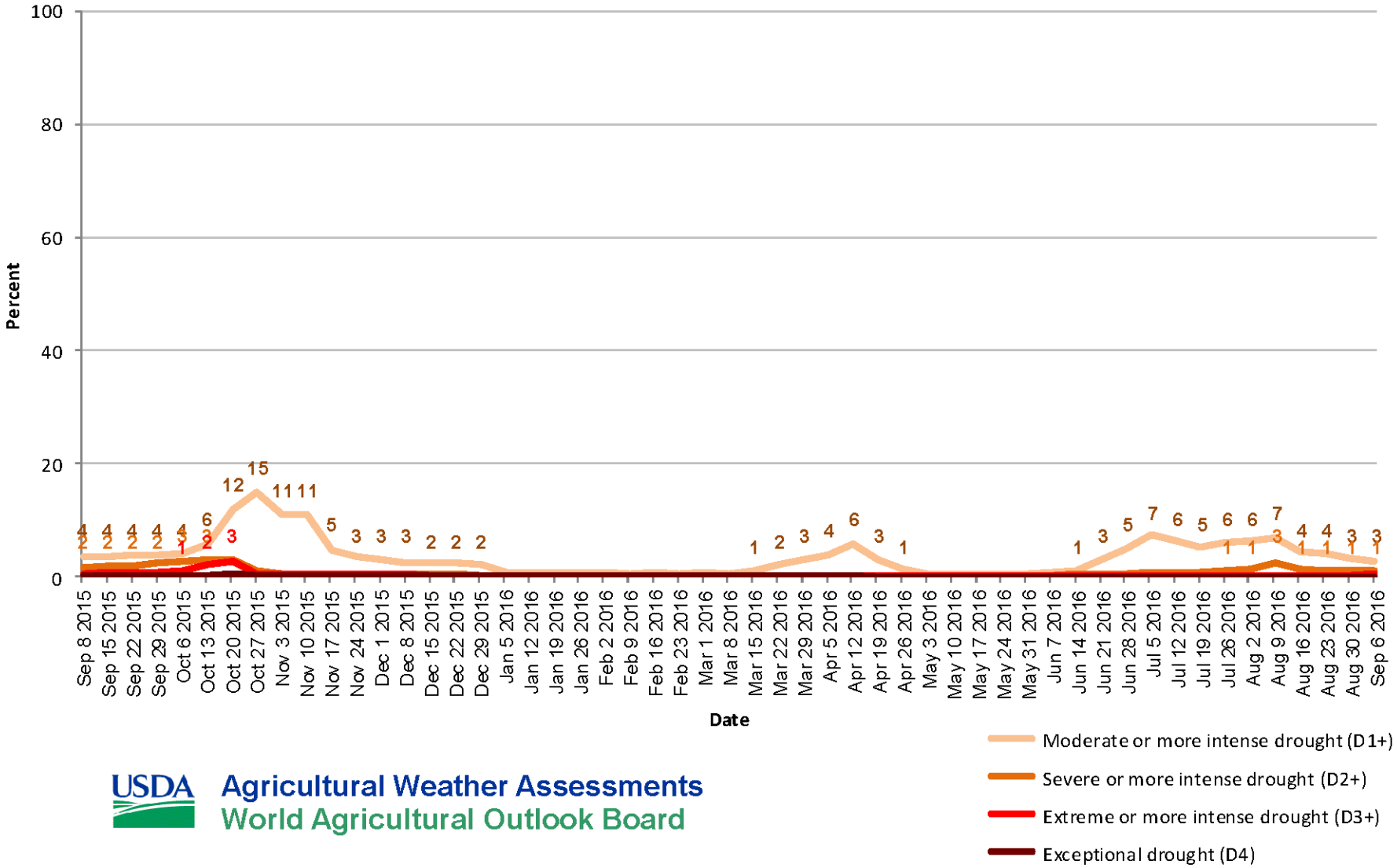


Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: http://www.nass.usda.gov/.

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



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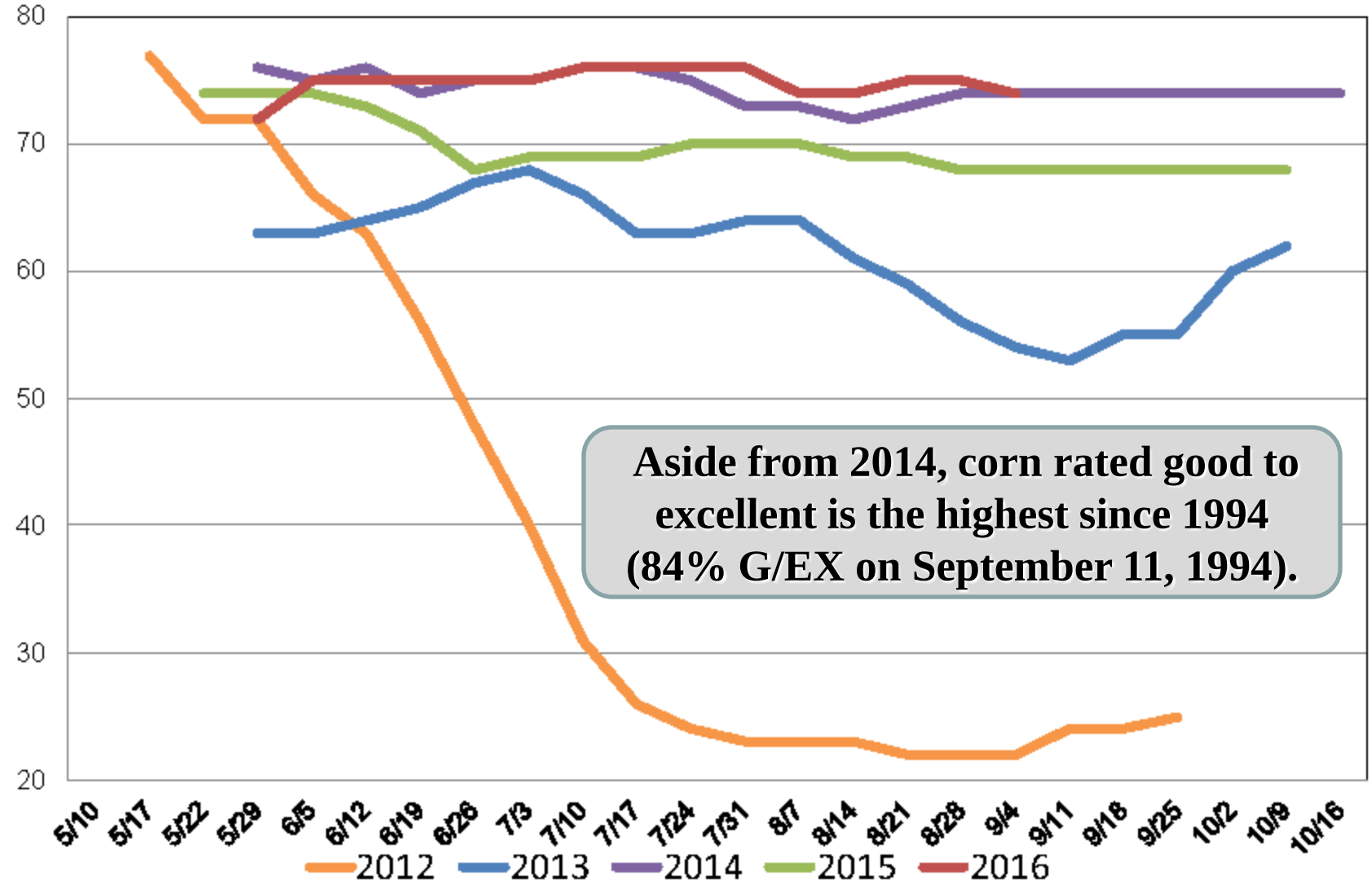
U.S. Corn Condition

Percent Rated Good to Excellent

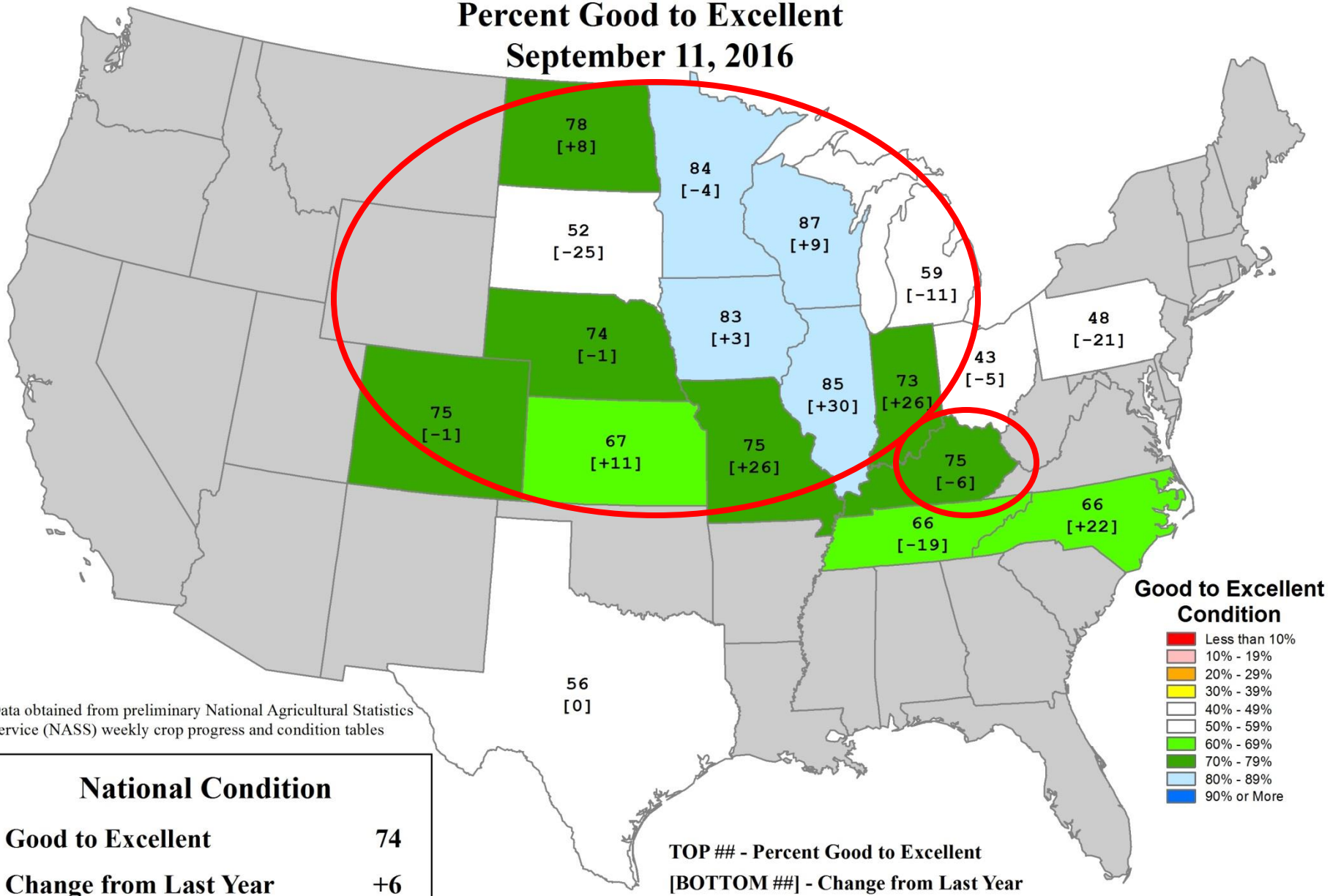


Aside from 2014, corn rated good to excellent is the highest since 1994 (84% G/EX on September 11, 1994).

USDA-NASS
9-12-16

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

National Condition	
Good to Excellent	74
Change from Last Year	+6

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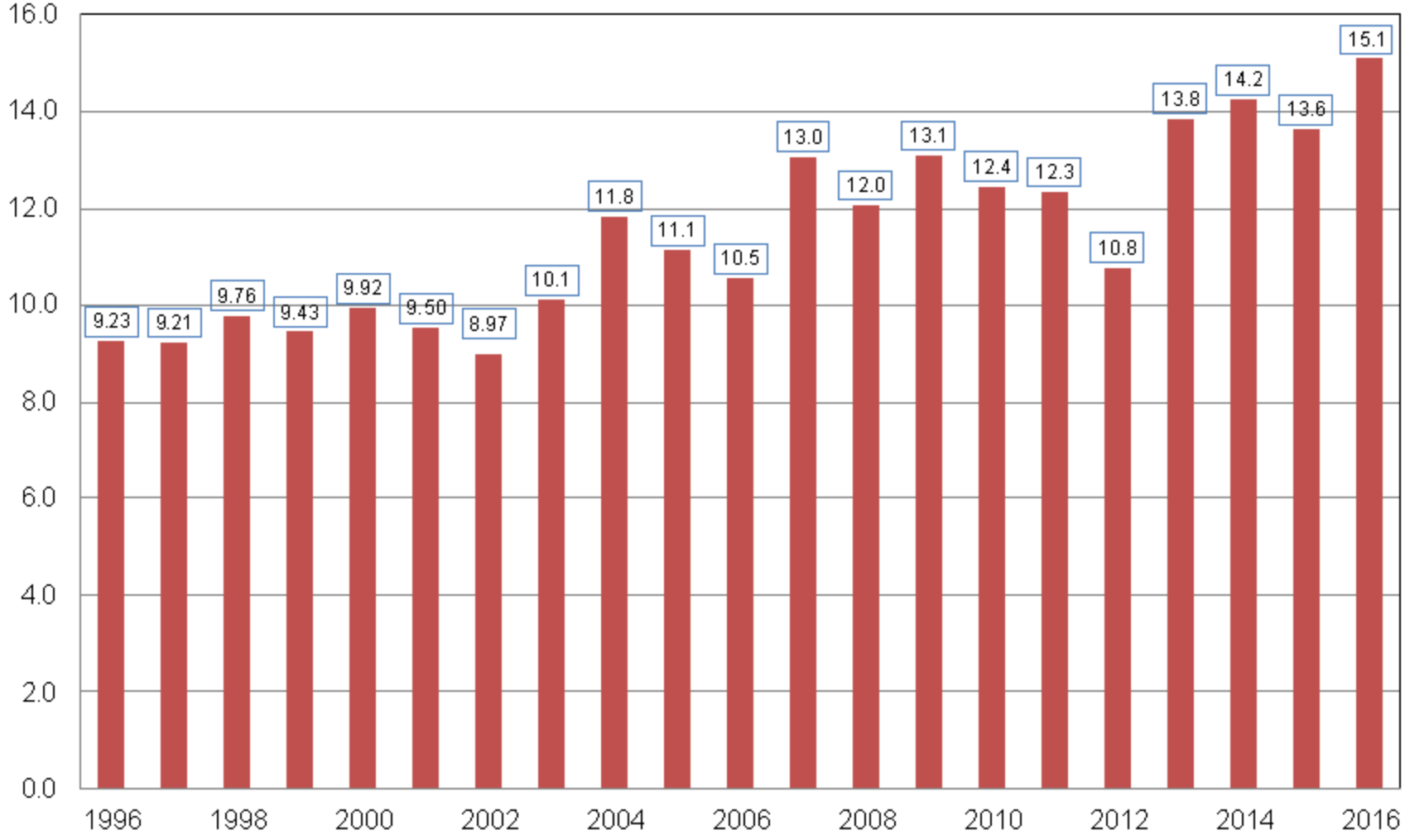
World Agricultural Outlook Board

Corn for Grain Production

United States

Billion Bushels



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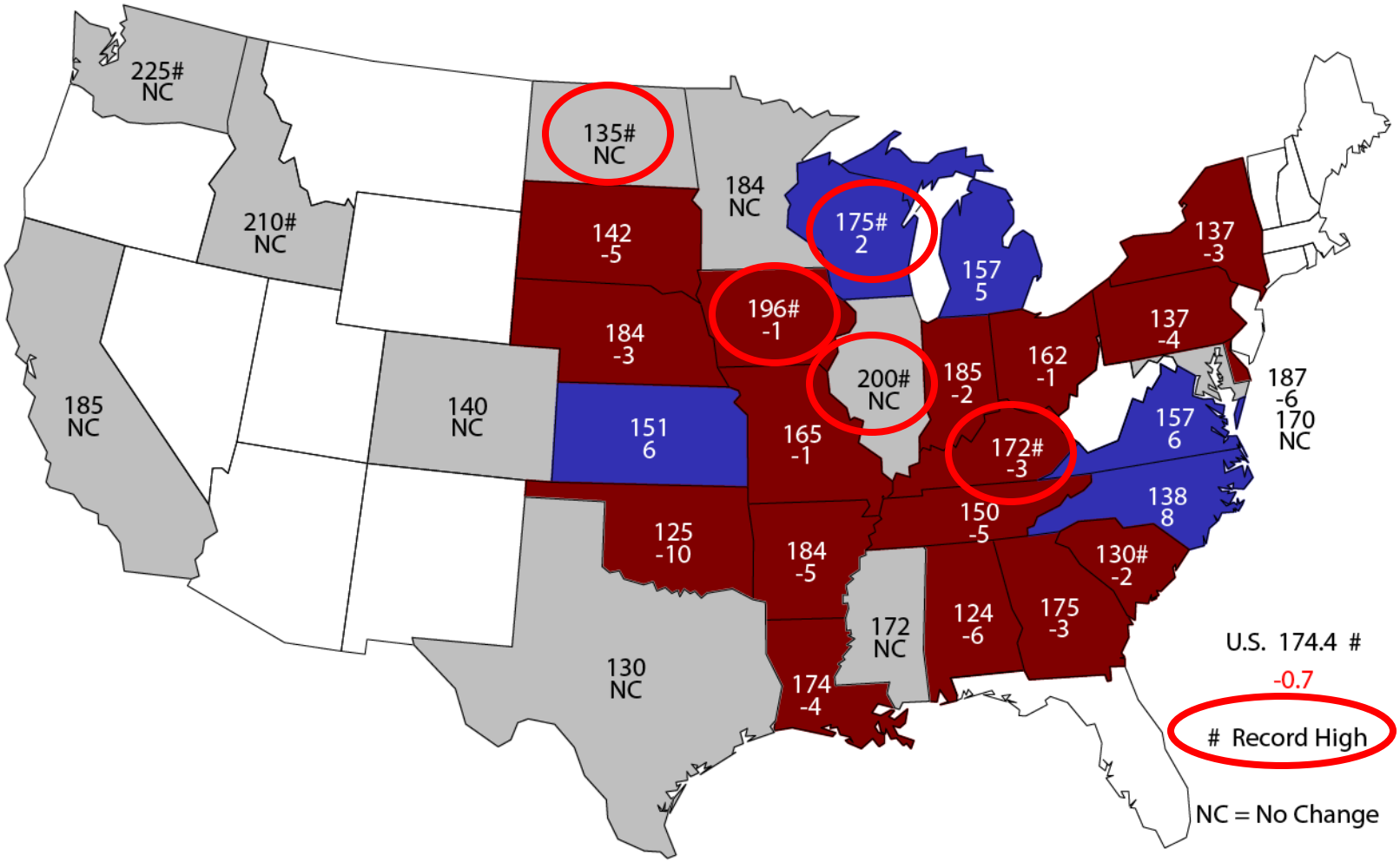
9-12-16

