**STATEMENT OF BRADLEY R. RIPPEY, AGRICULTURAL METEOROLOGIST,
WORLD AGRICULTURAL OUTLOOK BOARD,
U.S. DEPARTMENT OF AGRICULTURE, BEFORE THE
U.S. HOUSE OF REPRESENTATIVES COMMITTEE ON AGRICULTURE
October 25, 2007**

Mr. Chairman, thank you for the invitation to appear before this committee to discuss U.S. agricultural weather highlights for 2006, 2007, and the early season outlook for 2008. With me today is Dr. Gerald Bange, Chairperson of the World Agricultural Outlook Board.

It has been nearly 20 years—specifically 1988—since the United States suffered through a coast-to-coast drought. Since then, there have been frequent regional droughts, but few have had a major impact on national yield and production values for U.S. crops. I will begin by briefly reviewing the 2006 crop season before commenting on the 2007 season and then discussing the outlook for the next few months.

2006 Highlights:

The 2006 crop season featured significant drought across the Plains and the South, but generally favorable conditions in the heart of the Midwest (figure 1). U.S. **corn** production totaled 10.53 billion bushels in 2006, and the national yield averaged 149.1 bushels per harvested acre. At the time, the 2006 production was the third largest on record, while the yield was the second highest on record—behind only 160.4 bushels per acre in 2004. **Corn** harvested acreage totaled 70.6 million acres. **Soybean** production totaled 3.19 billion bushels, representing the largest U.S. **soybean** crop on record. The U.S. yield of 42.7 bushels per acre was just slightly below the record high established in 2005. **Soybean** harvested acreage was a record-high 74.6 million.

In contrast, the **winter wheat** and **sorghum** crops were affected by drought. U.S. **winter wheat** production totaled 1.3 billion bushels, down 13 percent from 2004-05. The **winter wheat**

yield of 41.7 bushels per acre was down 6 percent from the previous year. At the same time, 2006 **sorghum** production dropped nearly 30 percent, reflecting a sharp decline in yield.

The **cotton** crop was less affected because in some areas irrigation buffered the effects of drought. The U.S. **cotton** production in 2006 was 21.7 million 480-pound bales, just 9 percent below the 2005 record high. U.S. production and yields were the third-highest on record.

2007 Highlights:

At the beginning of the 2007 crop season, conditions on the Central and Southern Plains suddenly turned from drought to excessive wetness and flooding. These conditions negatively impacted yields and quality of the **winter wheat** crop. Farther east, record-setting March warmth promoted a rapid planting pace for Southeastern **summer crops**. In early April, however, a severe cold outbreak struck the Southeast and the lower Midwest, harming jointing to heading **winter wheat**, burning back or killing emerged **corn**, causing varying degrees of damage to **fruit and nut crops**, and devastating numerous **specialty and nursery crops**. Freeze damage was reported roughly as far north as the Ohio Valley and as far west as the eastern half of the Plains. Across the South, pockets of freeze damage occurred as far south as Georgia, Arkansas, northern sections of Alabama and Mississippi, and portions of central and northeastern Texas. Since 1980, the National Climatic Data Center has been tracking "billion dollar weather disasters," which are weather-related disasters that have overall damage estimates of $1 billion or more. When the final data are reported, the April freeze is likely to become the first freeze outside of the nation's citrus belt to reach the billion-dollar benchmark. In the wake of the April freeze, drought in the Southeast intensified to historic proportions (figure 2), sharply curtailing the regional production of **hay** and most rain-fed **summer crops**.

With the notable exception of the mid-Atlantic and Southeast regions, the U.S. **corn** crop for the most part experienced good weather during the 2007 growing season. The 2007 **corn**

crop is forecast at a record 13.32 billion bushels, reflecting the largest harvested acreage—86.1 million—since 1933, and the second-highest yield—154.7 bushels per acre—on record. On the other hand, and not due entirely to weather, the soybean crop is forecast at 2.60 billion bushels, down 19 percent from the 2006 record high. **Soybean** yields are expected to average 41.4 bushels per acre, down 1.3 bushels from last year. While the U.S. **corn** acreage increased sharply in 2007, the **soybean** harvest will reflect a sharp drop in acreage from 74.6 to 62.8 million.

