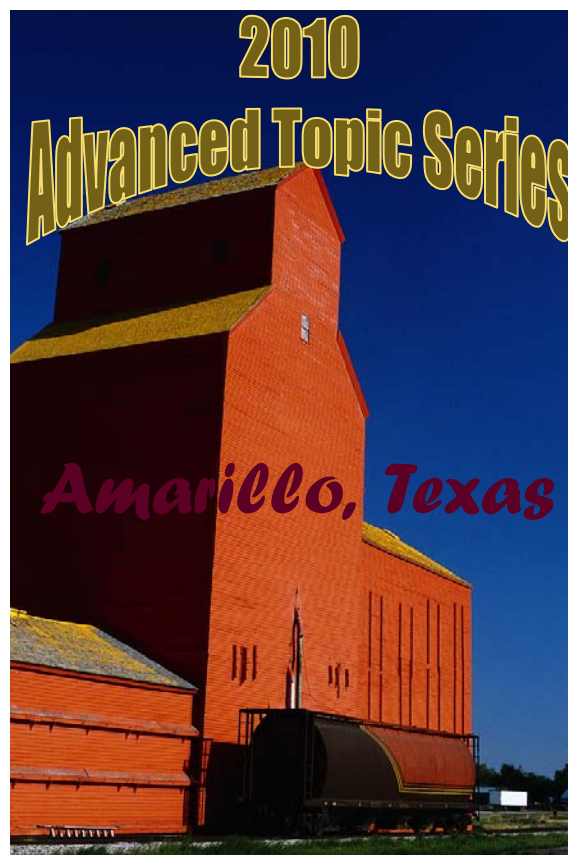




*Improving Lives. Improving Texas.*

# Identifying Weather Risk and Incorporating It Into Your Marketing Plan



***Presented by:***  
***Dr. S. Elwynn Taylor***  
***Extension Climatologist***  
***Iowa State University***



## **Identifying Weather Risk and Incorporating It Into Your Marketing Plan**

Weather is always a critical factor in the success of a farm operation. In this course participants will gain a better understanding on how to identify long range weather patterns and their potential impacts on crop yields. Yield trends, a balance sheet approach and the use of growing degree days will be discussed. The effect of high temperatures, low precipitation and how you evaluate stress impact will be addressed. Finally, a unique approach incorporating weather and market risk into a marketing strategy will be presented.

— *S. E. Taylor*

H

## ***Weather Outlook "for Agriculture"***



**S. Elwynn Taylor**

**Iowa State University Extension Climatologist  
Agronomist**

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## **Crop Weather Risk 2010**



**Elwynn Taylor**

**Iowa State University**  
**setaylor@iastate.edu**

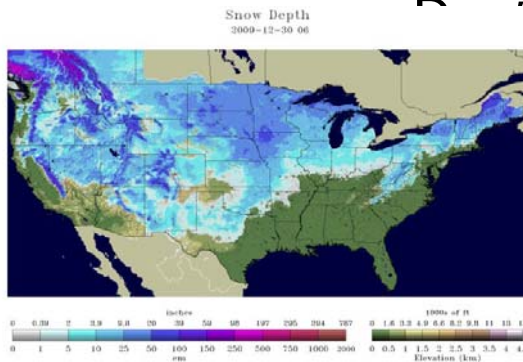
**www.twitter.com/elwynntaylor**



**www.extension.iastate.edu**

**Iowa State University Extension**

# Monday 30 Dec 2009 "Snow"

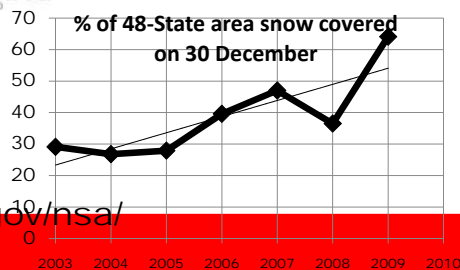


64.1% of the "48-state" area is snow covered.

Is late December snow cover increasing in the

<http://www.nohrsc.noaa.gov/nsa/>

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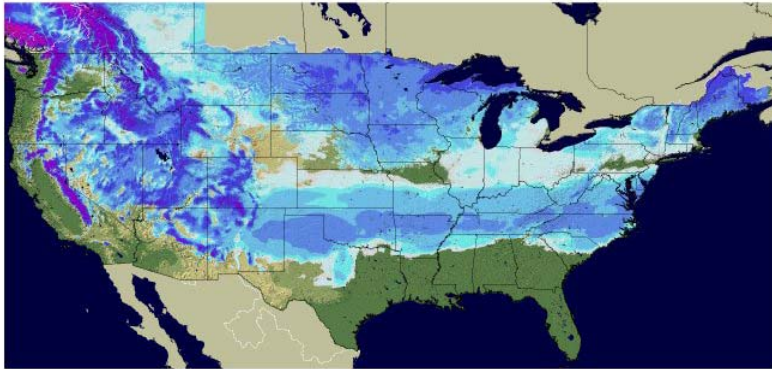


## Even Snowmobiles Have Traffic Jams



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69.7%

Snow Depth  
2010-01-31 06

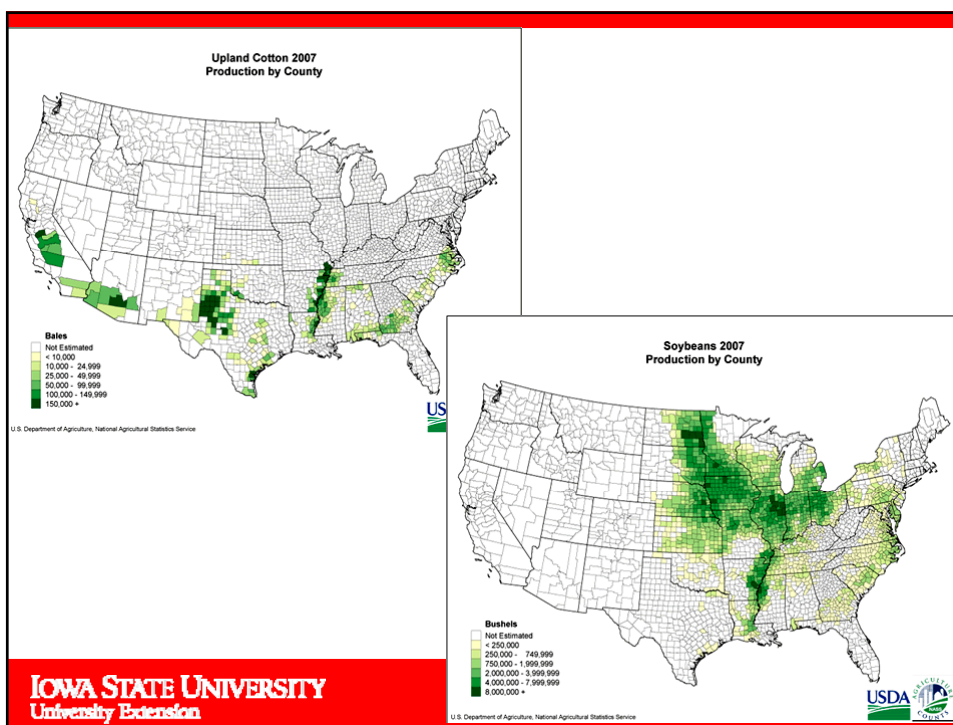
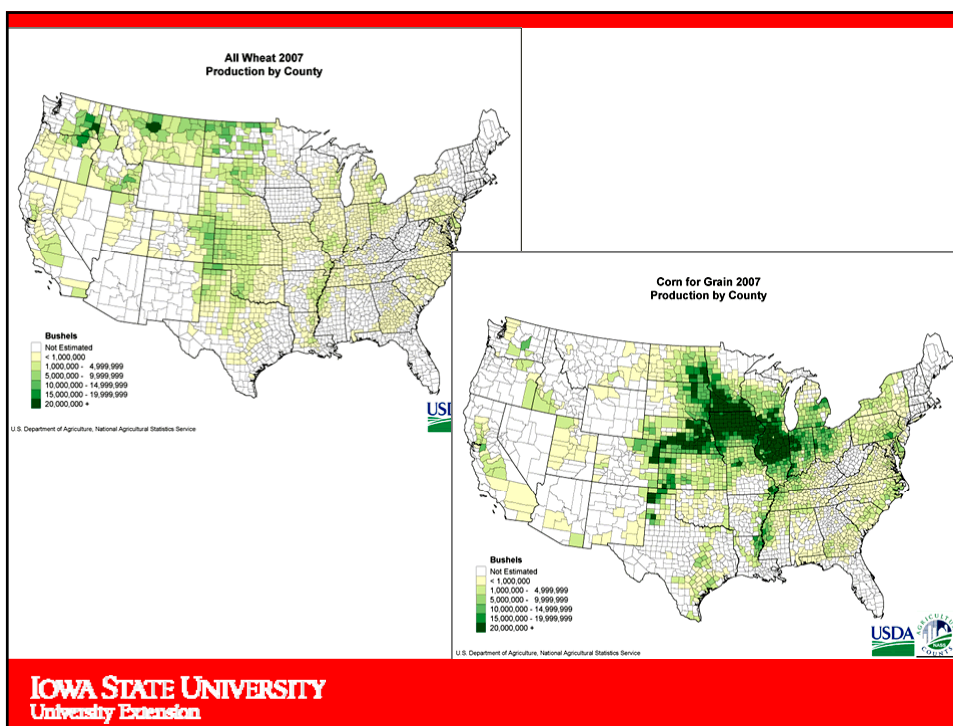
# DFW Snow

John: Good point. Here in the DFW area, our 5 snowiest winters since 1950 are as follows:

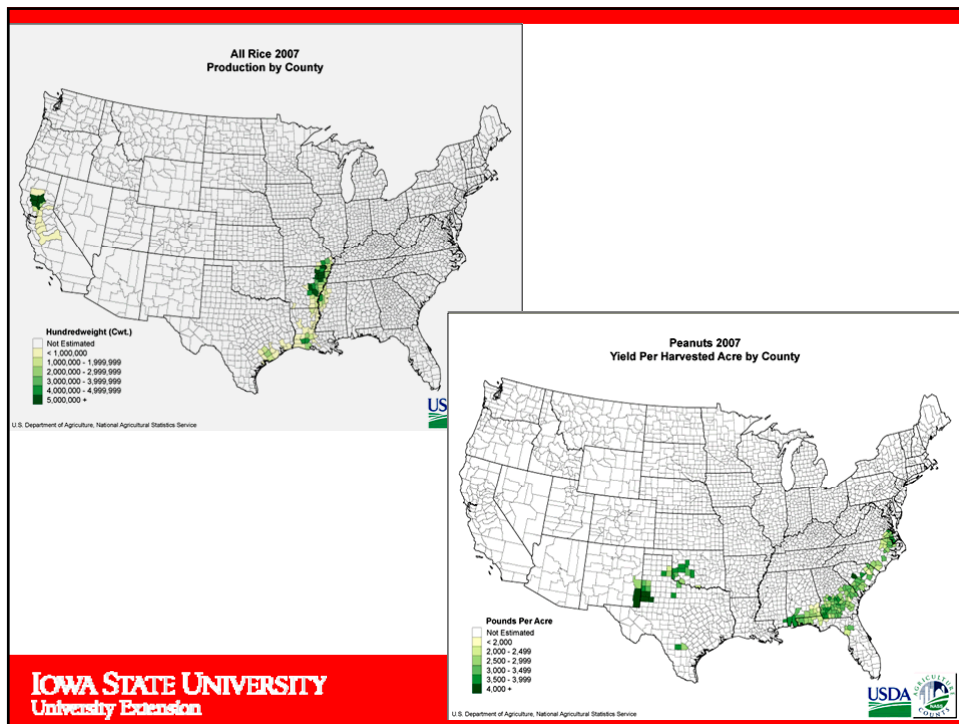
- 1) 1977/78 17.6"
- 2) 2009/2010 15.7" (as of Feb 21, 2010)
- 3) 1963/64 15.3"
- 4) 1976/77 10.4"
- 5) 1965/66 7.3"

According to an analysis by the Fort Worth NWS office, these winters were North El Niño. All five of these winters were North El Niño. Victor are far more likely in El Niño years than in other circumstances. - John

John Nielsen-Gammon [n-g@tamu.edu]





