



*2012 Weather Review:  
Heat and Drought Hit Eurasia*

**USDA Agricultural Outlook Forum  
February 22, 2013**

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US Heat and Drought have been the BIG Story



# Health Index

## Europe Heat Wave Wilting Corn Adds to U.S. Drought

By Rudy Ruilenberg - Jul 24, 2012 1:32 PM ET

0 COMMENTS

Heat waves in southern Europe are wilting the corn crop and that accounts for 16 percent of global exports at a time when prices to a record.

Temperatures in a band running from eastern Italy across the reached 35 degrees Celsius (95 degrees Fahrenheit) or more above normal, U.S. government data show. Corn, now in the kernels, risks damage above 32 degrees, said Cedric Weber, Bourges, France- based Offre et Demande Agricole, which ad



The heat wave in Europe is adding to concern about global food supplies as U.S. farmers face the worst drought since 1956, India delays sowing because of warmer than usual in the next 30 days, said an agricultural meteorologist at Telvent DTN

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## Droughts cut Europe's food output, raise fire risks



A firefighter battles a wildfire in eastern Spain on 12 August 2012.

Published 20 August 2012, updated 14 December 2012

Tags climate change, drought, Food security, water, water efficiency, weather

2 comments

## Drought slashes EU maize crop, adds to global squeeze: analyst

Thu, Aug 16 2012

By Gus Trompiz and Valerie Parent

PARIS (Reuters) - Hot, dry weather in eastern and southern European Union countries has severely hit prospects for this year's EU maize harvest, adding pressure to a world market already reeling from huge drought damage in the United States, a grain analyst said.

French-based Strategie World News would provide little relief shift in livestock feed as

Grain markets have been years in the United States and sent prices to all-time highs. Weather tensions in grain markets have been a focus of G20 nations to mull an

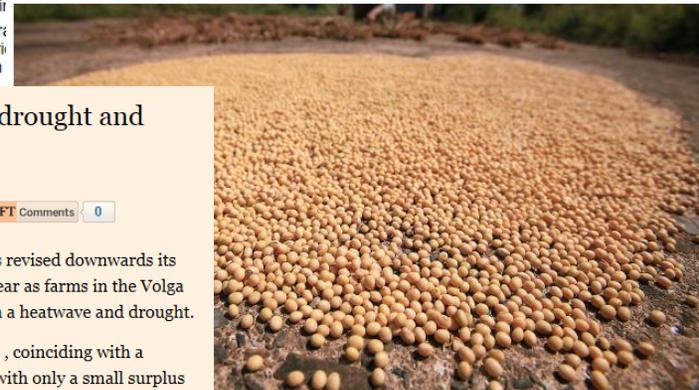
## Drought ruining crops in Russia

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## Russia cuts grain harvest forecast as drought and heatwave bite

Jul 31, 2012 6:55pm by Isabel Gorst

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Russia's agriculture ministry has revised downwards its forecast for the grain crop this year as farms in the Volga River region and Siberia sizzle in a heatwave and drought.

Analysts warn that the problems, coinciding with a disastrous harvest in the US Mid-West, will leave Russia with only a small surplus of grain for export just when world markets need supplies most. What worries traders even more is that the Kremlin will repeat past practice and impose export restrictions that would drive world grain prices higher.

Nikolai Fyodorov, the minister, revised the official forecast for grain production in 2012 to 80m tonnes from an earlier 80m to 85m tonnes.

Fyodorov's comments came as no surprise. Fears of a poor Russian harvest have been stoking a six week rally on world grain markets initially caused by an abnormal drought in the US Mid-West and poor crops elsewhere.

Other forecasters are more pessimistic, suggesting the ministry might have underestimated the problems besetting Russian grain farms. Only last week Russia's state weather service said the grain crop would be 77m to 80m tonnes this year and warned that the "situation was bad".

SovEcon, a Moscow-based independent farming consultancy, was preparing this week to cut its forecast for the second time in a month.

6 PM

-- A drought in Russia has cut grain harvest, the minister said Thursday.

Southernmost Russia export figures, the latest year's totals, the

has not been witnessed said Yuri Tkachenko, a forecasting center.

Reduced crop yield is a concern for exports of grain and corn, Russian news service ITAR-Tass reported

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Paris-traded milling wheat for Nov in the contracts' lifetime on Feb. 7.

Bloomberg News

## European Crop Drought

By Rudy Ruilenberg on March 22,

## More from Businessweek

'Dish Mobs' Aim to Benefit Local Restaurants

No-Brainer Gun Control We Do Now

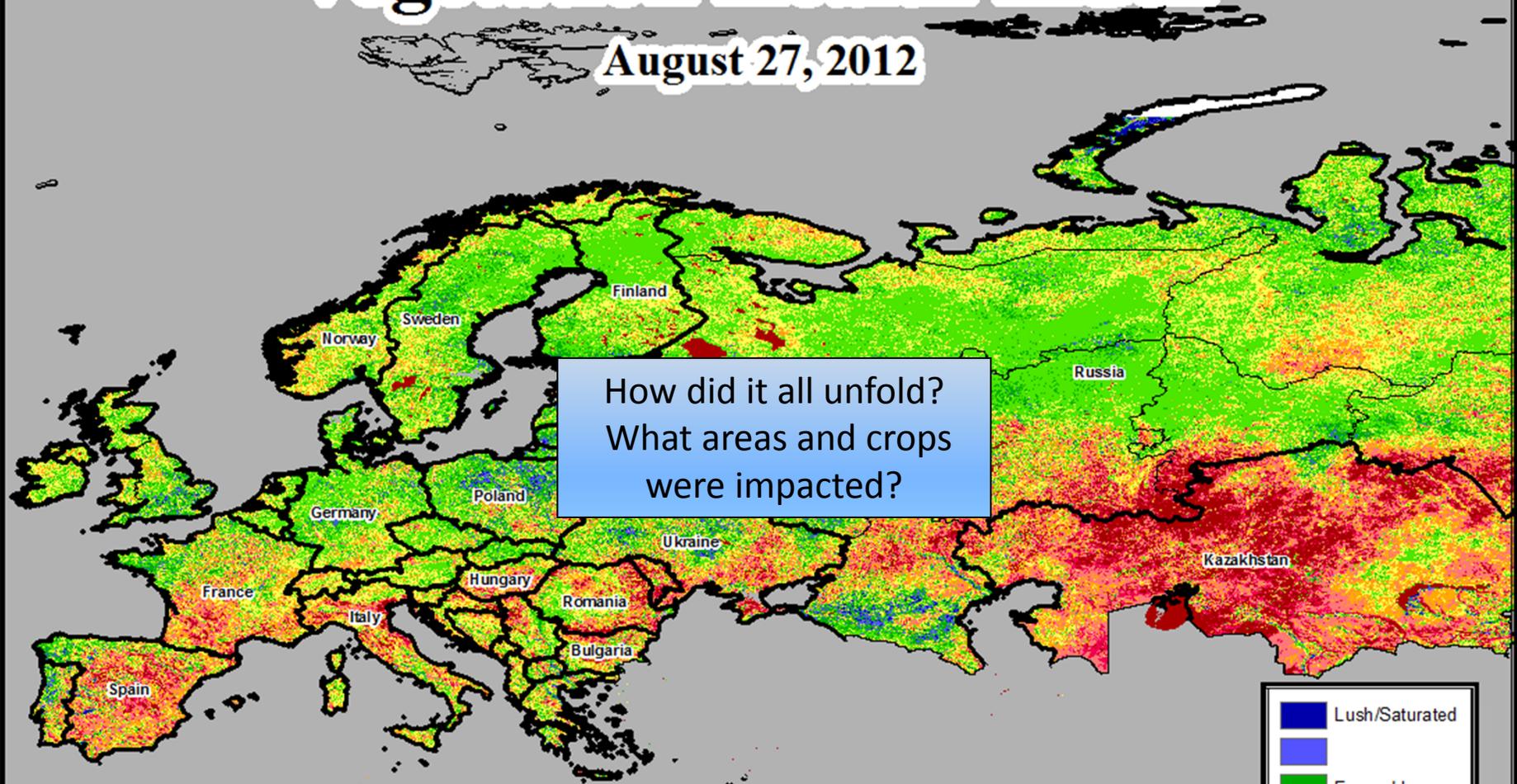
Olive Garden's New 'Modern Black Uniforms

MBA Concentrations For the Daring

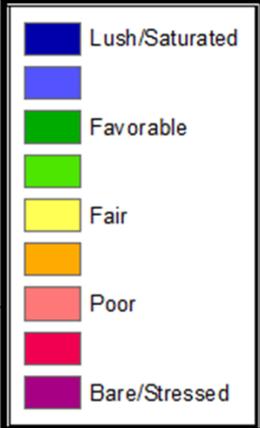


# Vegetation Health Index

August 27, 2012



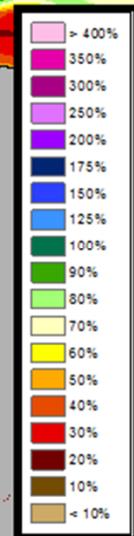
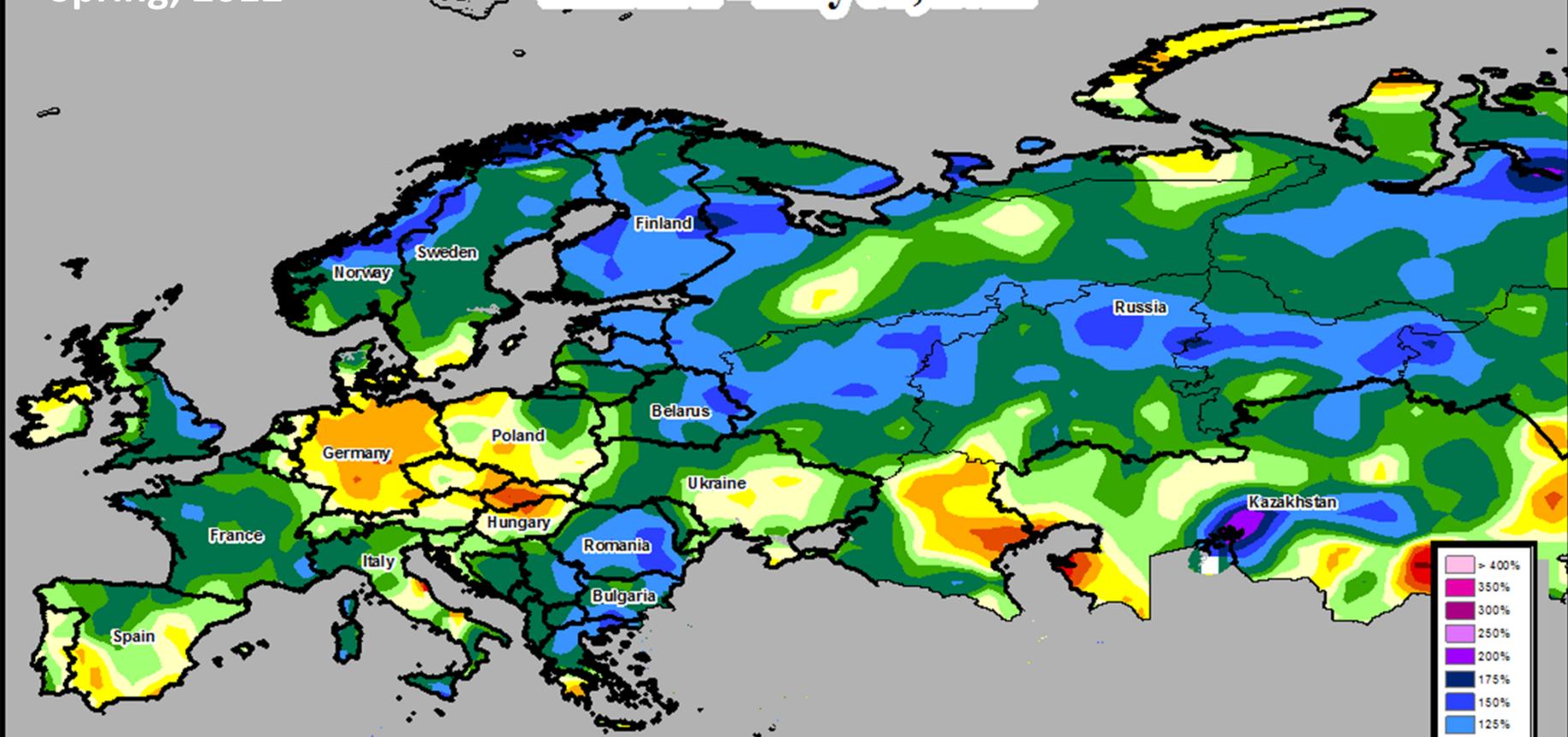
How did it all unfold?  
What areas and crops  
were impacted?