The current forecast for U.S. **cotton** production stands at 18.2 million 480-pound bales, down 16 percent from 2006. However, the yield is expected to average 826 pounds per acre, up 12 pounds from last year. If realized, the **cotton** yield would be the third highest on record. The expected **cotton** harvested area of 10.5 million acres is down 17 percent from 2006. In Texas, the 2007 **cotton** abandonment was just 6 percent, down from 36 percent last year, due to favorable growing-season rainfall and temperatures.

While the eradication of drought in the Central and Southern Plains resulted in generally improved **wheat** yields, rains were excessive in some areas. The **winter wheat** crop totaled 1.5 billion bushels, up 17 percent from the previous year. The national yield of 42.2 bushels per acre was up 0.5 bushel from 2005-06. **Sorghum** production nearly doubled due to large increases in yield and acreage.

Water Supply Situation and Outlook for the Winter and Spring of 2007-08:

Despite improved moisture on the Plains, drought lingered through the summer across the Southeast and much of the West. This has raised concerns about water supplies as we approach the 2008 crop season. While California's 151 intrastate reservoirs had above-average storage through all of 2006, a sub-par 2006-07 winter wet season and unusually early snow melt has led to sharp declines in the state's water storage. In a normal year, California's reservoirs are drawn

down about 2.7 trillion gallons, from 9.6 to 6.9 trillion gallons, from May to October. Between April and September of this year, California's water storage decreased from 9.5 to 6.1 trillion gallons, a drawdown of 3.4 trillion gallons.

The recent development of La Niña has significant implications for U.S. weather between now and next spring. A hallmark of La Niña is a substantial lowering of sea-surface temperatures in the central and eastern equatorial Pacific Ocean. Unusually cool water in this region typically disrupts the sub-tropical jet stream across the southern tier of the United States, resulting in drier-than-normal weather from autumn into spring. Given the current seriousness of drought in parts of the Southeast, several more months of drier-than-normal weather could have serious implications for fall-sown crops, especially **winter wheat**. It should be noted, however, that **winter wheat** in the Southeast normally accounts for less than 5 percent of the national production total. More importantly, an extension of the Southeastern drought into next spring could lead to **summer crops** being planted in dust and could require substantial growing-season rainfall to prevent a third consecutive year of drought-reduced yields. Not including the Mississippi Delta, the Southeast typically accounts for nearly one-fourth of the U.S. **cotton** production and more than two-thirds of U.S. **peanut** production.

At present, favorable soil moisture levels in the Southern Plains region suggest that the **winter wheat** crop should become well established this fall. However, the official National Weather Service Drought Outlook, issued on October 18, 2007, and valid through January 2008, indicates the likelihood of drought development in western Oklahoma and nearby areas (figure 3).

Another potential impact of La Niña is warmer-than-normal weather across much of the country and wetter-than-normal conditions in several areas, including the Ohio Valley and the Northwest. While a lack of persistently frigid weather may limit stress on livestock, pest- and

disease-related issues could surface during the 2008 crop season due to the lack of killing freezes. On the other hand, winter wetness in the Ohio Valley and the Northwest would benefit **small grains** and help to ease or eradicate drought conditions.

The effects of La Niña on U.S. weather typically diminish during the spring months. The latest National Weather Service official outlook for March-May 2008, issued on October 18, calls for wet conditions to subside next spring in the Ohio Valley and the Northwest (figure 4).

Thank you. That completes my statement and we would be pleased to answer any questions the Committee may have.