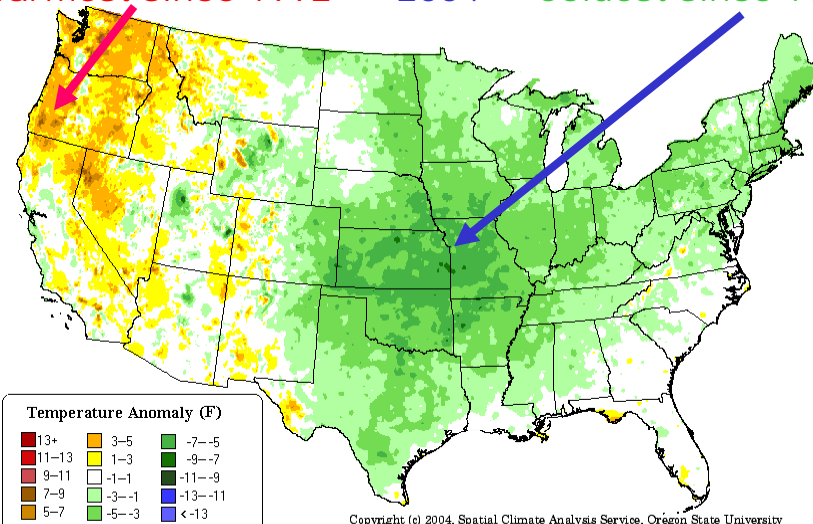


# Risk Can Be Managed



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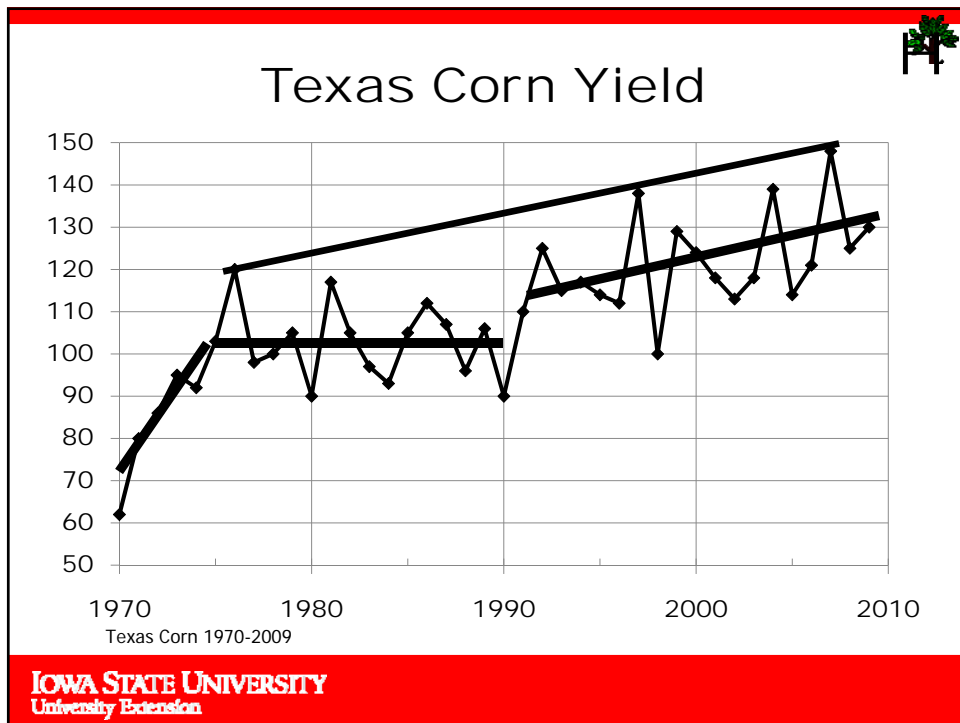
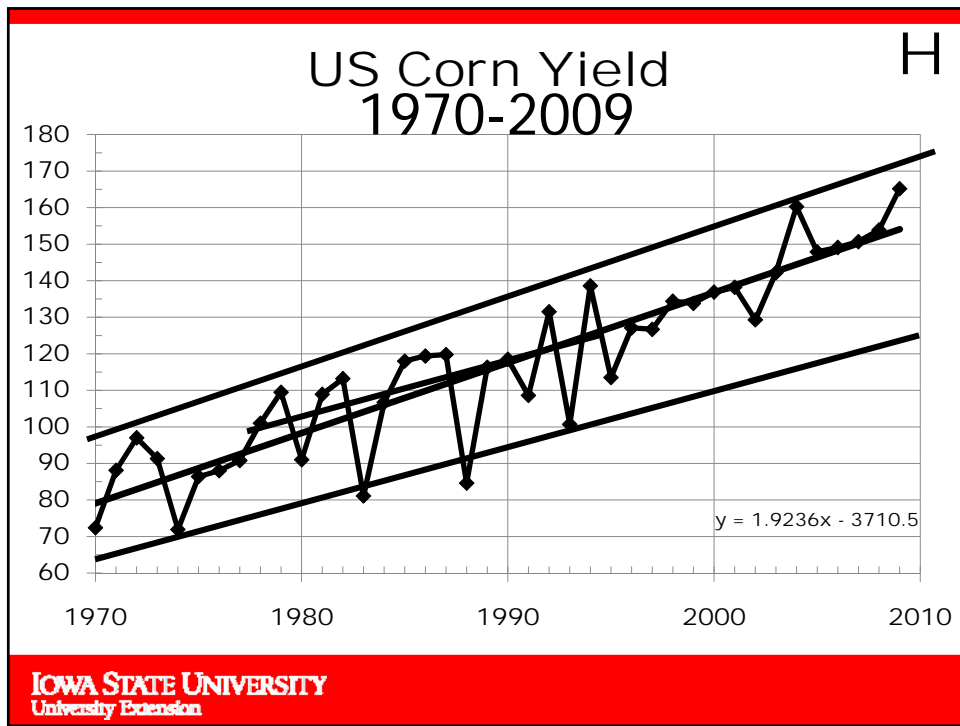
Warmest since 1992      2004      Coldest since 1992

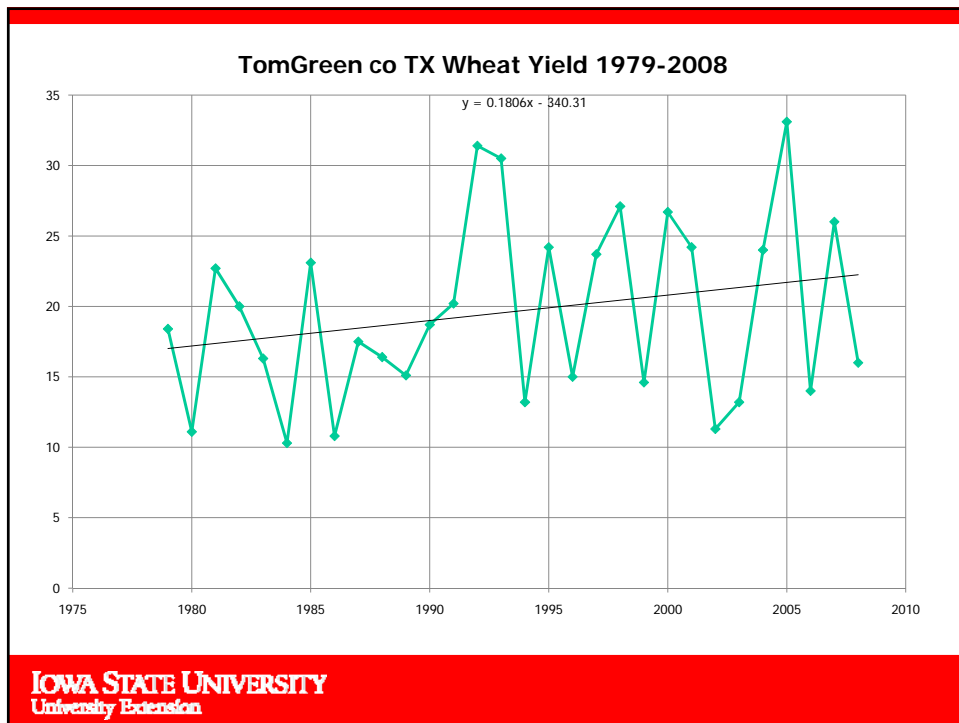
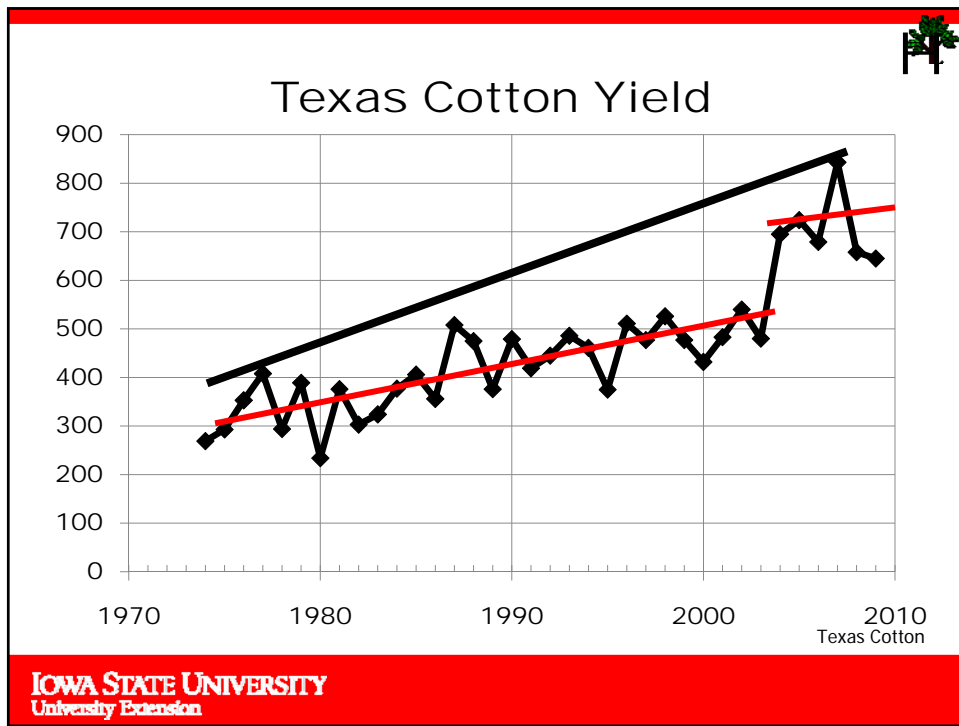


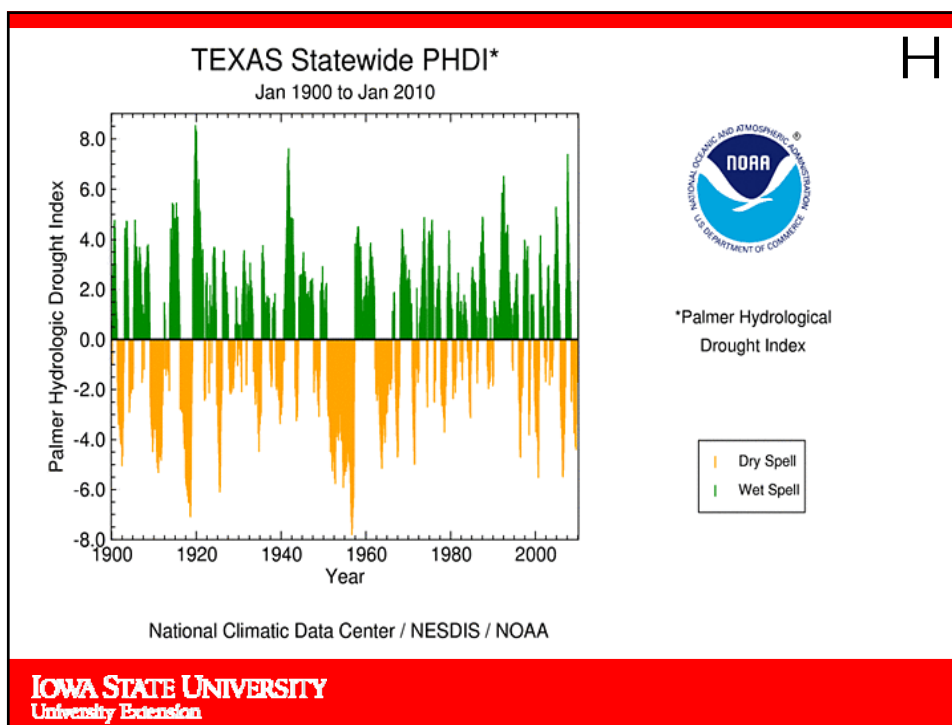
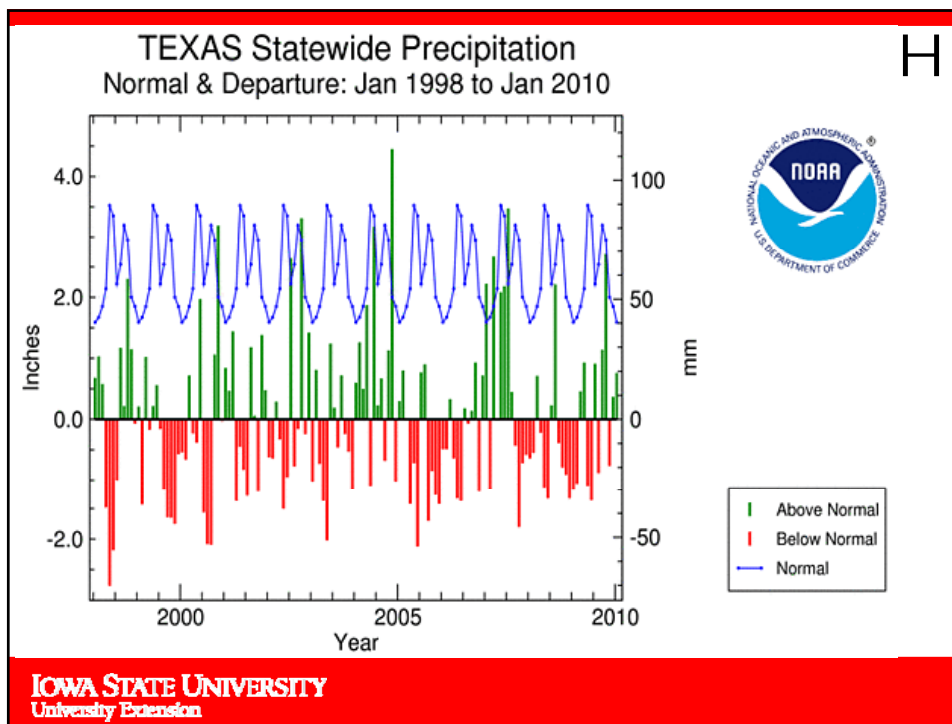
Copyright (c) 2004, Spatial Climate Analysis Service, Oregon State University  
<http://www.ocs.oregonstate.edu/prism> - Map created Sep 10 2004