September 1, 2016 Corn Yield

Bushels and Change From Previous Month



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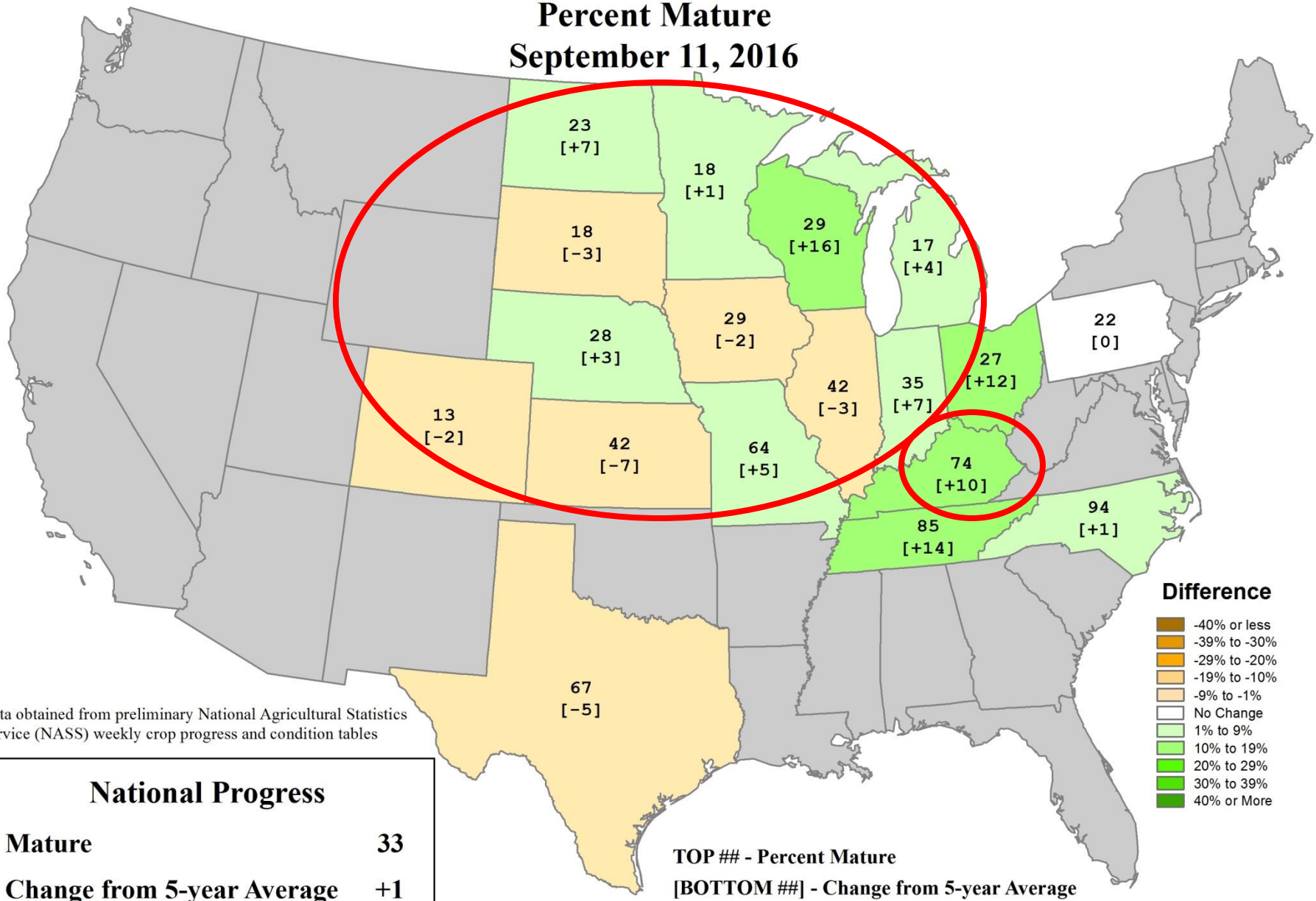
U.S. Corn Progress

Percent Mature
September 11, 2016



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

National Progress	
Mature	33
Change from 5-year Average	+1

TOP ## - Percent Mature

[BOTTOM ##] - Change from 5-year Average

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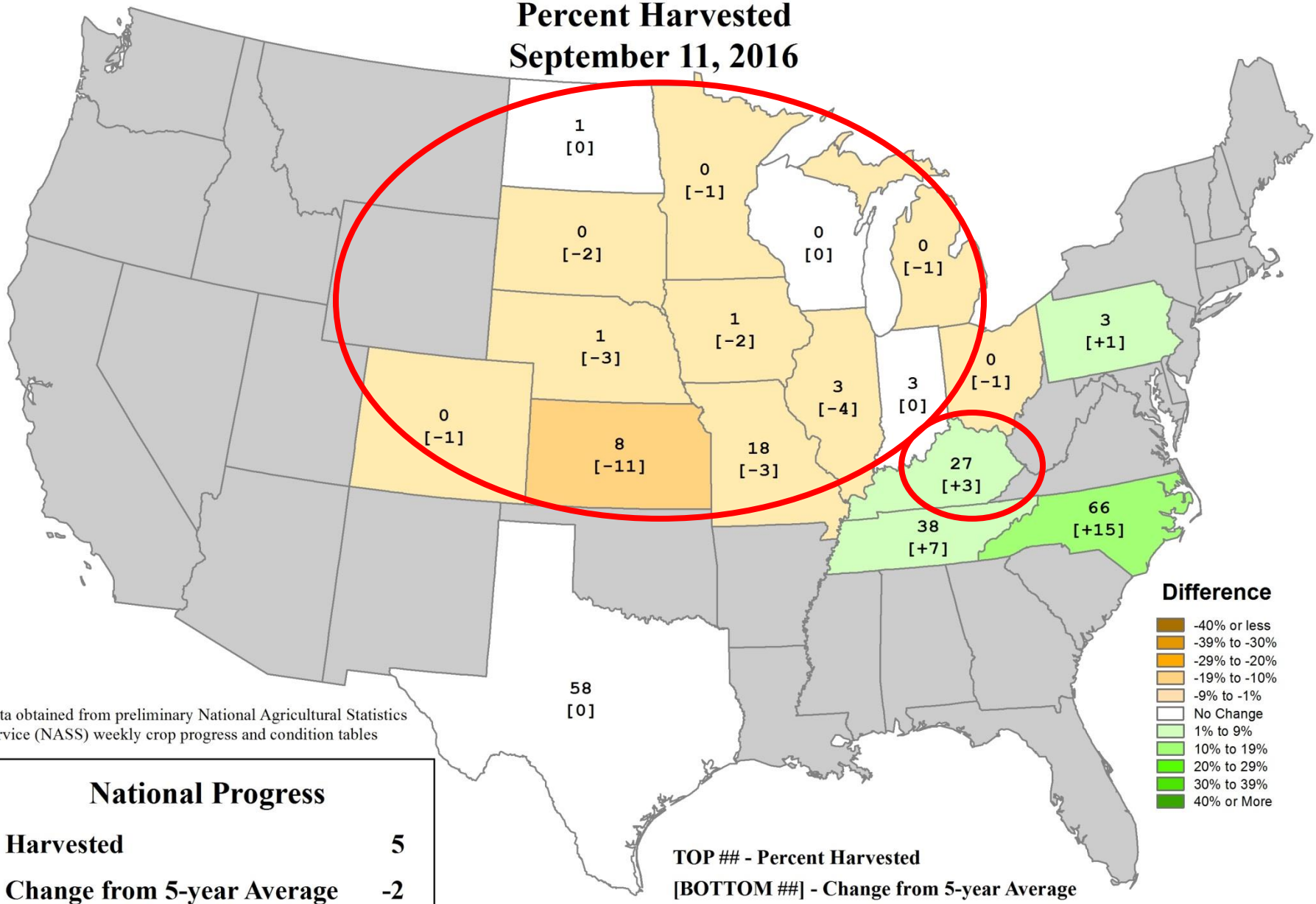
U.S. Corn Progress

Percent Harvested
September 11, 2016



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

National Progress	
Harvested	5
Change from 5-year Average	-2

TOP ## - Percent Harvested

[BOTTOM ##] - Change from 5-year Average

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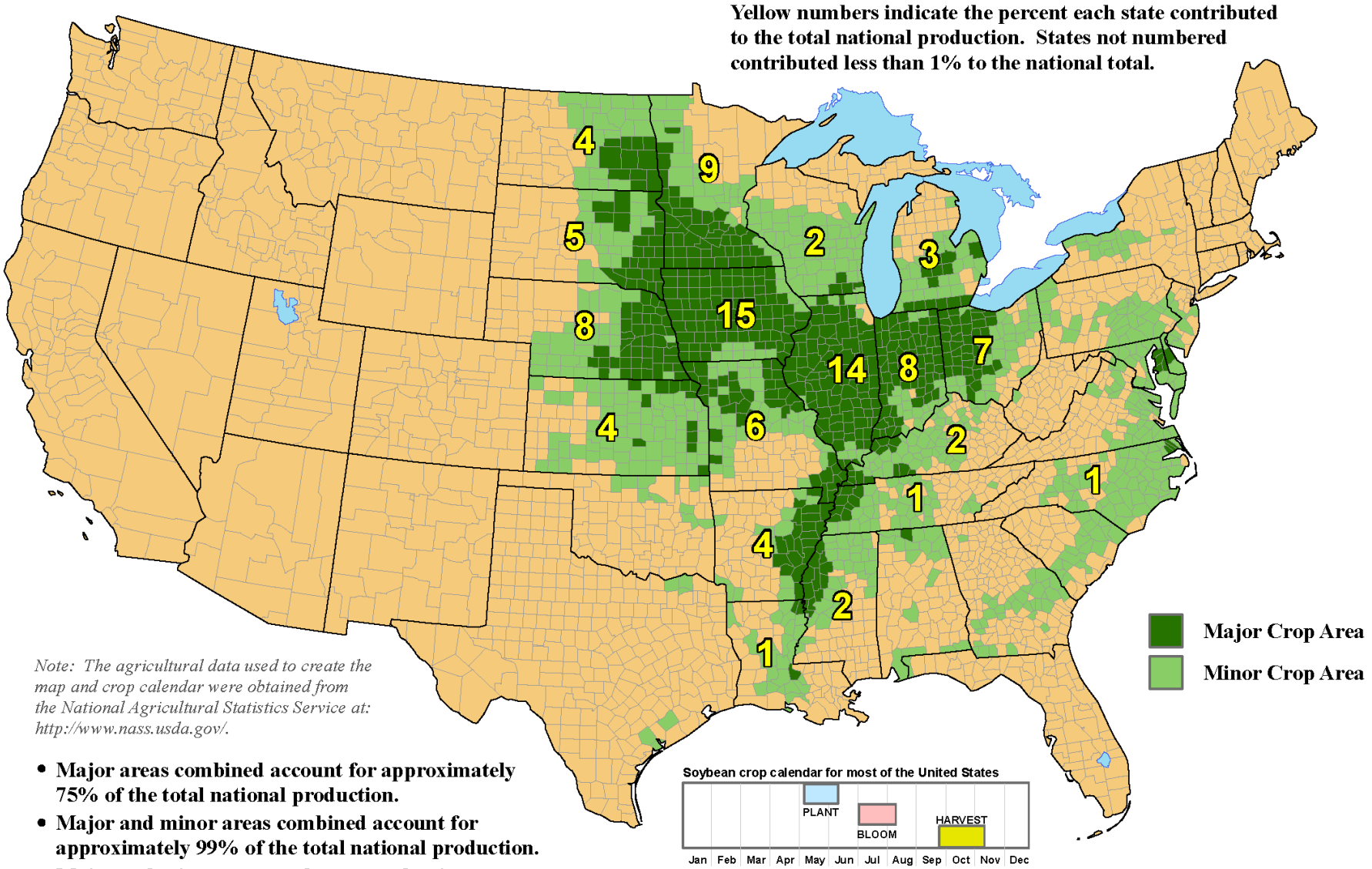
United States: Soybeans



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.**

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.

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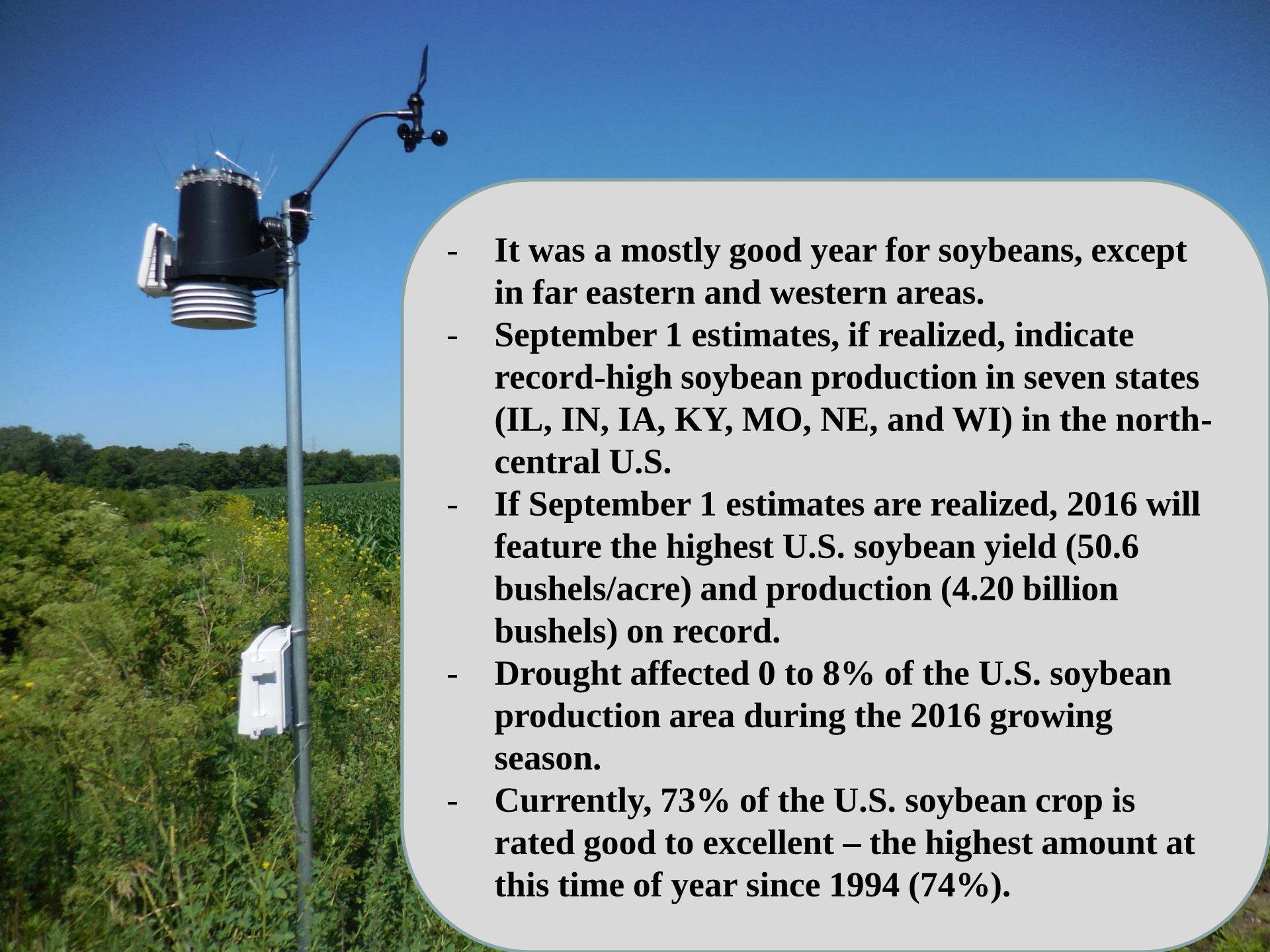


- **It was a mostly good year for soybeans, except in far eastern and western areas.**
- **September 1 estimates, if realized, indicate record-high soybean production in seven states (IL, IN, IA, KY, MO, NE, and WI) in the north-central U.S.**
- **If September 1 estimates are realized, 2016 will feature 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%).**