# Percent of Normal Precipitation

Spring, 2012

March 1 - May 31, 2012

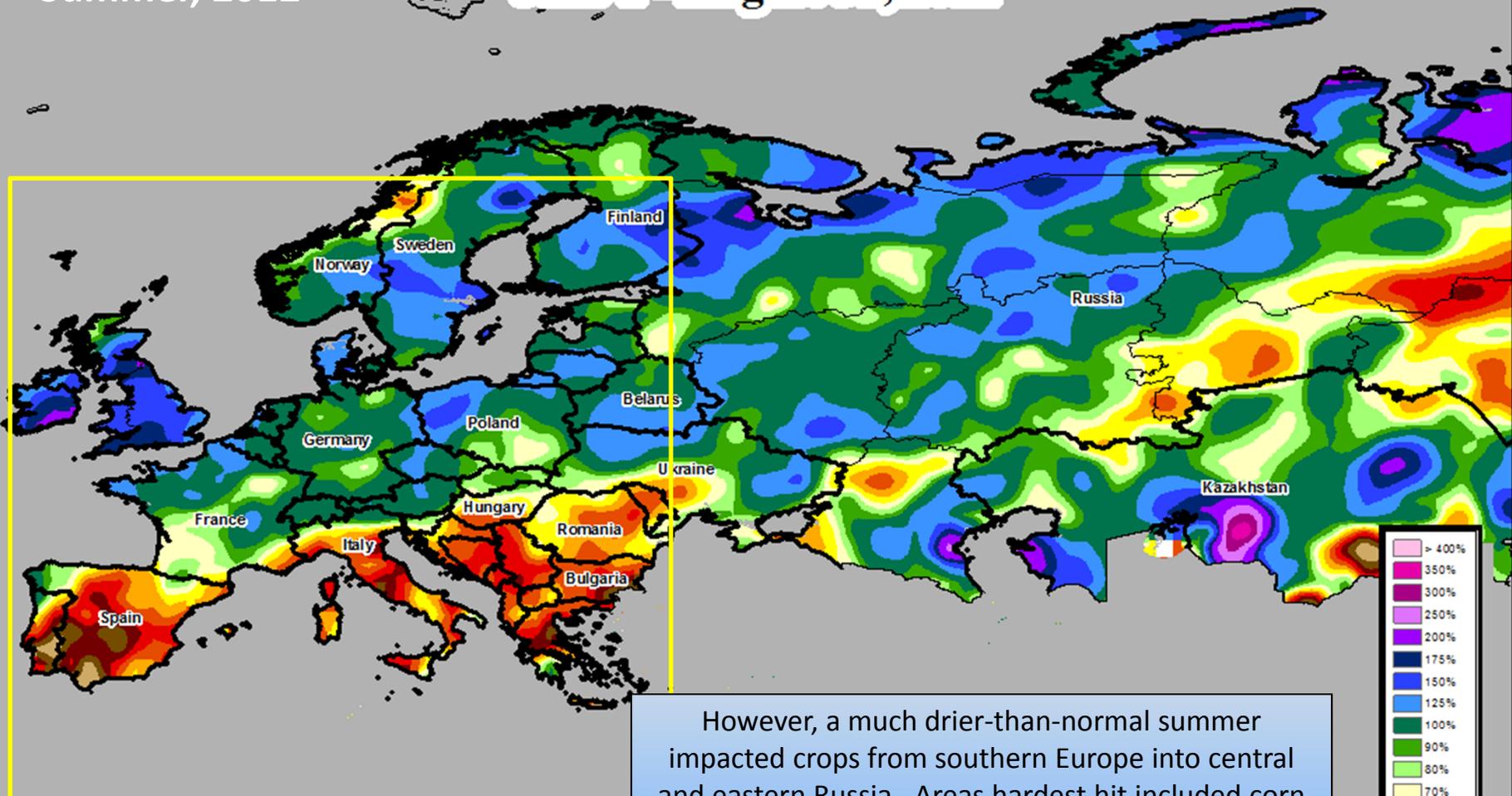


In the spring, 2012, near- to above-normal rainfall across most major growing areas seemed to point toward favorable winter and summer crop prospects. There were a few exceptions, most notably in north-central Europe and in southwestern Russia.

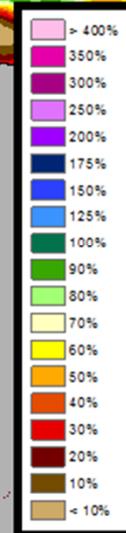
# Percent of Normal Precipitation

Summer, 2012

June 1 - August 31, 2012



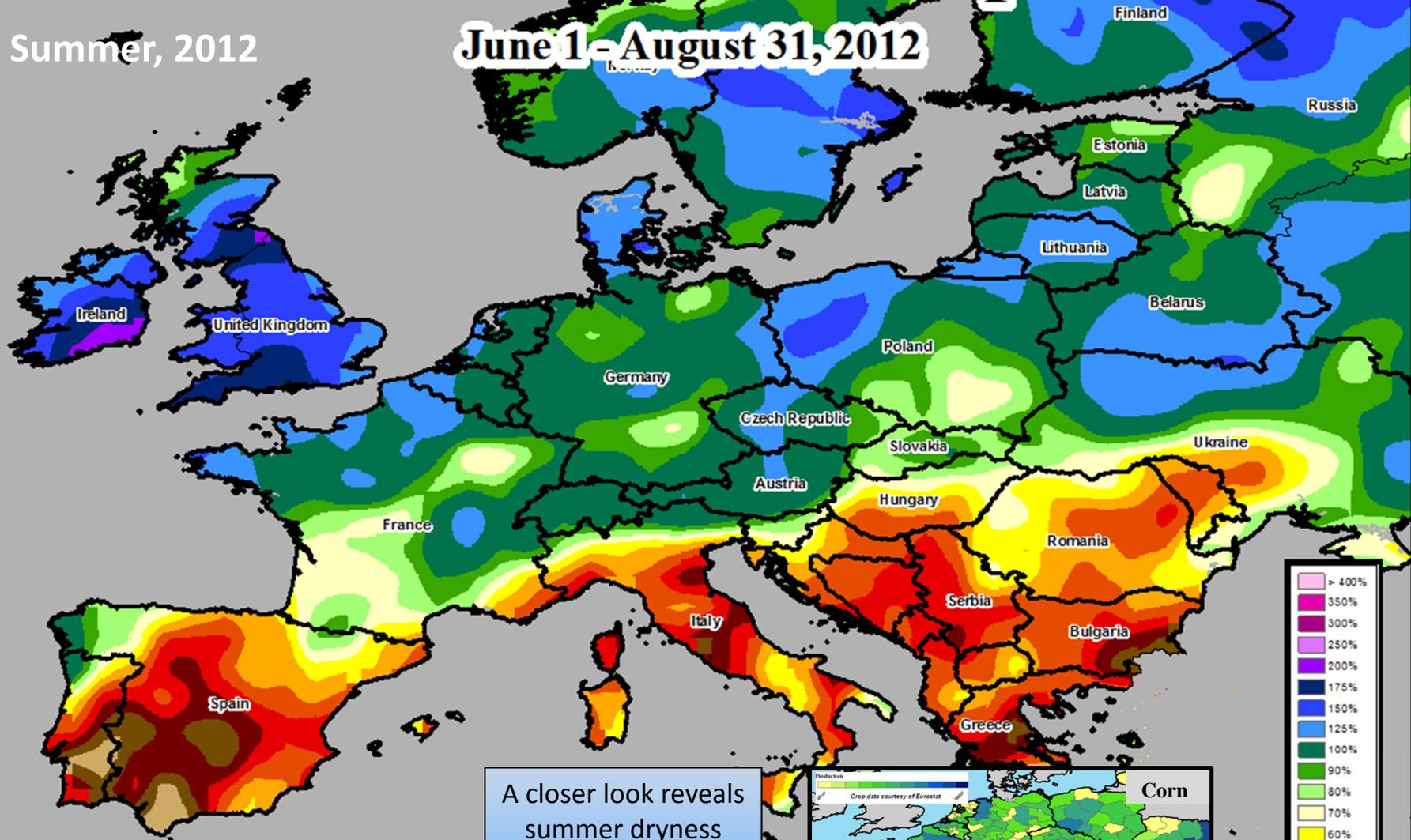
However, a much drier-than-normal summer impacted crops from southern Europe into central and eastern Russia. Areas hardest hit included corn in Italy, Romania, and Bulgaria, as well as spring wheat in Russia's Siberia District. Dry weather late in the summer also trimmed corn yield expectations in southwestern France after a favorable start.



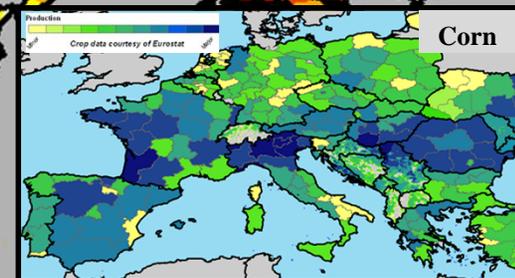
# Percent of Normal Precipitation

Summer, 2012

June 1 - August 31, 2012

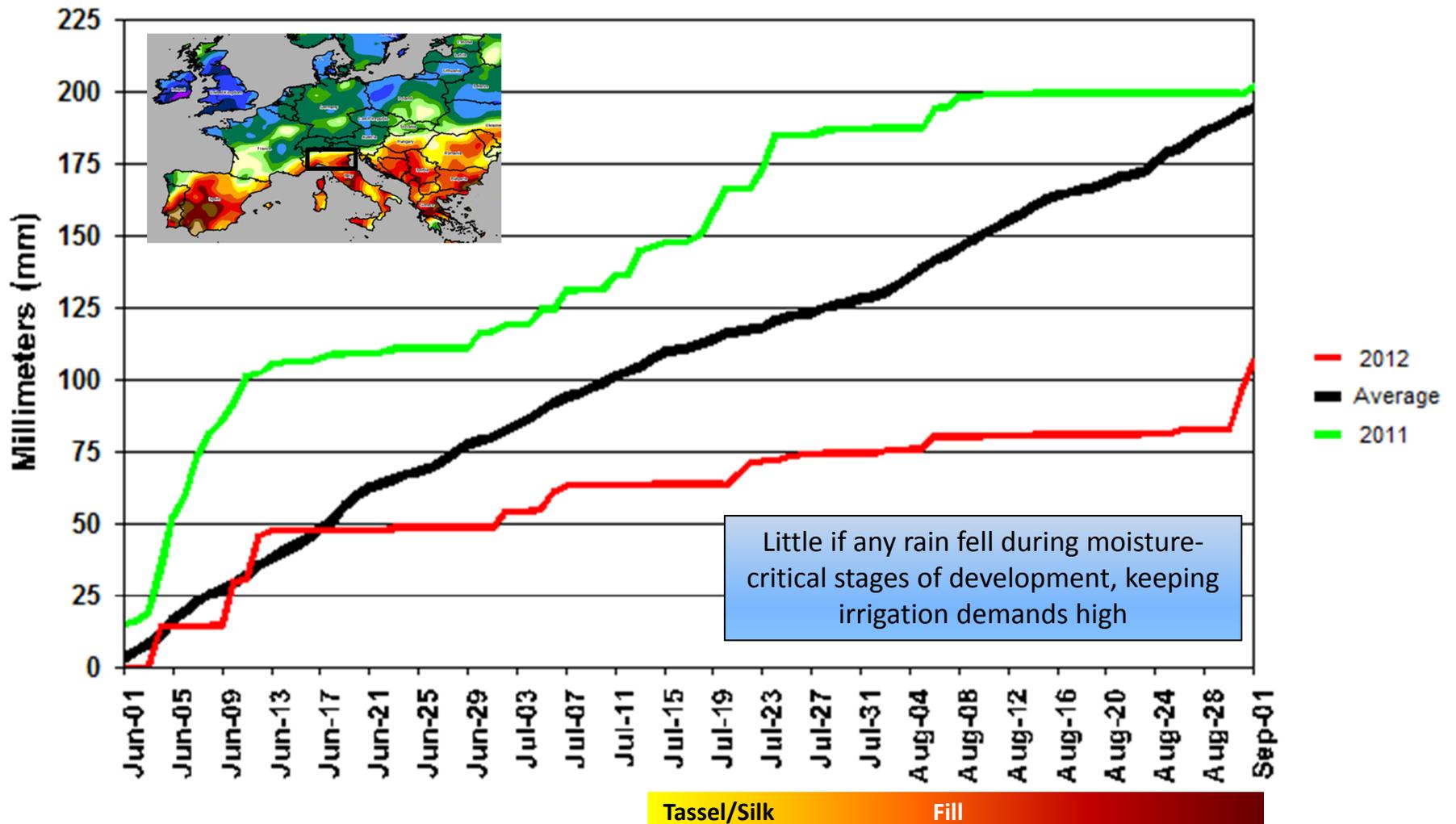


A closer look reveals summer dryness lined up with most of the EU's primary corn areas.