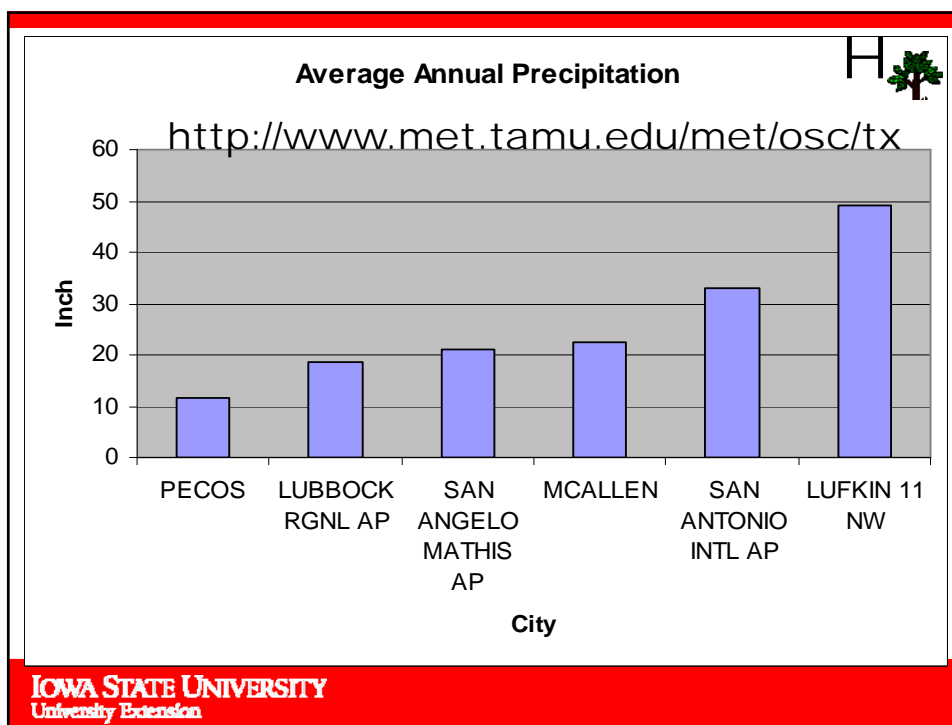
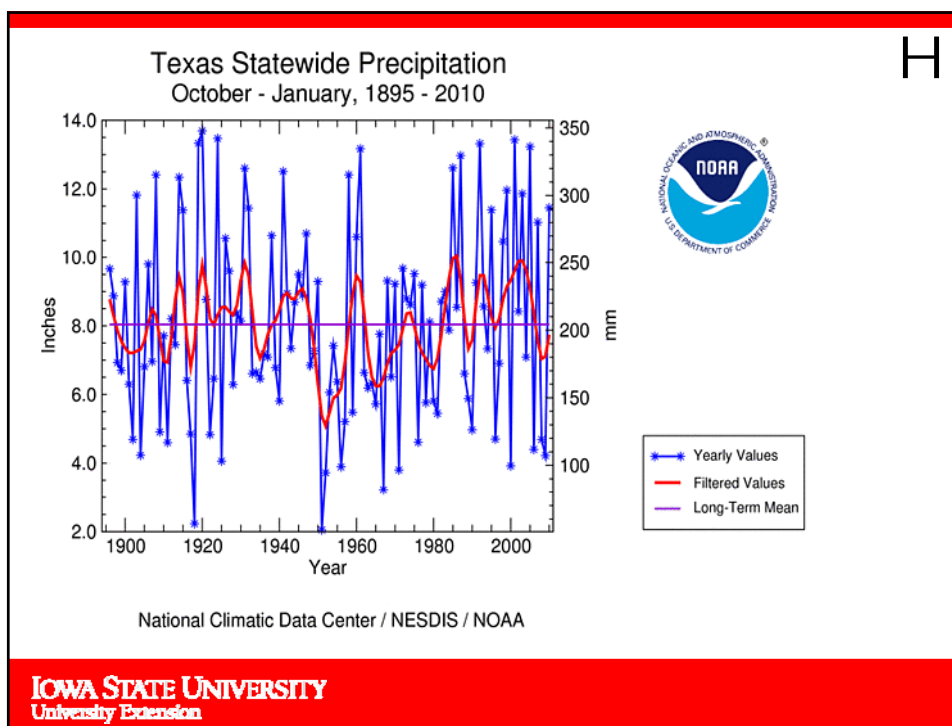
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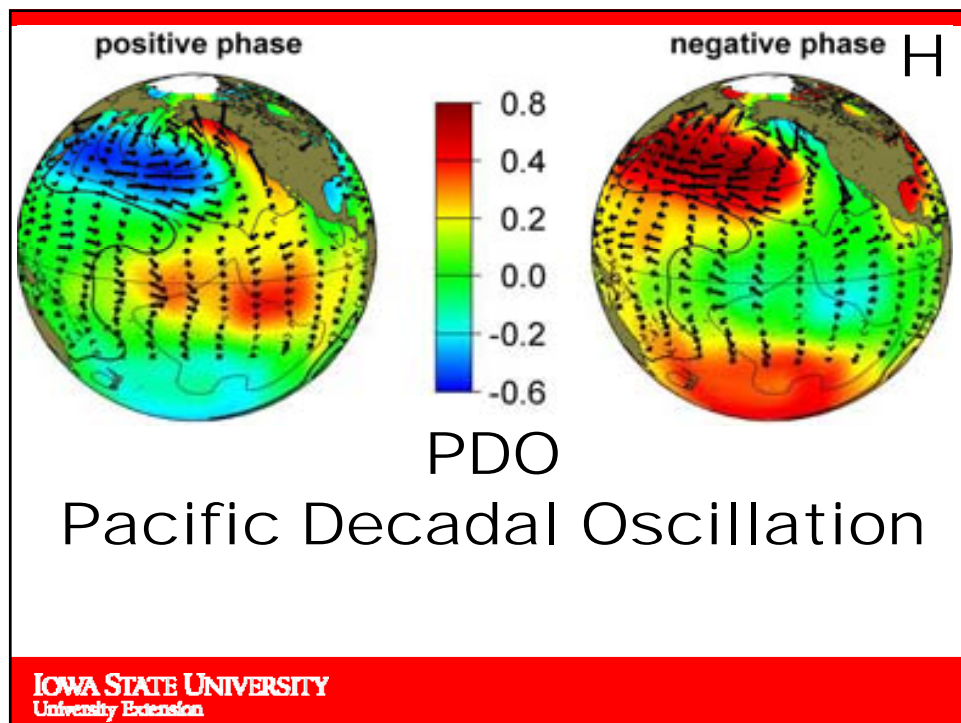
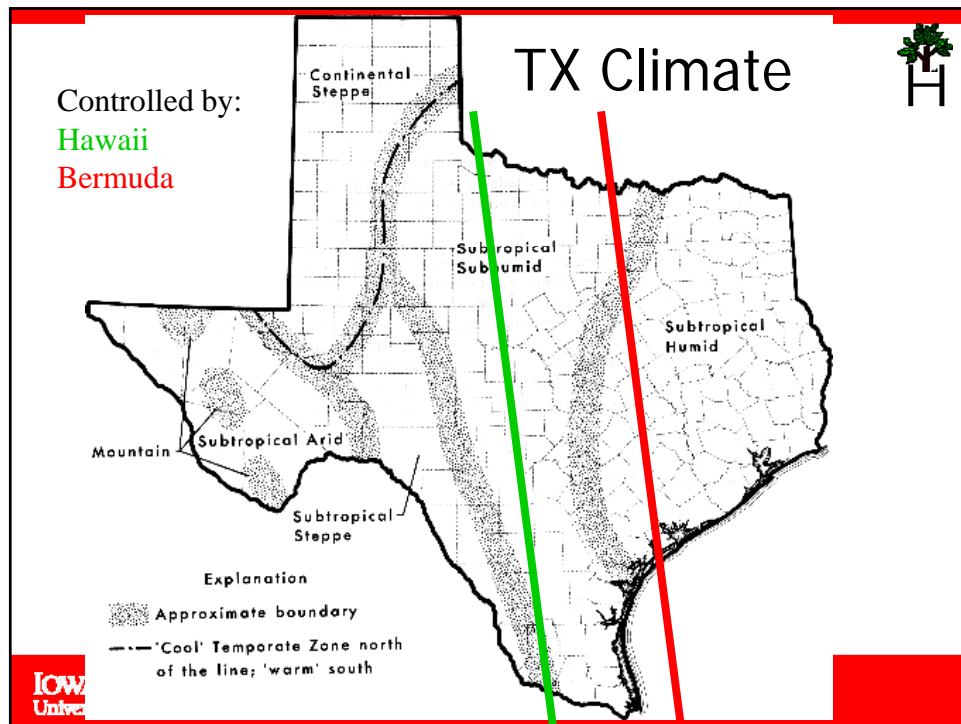




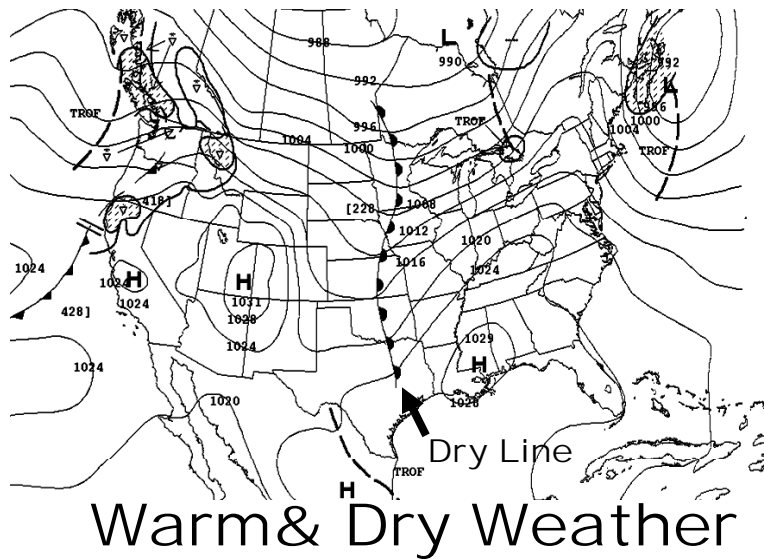


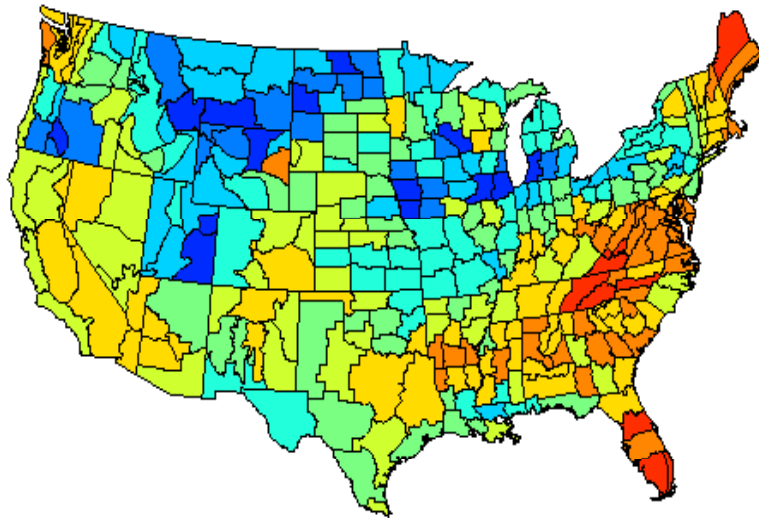






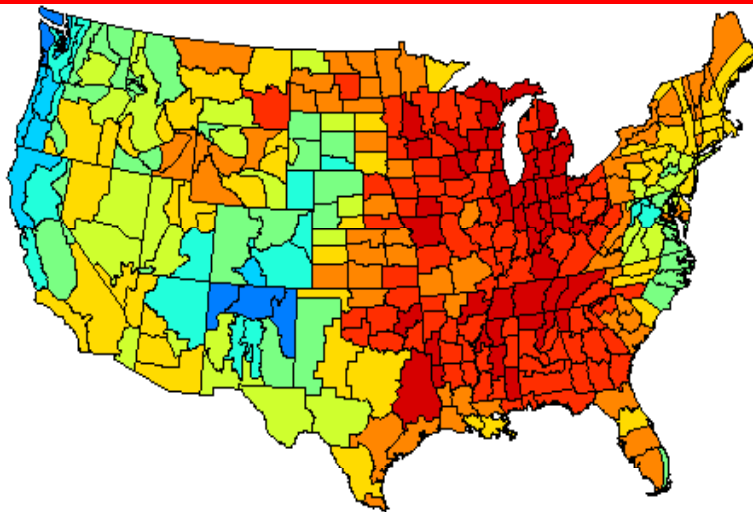






Drought 1987

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Drought 1988

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## Forecast: What it is doing What it has done before

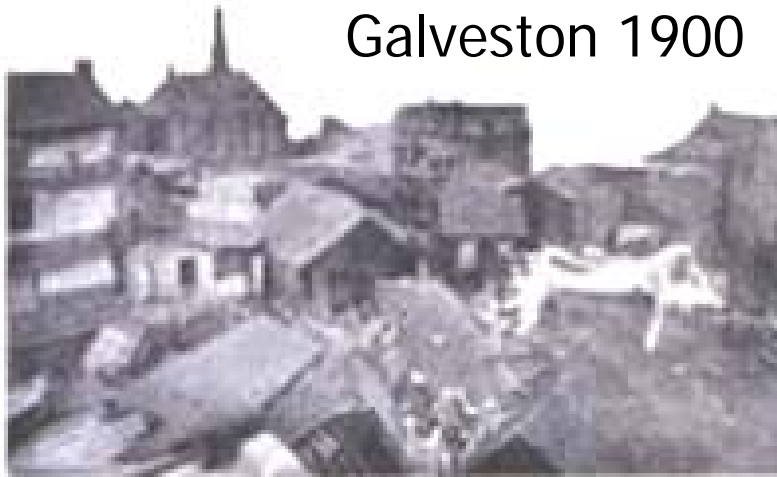
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The worst drought spanned the period 1950 to 1957. Much has been written about this drought; among the more impressive statistics from this period is Texas's statewide average precipitation for the month of October 1952: 0.02 inches. (then the general Midwest drought came in 1954.

*May 16, 1917, Texas: Hail covered the ground up to 3 feet deep in Ballinger, reportedly taking seven days to clear.*

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Galveston 1900



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Stratford, TX 1935



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## Lubbock 1983



Black Sunday: April 14, 1935. As far as we know, this is the

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## Oklahoma 1999



(C) 1999 Jim Leonard

**Figure 5 Oklahoma tornado – May 3, 1999 outbreak**

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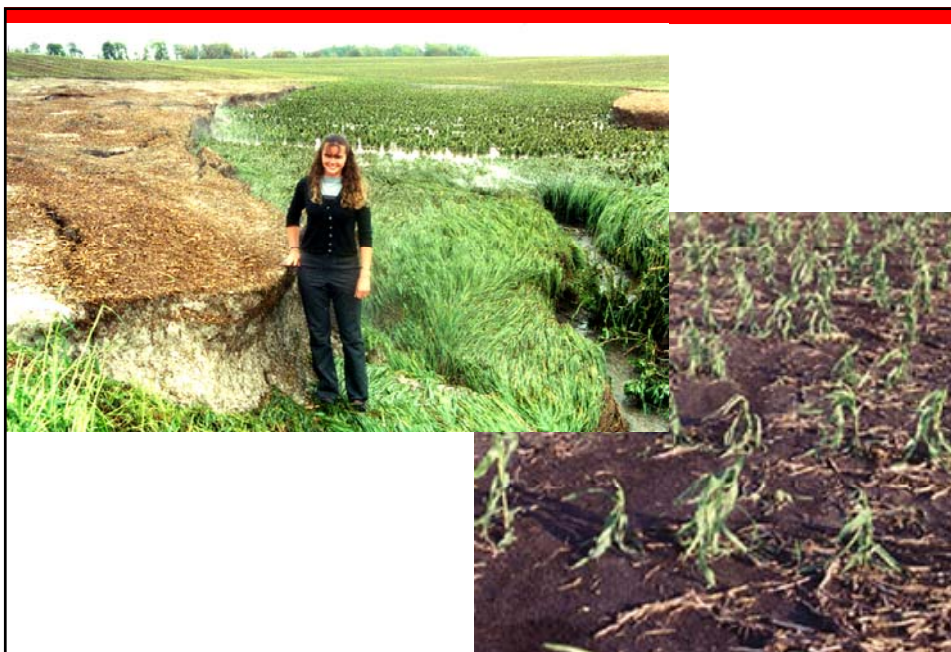


San Antonio 2002



10 7:30 PM

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## Helen Groves (of Baird, TX)