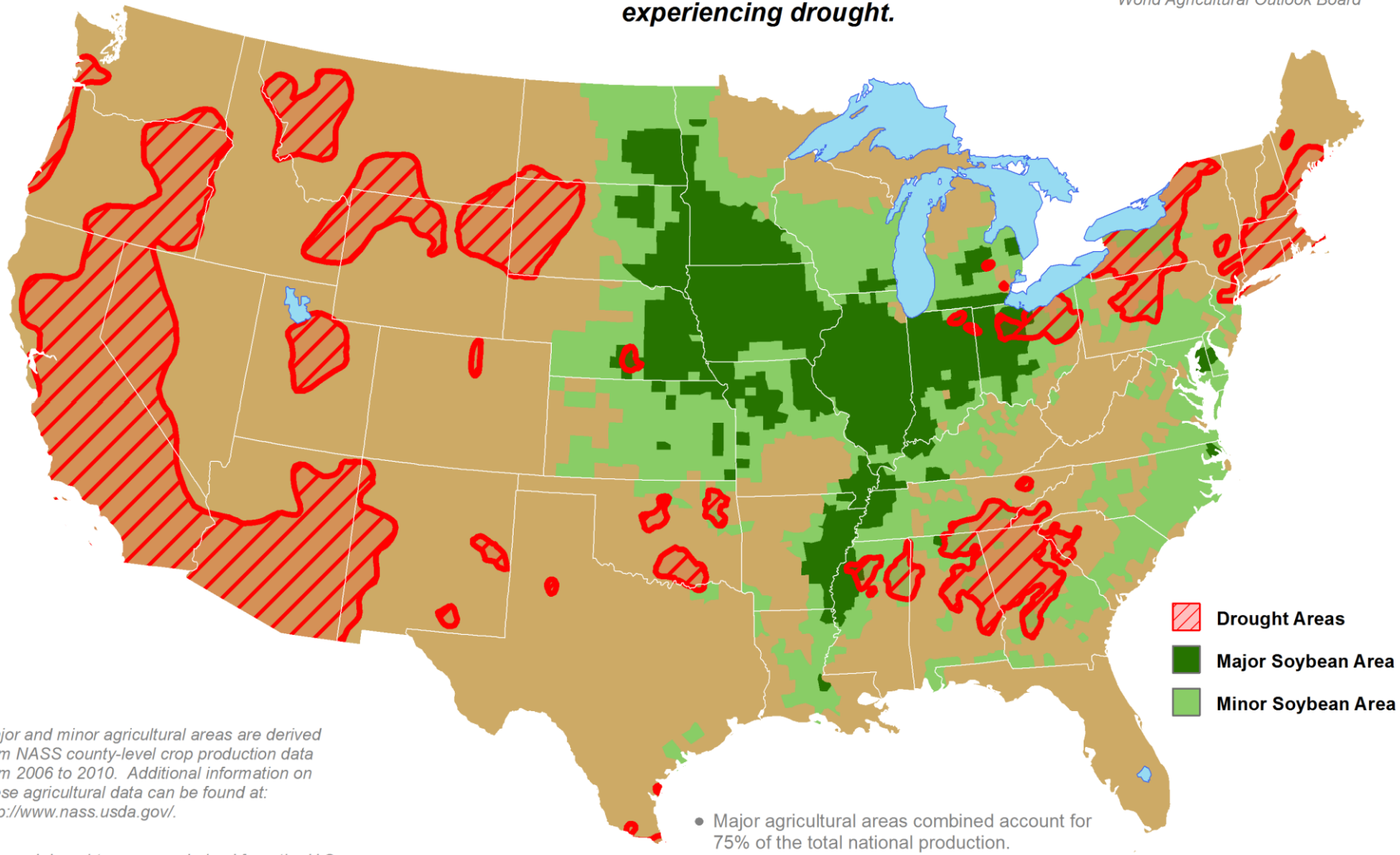
U.S. Soybean Areas Experiencing Drought

United States Department of Agriculture

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

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

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



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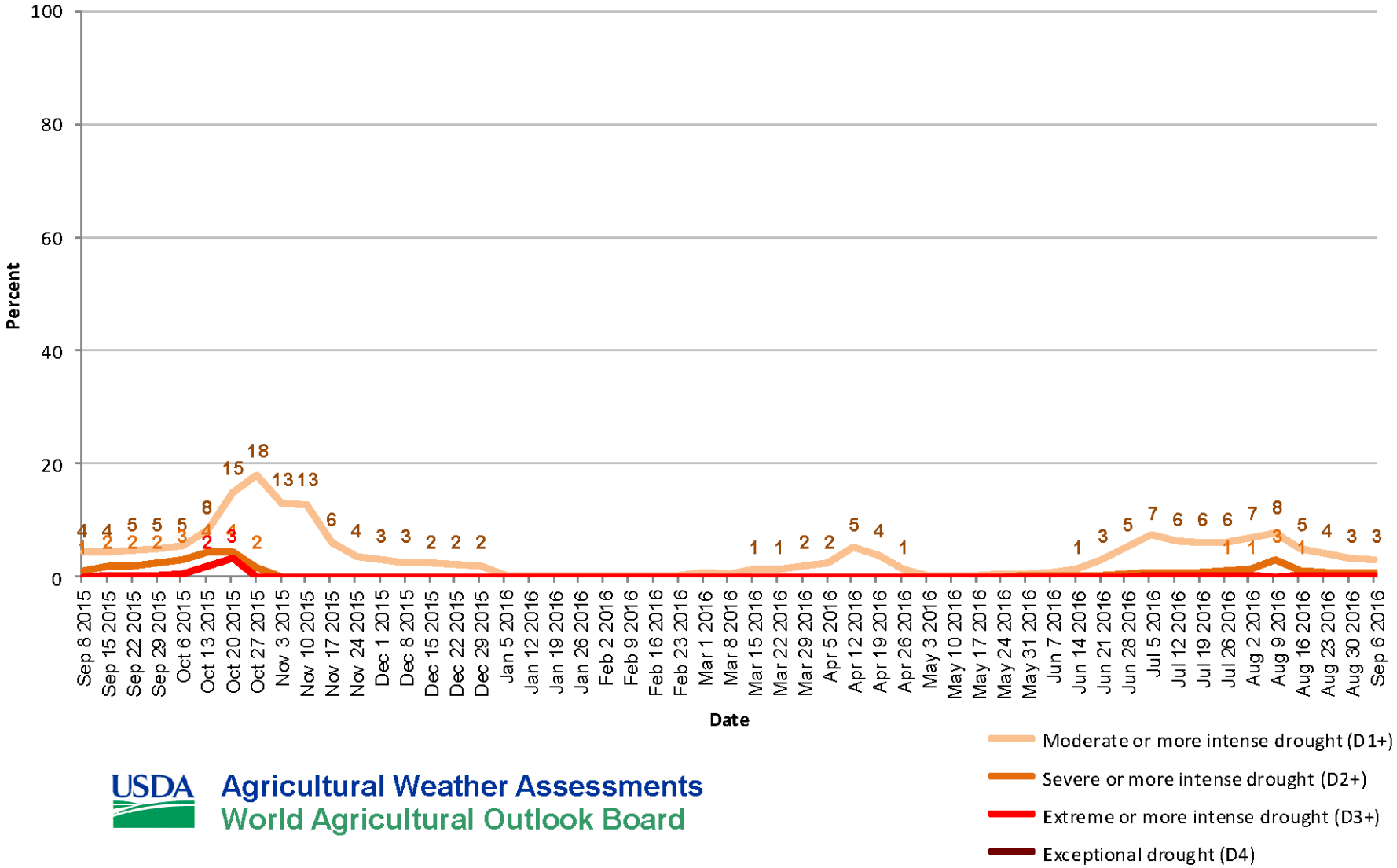
Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: http://droughtmonitor.unl.edu/.

United States Soybean Areas Located in Drought



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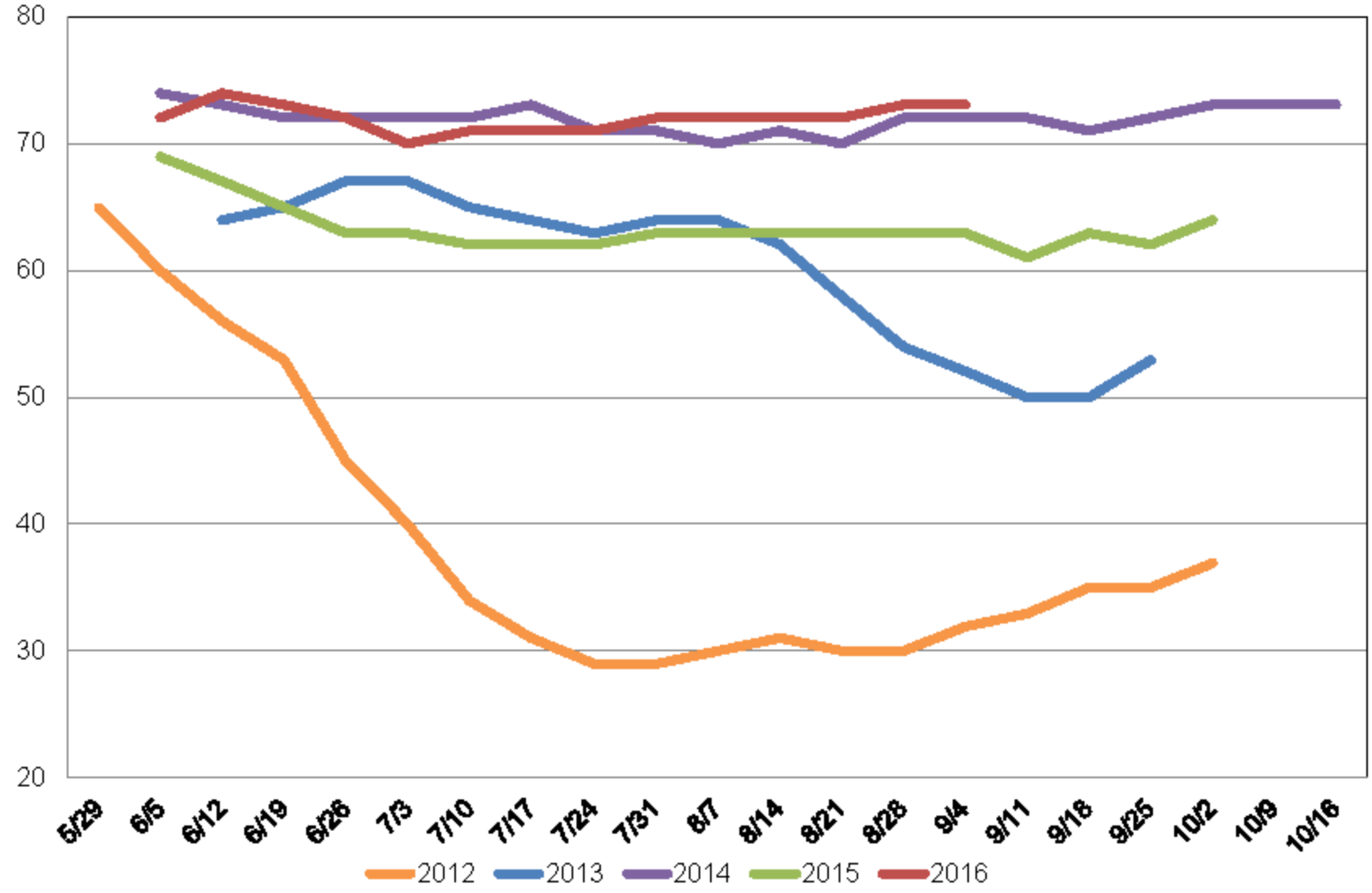
U.S. Soybean Condition

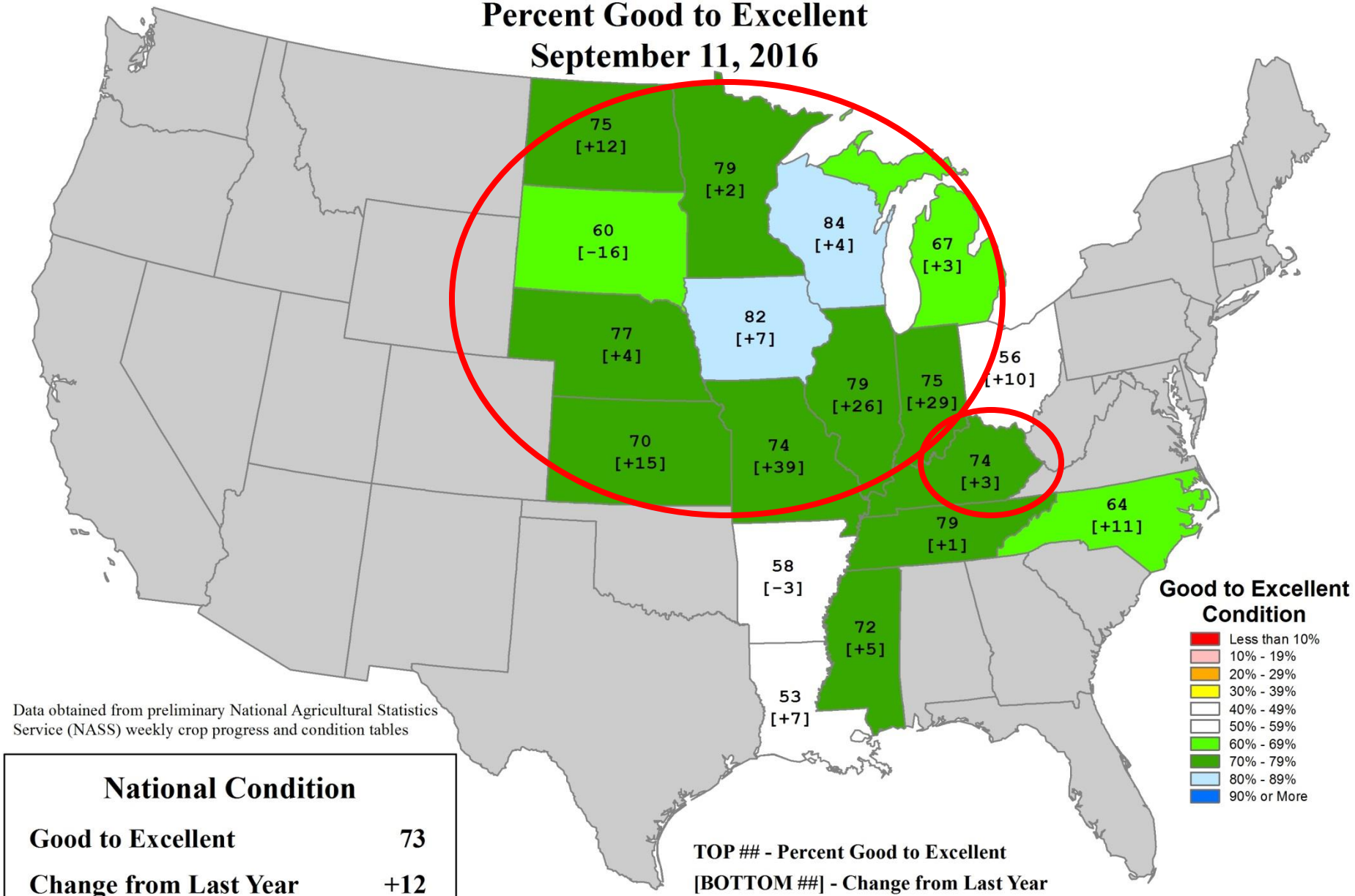
Percent Rated Good to Excellent



USDA-NASS
9-12-16

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

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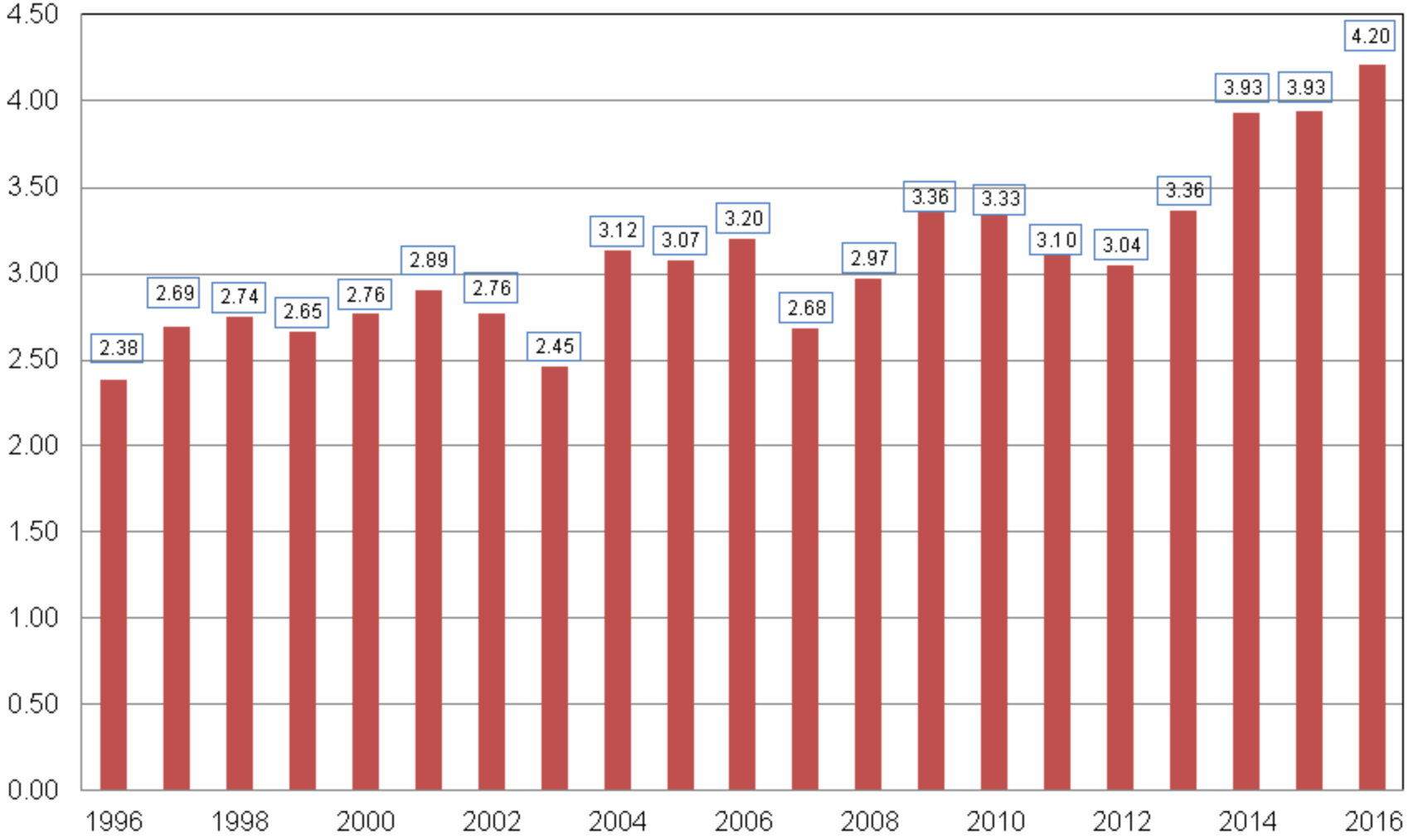
World Agricultural Outlook Board