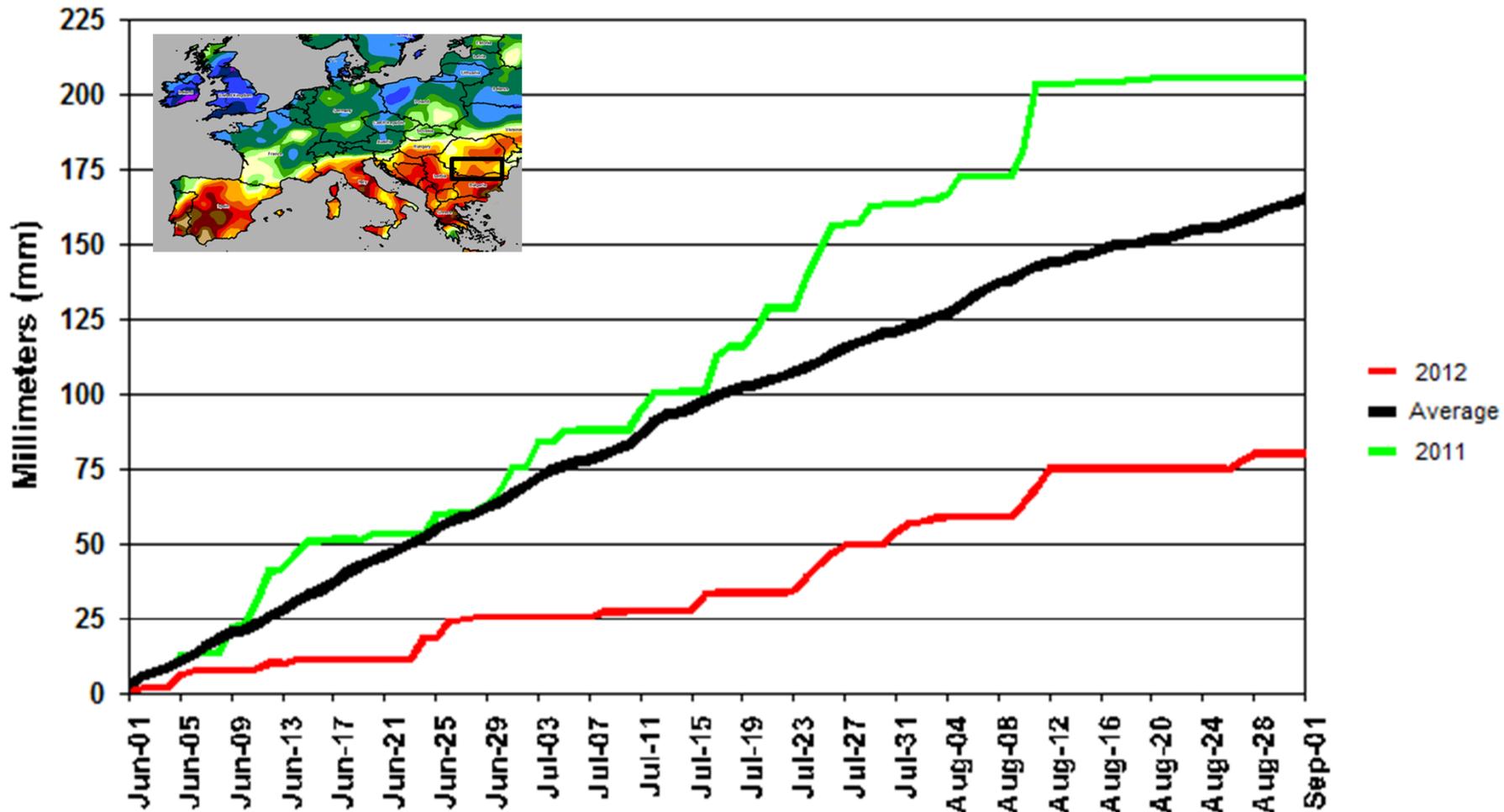
# Italy: Po River Valley

## Cumulative Precipitation, June 1 – August 31



# Southern Romania

## Cumulative Precipitation, June 1 – August 31

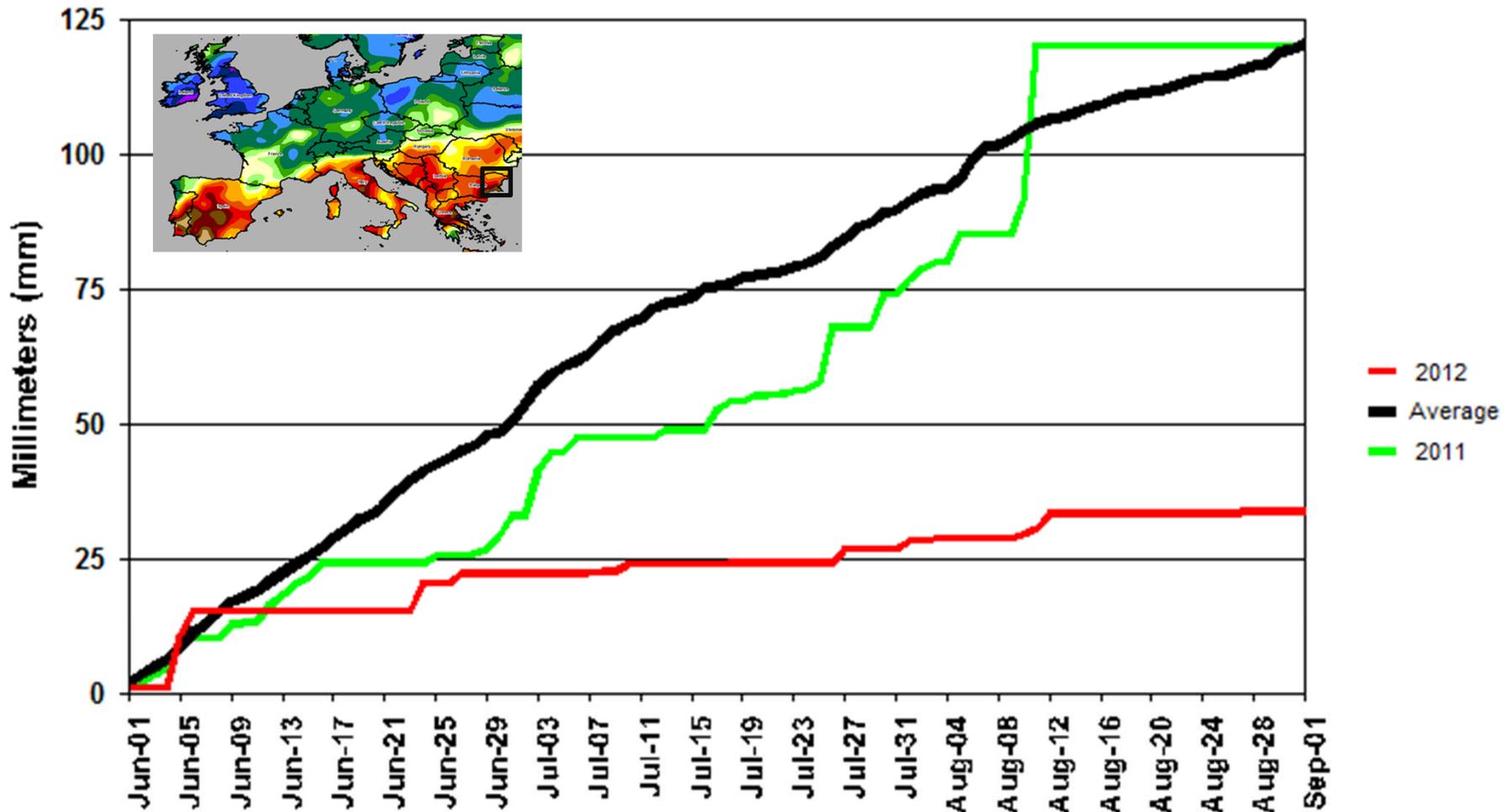


With no irrigation available, drought rapidly took a toll on Balkans' corn

Tassel/Silk Fill

# Southeast Bulgaria

## Cumulative Precipitation, June 1 – August 31



With no irrigation available, drought rapidly took a toll on Balkans' corn

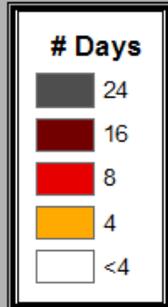
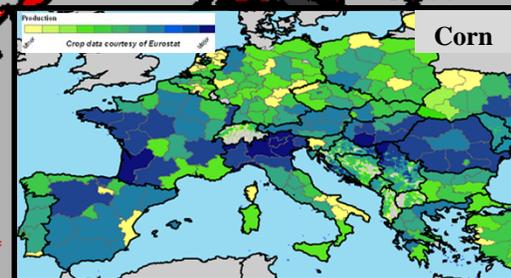
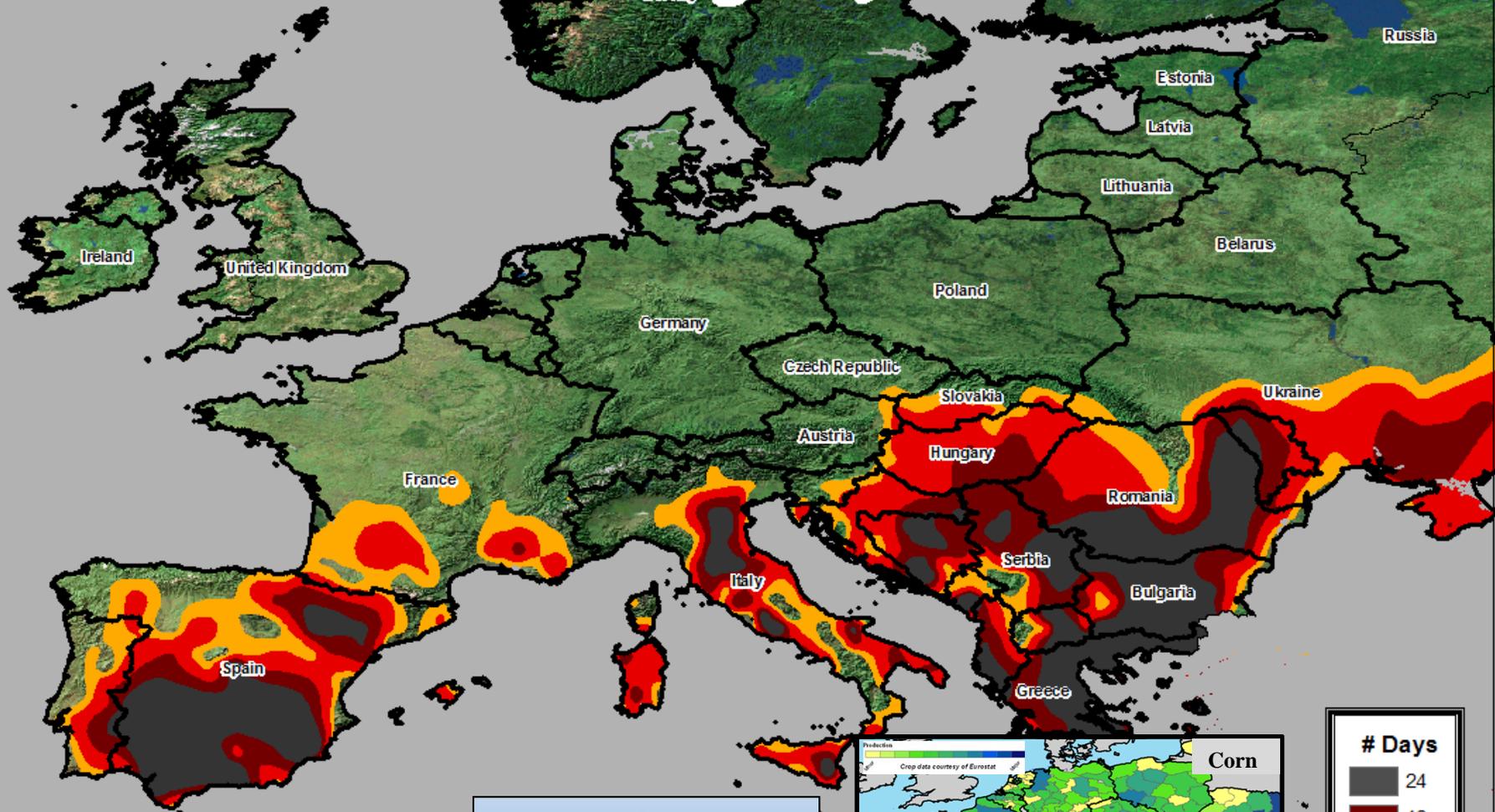
Tassel/Silk

Fill

# Days Above 35°C (95°F)

Summer, 2012

June 1 - August 31, 2012

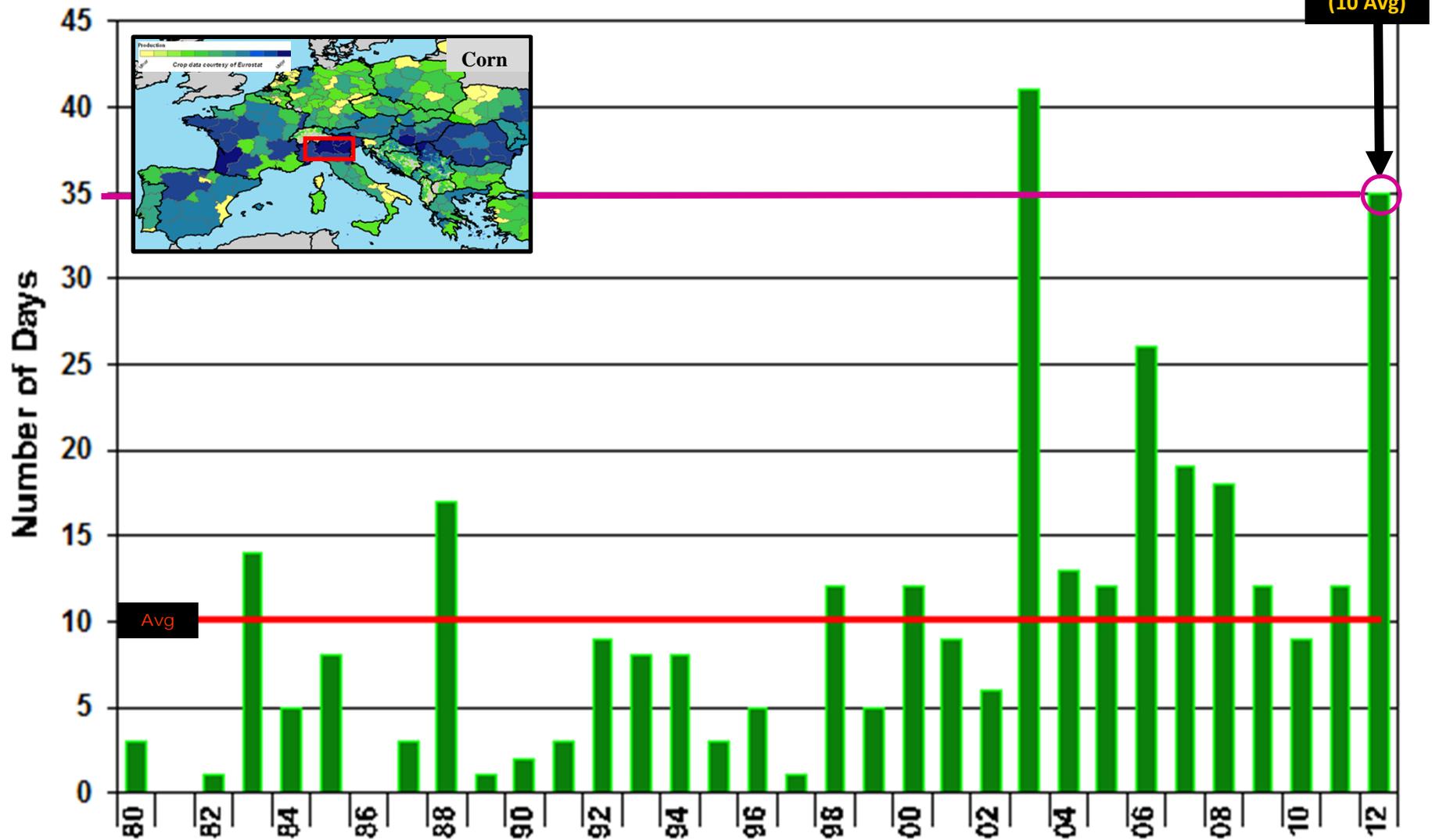


Heat was also an issue; 95-degree days were common in southern Europe's Corn Belt