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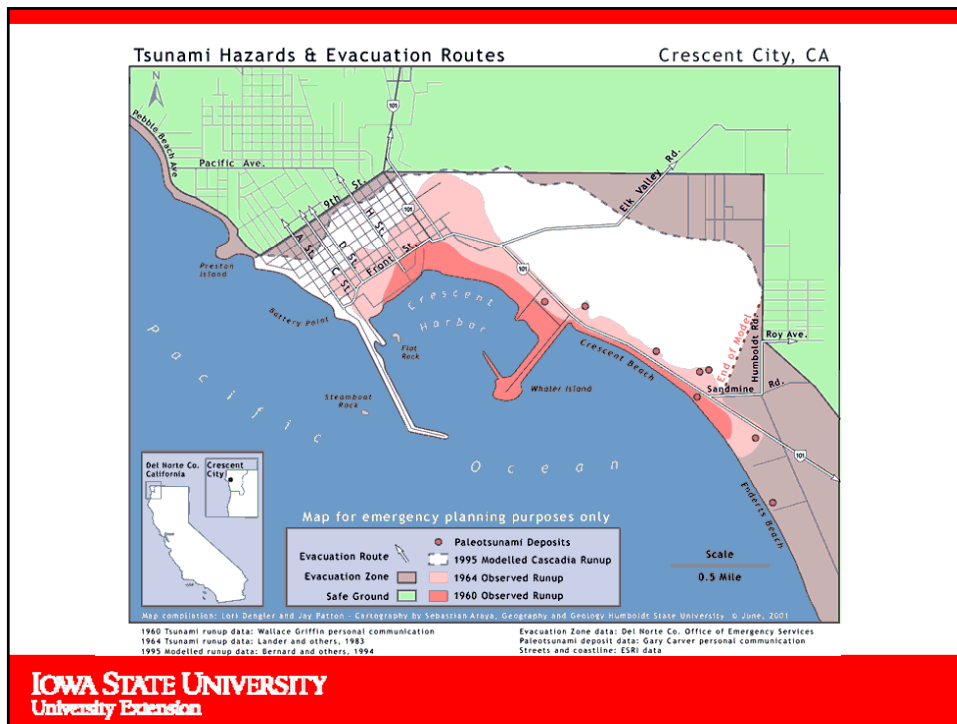
# Tsunami



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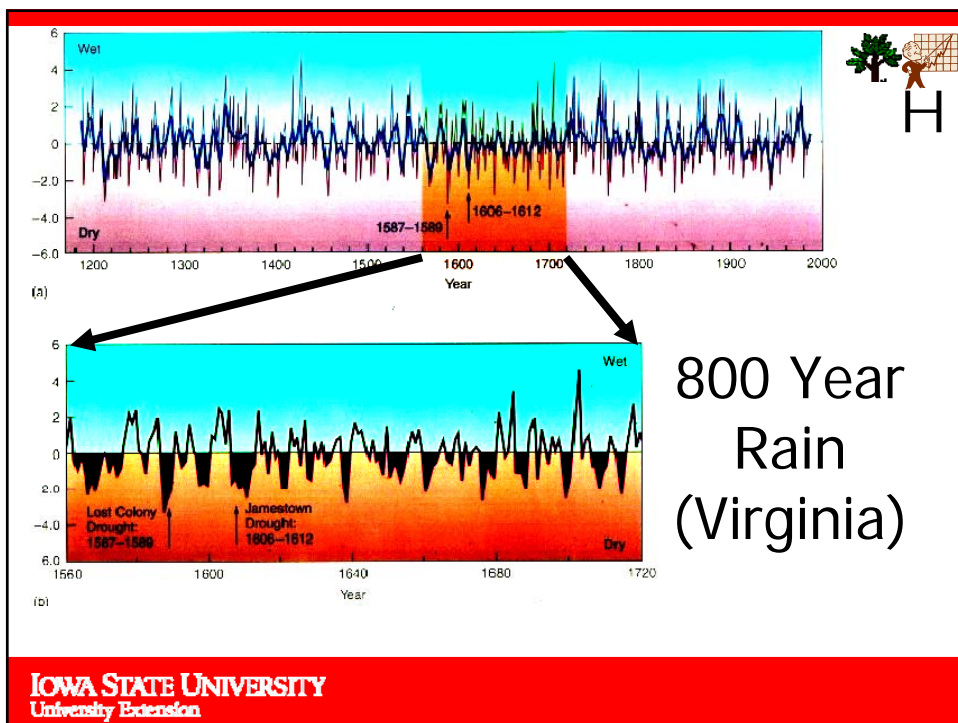


# Climate, Past & Future

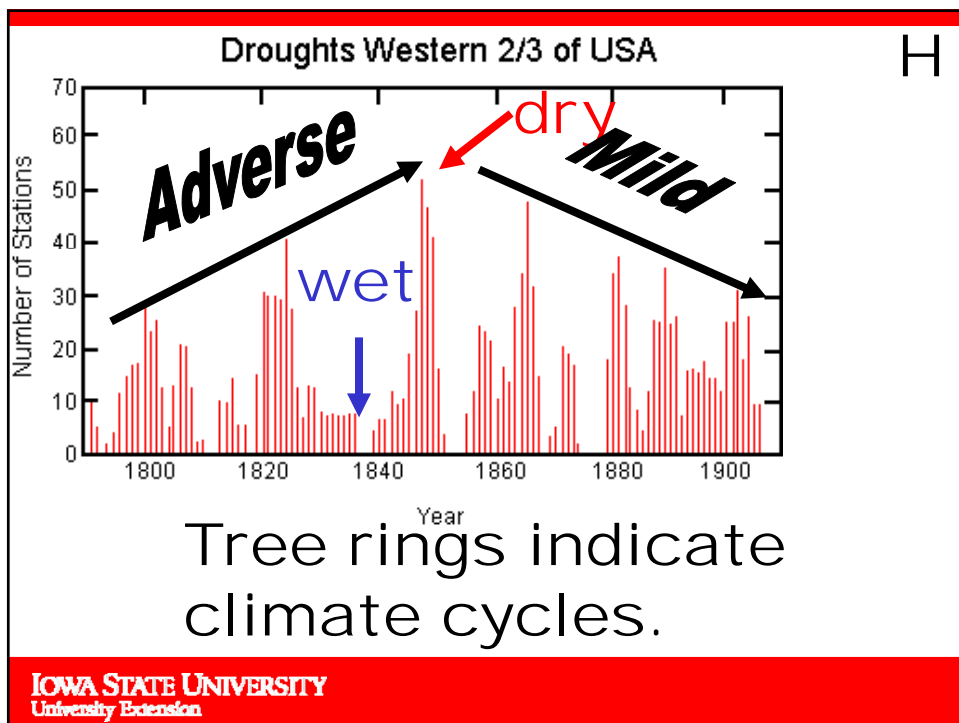
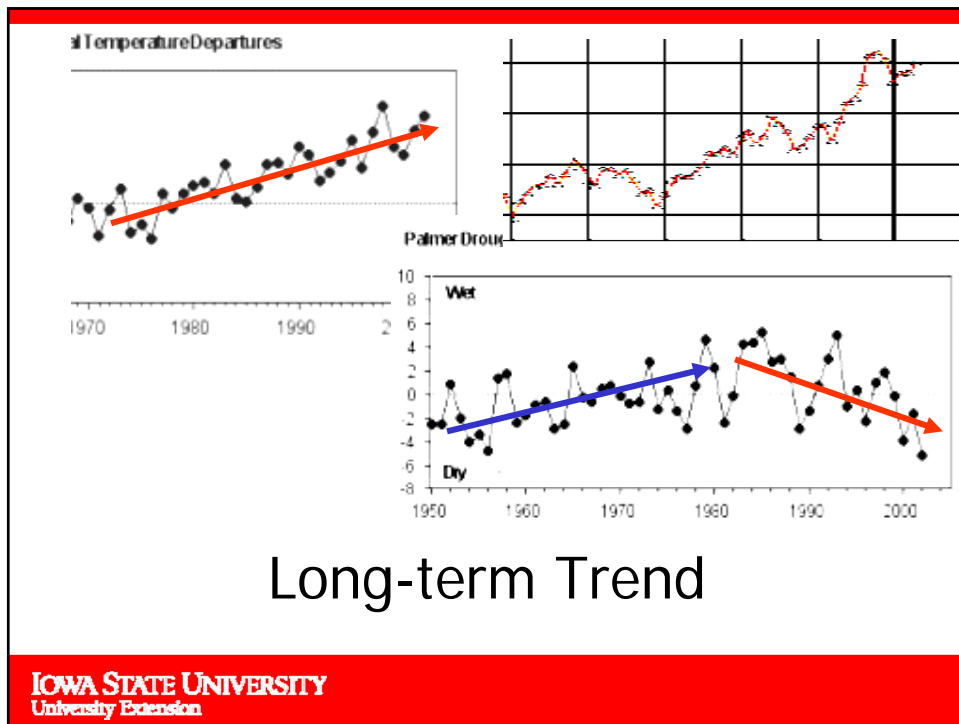
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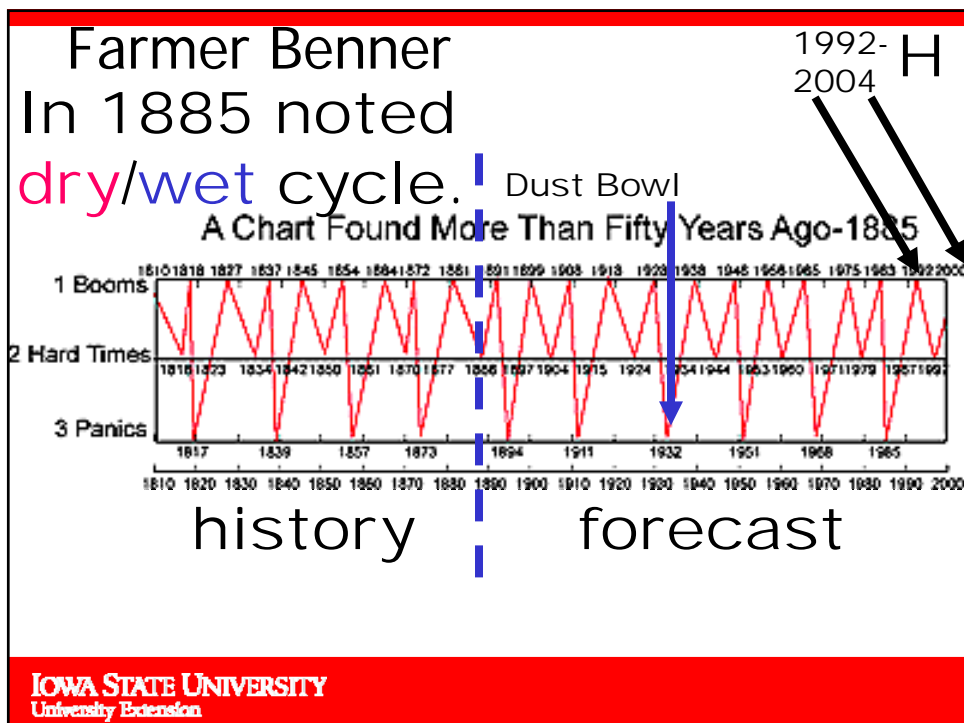
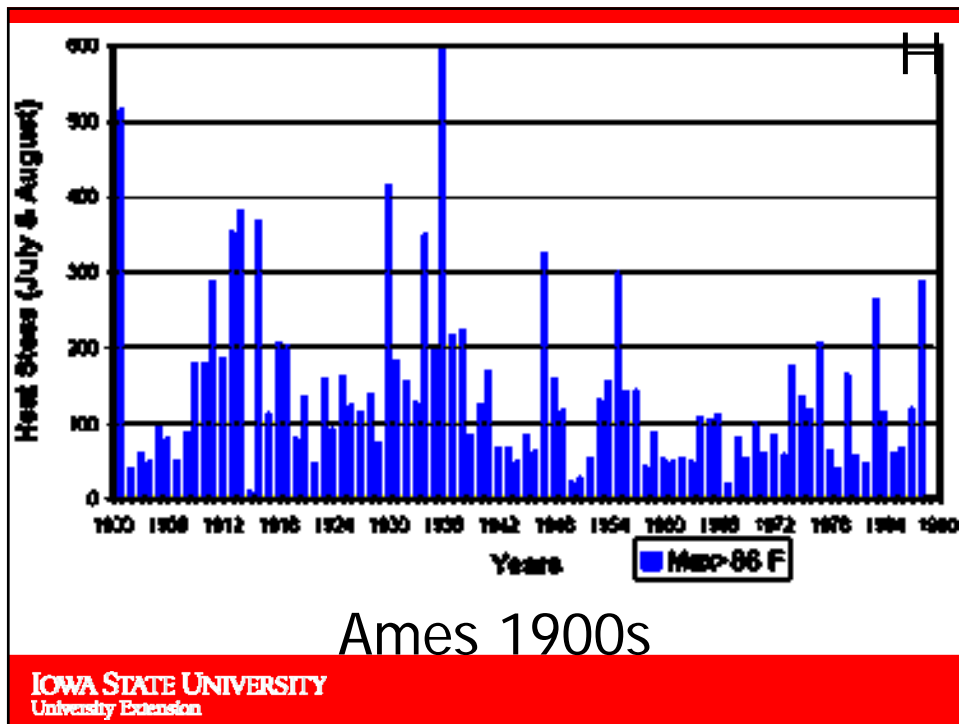
"The climate is changing,  
 climate has always  
 changed & will always  
 change. The question is;  
*'how much, how fast, how  
 come?'* " D. M. Gates '66







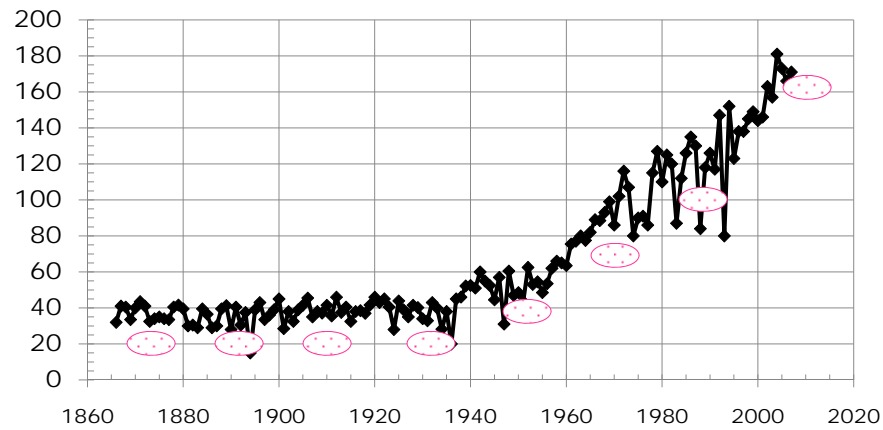




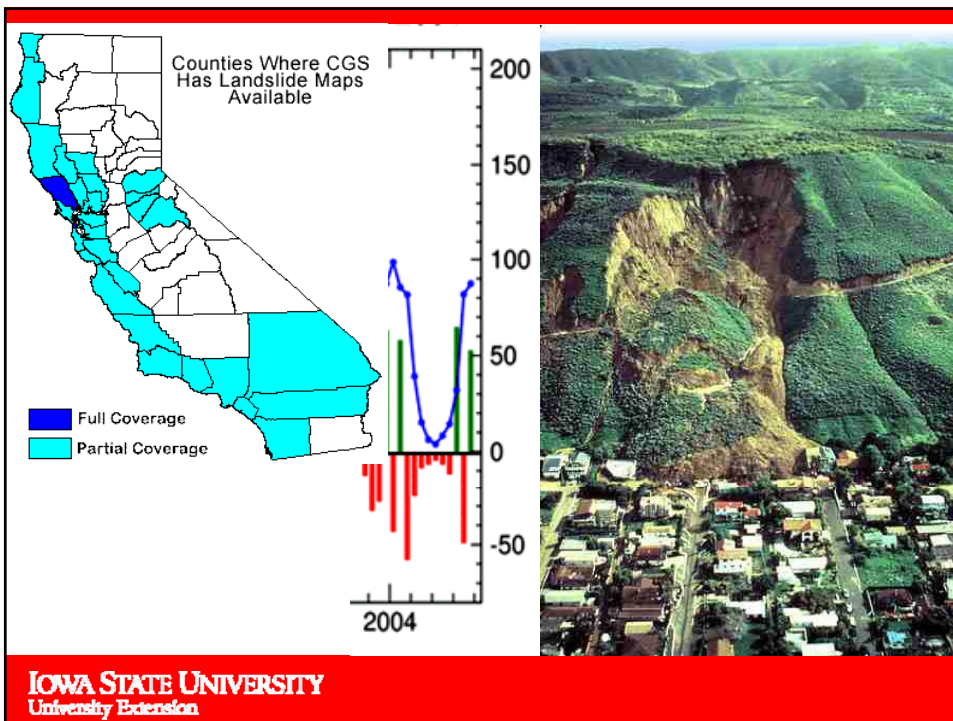
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## Benner Drought Risk