Soybean Production

United States

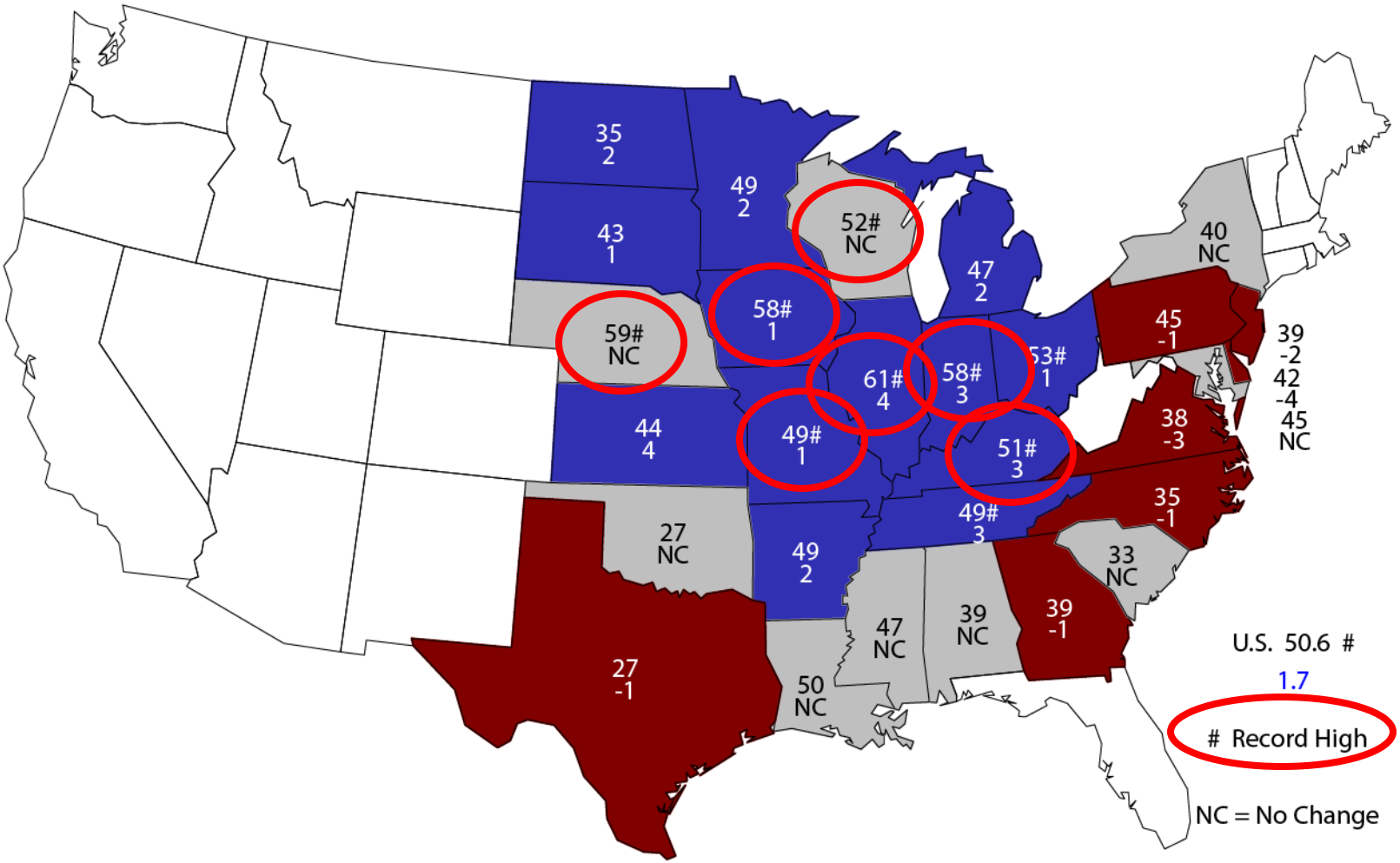
Billion Bushels



USDA-NASS
9-12-16

September 1, 2016 Soybean Yield

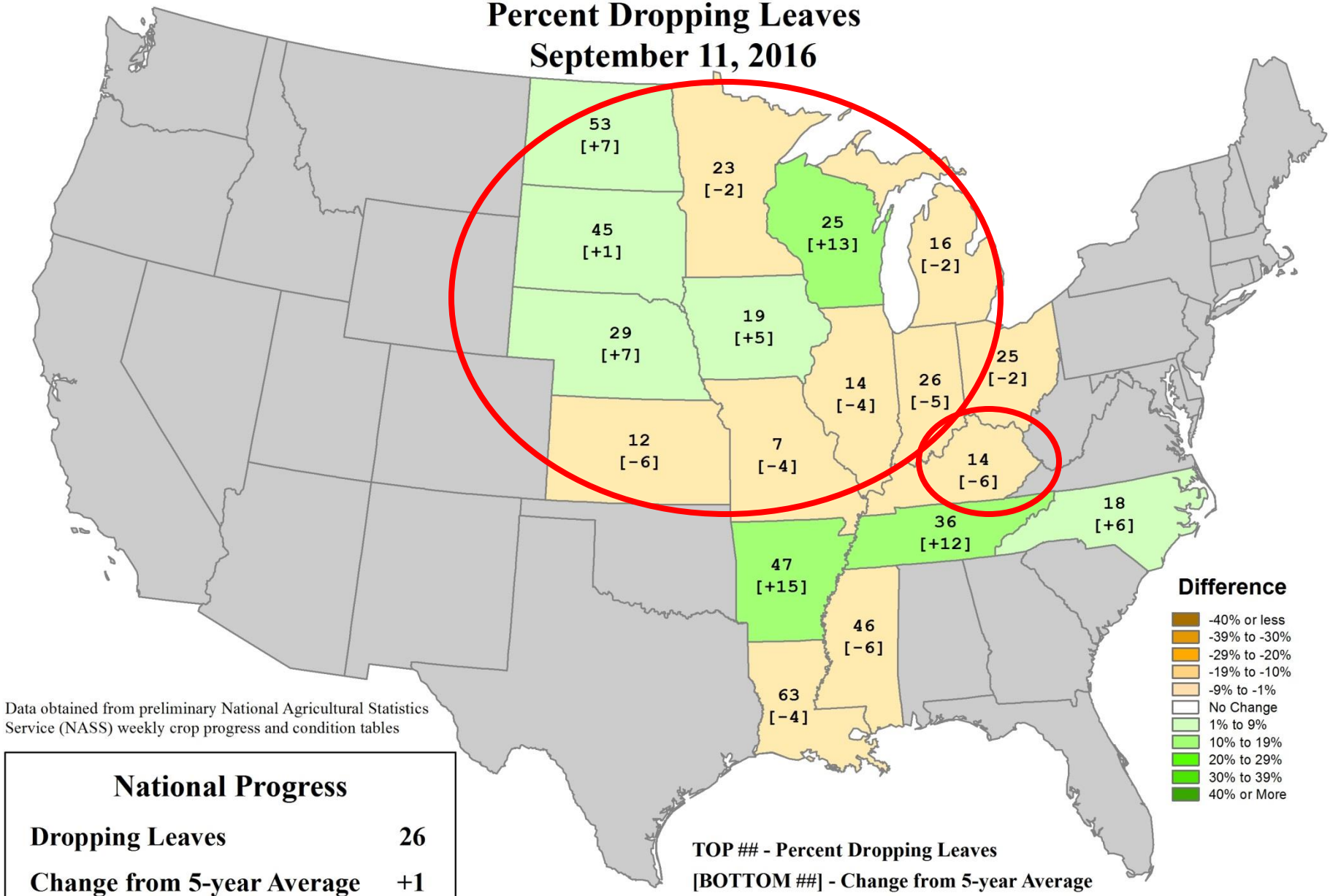
Bushels and Change From Previous Month



USDA-NASS
9-12-16

U.S. Soybeans Progress

Percent Dropping Leaves
September 11, 2016



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	+1

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

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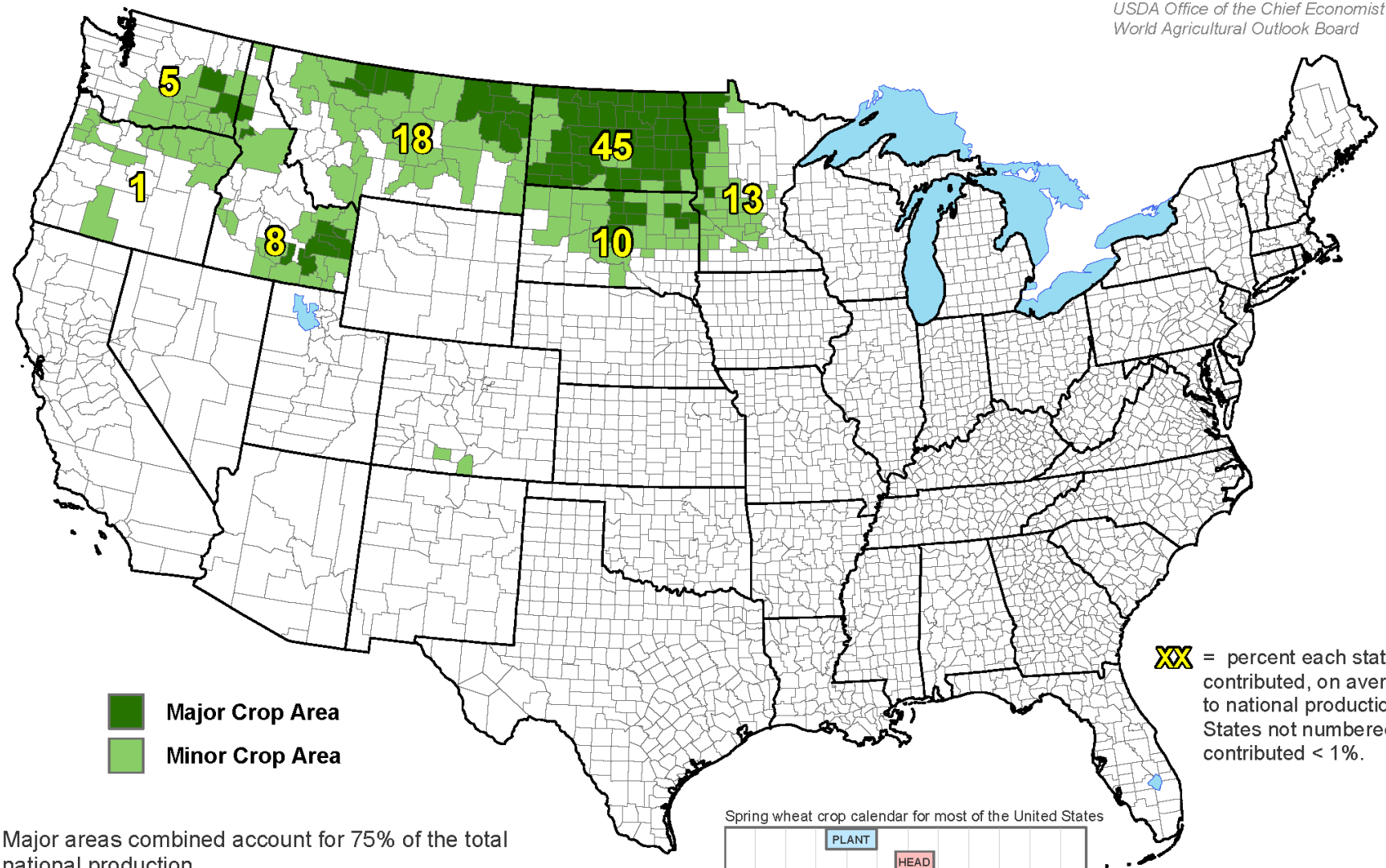
Other Current Agricultural Highlights

- **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

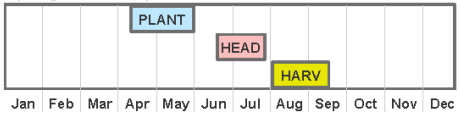
United States Department of Agriculture

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



- 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.

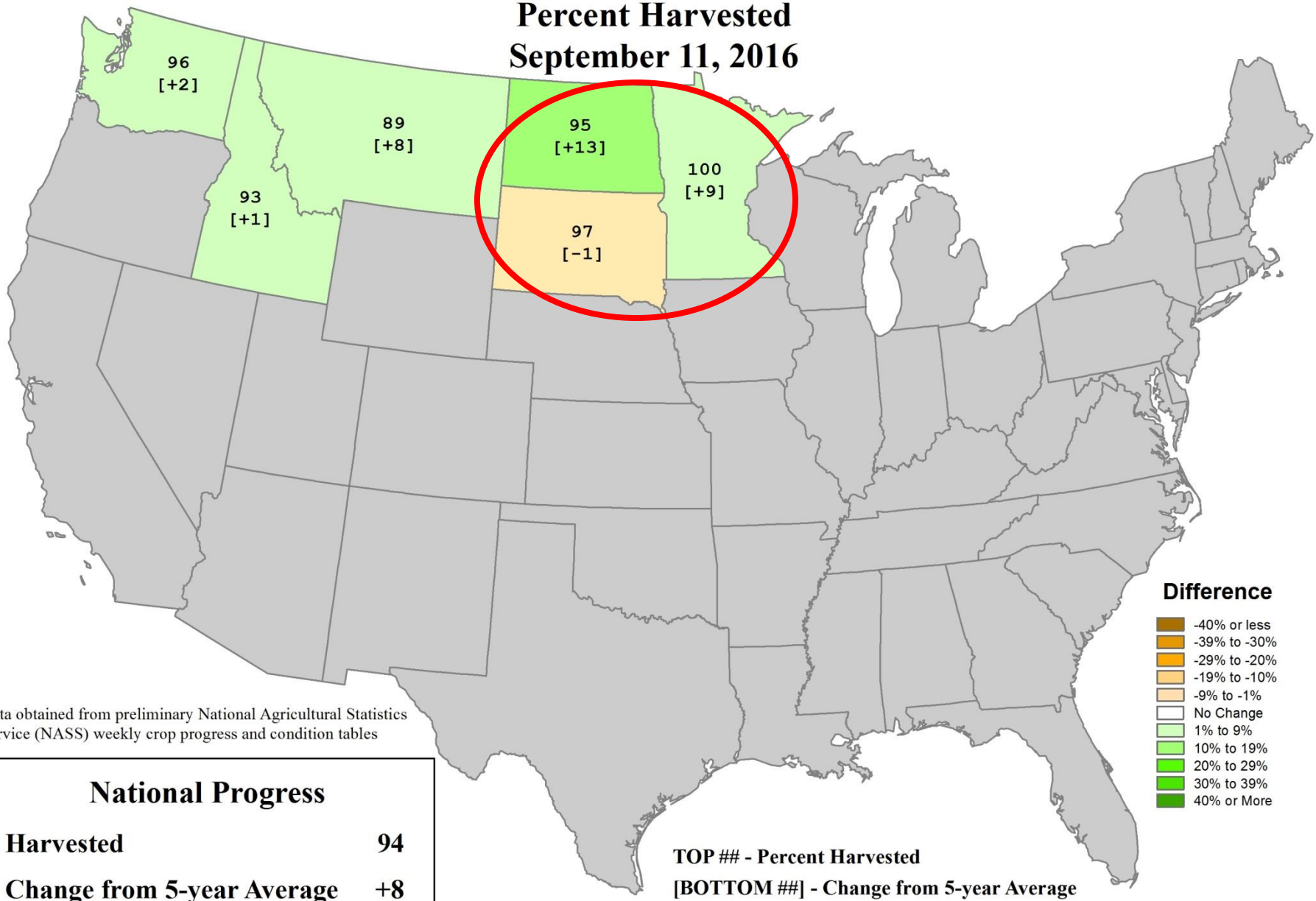
Spring wheat crop calendar for most of the United States



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

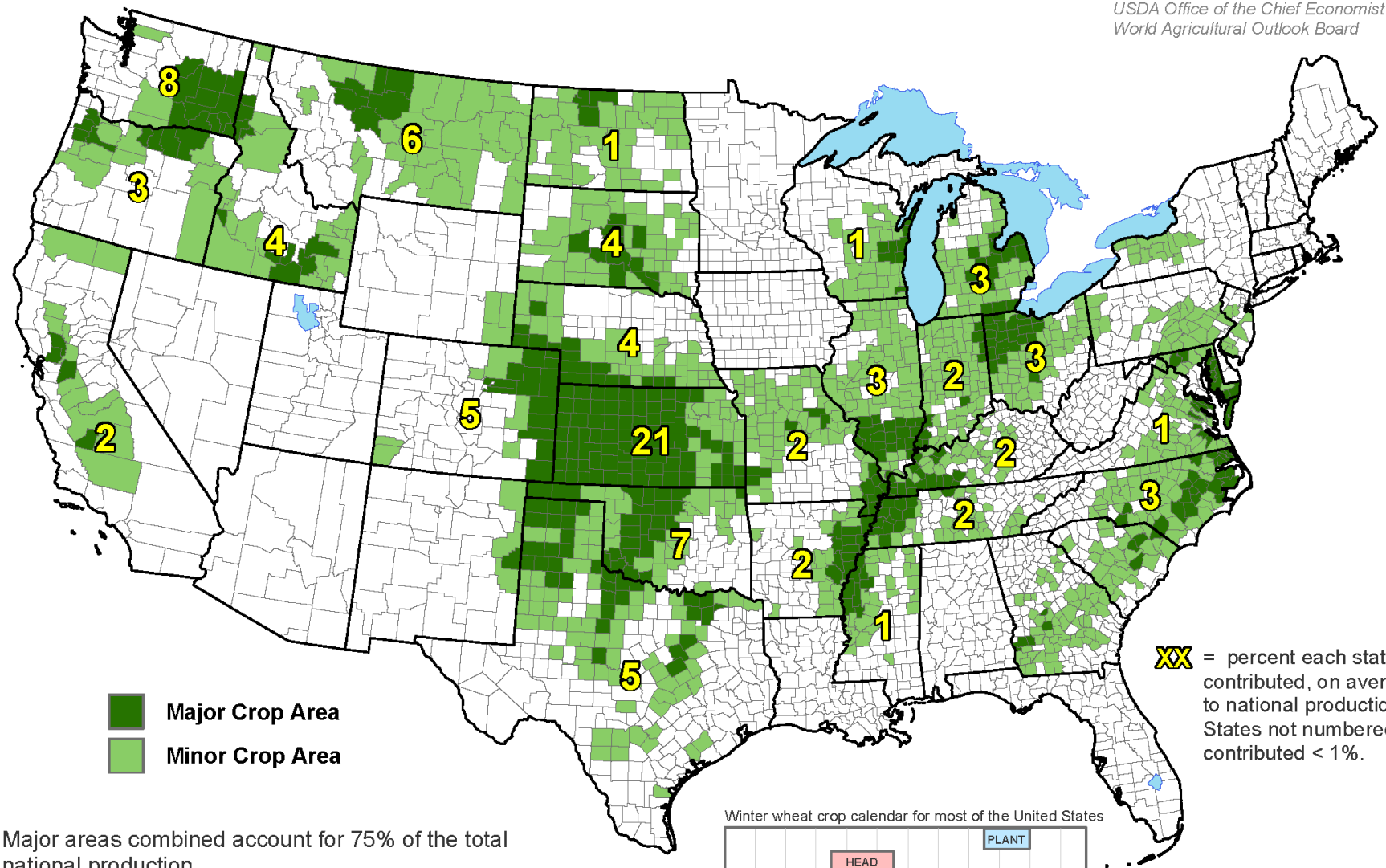
National Progress	
Harvested	94
Change from 5-year Average	+8

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

United States: Winter 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.
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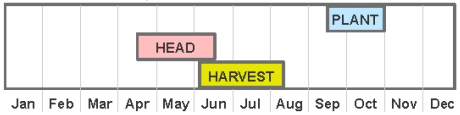
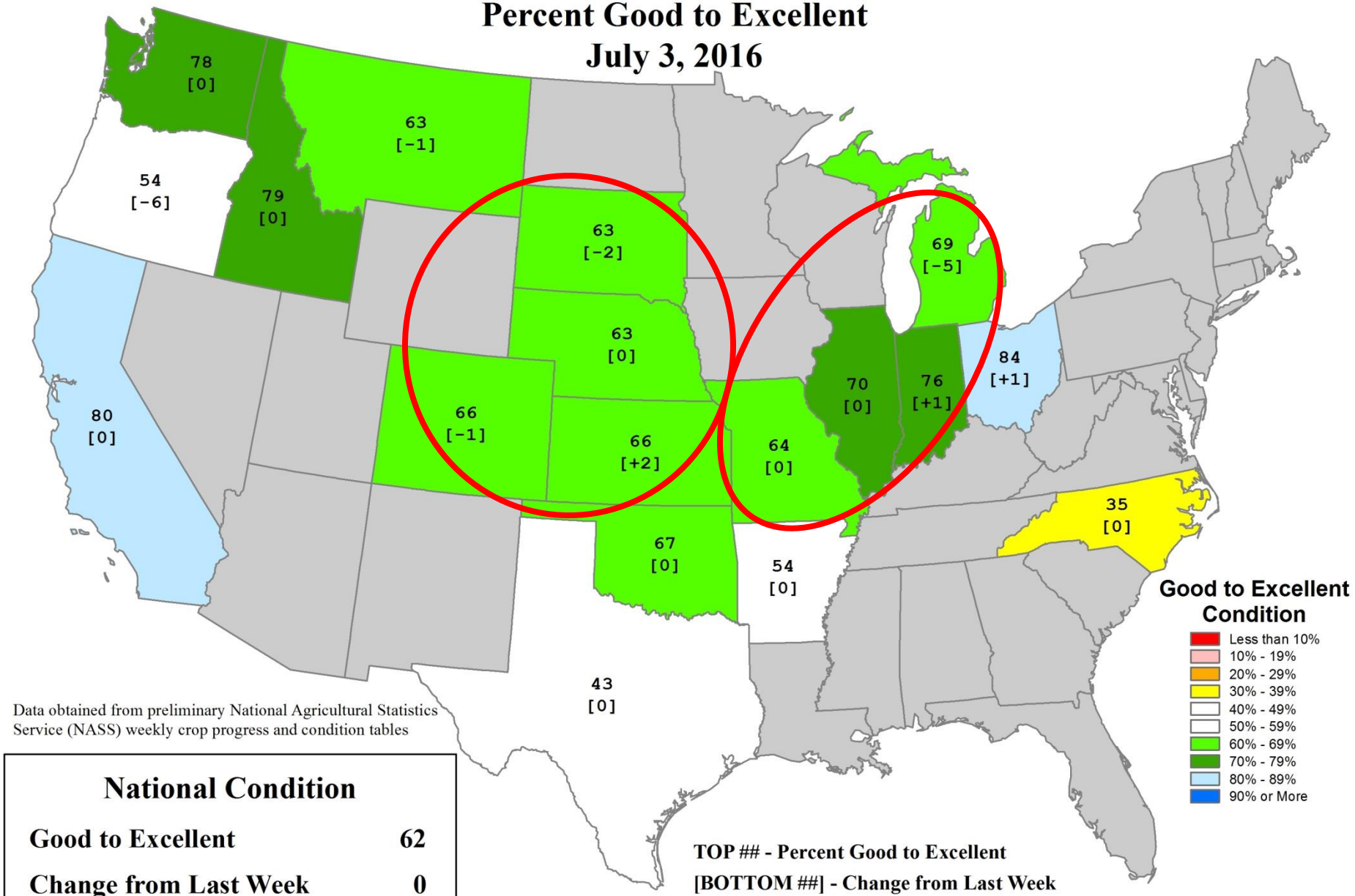
Winter wheat crop calendar for most of the United States