# Italy – Po River Valley

Days at or above 95°F

June 1 – August 31, 1980-2012

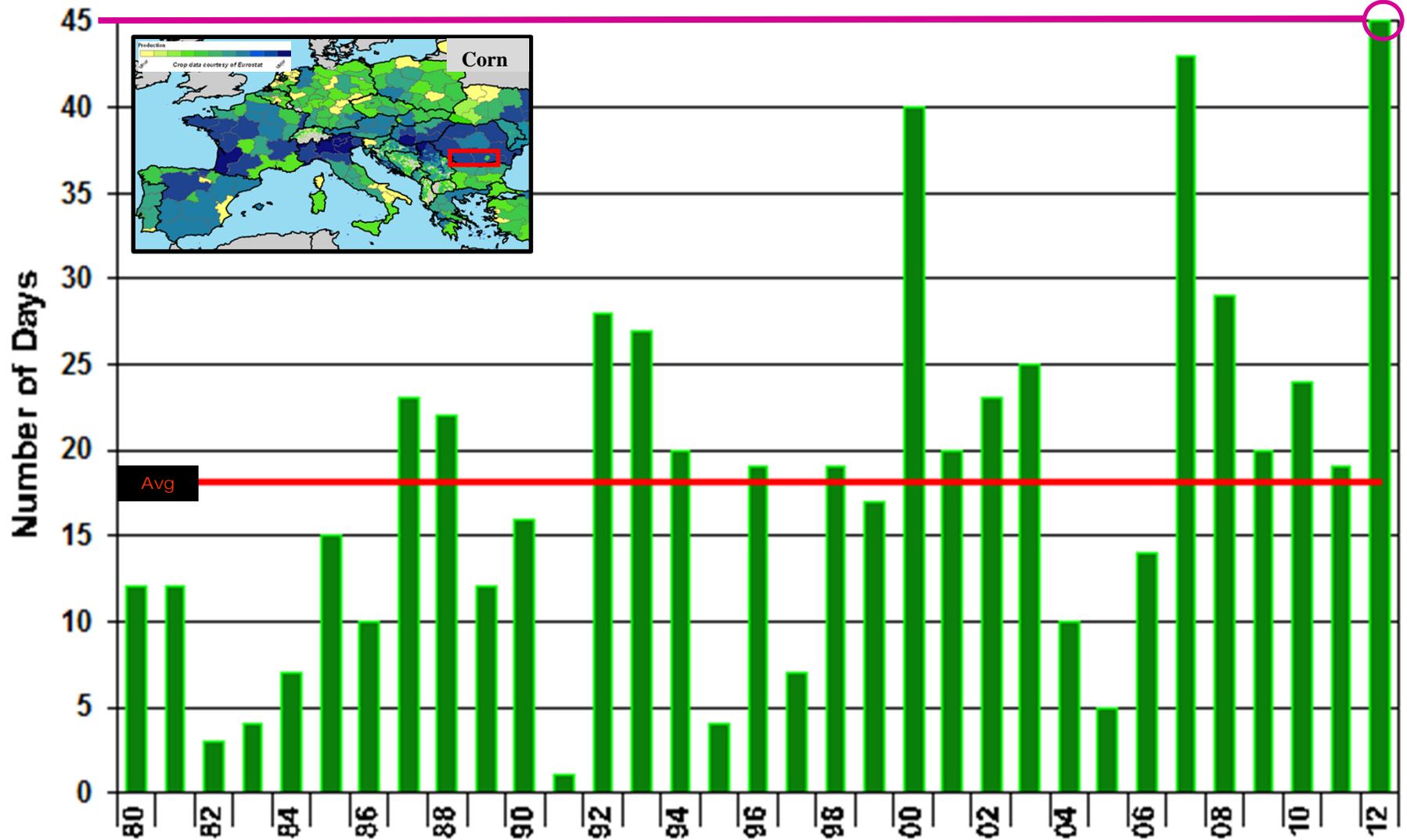


# Southern Romania

Days at or above **95°F**

June 1 – August 31, 1980-2012

Most:  
45 Days  
(18 Avg)

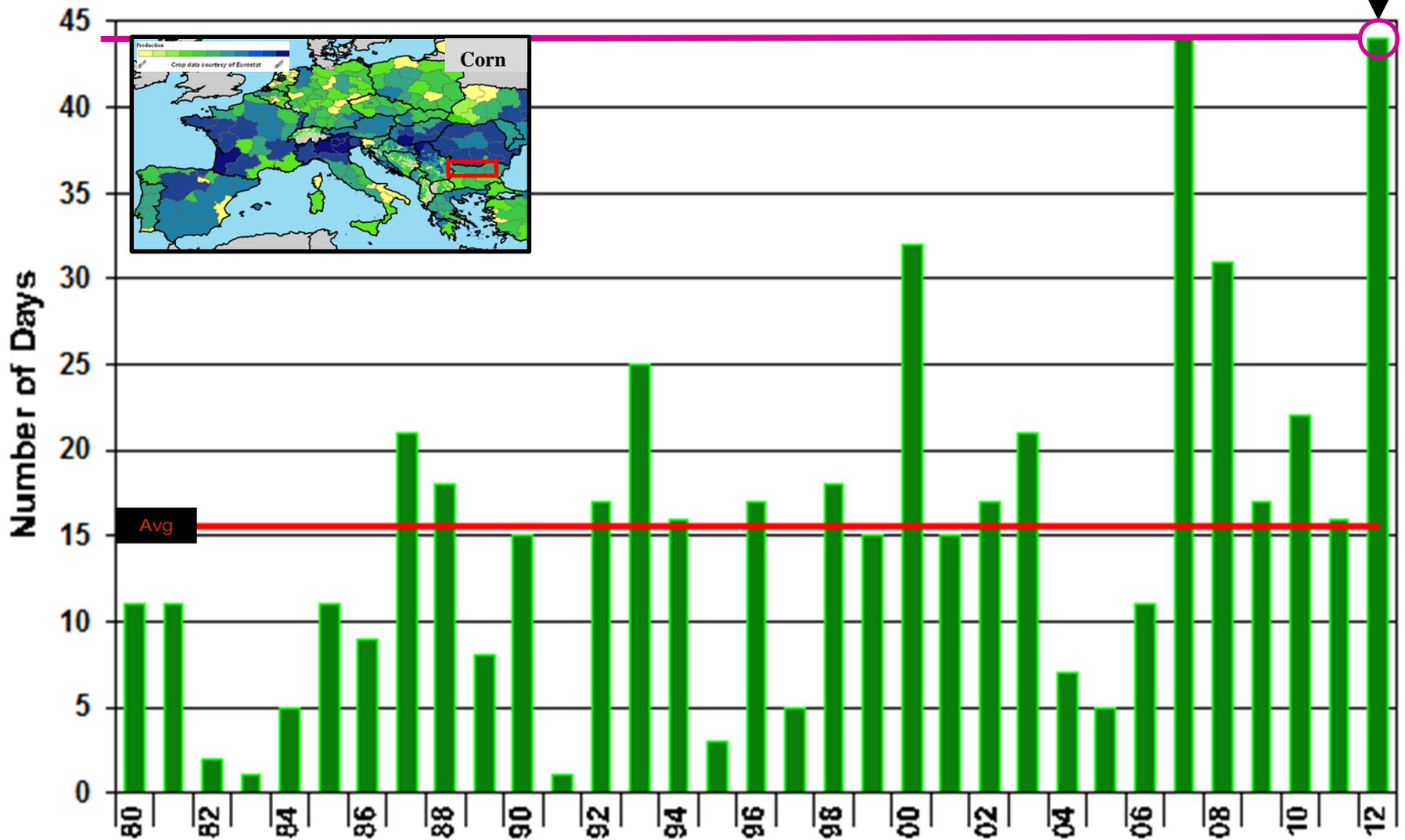


# Northern Bulgaria

Days at or above **95°F**

June 1 – August 31, 1980-2012

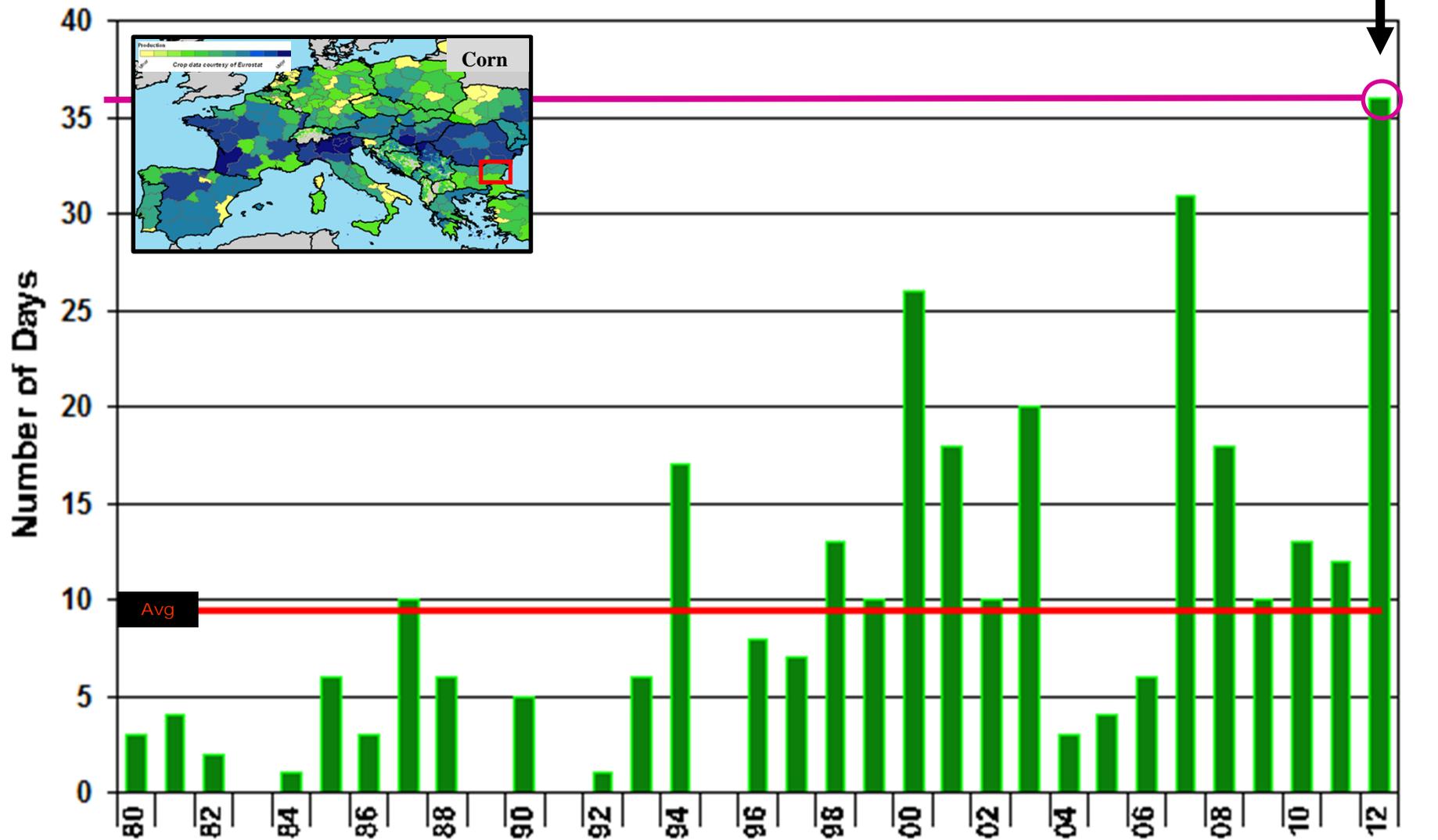
Tied – Most  
44 Days  
(15 Avg)