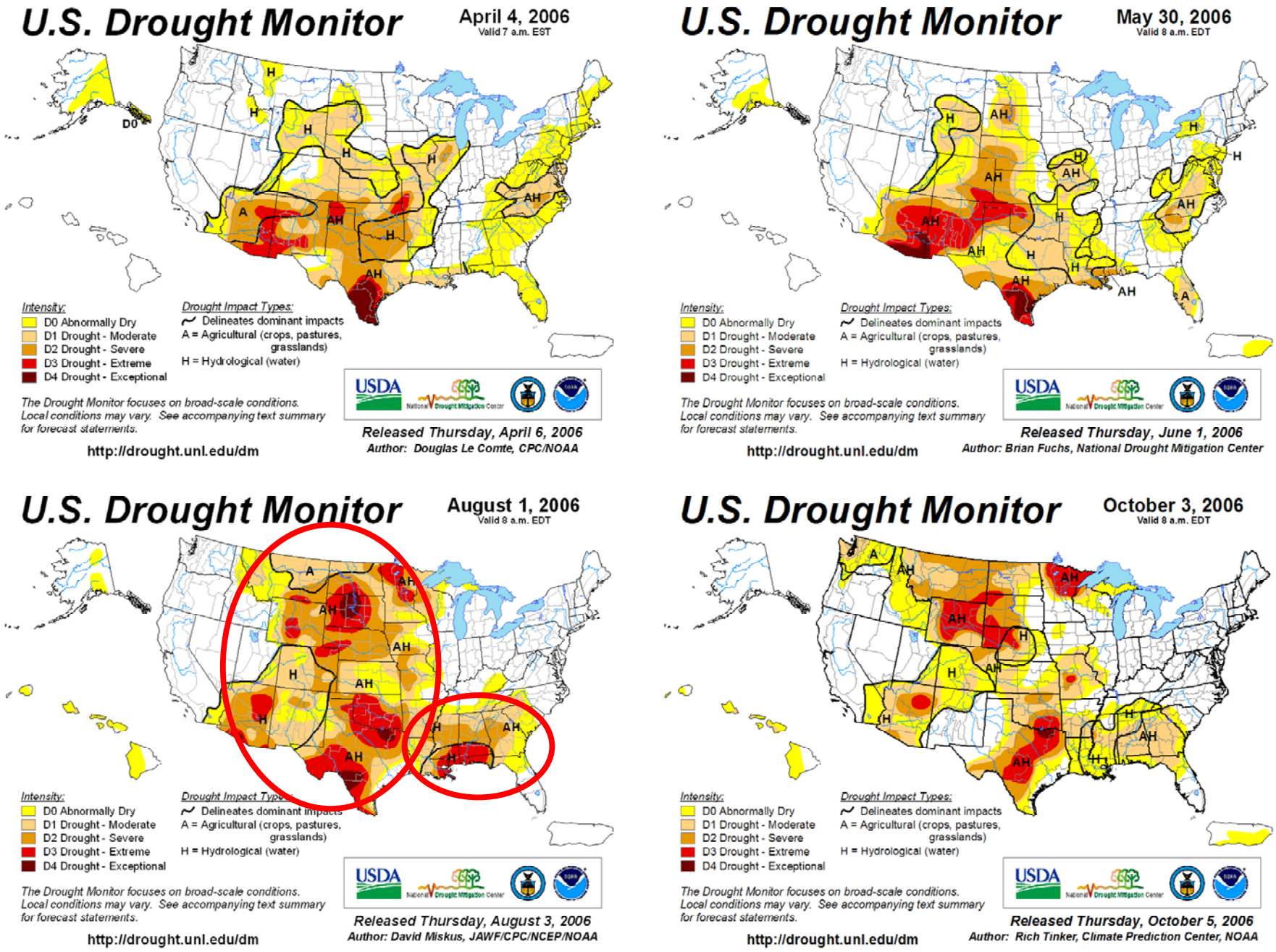
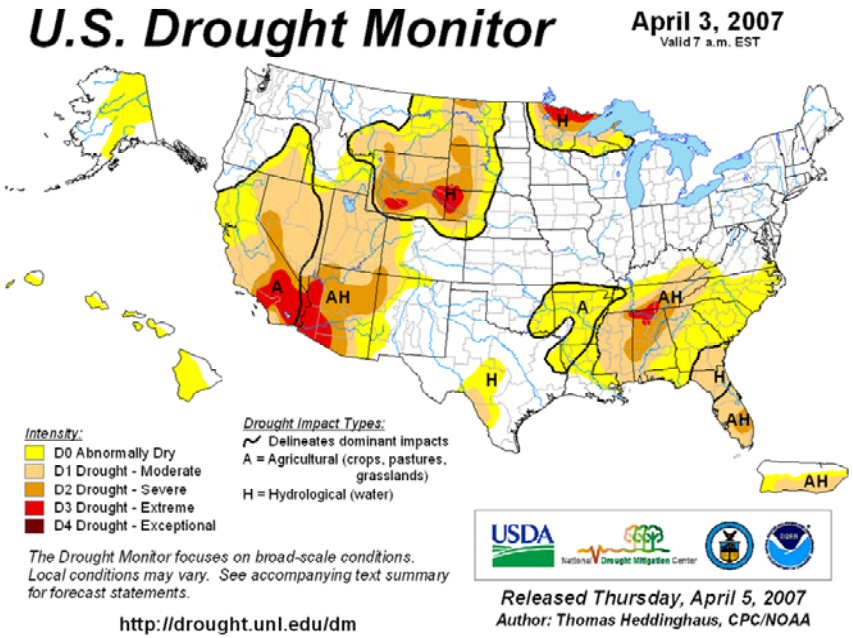