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



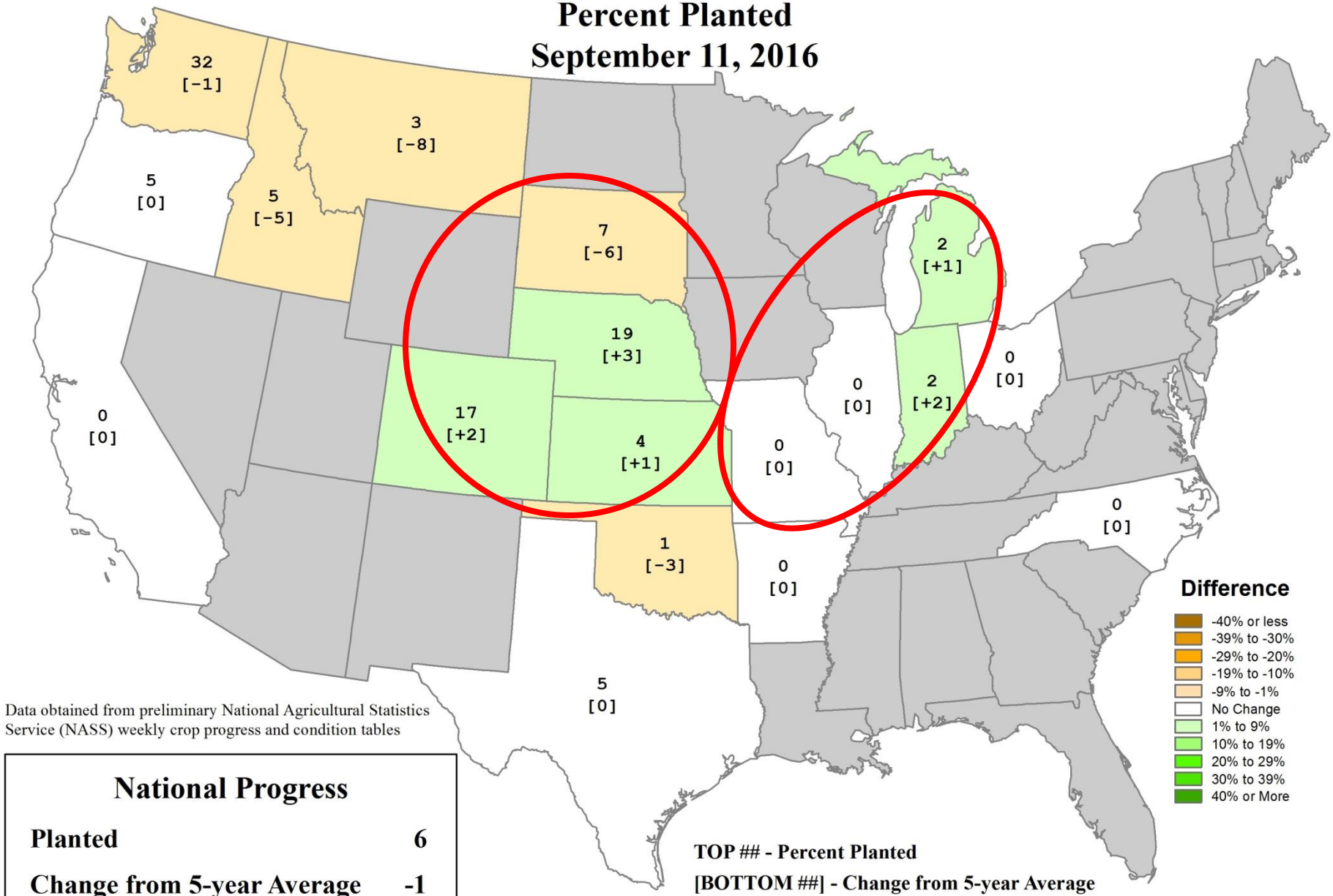
Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Condition	
Good to Excellent	62
Change from Last Week	0

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Winter Wheat Progress

Percent Planted
September 11, 2016



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

National Progress	
Planted	6
Change from 5-year Average	-1

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

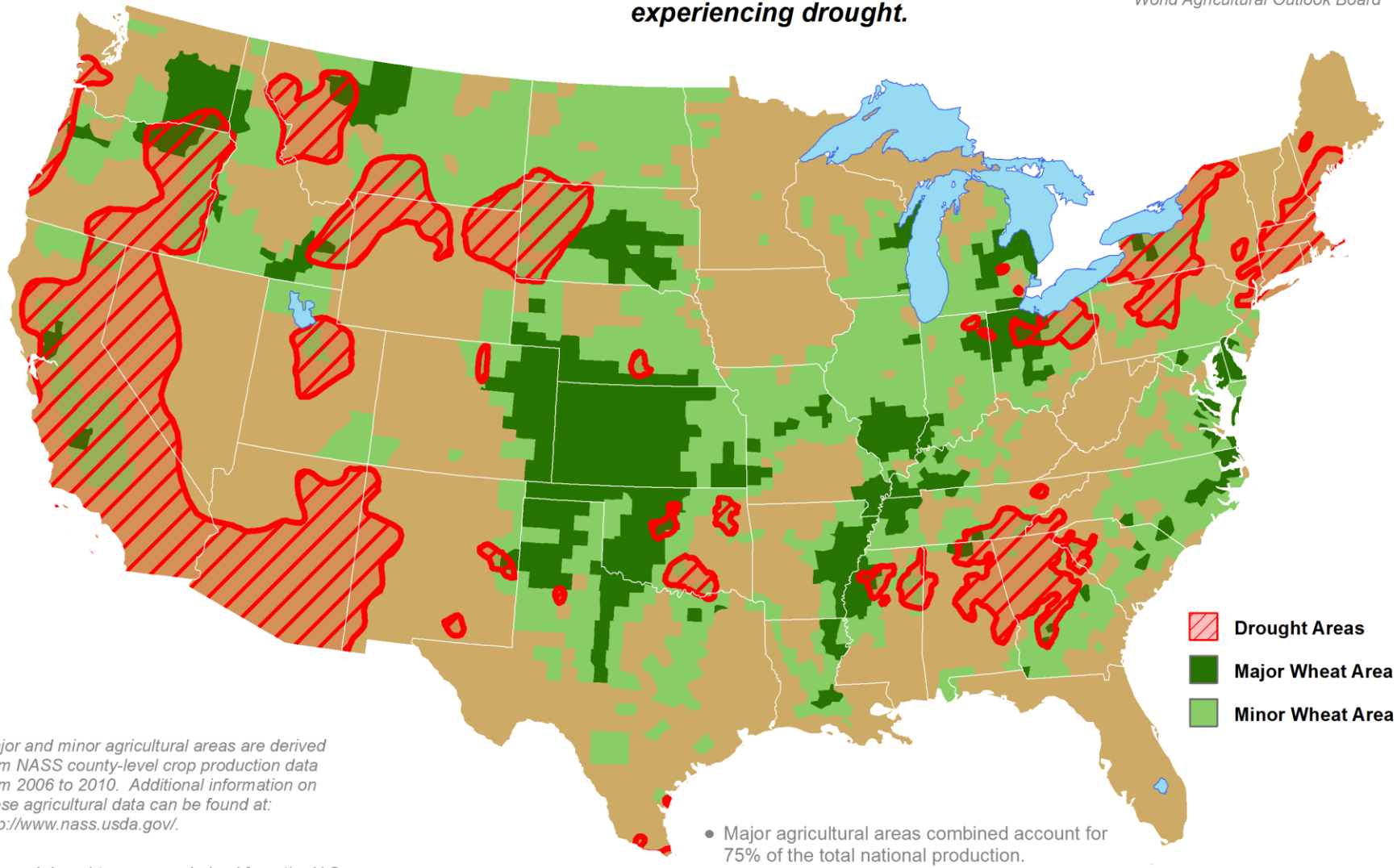
U.S. Winter Wheat Areas Experiencing Drought

United States Department of Agriculture

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

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

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



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/.

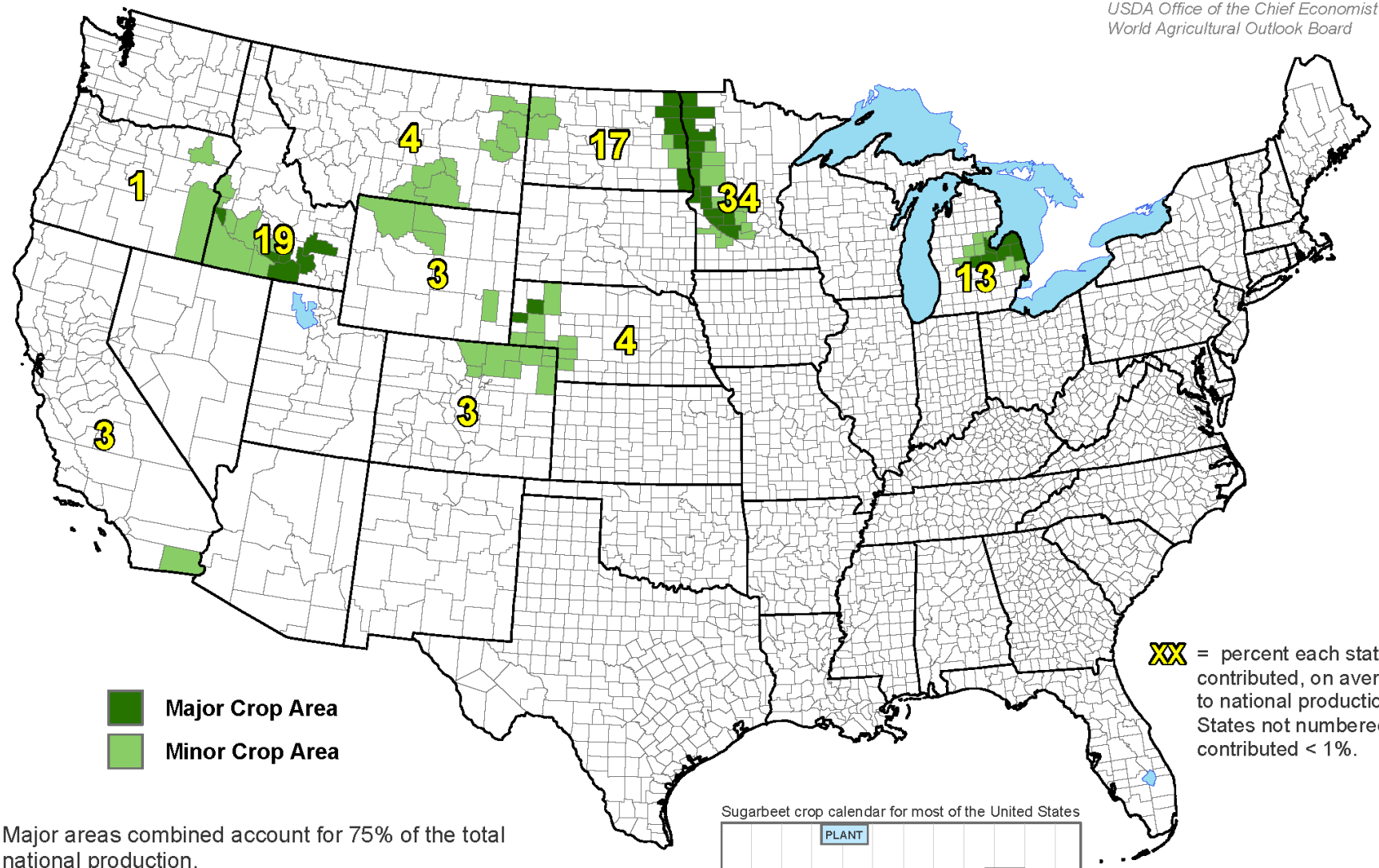
Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: http://droughtmonitor.unl.edu/.

- 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



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

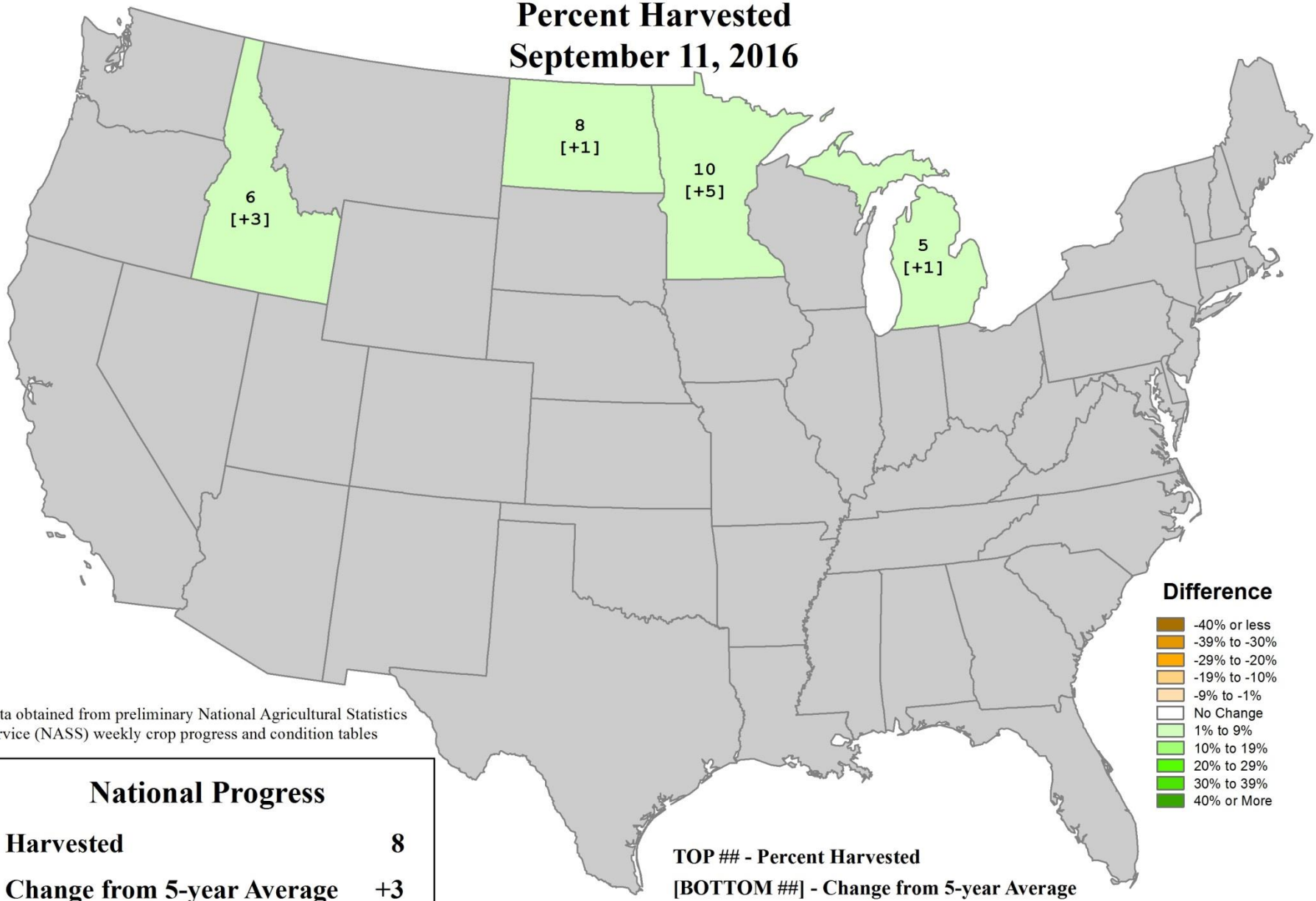
- Major areas combined account for 75% of the total national production.
- Major and minor areas combined account for 99% of the total national production.
- Major and minor areas and state production percentages are derived from NASS survey data from 2010 to 2014.

Sugarbeet 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. Sugarbeets Progress

Percent Harvested
September 11, 2016



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

National Progress	
Harvested	8
Change from 5-year Average	+3

TOP ## - Percent Harvested

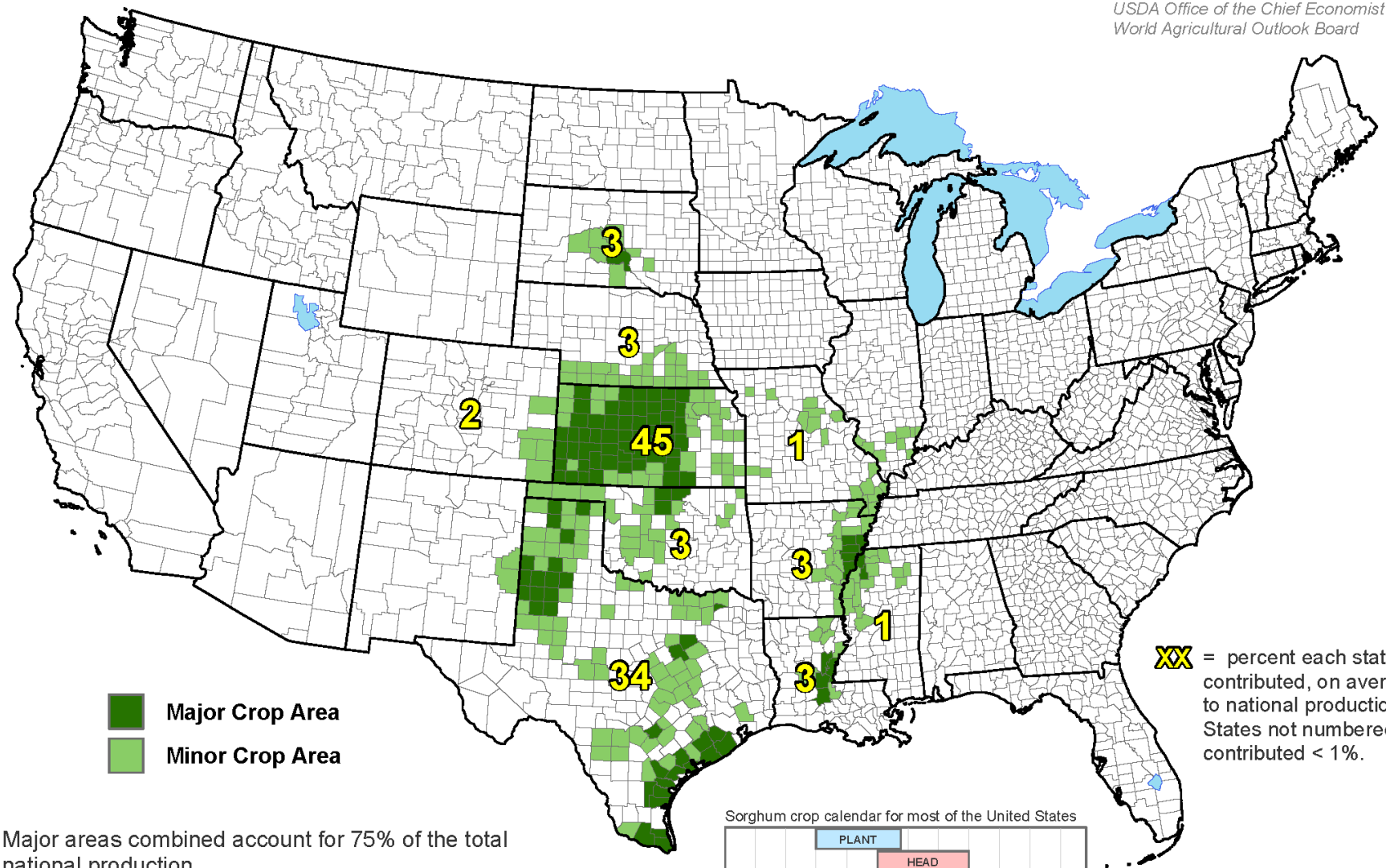
[BOTTOM ##] - Change from 5-year Average

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

United States: Sorghum

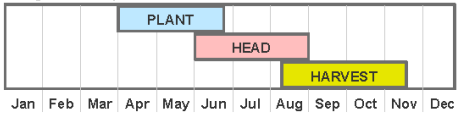
United States Department of Agriculture

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%.