# Southeast Bulgaria

Days at or above **95°F**

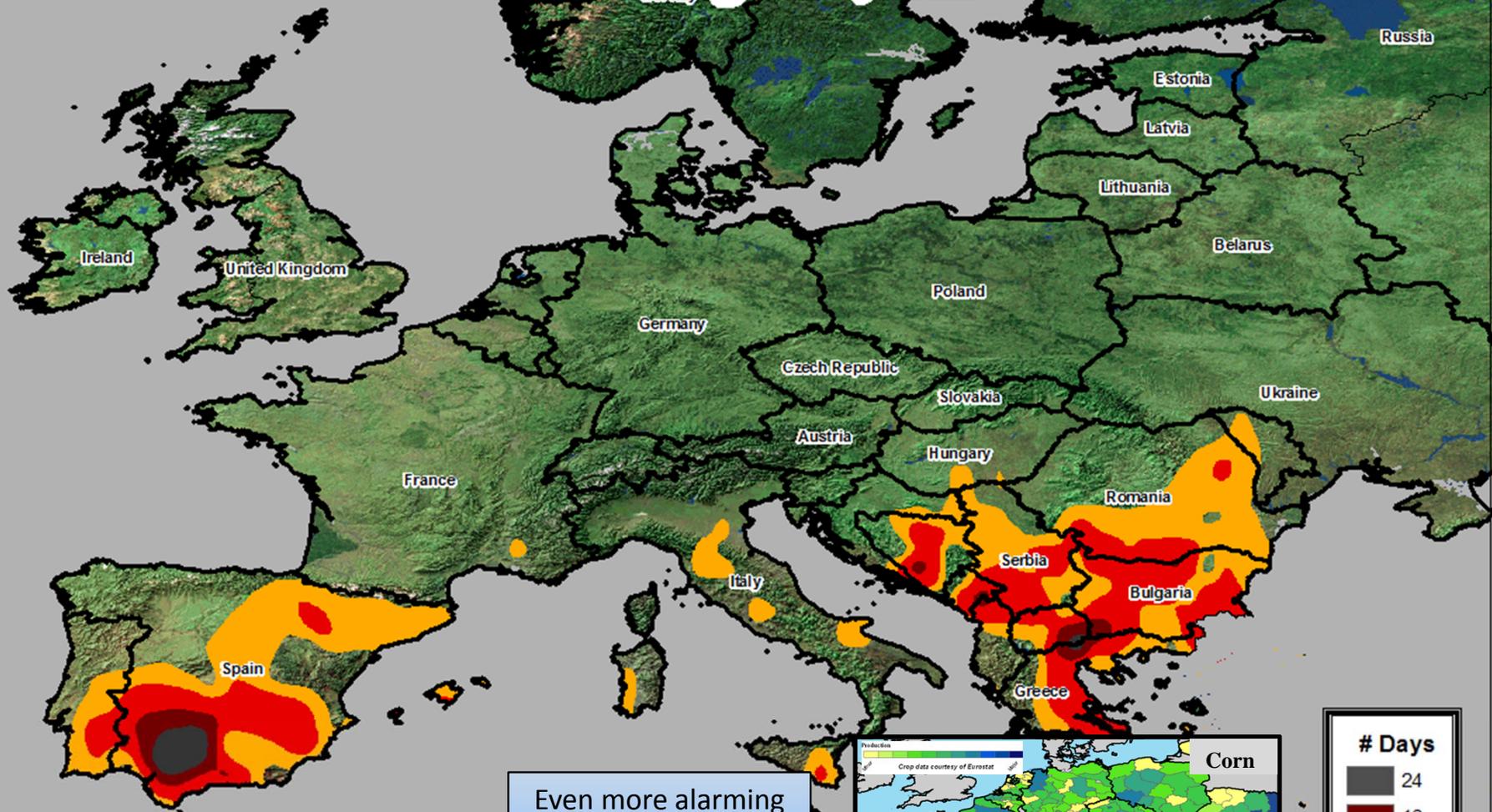
June 1 – August 31, 1980-2012



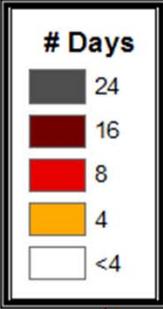
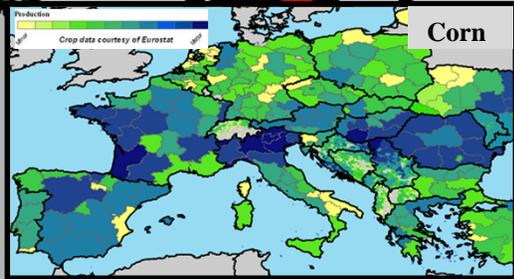
# Days Above 38°C (100°F)

Summer, 2012

June 1 - August 31, 2012



Even more alarming was the frequency of 100-degree heat, especially in the Balkans.

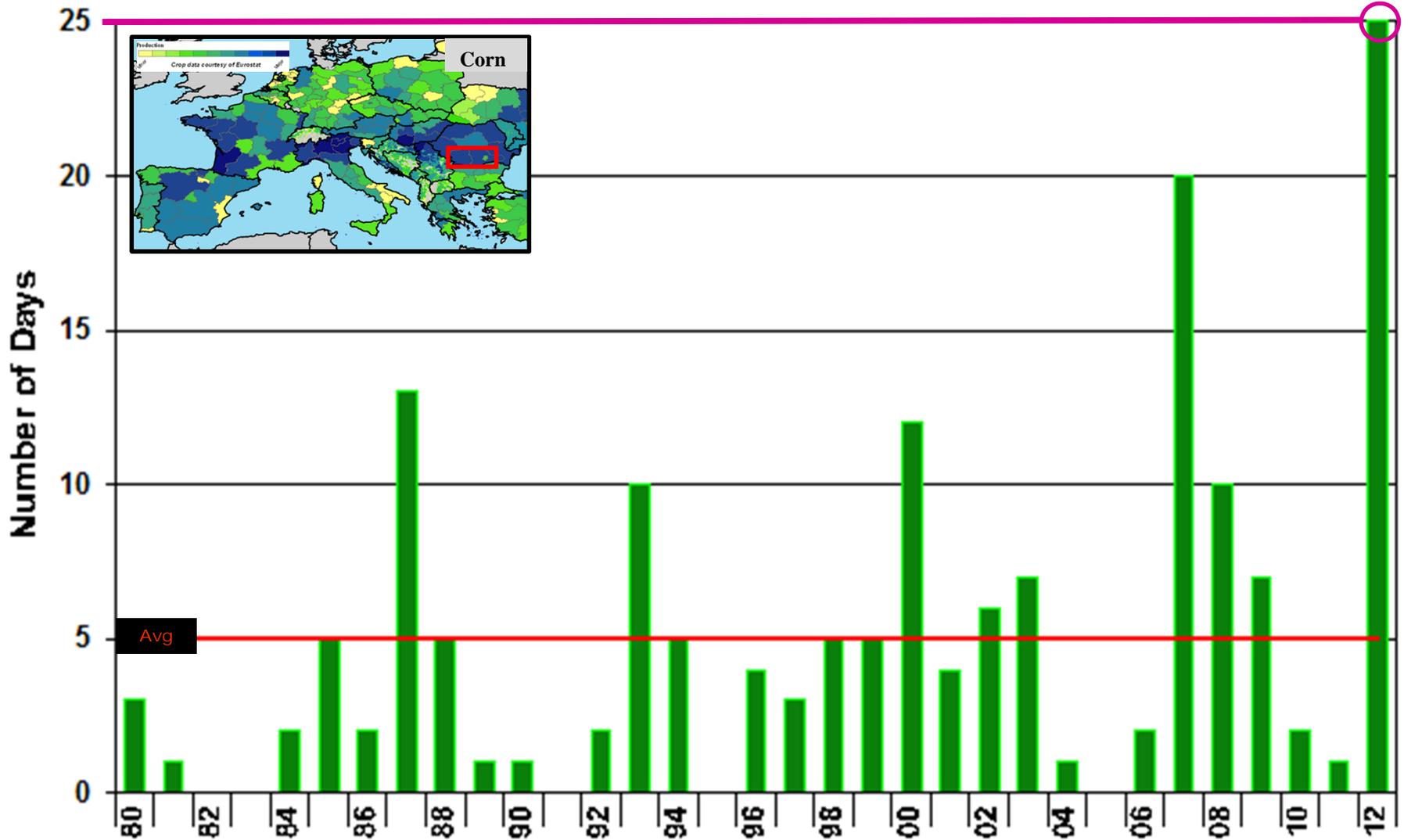


# Southern Romania

Days at or above **100°F**

June 1 – August 31, 1980-2012

Most:  
25 Days  
(5 Avg)