U.S. Drought Monitor
April 4, 2006
Valid 7 a.m. EST
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
Released Thursday, April 6, 2006
Author: Douglas Le Comte, CPC/NOAA
U.S. Drought Monitor
May 30, 2006
Valid 8 a.m. EDT
Released Thursday, June 1, 2006
Author: Brian Fuchs, National Drought Mitigation Center
U.S. Drought Monitor
August 1, 2006
Valid 8 a.m. EDT
Released Thursday, August 3, 2006
Author: David Miskus, JAWF/CPC/NCEP/NOAA
U.S. Drought Monitor
October 3, 2006
Valid 8 a.m. EDT
Released Thursday, October 5, 2006
Author: Rich Tinker, Climate Prediction Center, NOAA

Figure 1


U.S. Drought Monitor
April 3, 2007
Valid 7 a.m. EST
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
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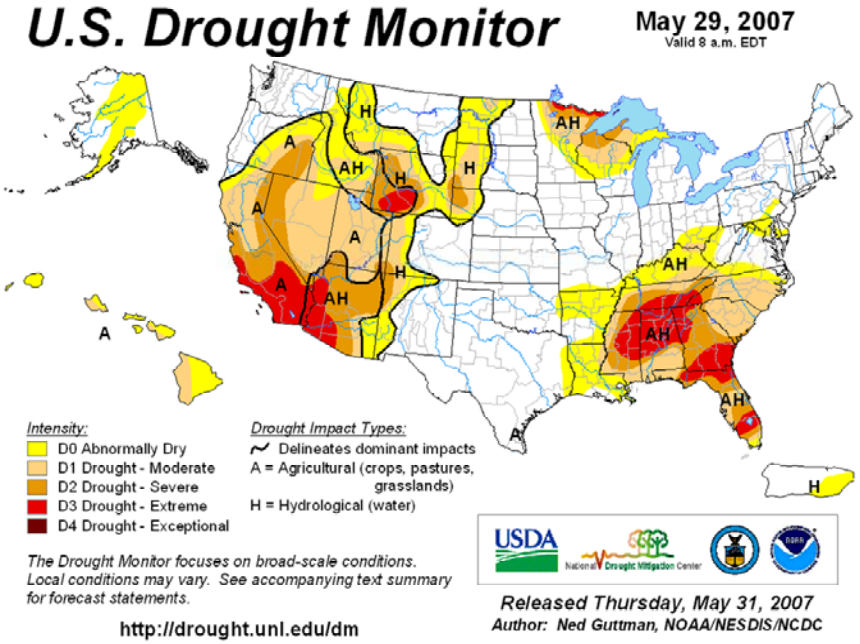
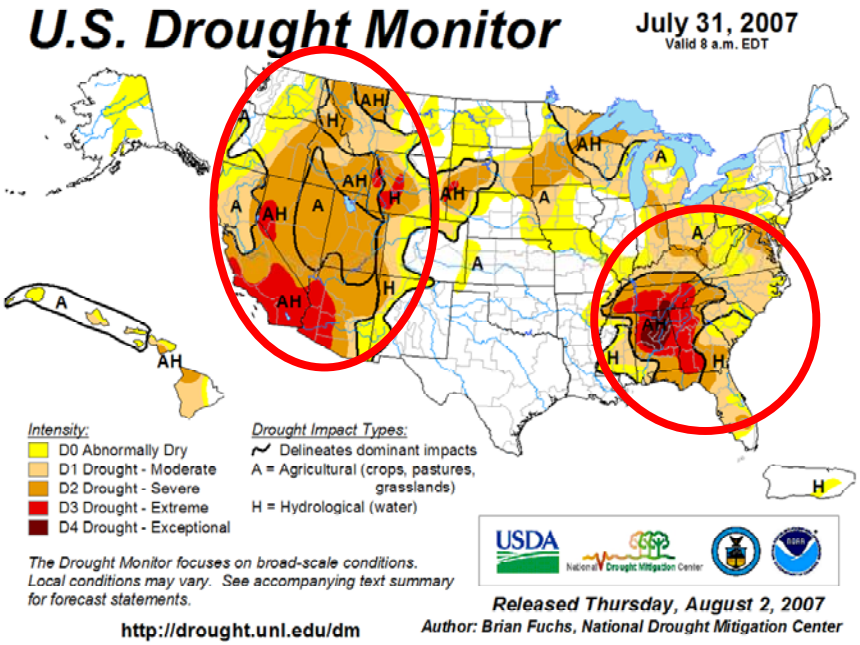