Yield BPA



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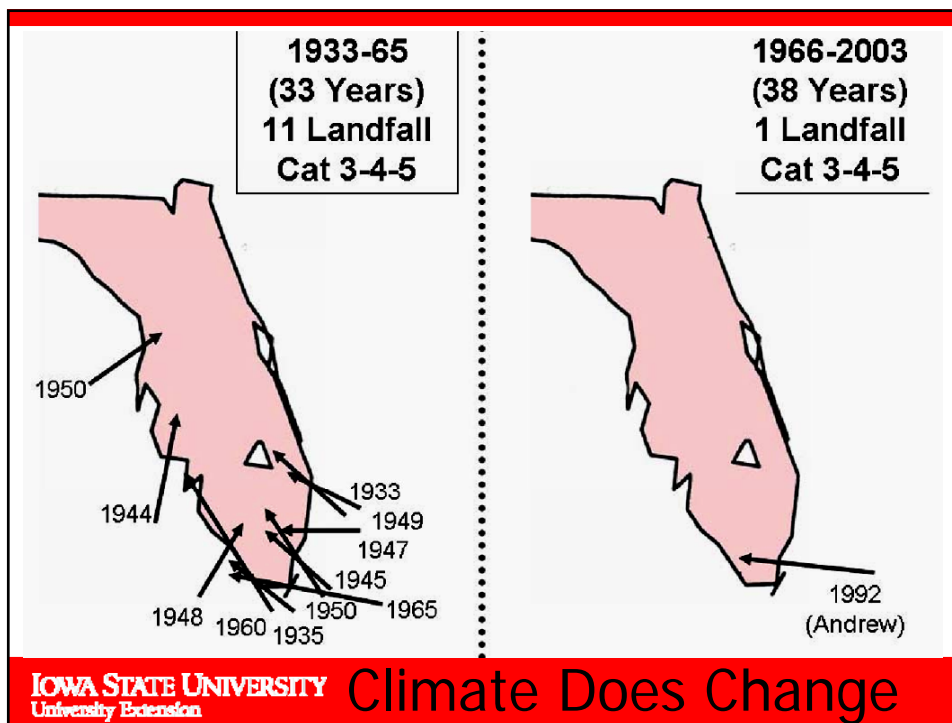


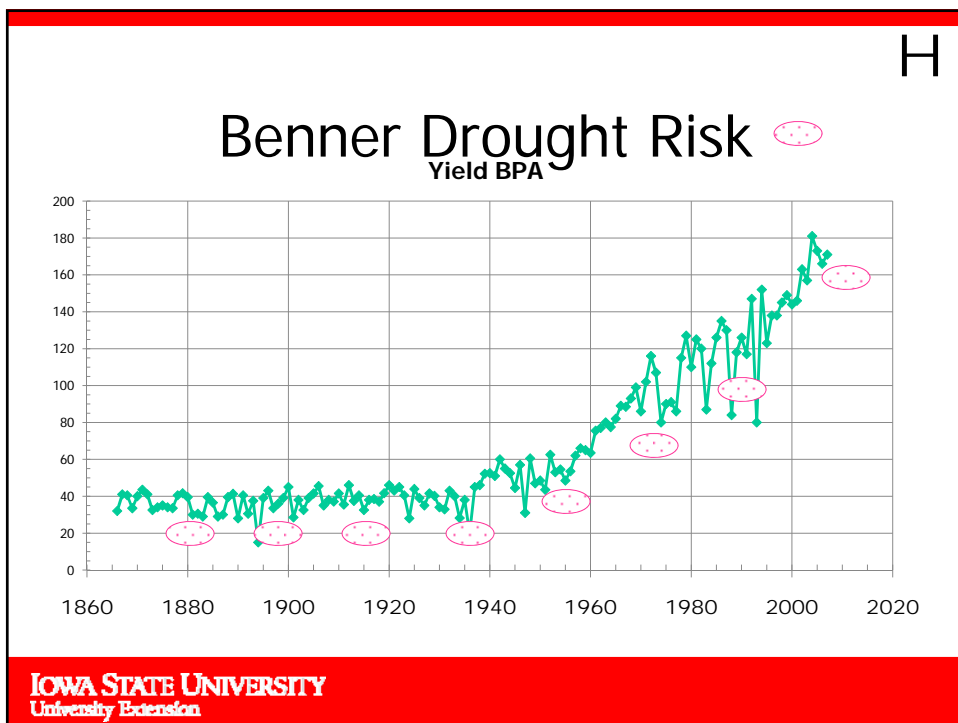
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## Calif. Tornadoes 21 Feb 05



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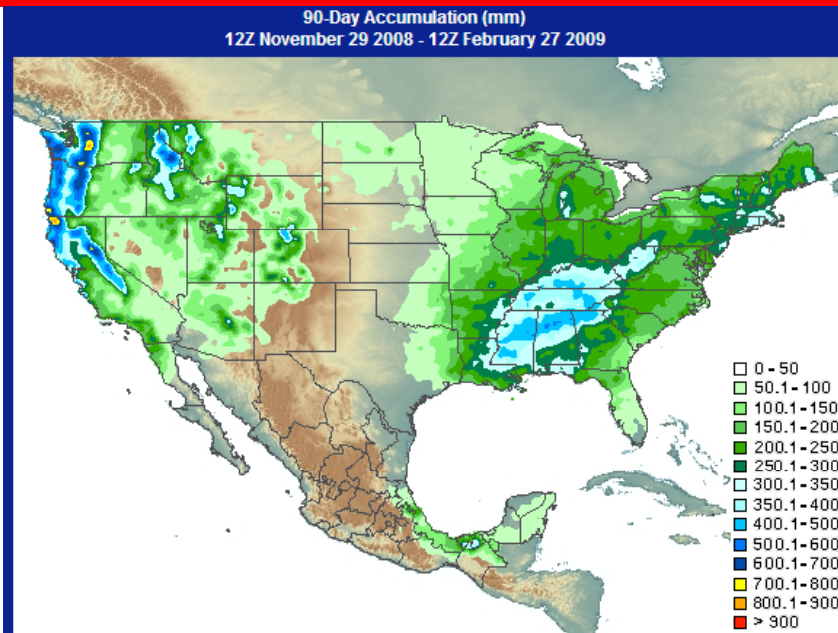




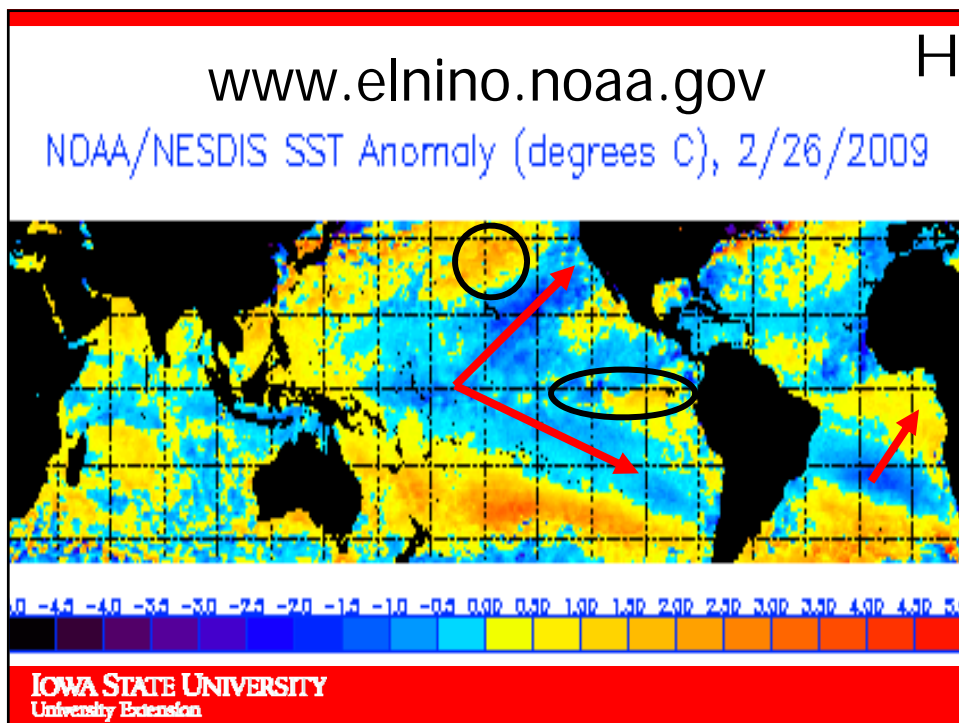
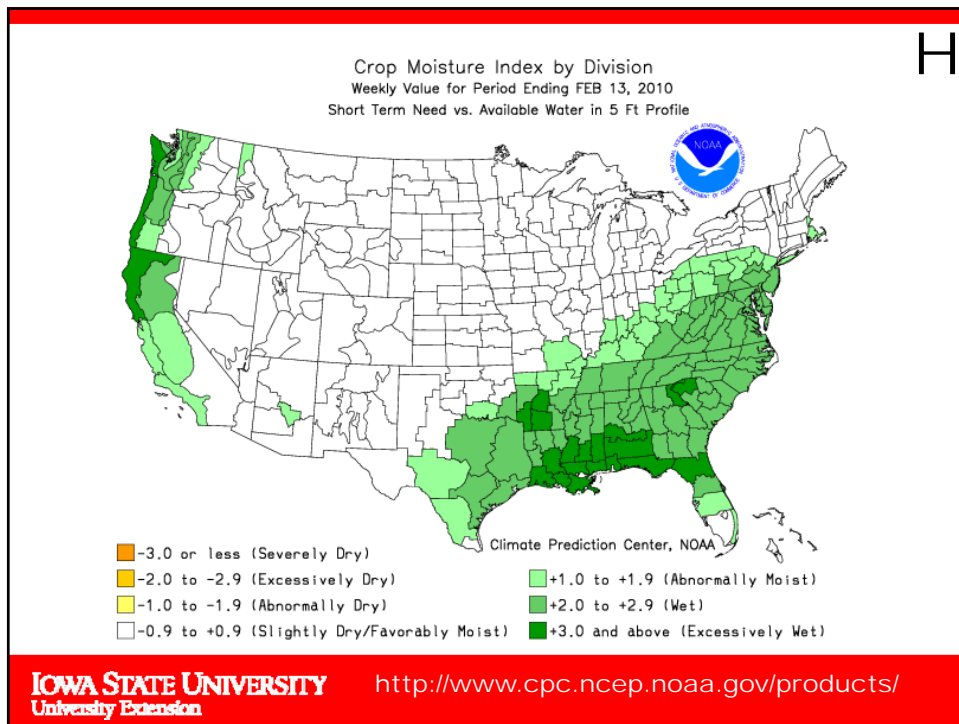
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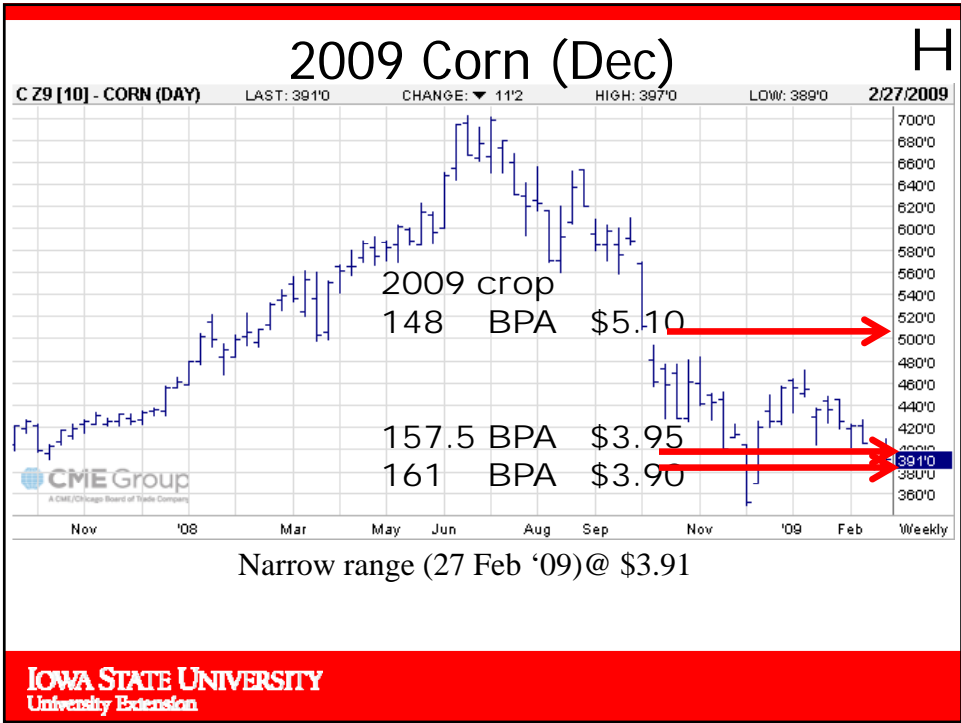
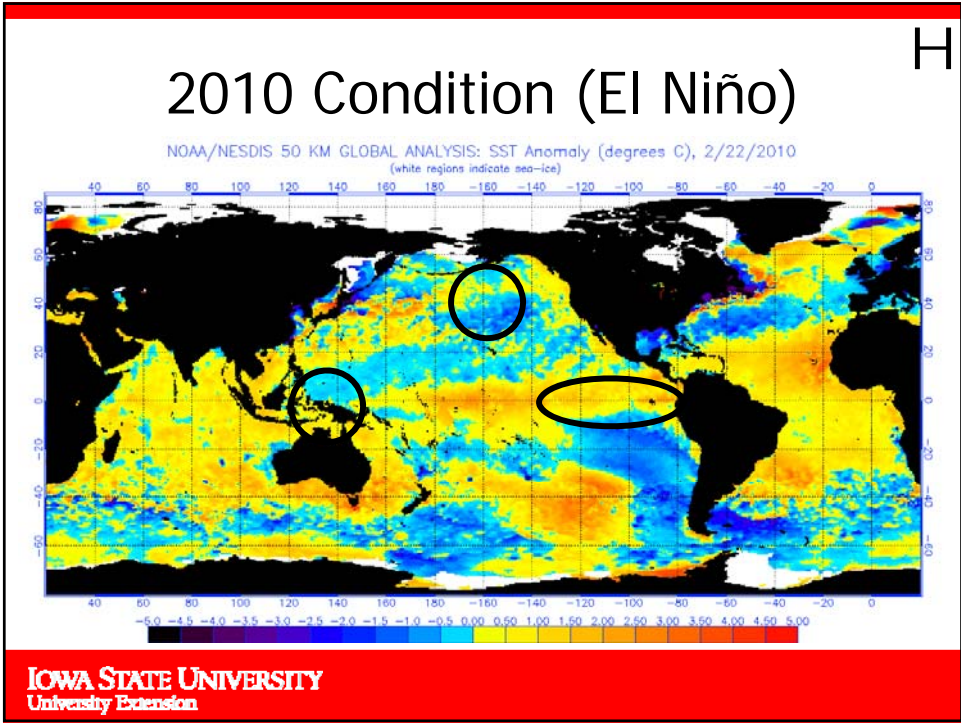
## Weather Risk