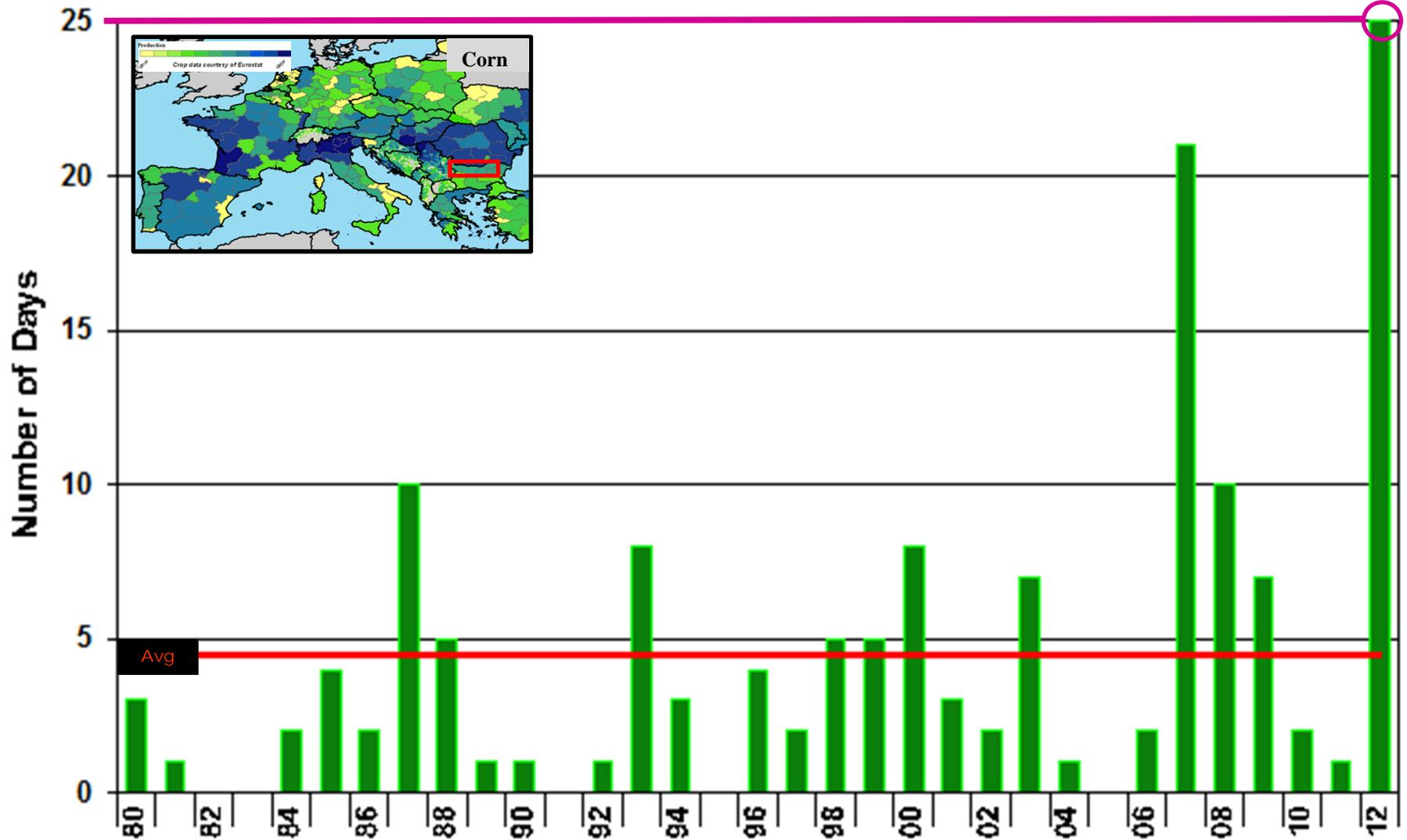


# Northern Bulgaria

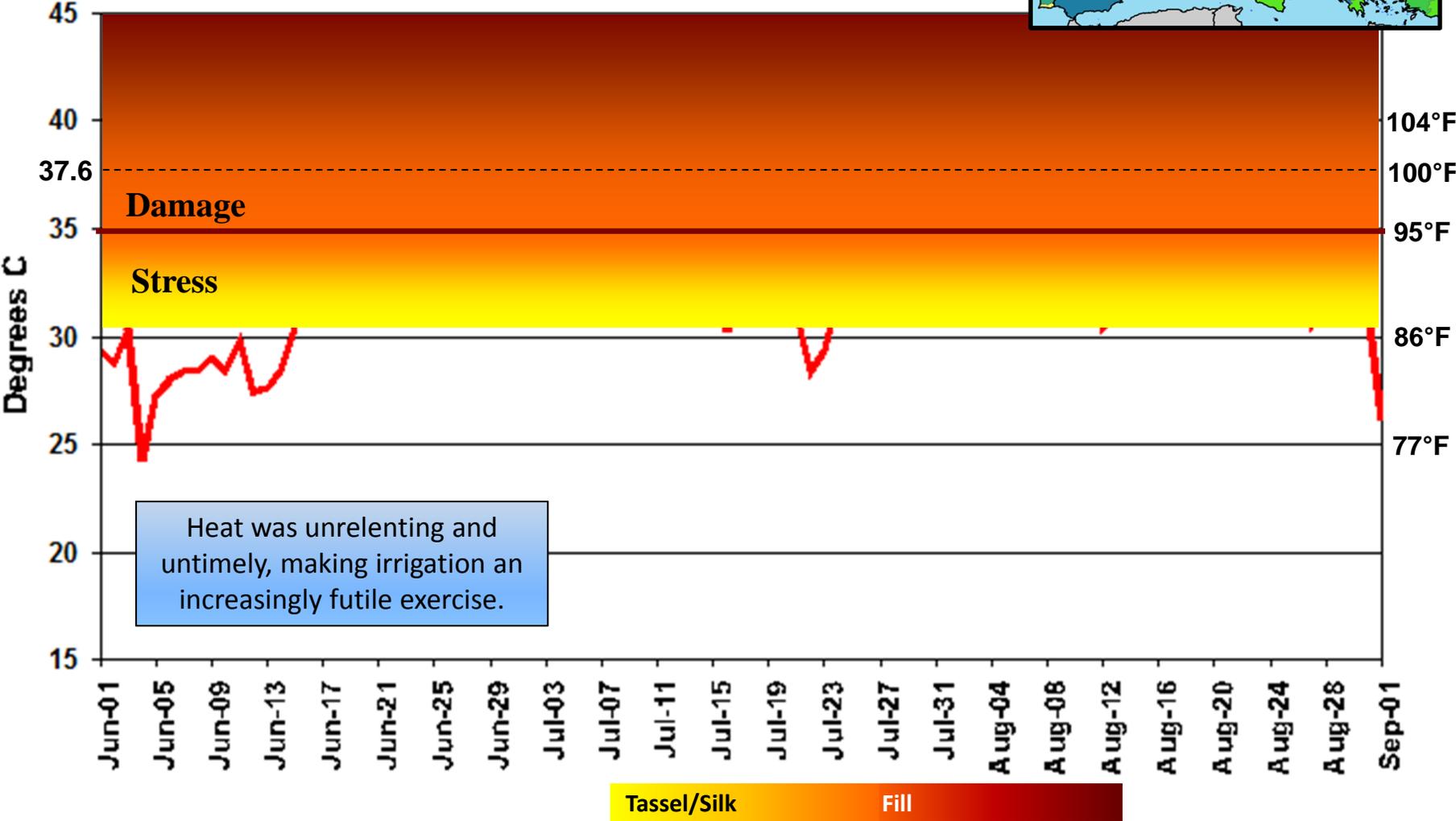
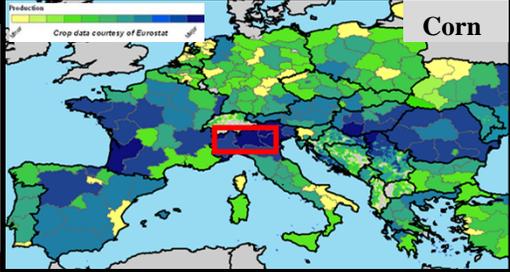
Days at or above **100°F**

June 1 – August 31, 1980-2012

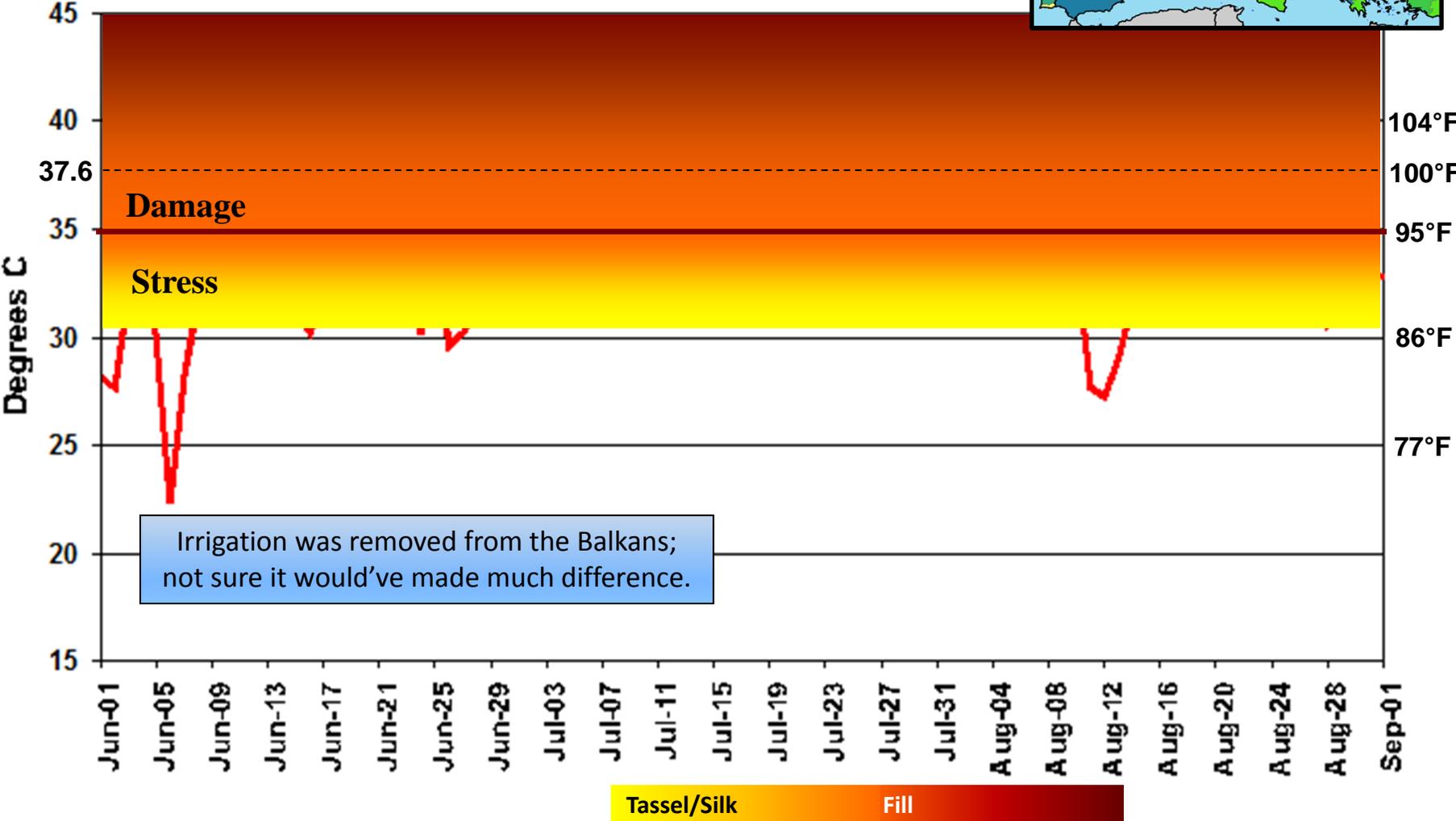
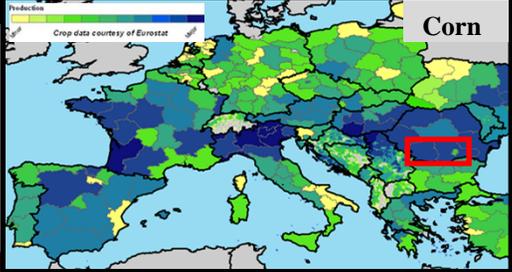
Most:  
25 Days  
(4 Avg)



# ITALY: PO VALLEY Extreme Maximum Temperatures

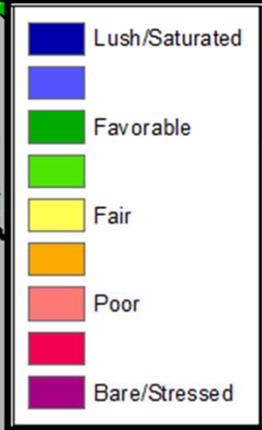
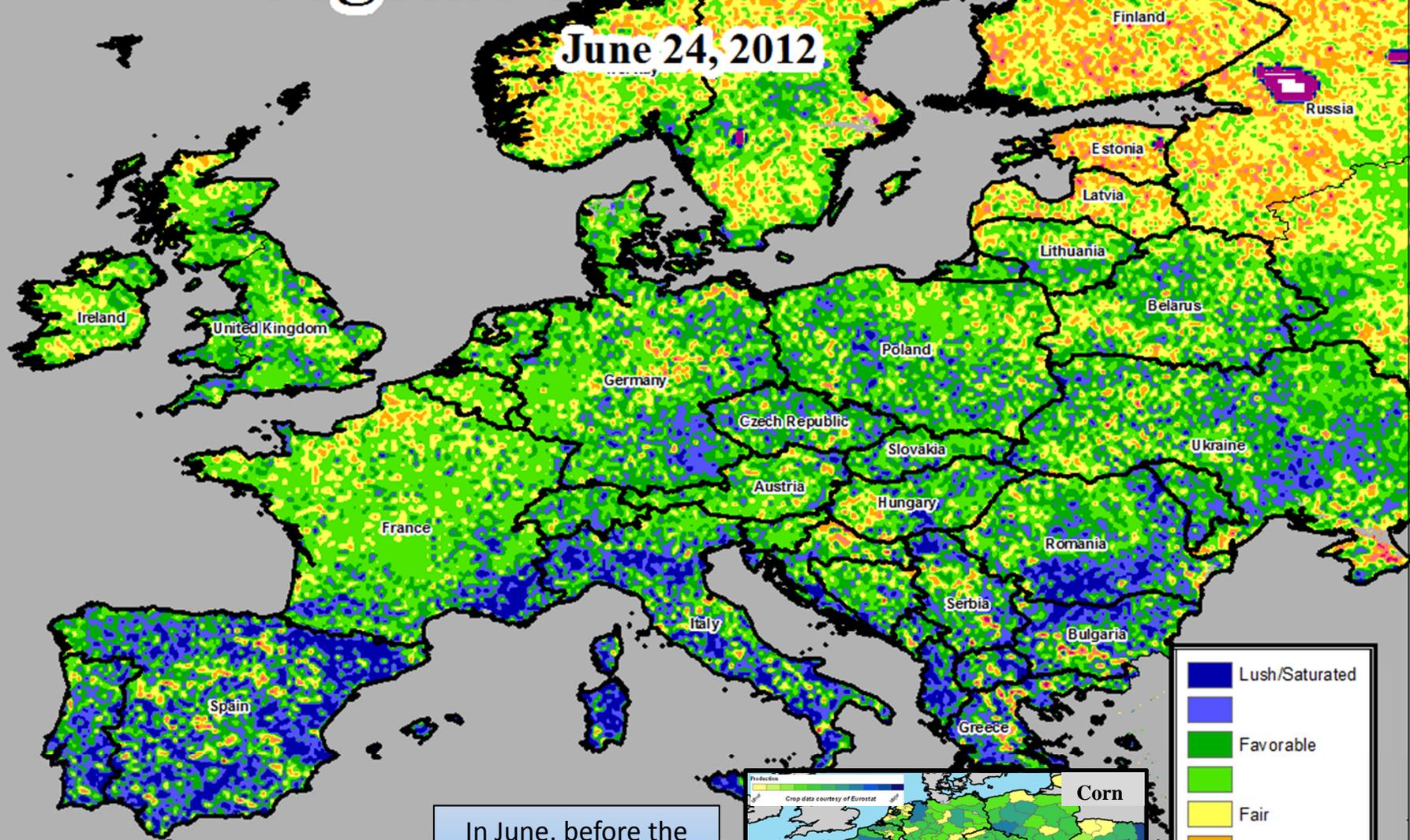