Sorghum crop calendar for most of the United States

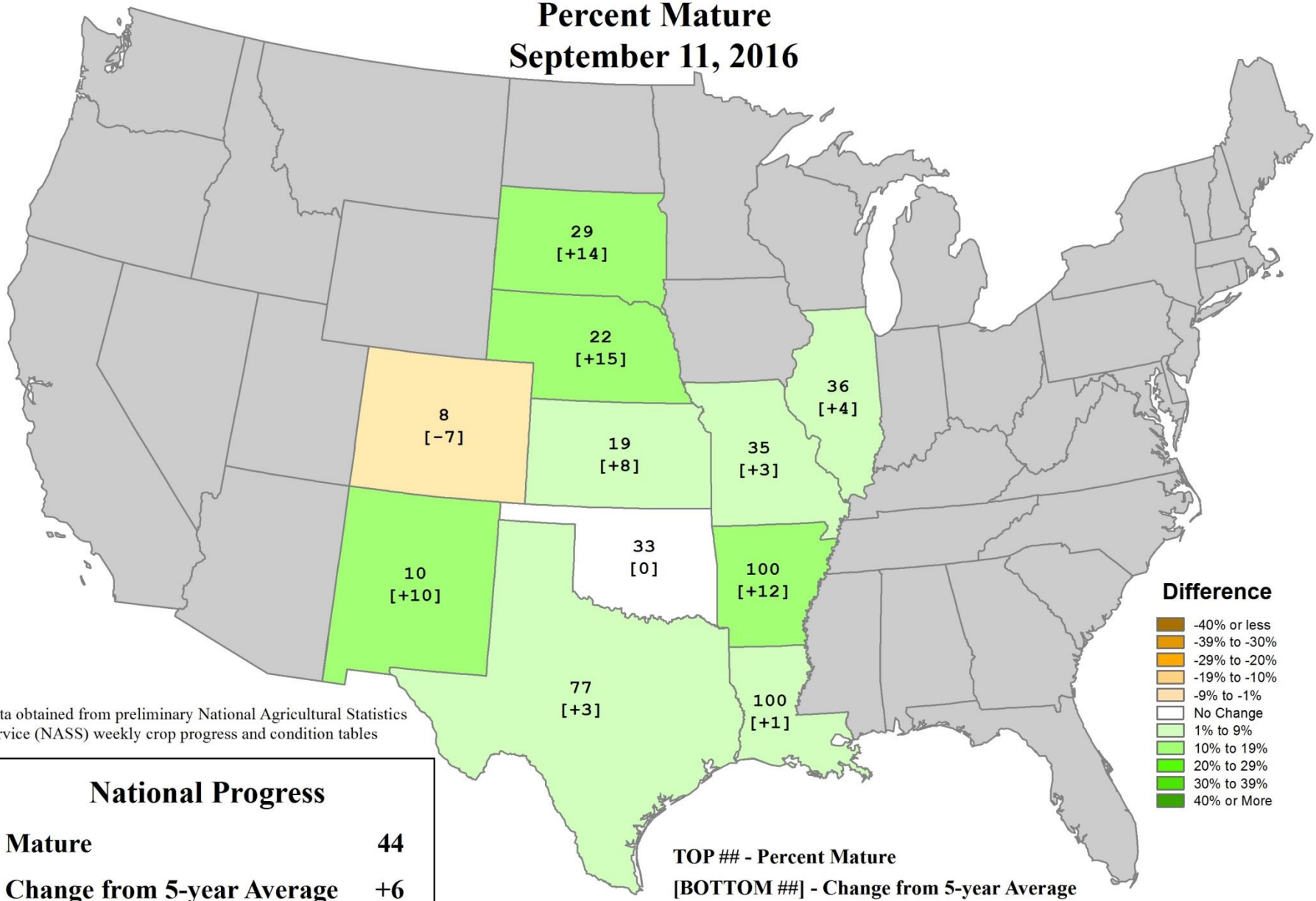


The crop calendar was developed using NASS crop progress data from 2010-2014. This calendar illustrates, on average, the dates when national progress advanced from 10 to 90 percent.

- 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.

U.S. Sorghum Progress

Percent Mature
September 11, 2016



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

National Progress	
Mature	44
Change from 5-year Average	+6

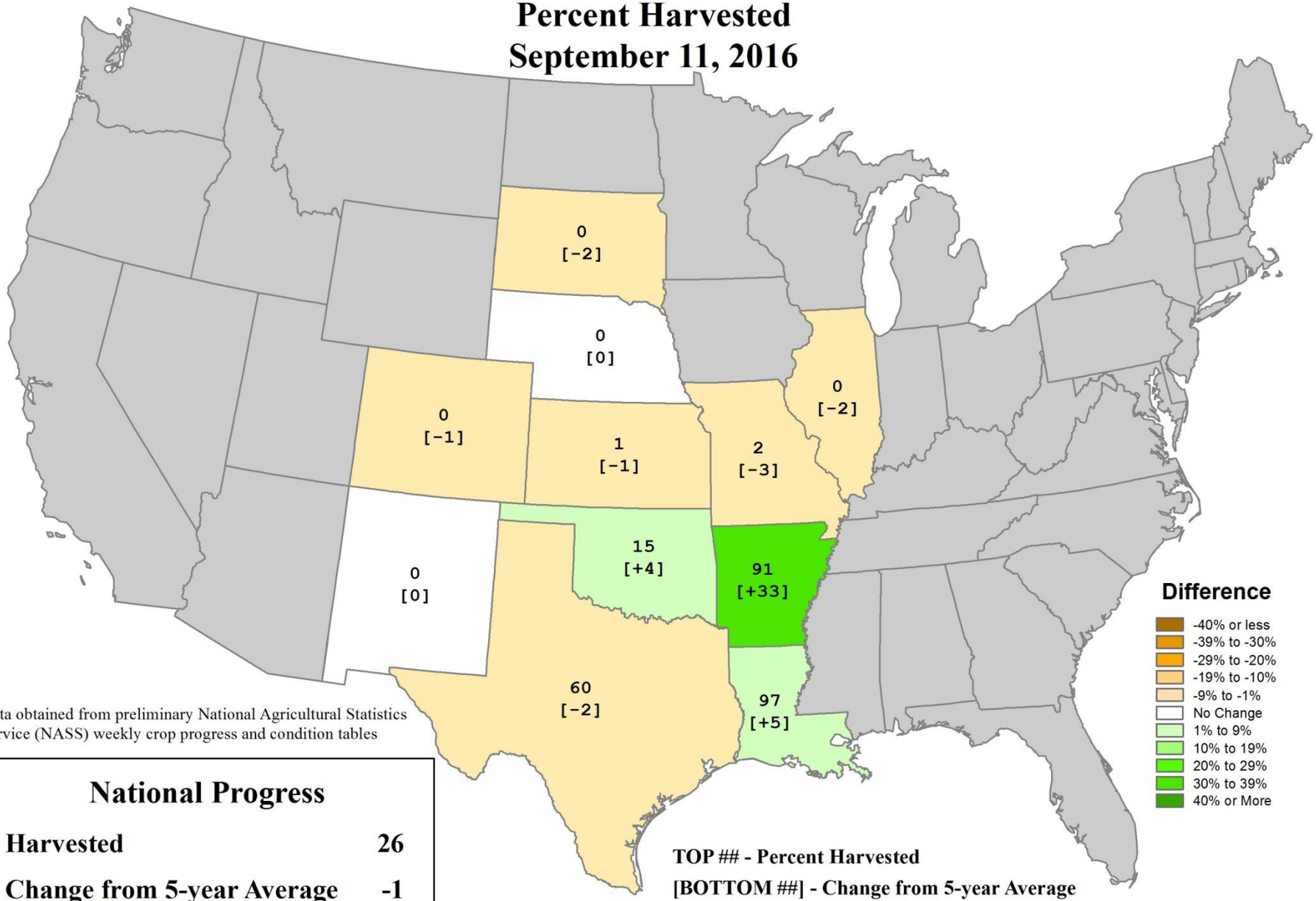
TOP ## - Percent Mature

[BOTTOM ##] - Change from 5-year Average

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

U.S. Sorghum Progress

Percent Harvested
September 11, 2016



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

National Progress	
Harvested	26
Change from 5-year Average	-1

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

USDA Agricultural Weather Assessments
World Agricultural Outlook Board


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.

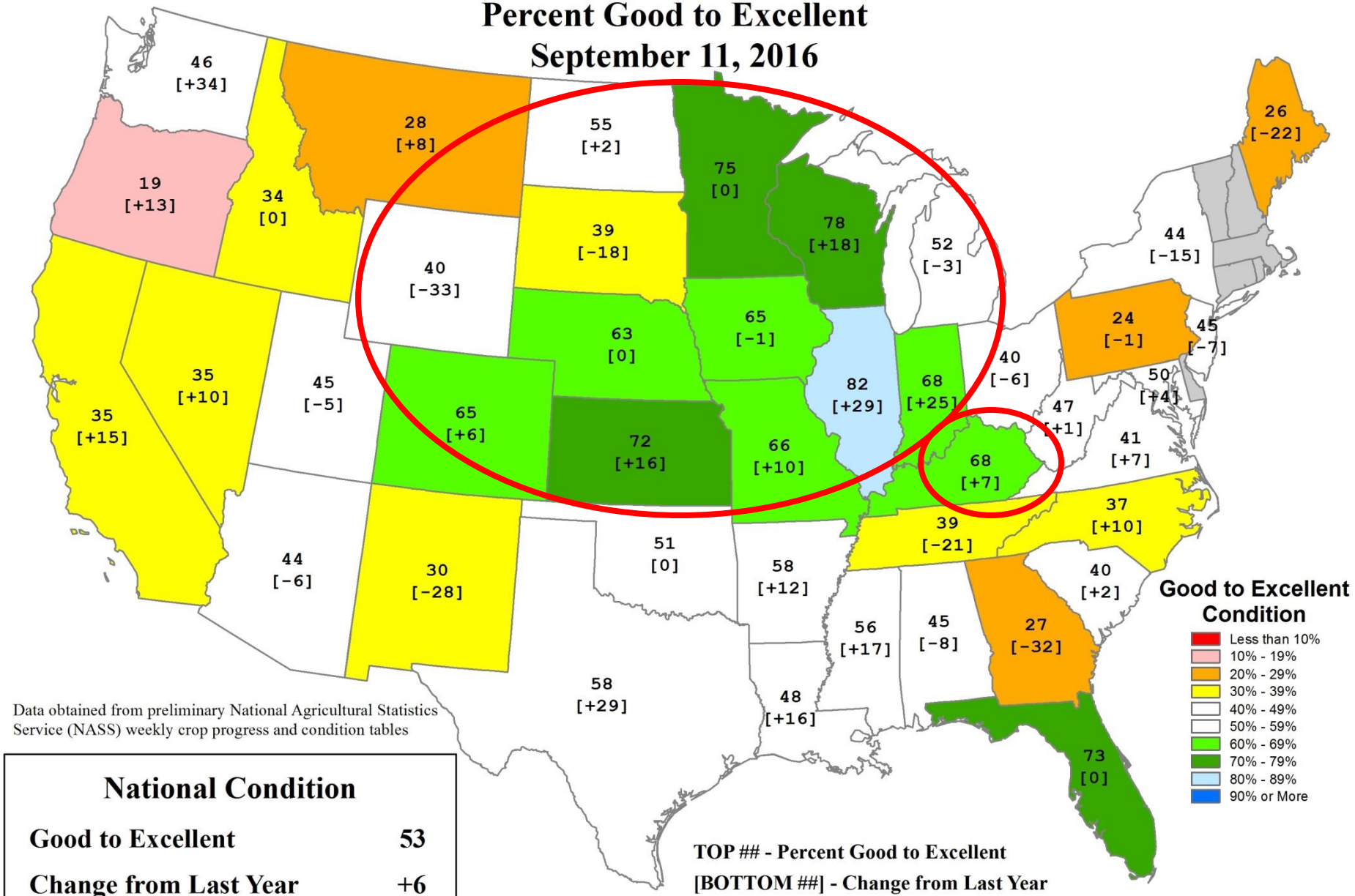
Tart Cherry Production – States and United States: 2014, 2015, and Forecasted 2016

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

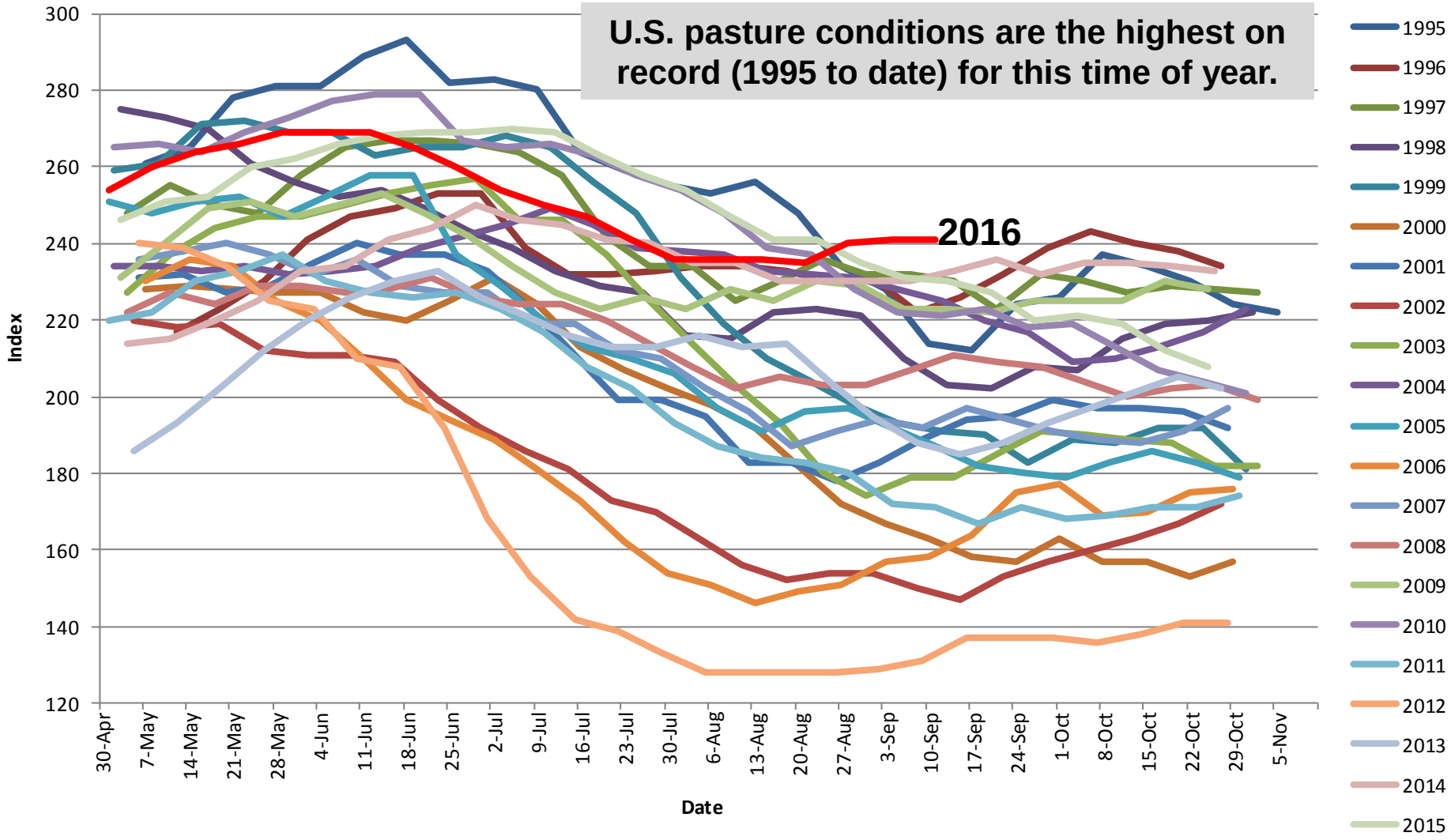


Data obtained from preliminary National Agricultural Statistics Service (NASS) weekly crop progress and condition tables