- Benner Cycle
- Soil Moisture
- El Niño



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Our Feb '09 estimate Dec Corn: \$3.90  
yield estimate 161 BPA



Overnight 3 Dec. e-Corn Price: \$3.93 ¼  
Estimated yield 162.9 BPA

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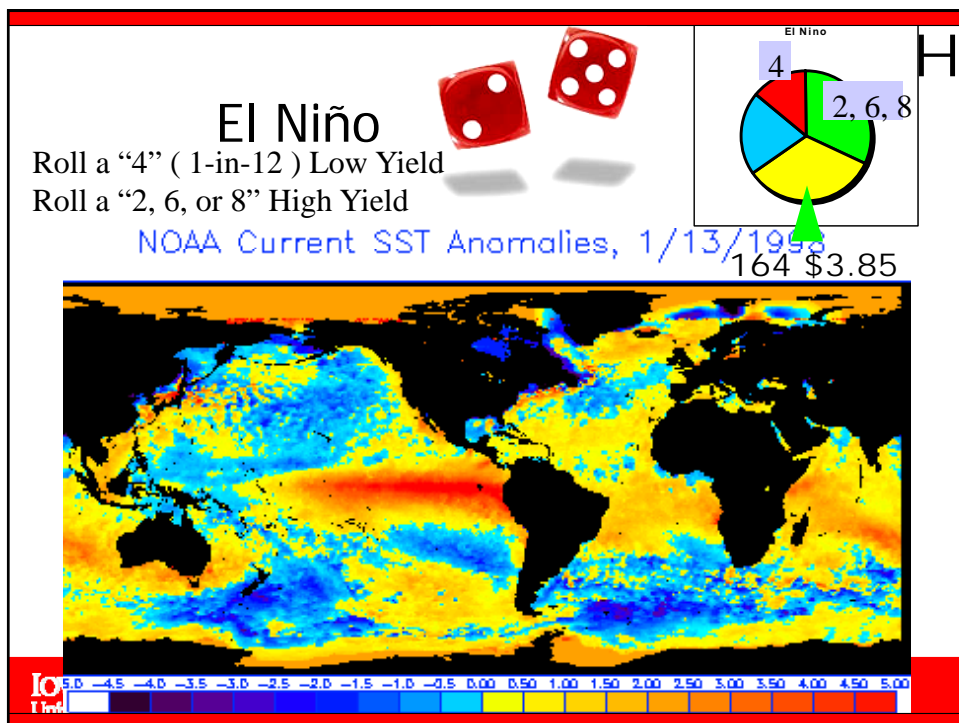
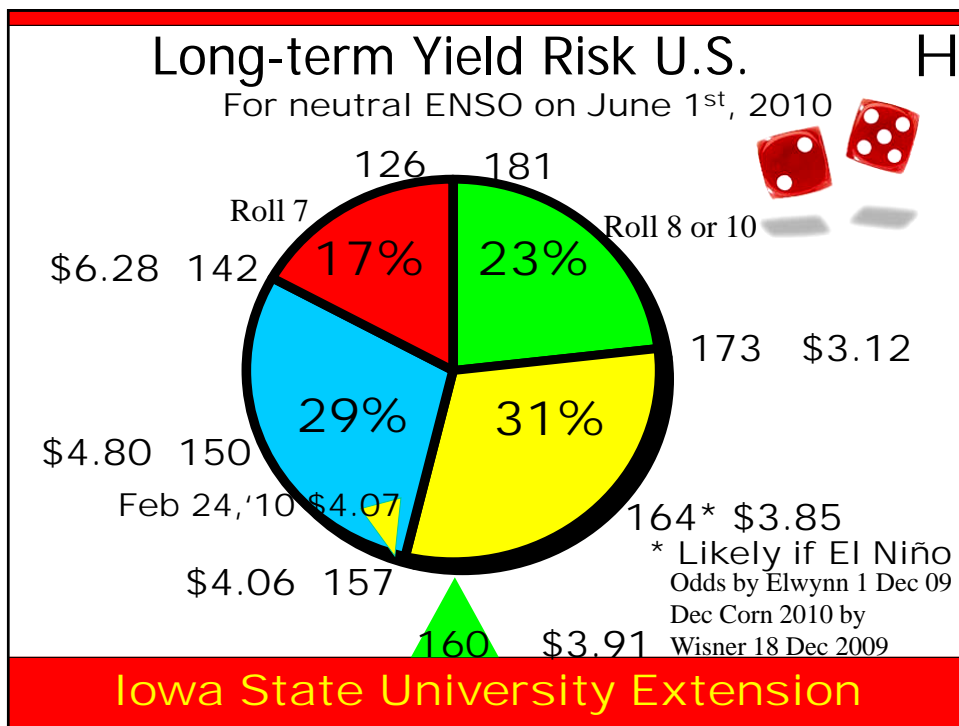
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## Likely U.S. Corn 2010

- 160 BPA with Dec Corn @ \$3.91 in Oct-Nov.



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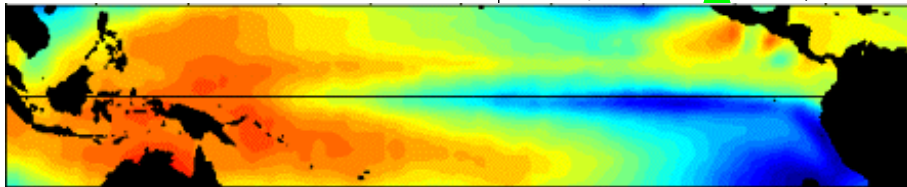
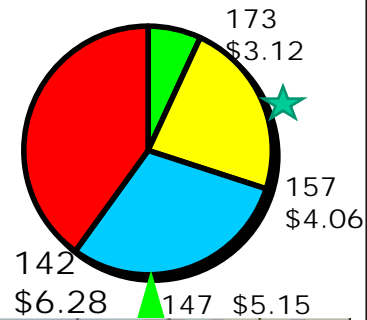
## La Niña

70% Chance of  
Below Trend U.S.  
Corn (Maize) Yield

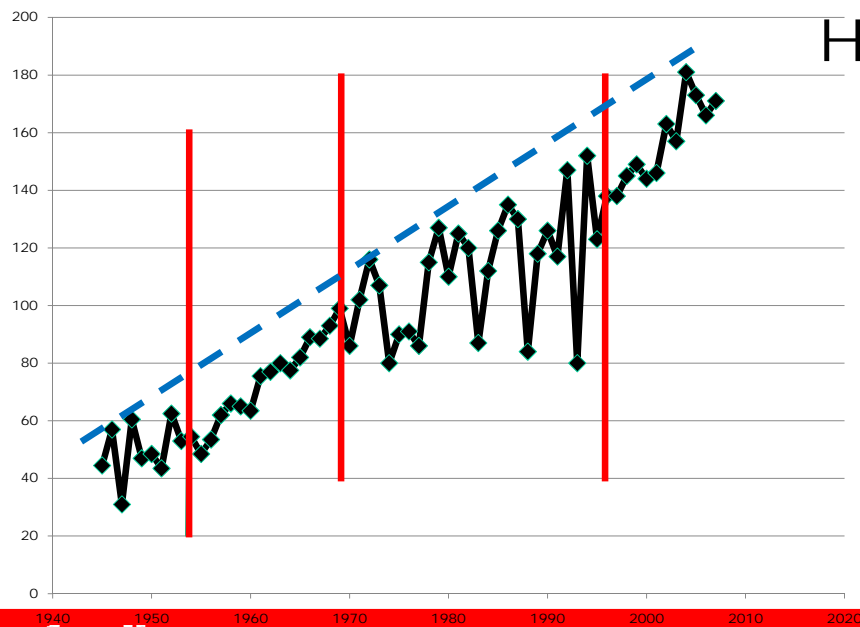


La Niña

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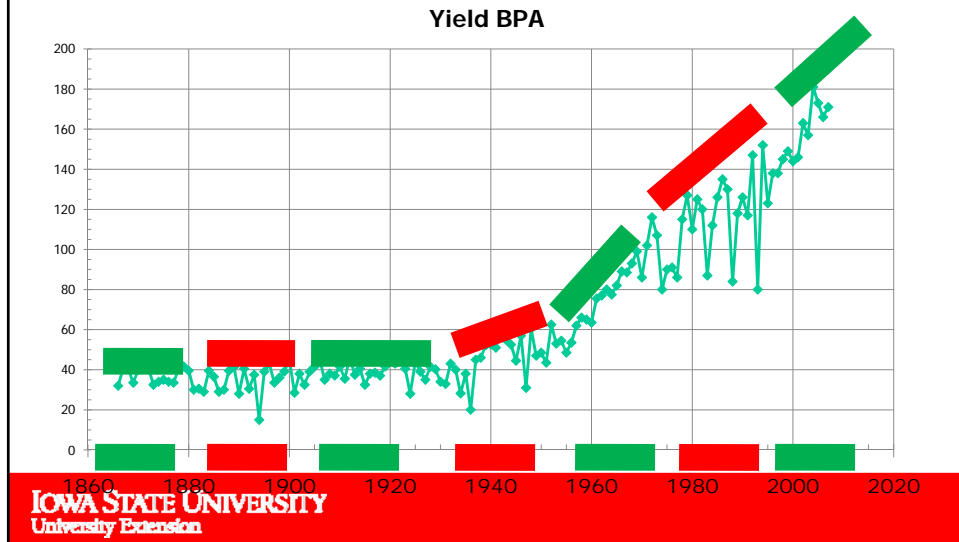
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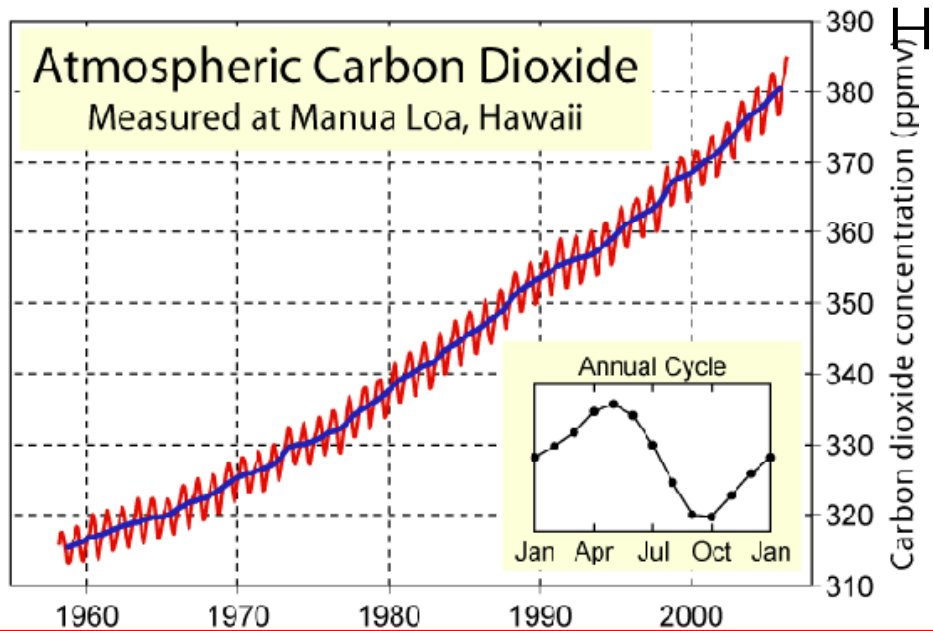
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## IA 142 years Corn (1866-2007)

- Erratic period ■ : Consistent ■

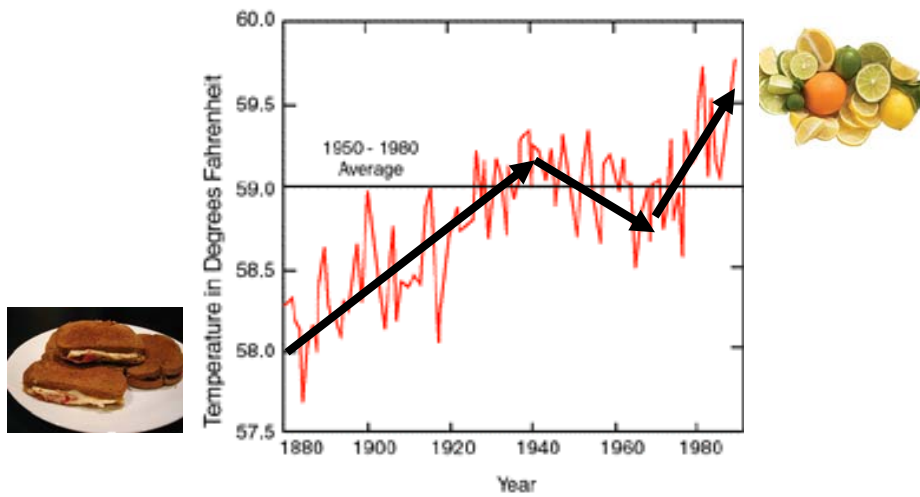


## Atmospheric Carbon Dioxide Measured at Manua Loa, Hawaii



of citrus', sandwiches, & climates change

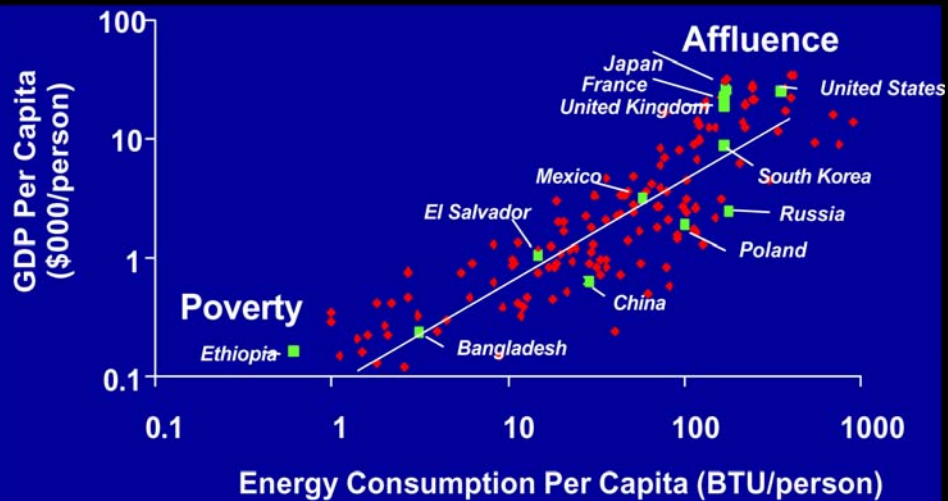
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## Global Energy Demand is Rising Rapidly Because Energy Consumption and Income are Linked



Source: Energy Information Administration, International Energy Annual 1998 Tables E1, B1, B2; Mike Grillot, 5/17/00  
Gross Domestic Product per capita is for 1997 in 1990 dollars. Energy Consumption per capita is 1997.