# SOUTHERN ROMANIA Extreme Maximum Temperatures

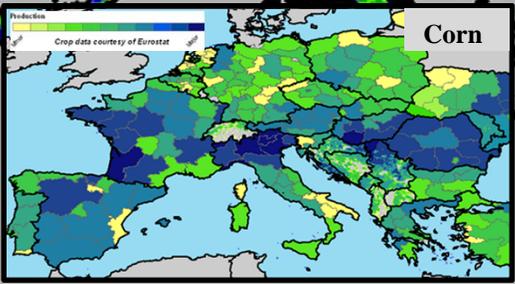


# Vegetation Health Index

June 24, 2012

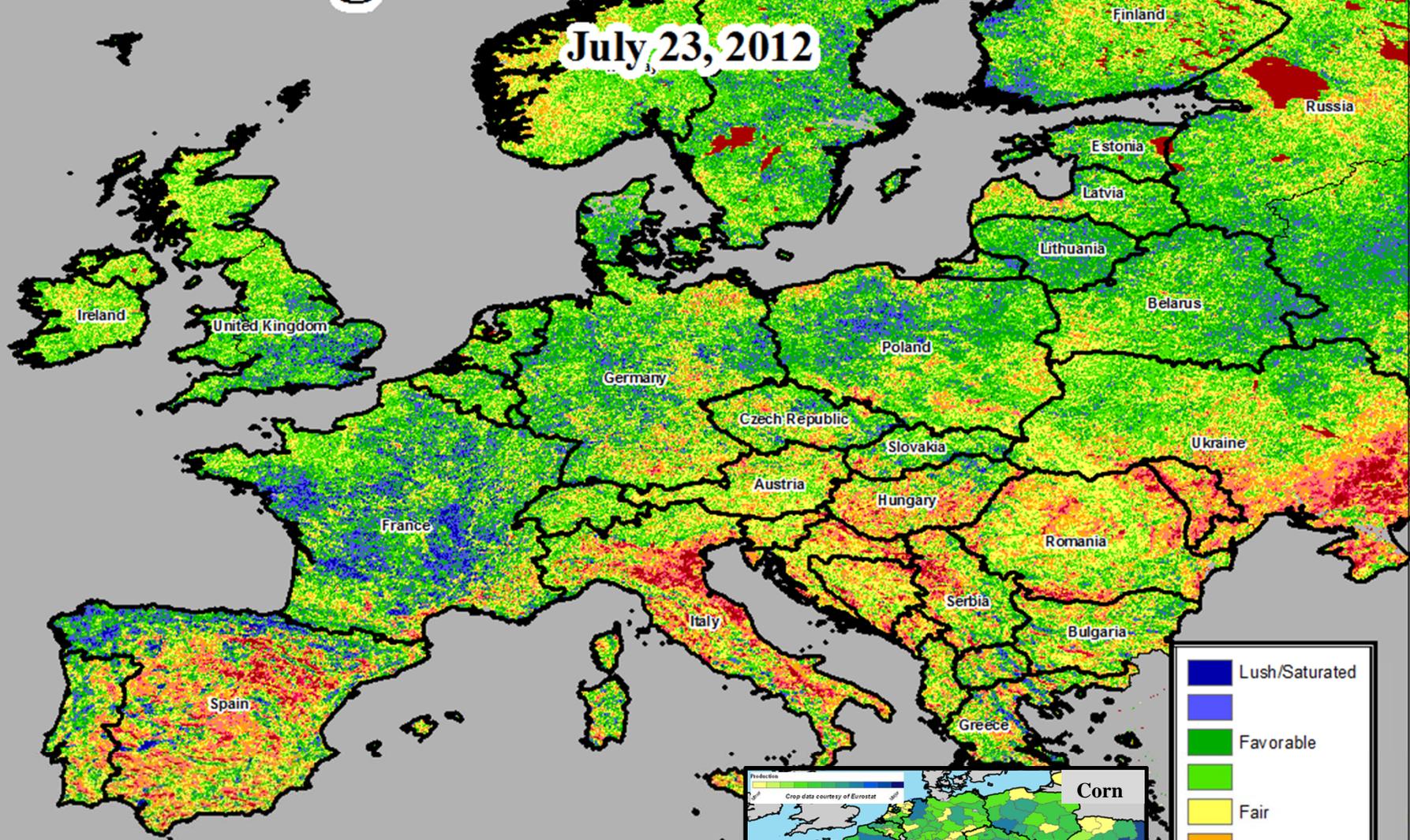


In June, before the heat, everything seemed not only fine, but in some areas excellent.



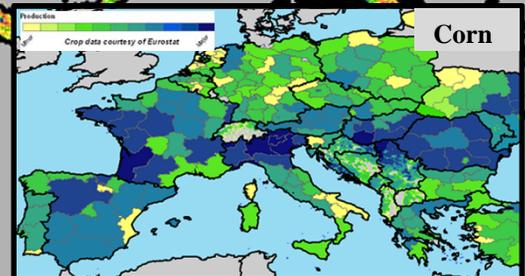
# Vegetation Health Index

July 23, 2012



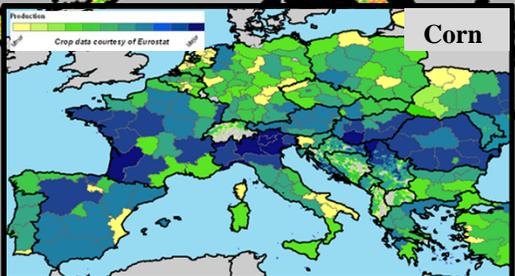
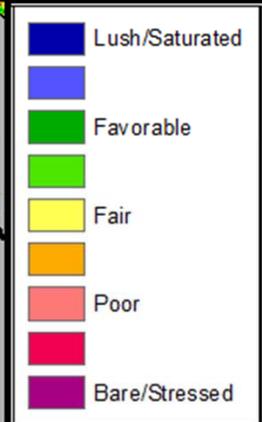
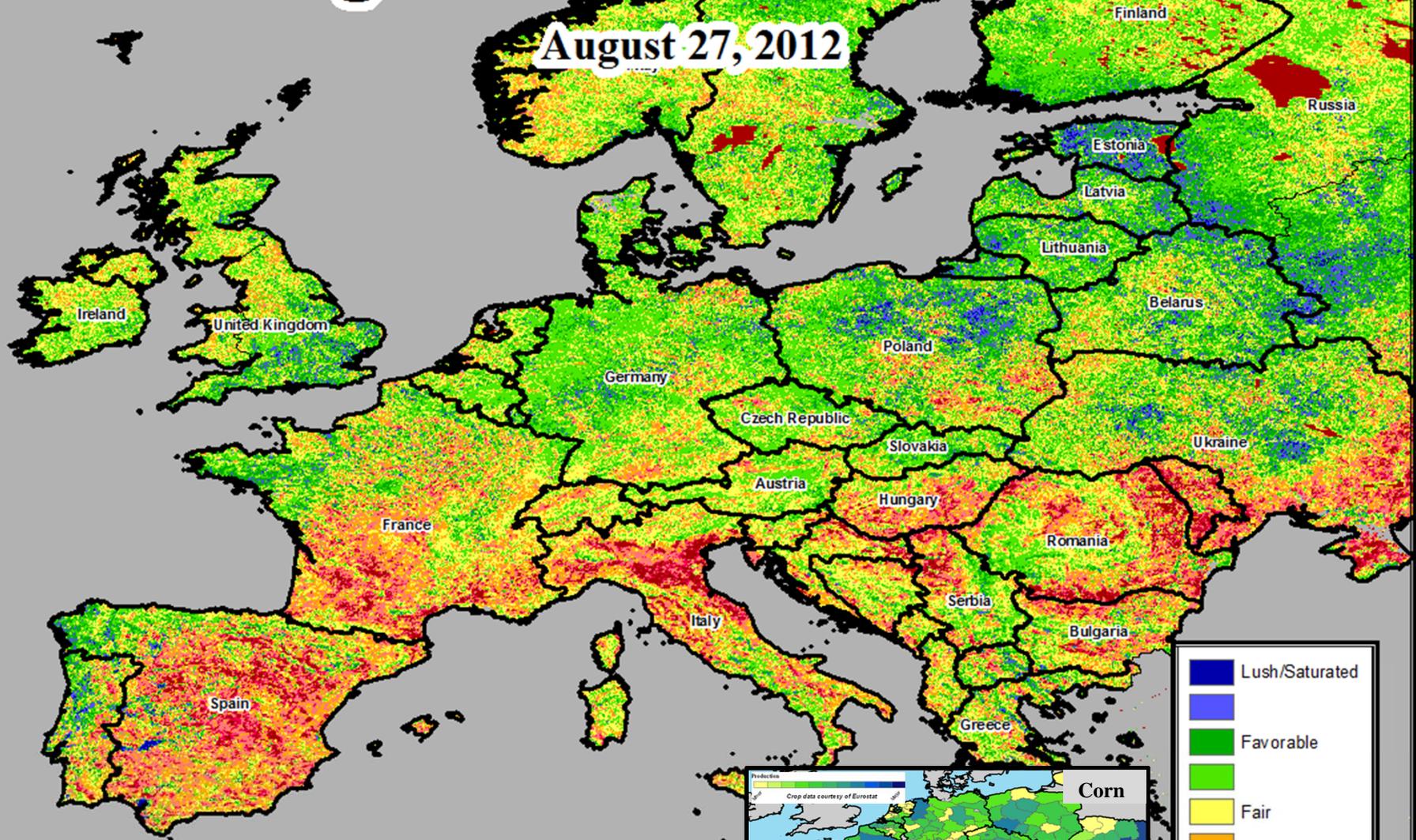
Within a month, conditions tanked in the Balkans and Italy.

USDA Agricultural Weather Assessments  
World Agricultural Outlook Board



# Vegetation Health Index

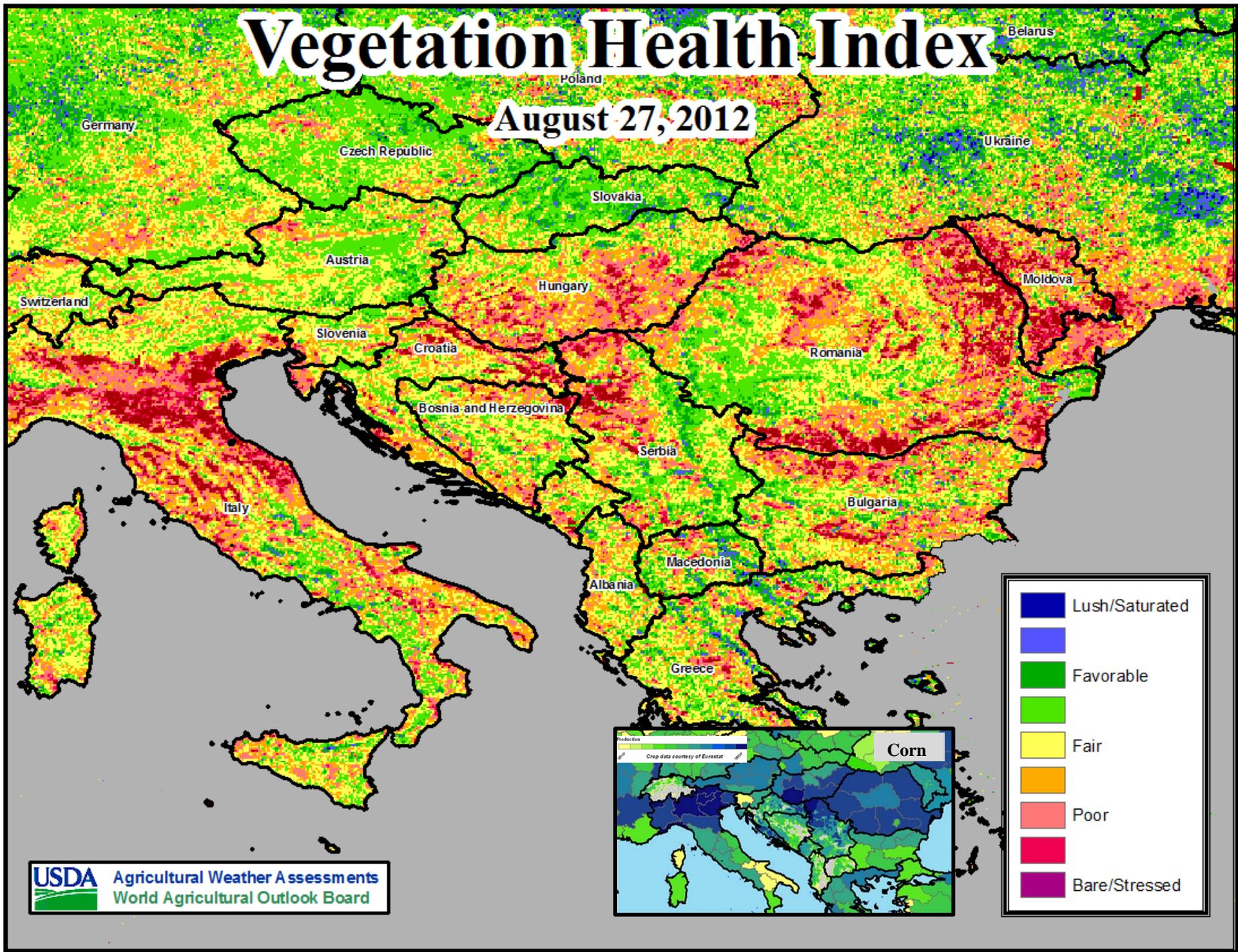
August 27, 2012



By August, all of southern Europe was wilting under the heat.