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
USDA
Released Thursday, April 5, 2007
Author: Thomas Heddinghaus, CPC/NOAA


U.S. Drought Monitor
May 29, 2007
Valid 8 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
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
USDA
Released Thursday, May 31, 2007
Author: Ned Guttman, NOAA/NESDIS/NCDC


U.S. Drought Monitor
July 31, 2007
Valid 8 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
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
USDA
Released Thursday, August 2, 2007
Author: Brian Fuchs, National Drought Mitigation Center

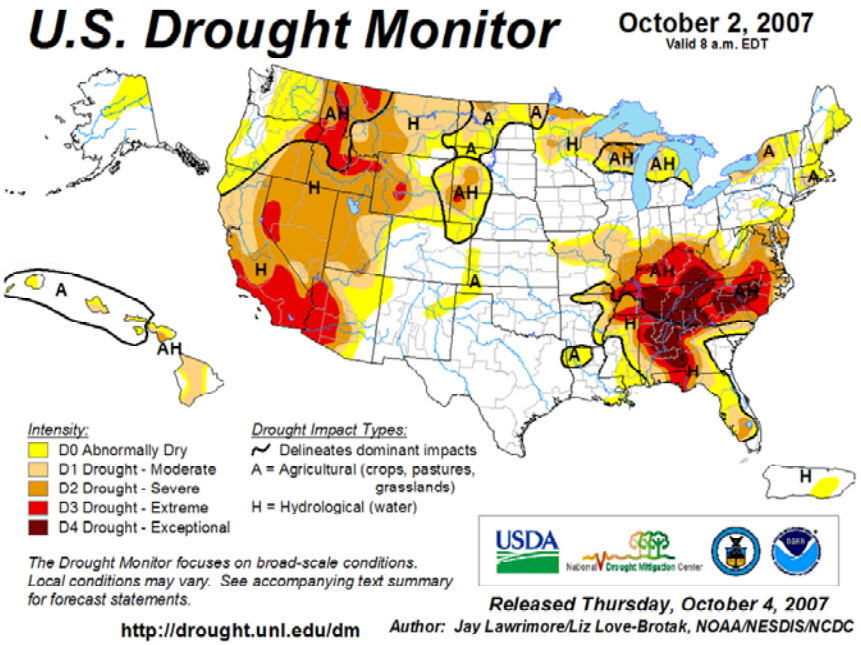

U.S. Drought Monitor
October 2, 2007
Valid 8 a.m. EDT
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
USDA
Released Thursday, October 4, 2007
Author: Jay Lawrimore/Liz Love-Brotak, NOAA/NESDIS/NCDC