National Condition	
Good to Excellent	53
Change from Last Year	+6

USDA Agricultural Weather Assessments
World Agricultural Outlook Board

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

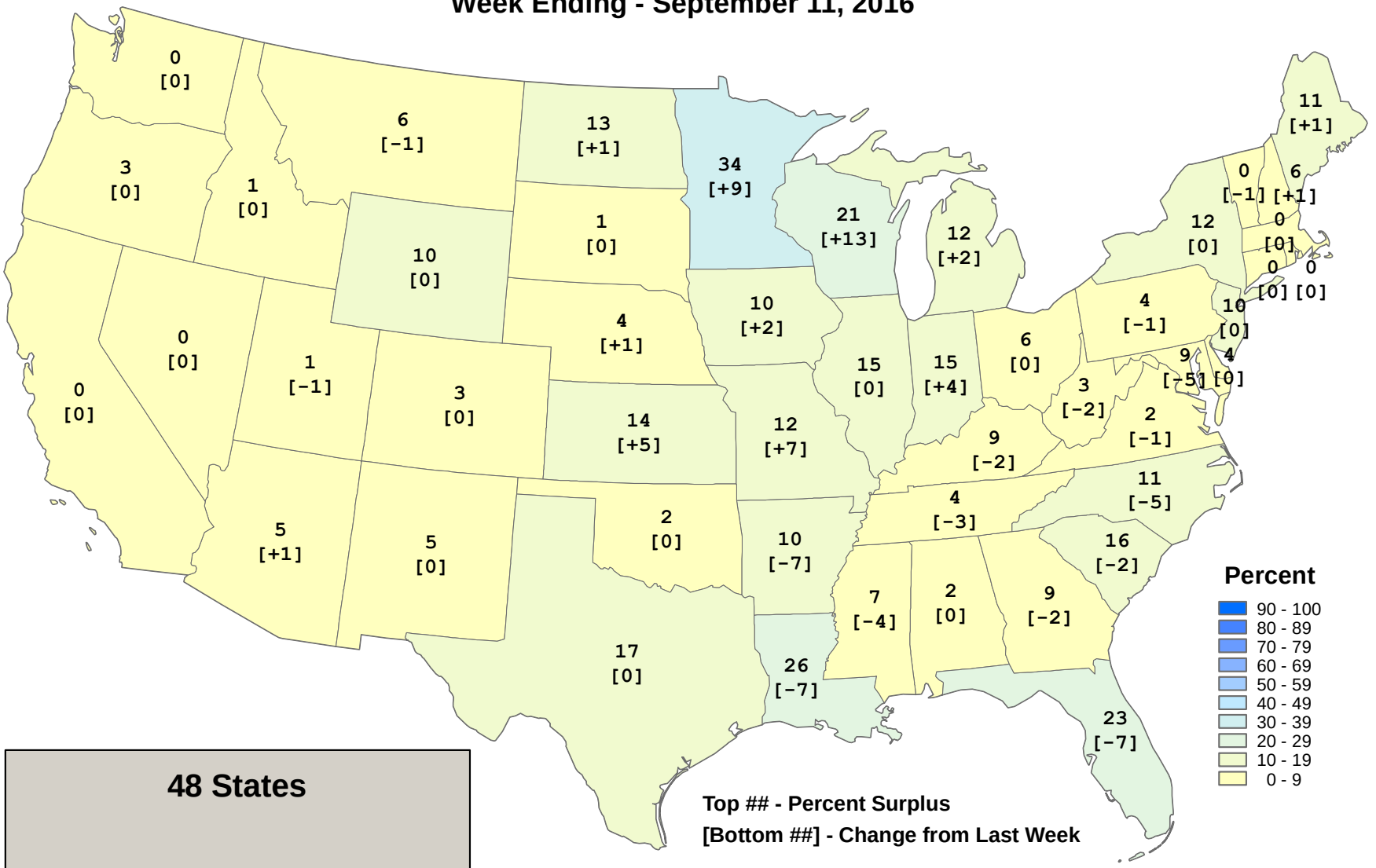
United States Department of Agriculture

Topsoil Moisture

Percent Surplus

Week Ending - September 11, 2016

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



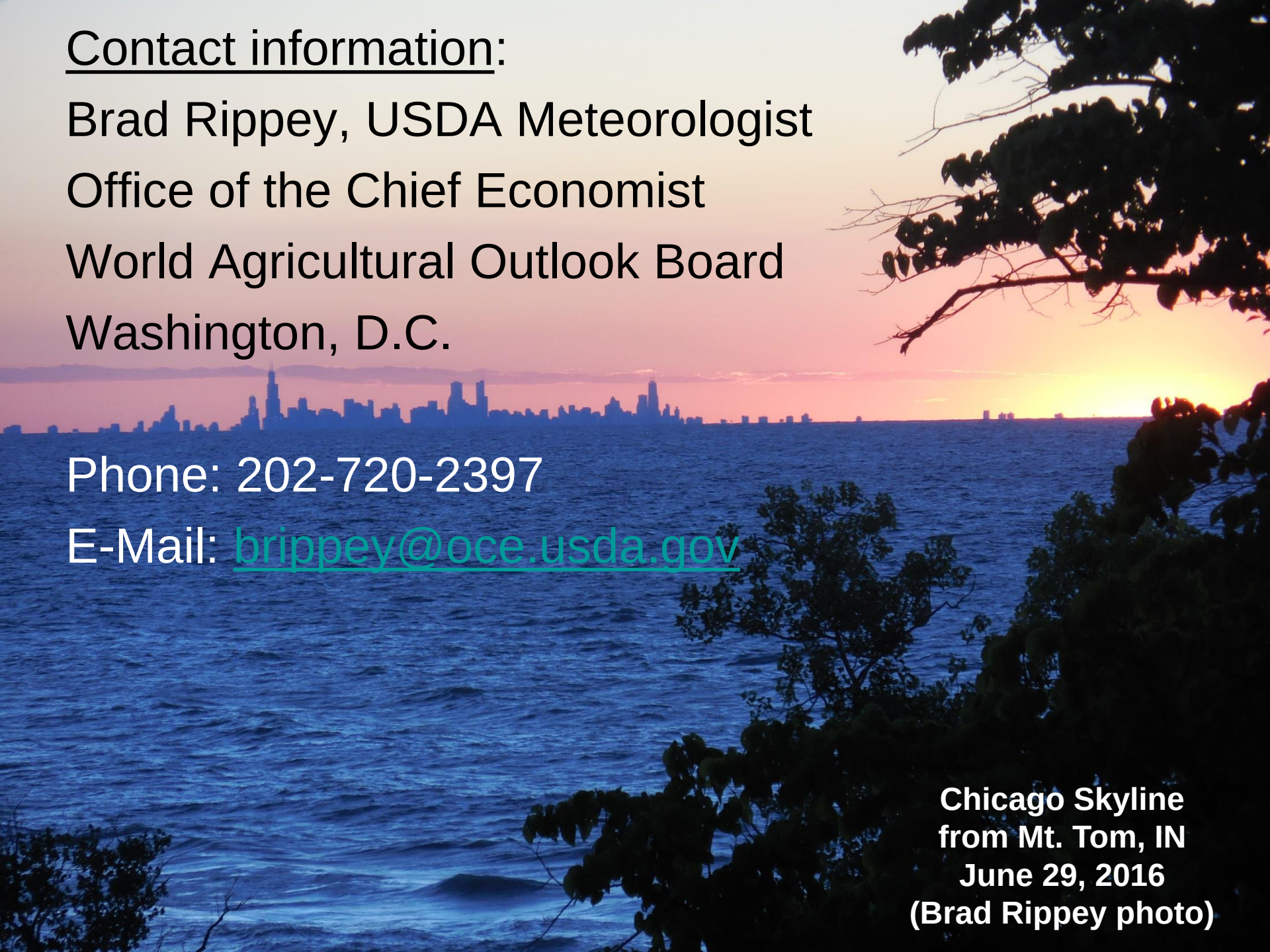
48 States

Top ## - Percent Surplus

[Bottom ##] - Change from Last Week

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



Contact information:

Brad Rippey, USDA Meteorologist

Office of the Chief Economist

World Agricultural Outlook Board

Washington, D.C.

Phone: 202-720-2397

E-Mail: brippey@oce.usda.gov

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

Outlooks

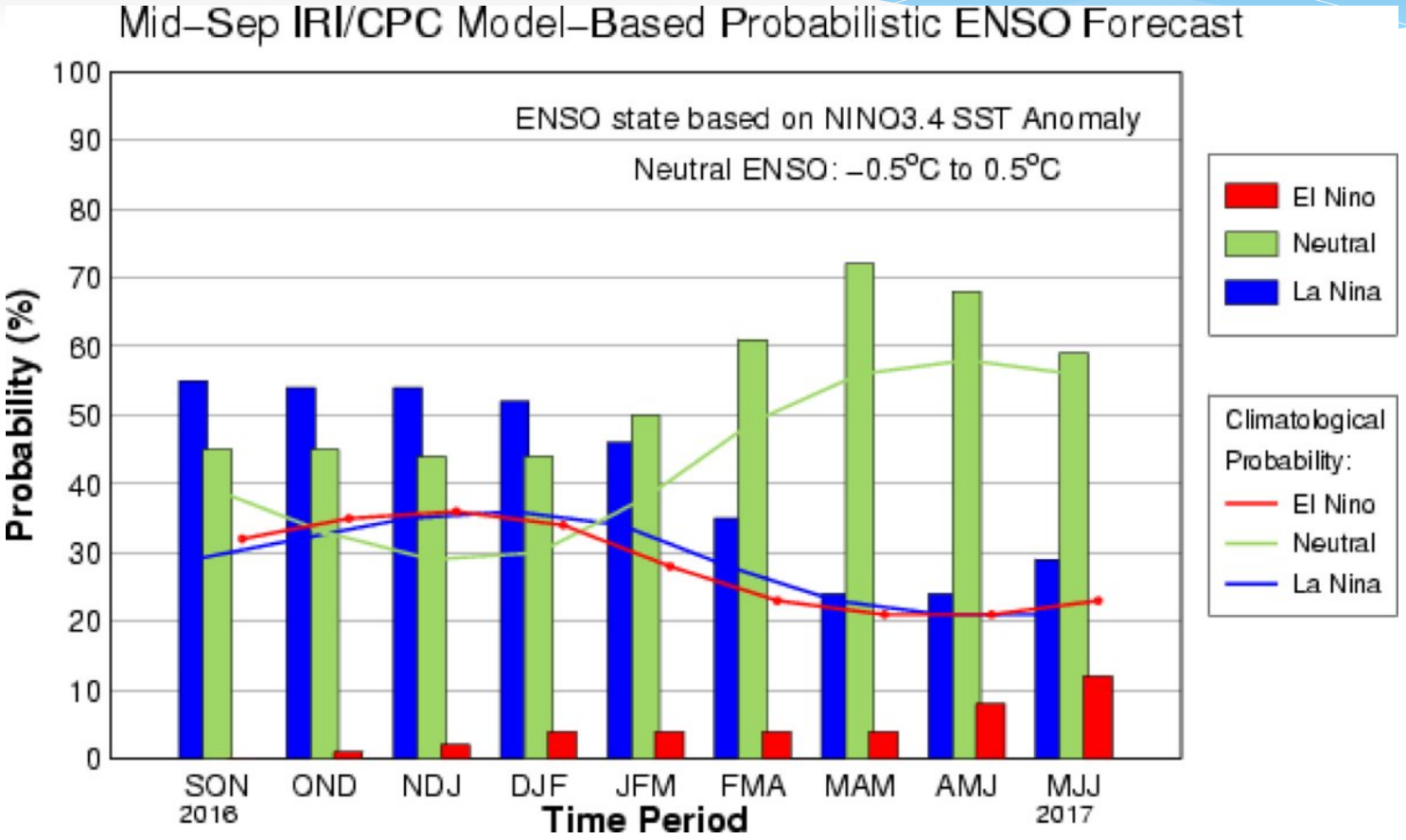
Climate Outlooks

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

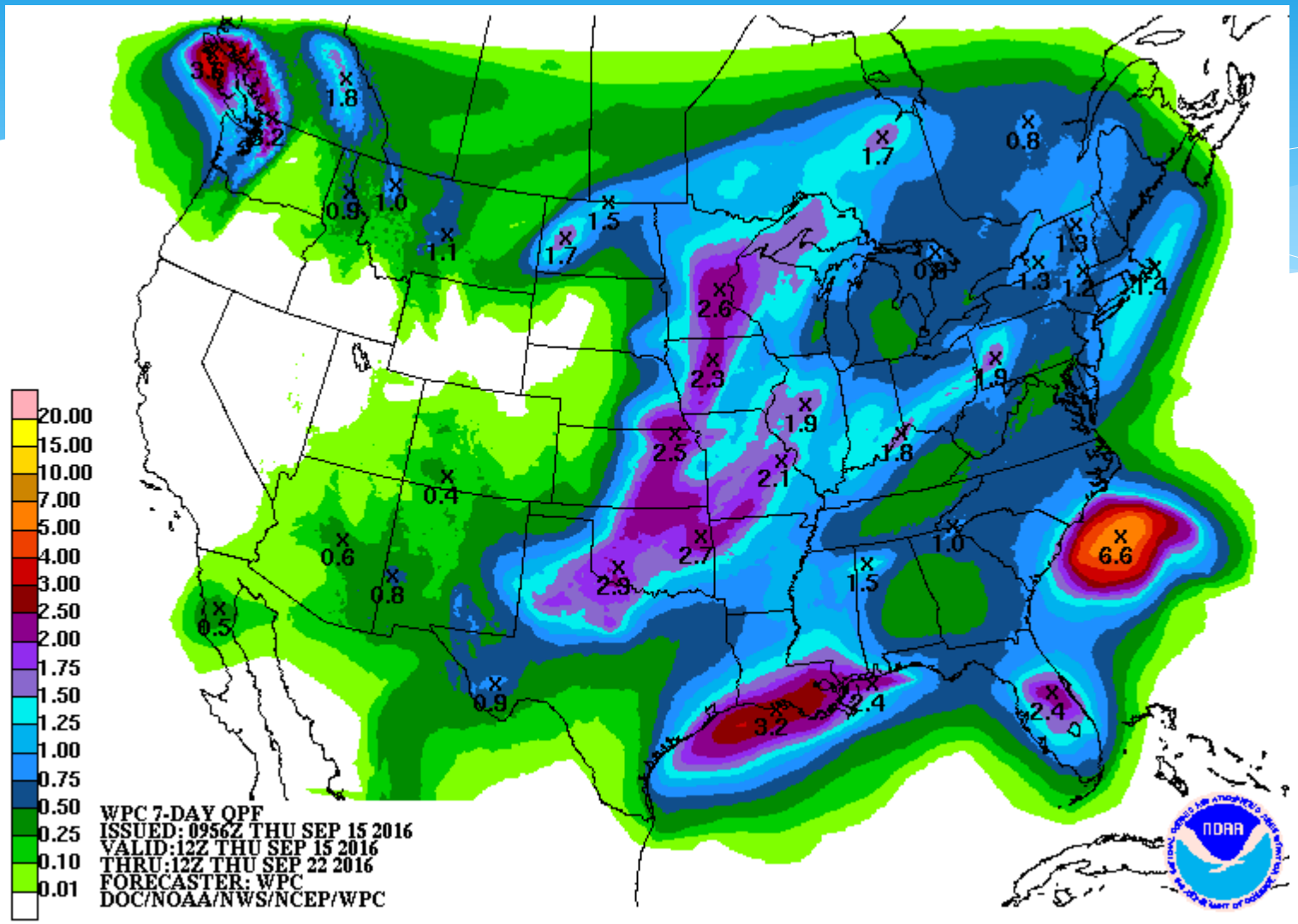
CPC/IRI Probabilistic ENSO Outlook

Updated: 8 September 2016

Neutral conditions most likely outcome winter 2016-17.