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It took more land to produce fuel for my  
"hay burner" than to grow food for us .

A Horse, A Wagon, 1/3 acre, 6 hens & 1

Rooster

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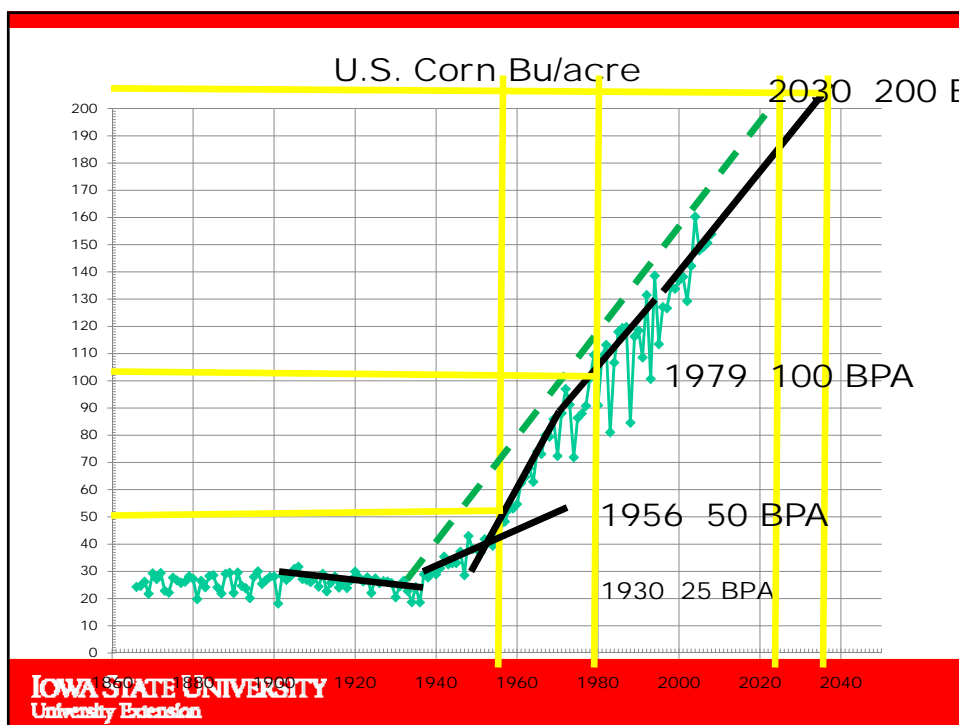
# Enough Yield for Food & Fuel?

For bio fuel potential native  
Midwest prairie is superior  
to corn

AS OF NOW

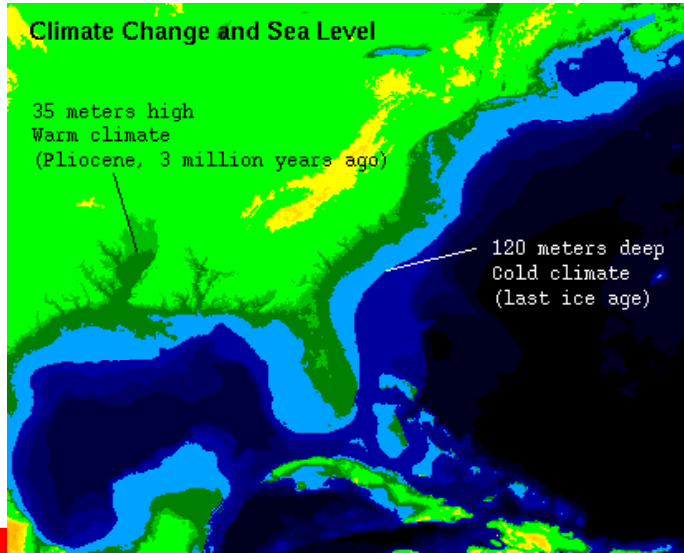
Can We Double Corn Yield?

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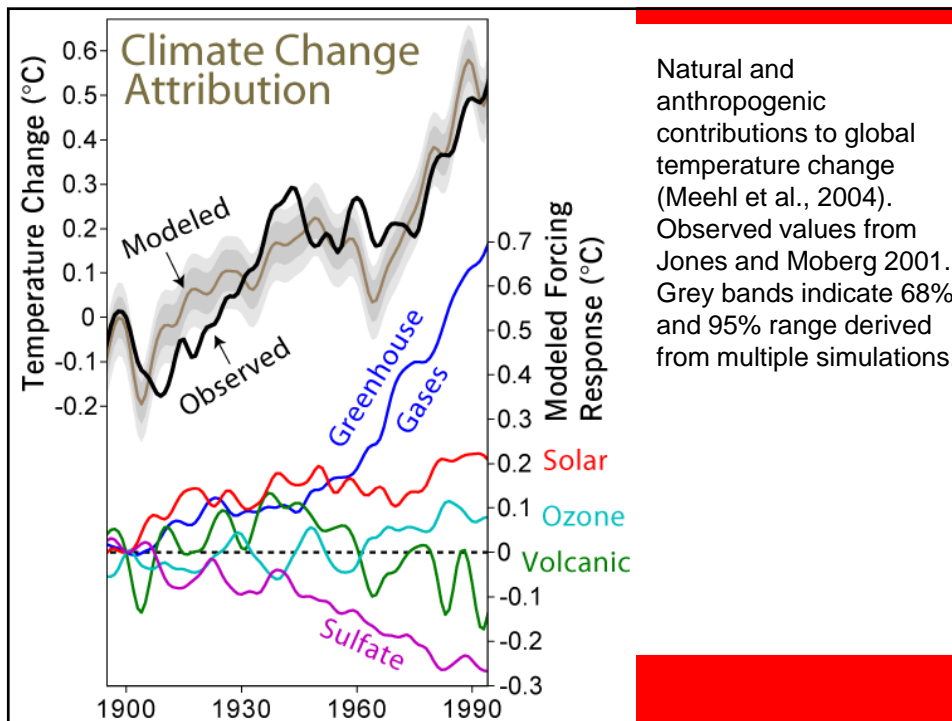


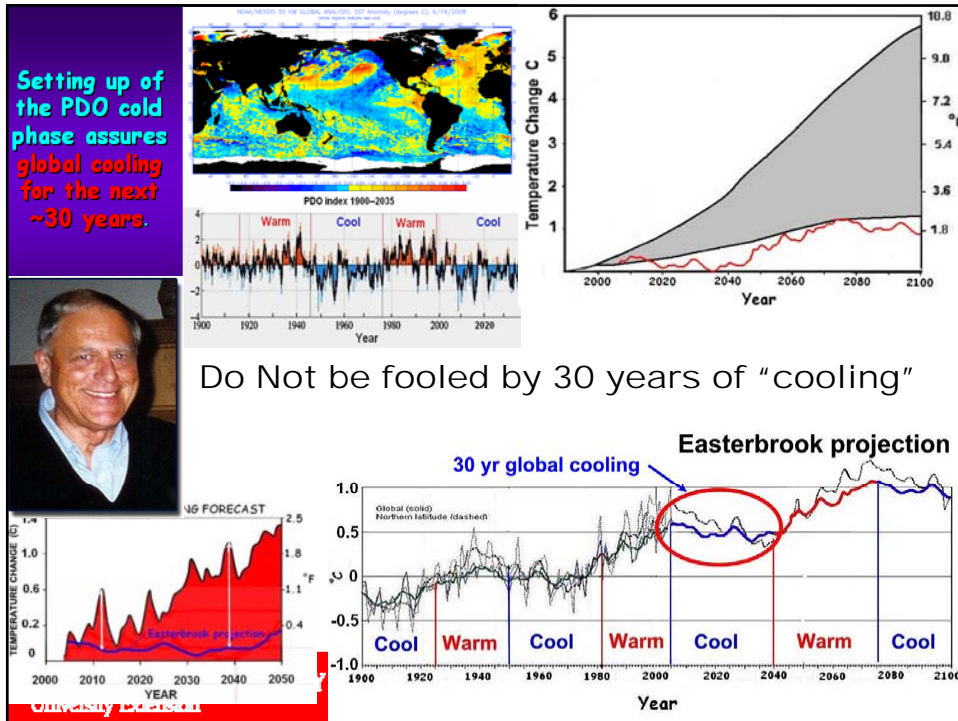
# Sea Level & Climate Change



70%  
must  
move

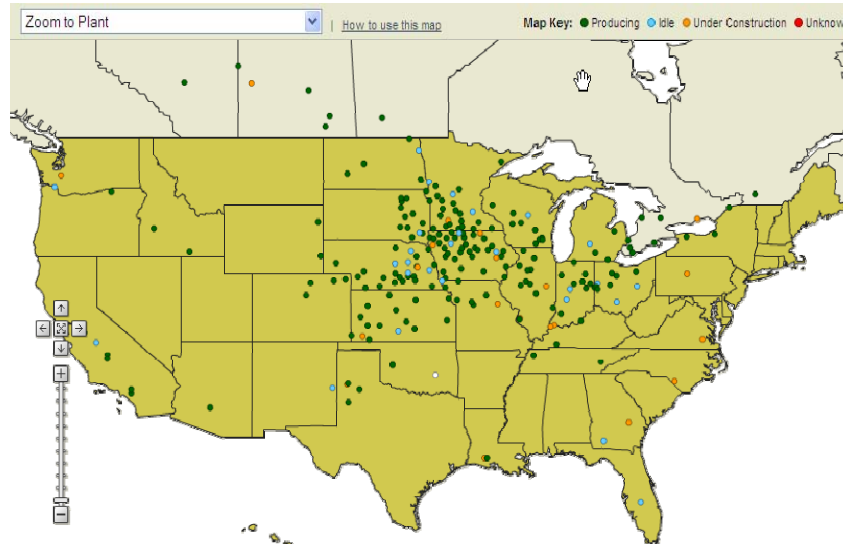
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[http://geochange.er.usgs.gov/pub/sea\\_level/](http://geochange.er.usgs.gov/pub/sea_level/)





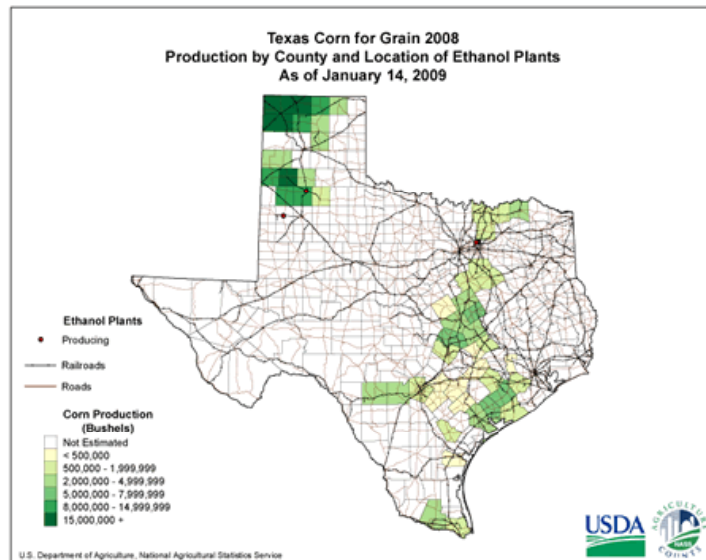
# Bio-fuel

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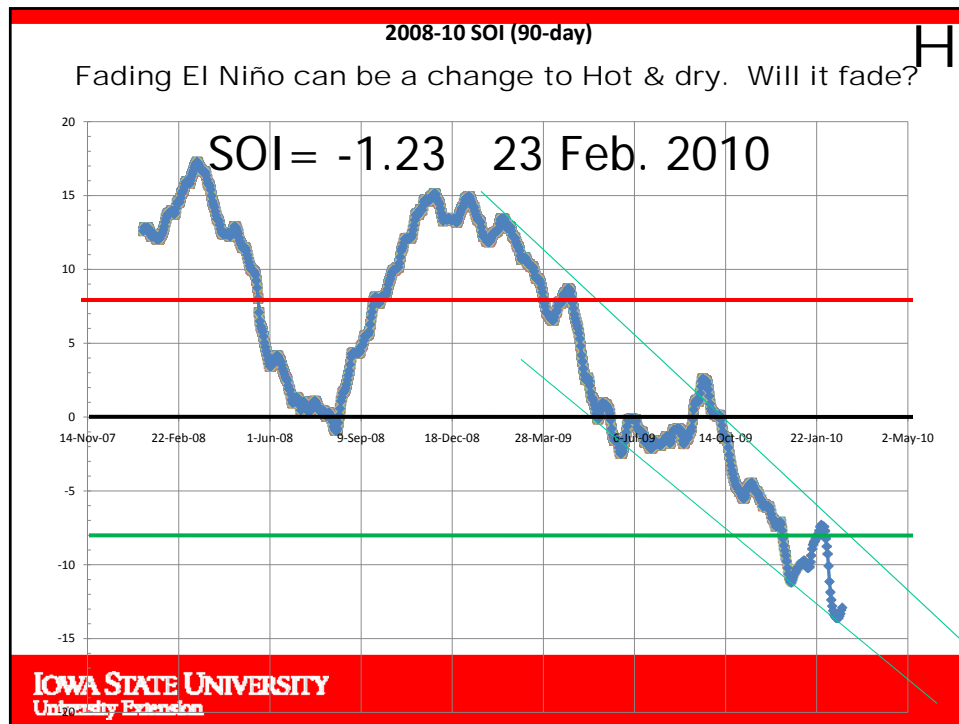
[http://www.nass.usda.gov/Charts\\_and\\_Maps/Ethanol\\_Plants/index.asp](http://www.nass.usda.gov/Charts_and_Maps/Ethanol_Plants/index.asp)

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[http://www.nass.usda.gov/Charts\\_and\\_Maps/Ethanol\\_Plants/Texas/index.asp](http://www.nass.usda.gov/Charts_and_Maps/Ethanol_Plants/Texas/index.asp)

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## 2010 Indicators & Impacts

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- Benner (19-year) Cycle
- + Subsoil moisture
- El Niño possibly fades
- Too wet spring possible
- Dry "West" possible
  
- + Wide-spread Corn belt drought not as likely as SE U.S. has near normal to moist weather.