Figure 2

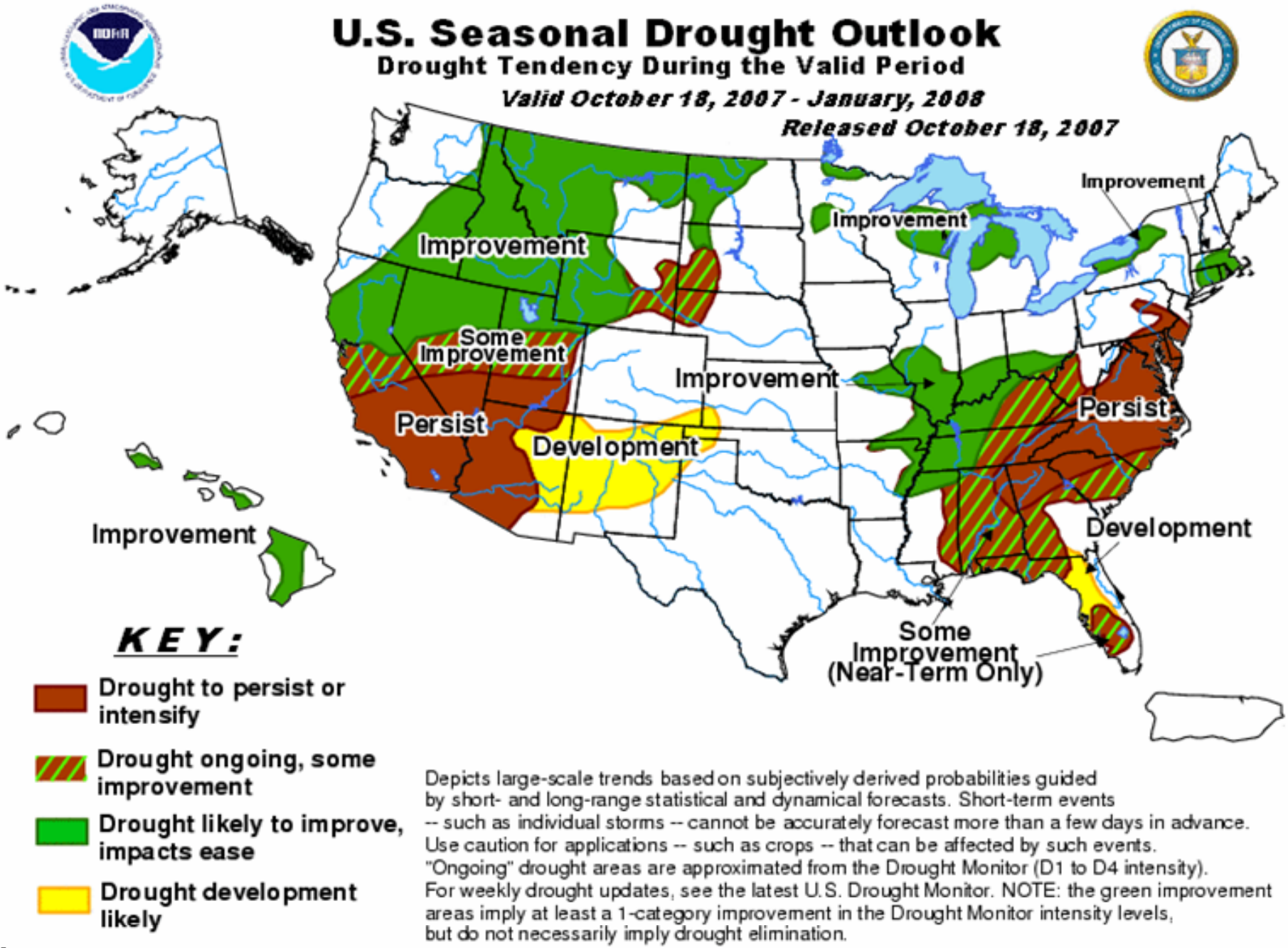
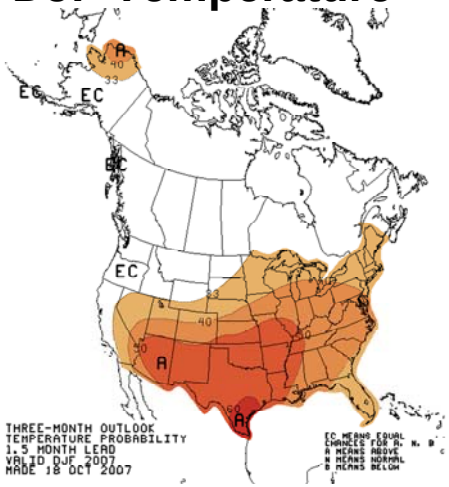