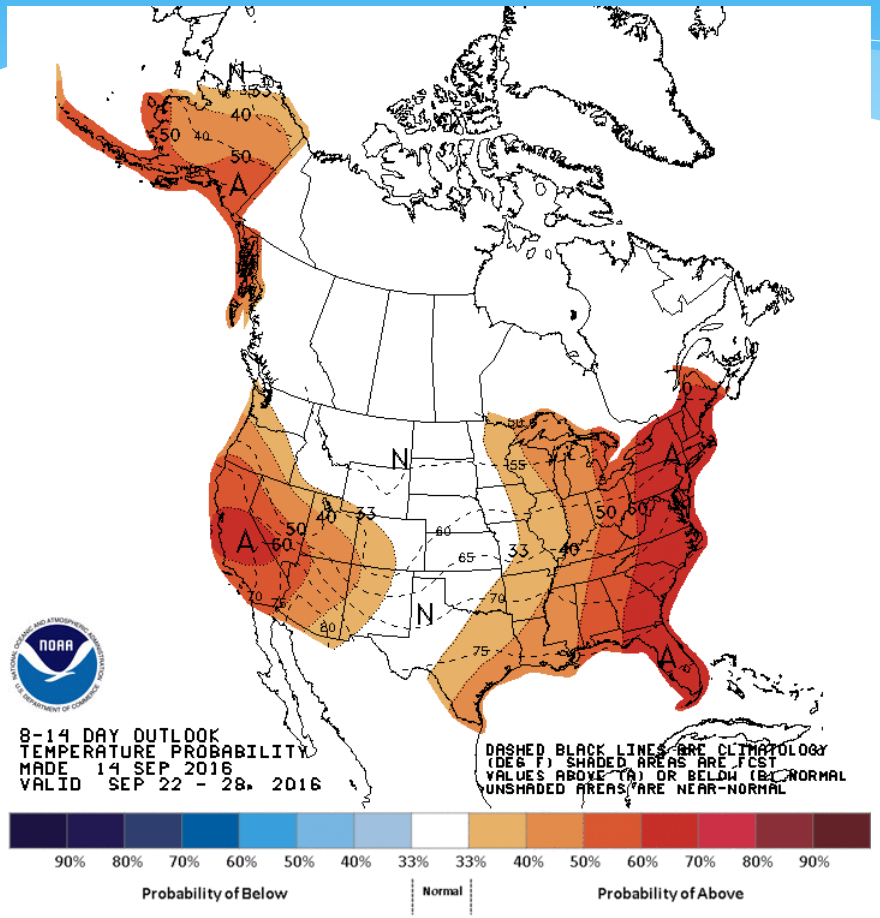


7-day Quantitative Precipitation Forecast

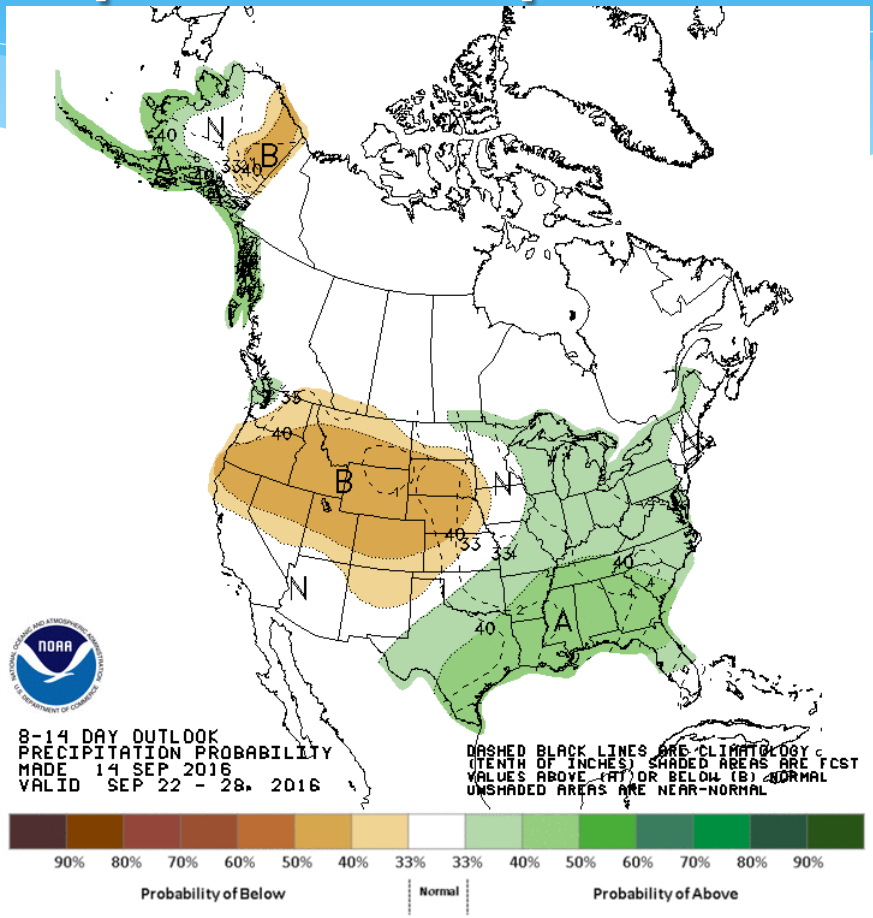


http://www.wpc.ncep.noaa.gov/qpf/day1-7.shtml

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



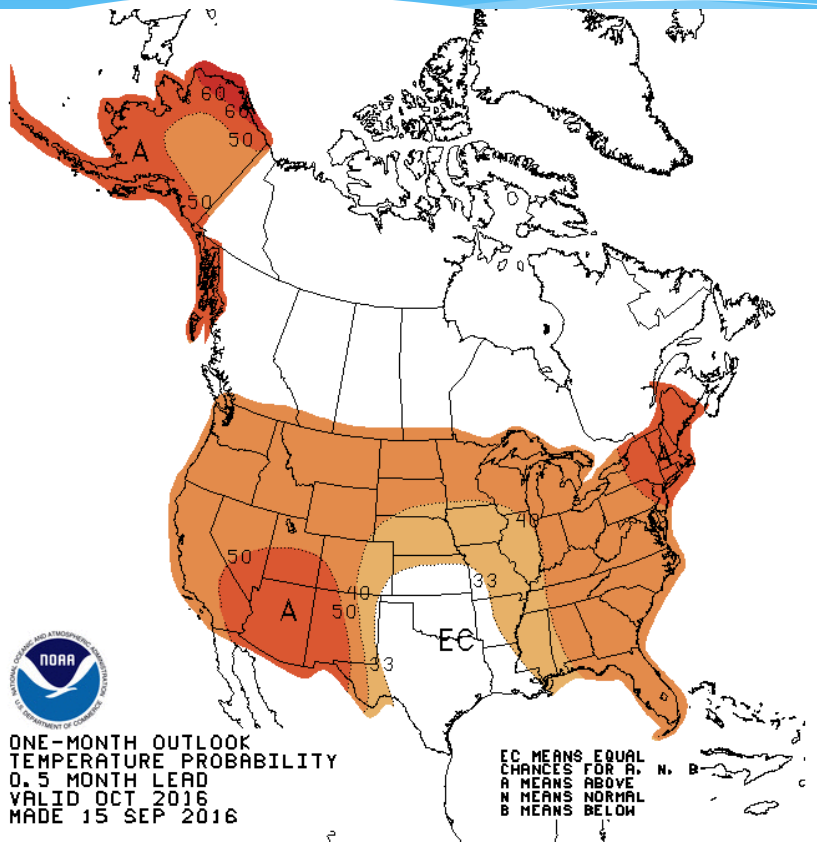
Temperature



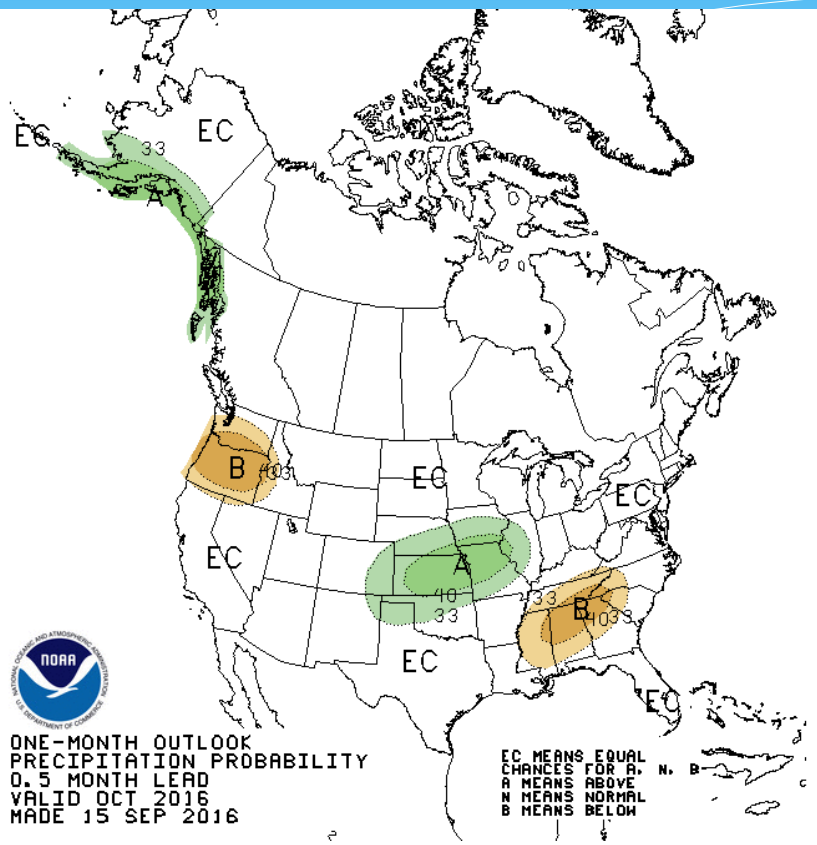
Precipitation

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

October Temperature and Precipitation Probabilities



Temperature

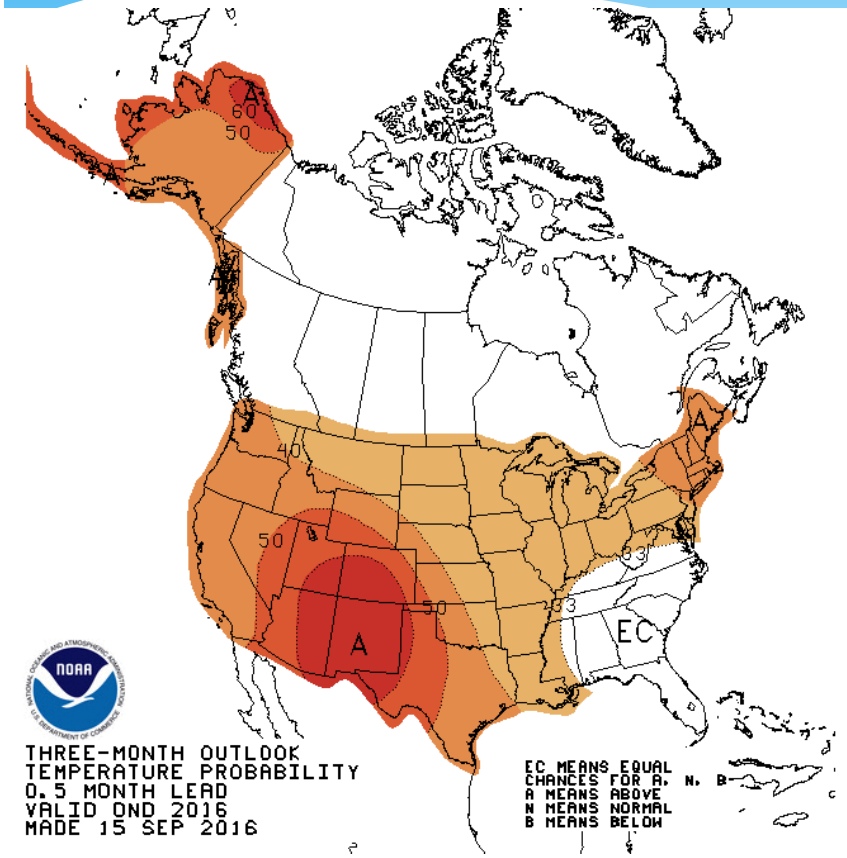


Precipitation

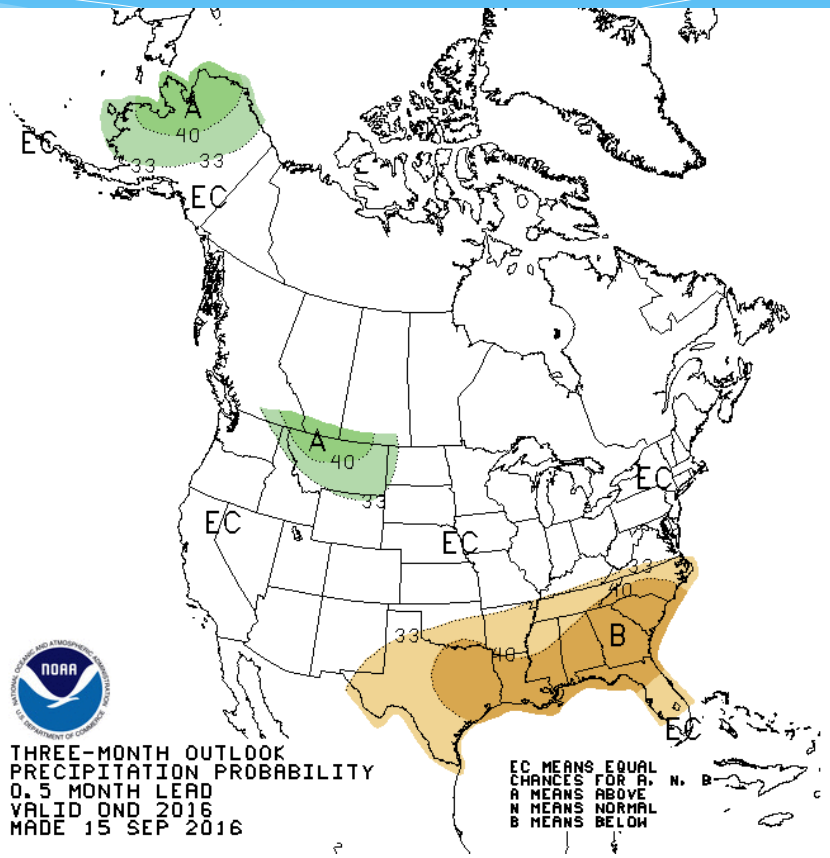
http://www.cpc.ncep.noaa.gov/products/predictions/30day/

3 Month Temperature and Precipitation Probabilities

(October - December)



Temperature

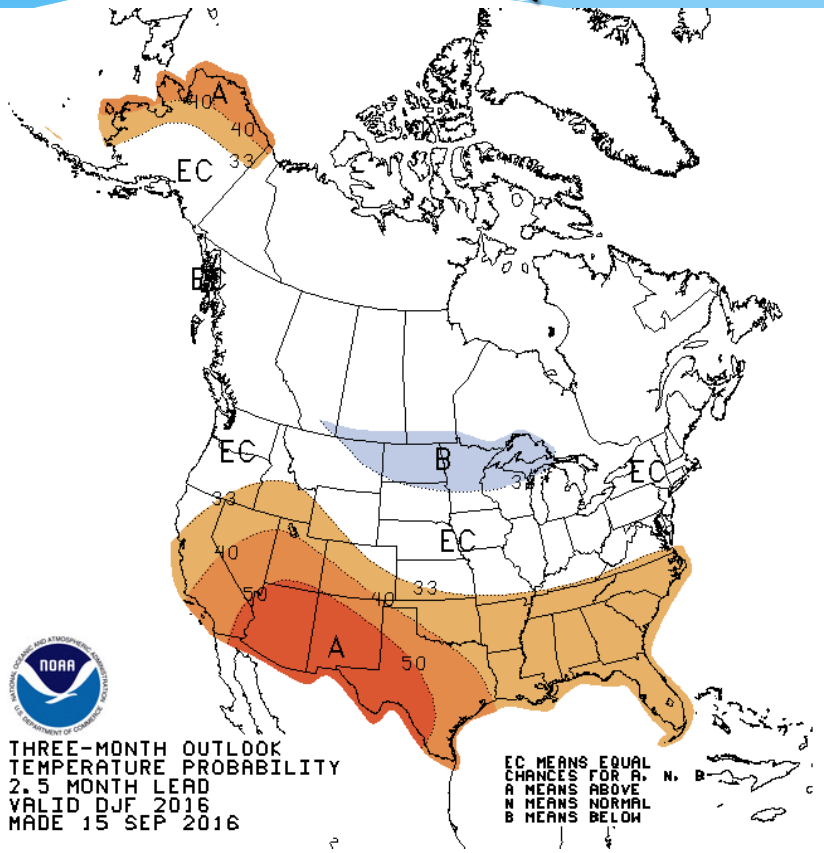


Precipitation

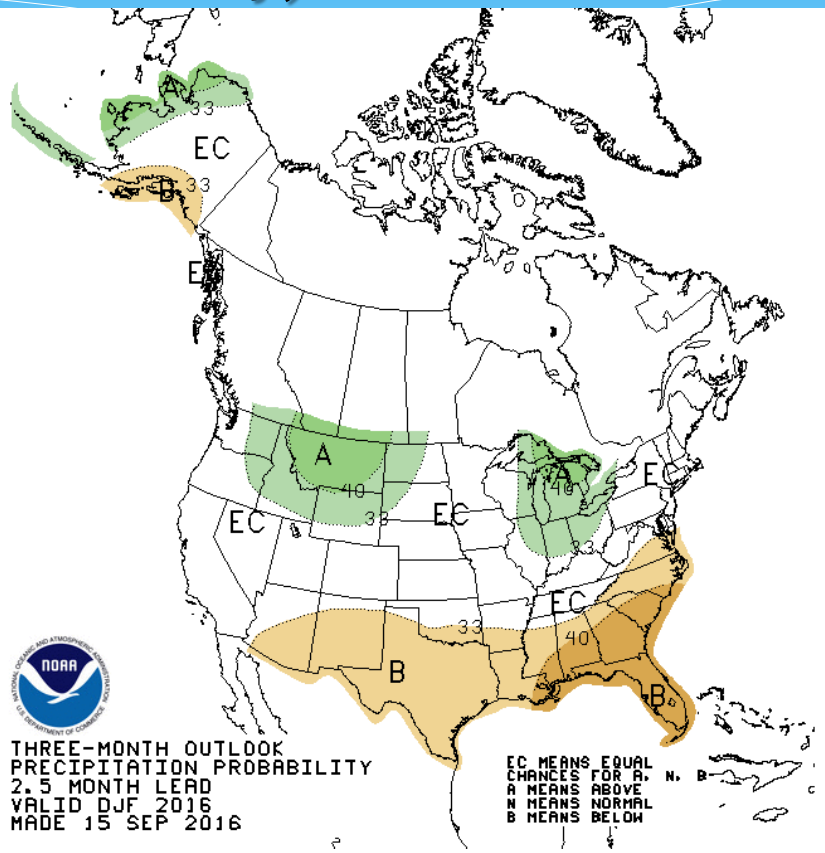
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

3 Month Temperature and Precipitation Probabilities

(December - February)



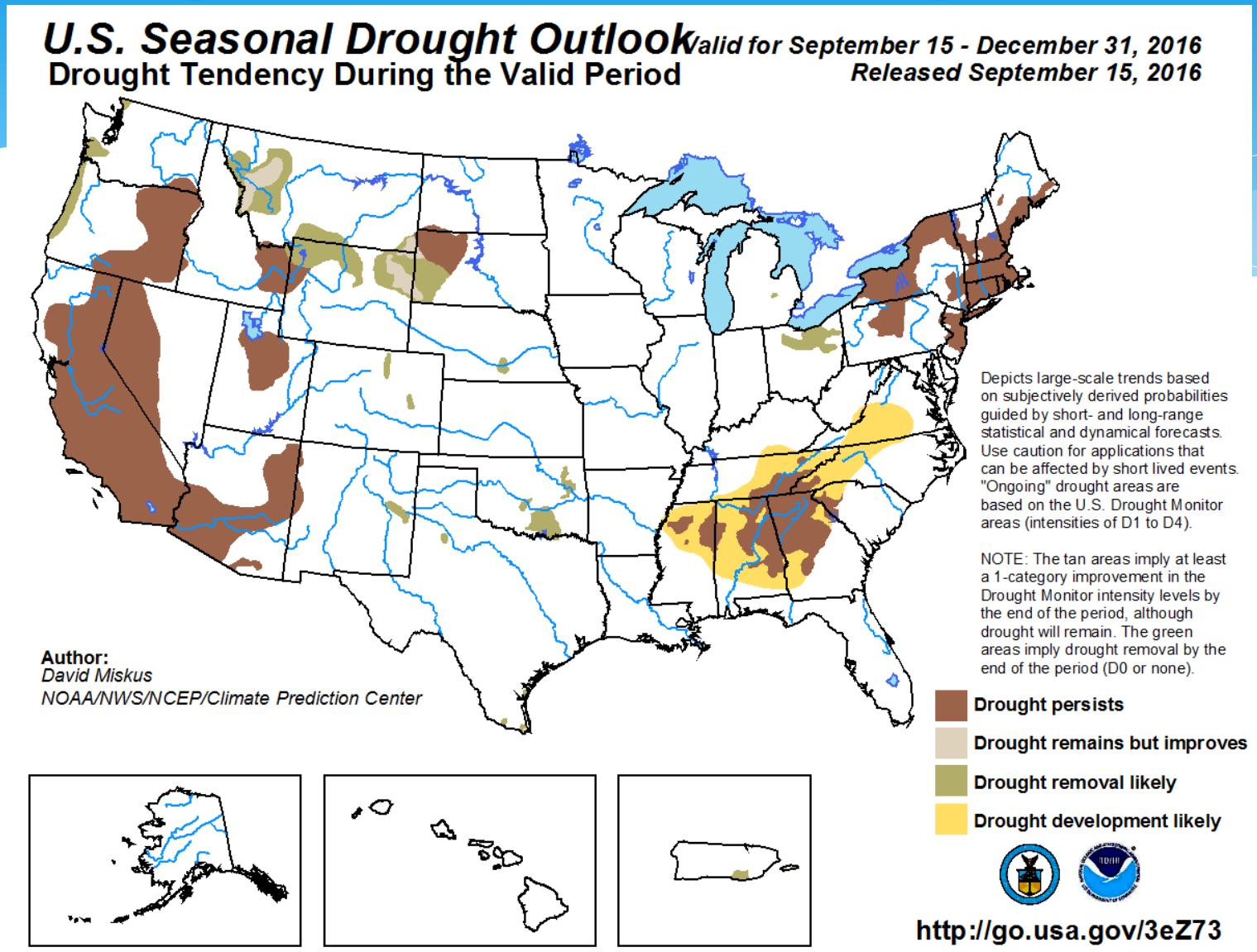
Temperature



Precipitation

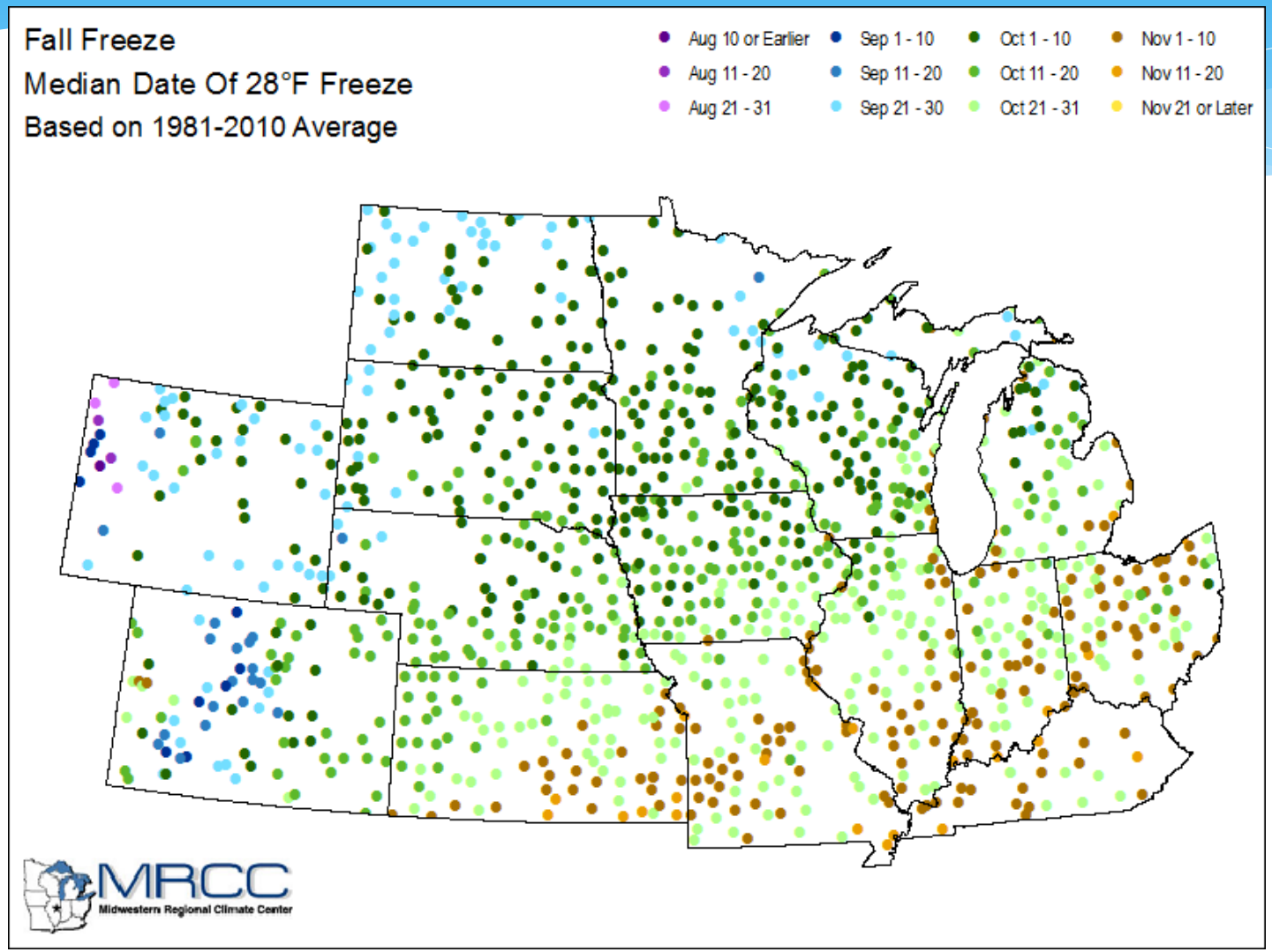
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1

Drought Outlook through 31 Dec.



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

Median Fall Freeze Date (32 F)



Summary - Conditions

* Warm summer – moreso 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