Yield likely to be above trend:  
           Corn 160+      Soy 45 (rust?)

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END

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END



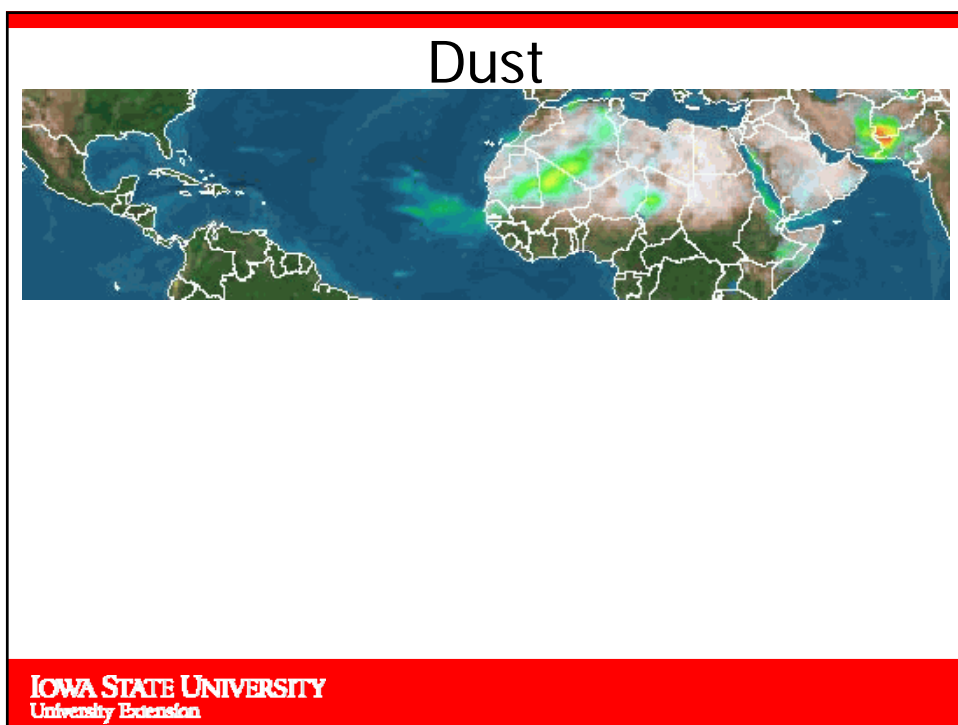
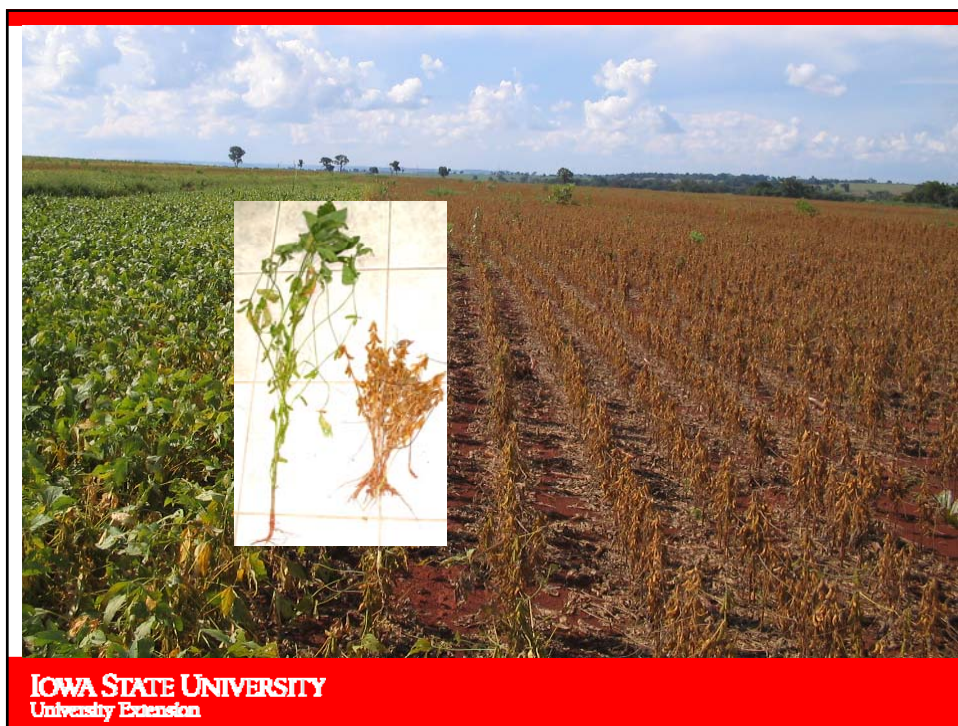
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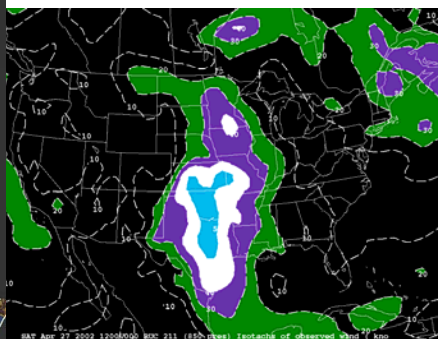
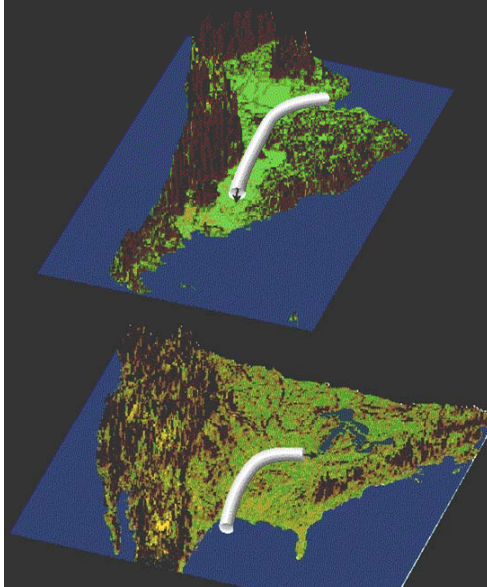






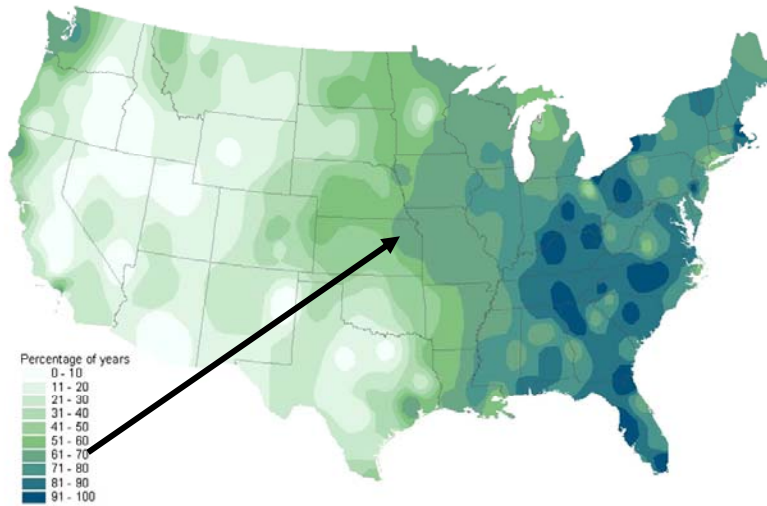
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# North and South American Low-Level Jets



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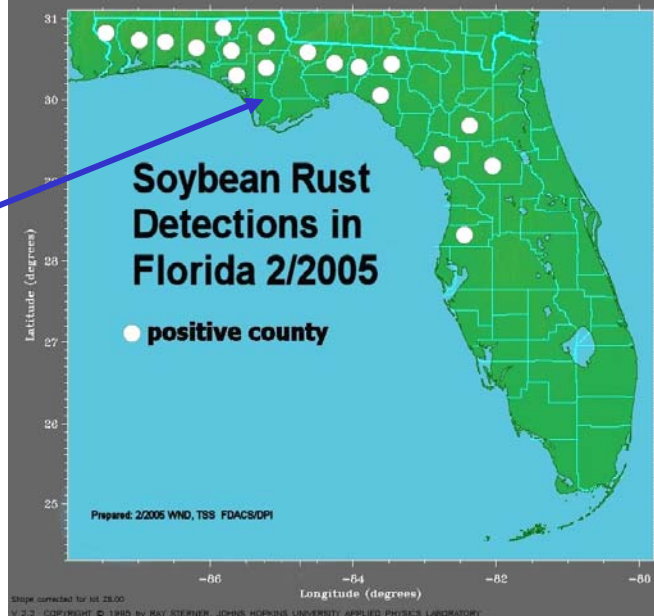
Percentage of years out of 30 that climatic conditions are expected to support establishment of soybean rust



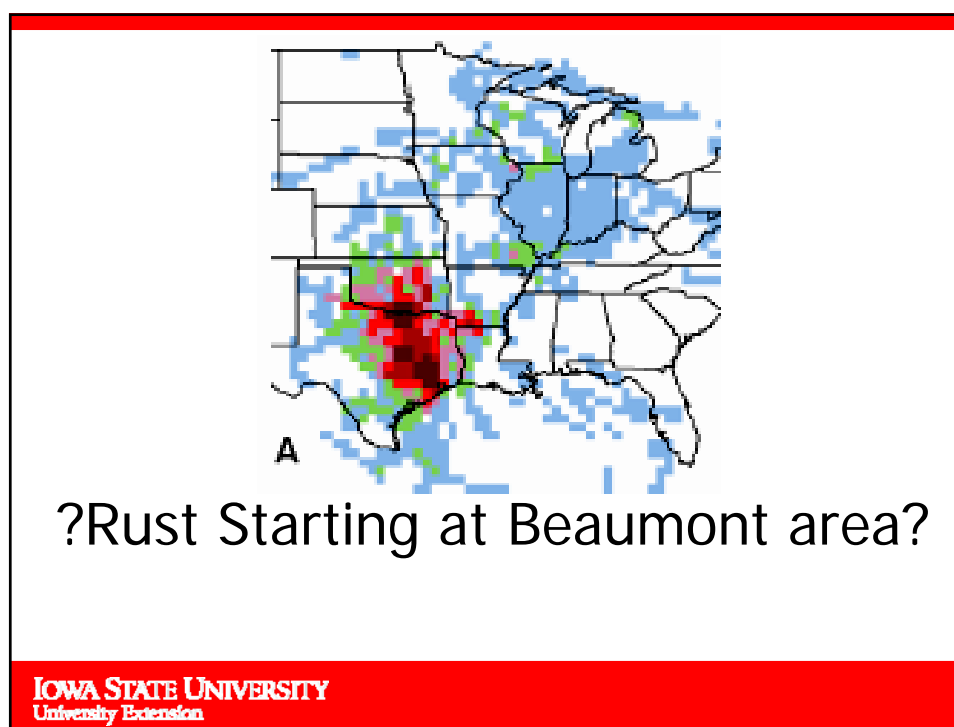
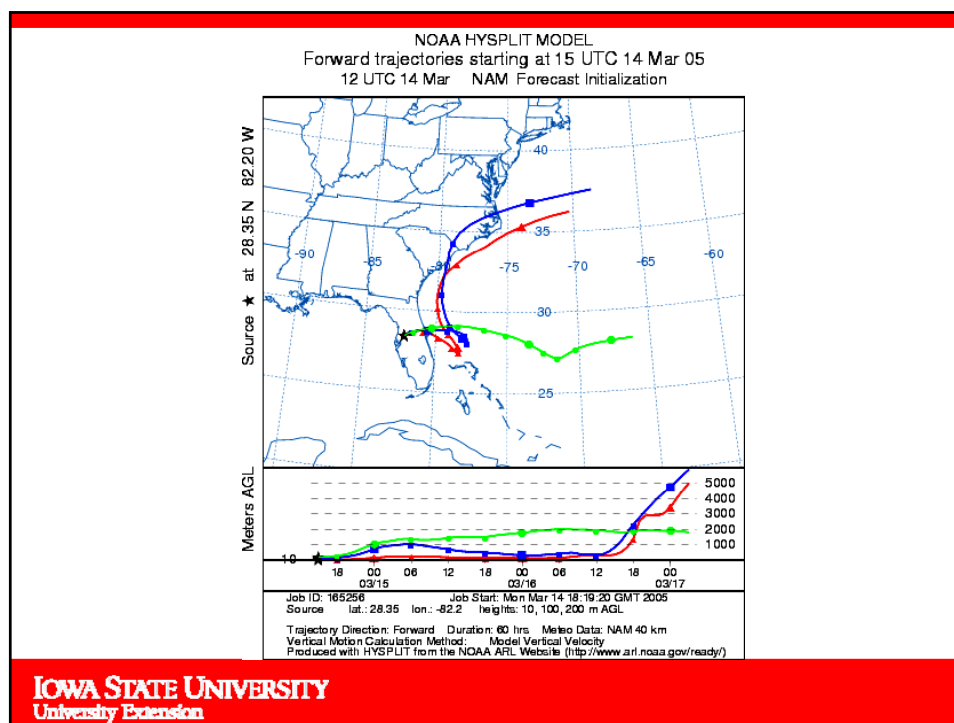
Source: Magarey, R. Center for Plant Health, Science, and Technology, Animal and Plant Health Inspection Service, U.S. Department of Agriculture and North Carolina State University, Raleigh, NC, 2003.  
Note: Map based on 30 years of data to estimate infection potential.

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28F  
Dec 16  
Jan 29



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