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid October 18, 2007 - January, 2008
Released October 18, 2007
Improvement
Improvement
Improvement
Some Improvement
Improvement
Persist
Development
Persist
Development
Improvement
Some Improvement (Near-Term Only)
KEY:
Drought to persist or intensify
Drought ongoing, some improvement
Drought likely to improve, impacts ease
Drought development likely
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

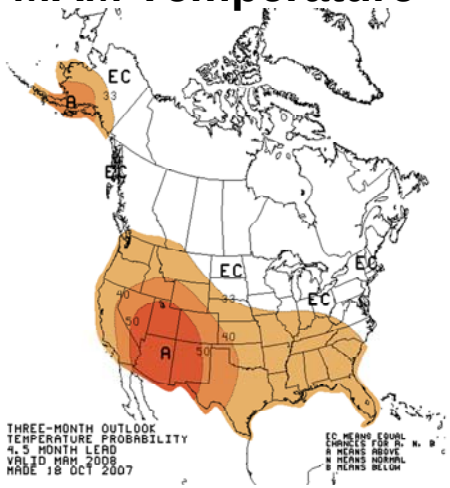
Figure 3

National Weather Service Temperature and Precipitation Outlooks, December 2007 - February 2008 and March – May 2008

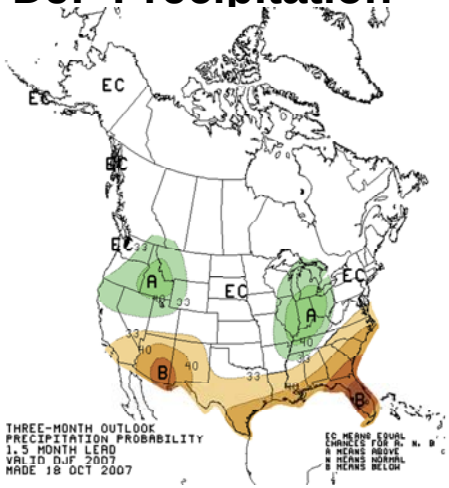
DJF Temperature



MAM Temperature



DJF Precipitation



MAM Precipitation

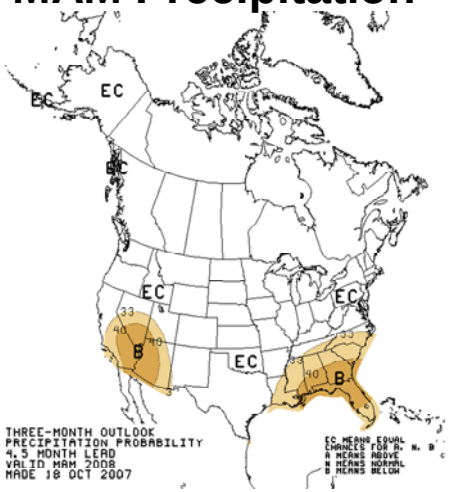


Figure 4