# Vegetation Health Index

August 27, 2012



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

**Non-Functional irrigation  
August 2012; Romania**



*Balkans' 2012 crop-tour pictures courtesy of Bryan Purcell, Crop Assessment Analyst, USDA FAS-IPAD*



*Balkans' 2012 crop-tour pictures courtesy of Bryan Purcell, Crop Assessment Analyst, USDA FAS-IPAD*



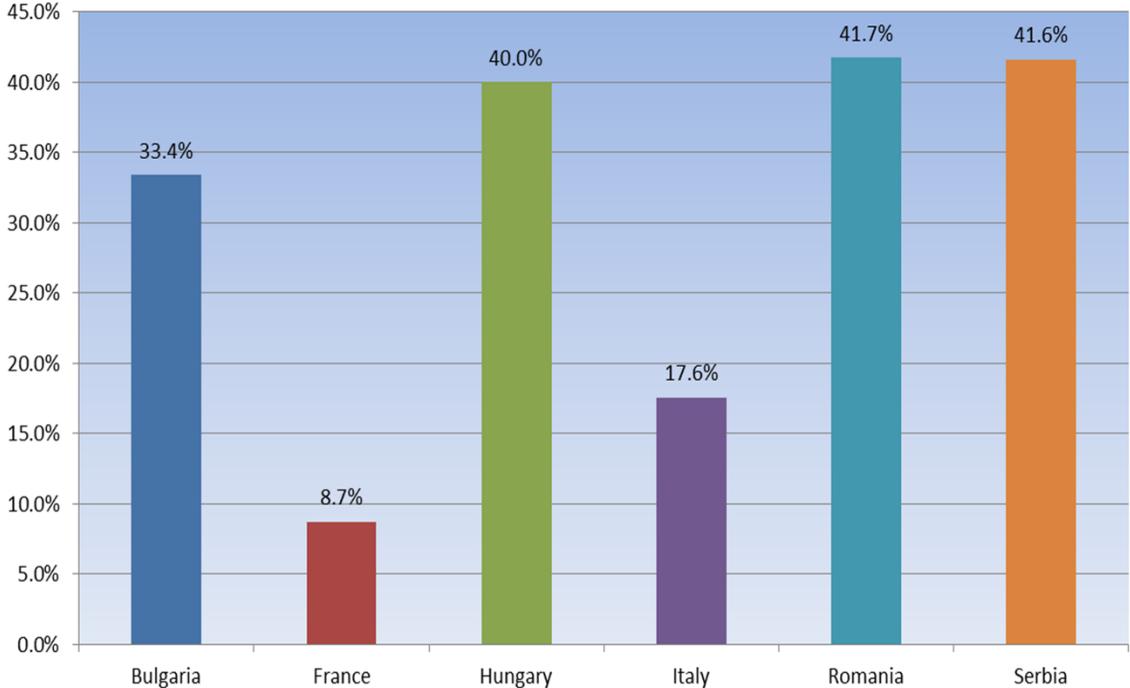
*Balkans' 2012 crop-tour pictures courtesy of Bryan Purcell, Crop Assessment Analyst, USDA FAS-IPAD*

# EU-27 Corn Yield

1999-2012



## Corn Yield Reduction : 2012 vs 2011



**2012 EU-27 Corn:**  
 Down 19% versus 2011  
 Down 12% versus 5-yr avg

2008

2011

Yield Data courtesy of USDA's Foreign Agricultural Service's Production, Supply and Distribution (PSD) online database

# EU-27 Sunflower Yield

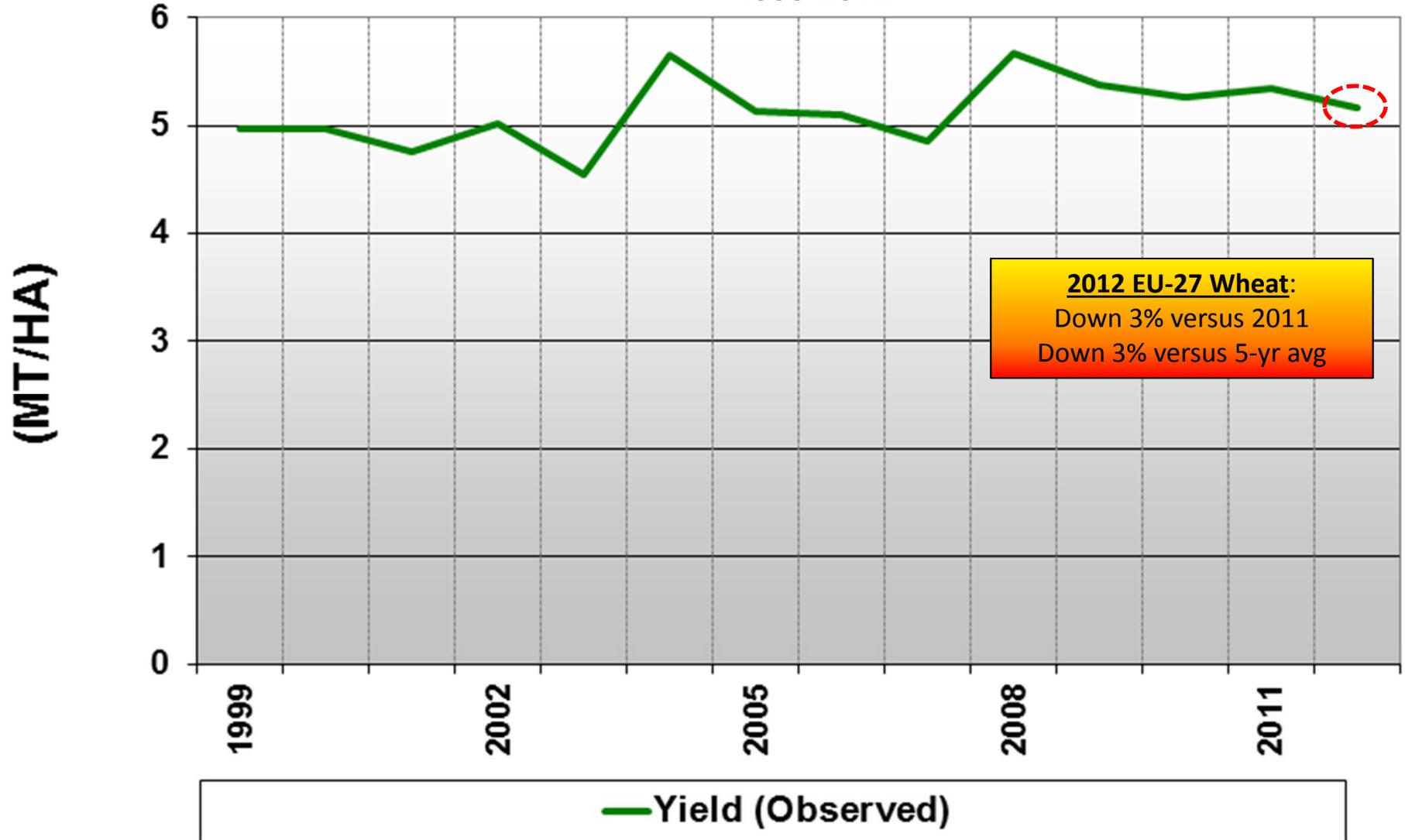
1999-2012



Yield Data courtesy of USDA's Foreign Agricultural Service's Production, Supply and Distribution (PSD) online database

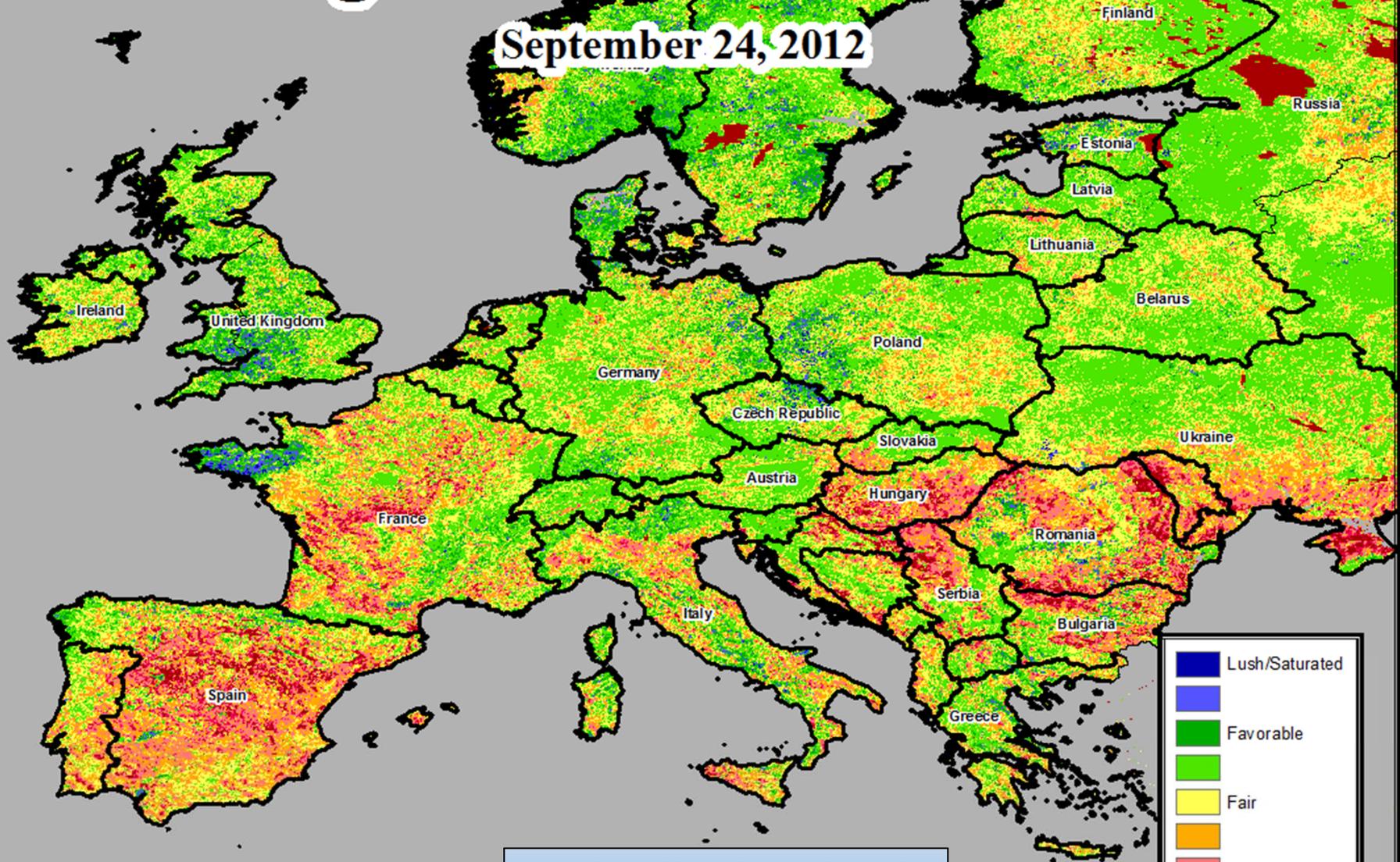
# EU-27 Wheat (All) Yield

1999-2012



# Vegetation Health Index

September 24, 2012

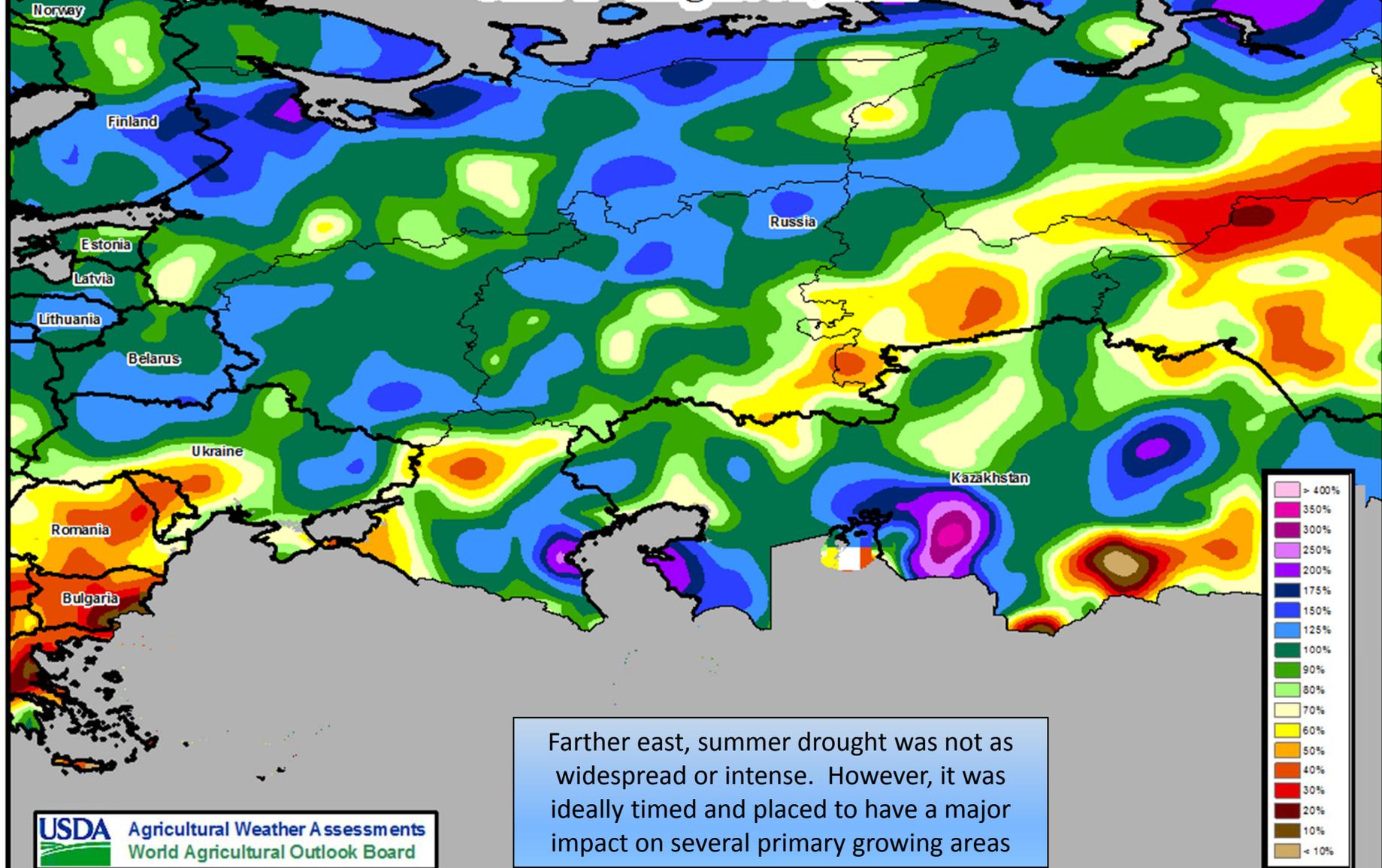


Drought and heat lingered into the Fall, impacting winter rapeseed planting intentions in the Balkans.

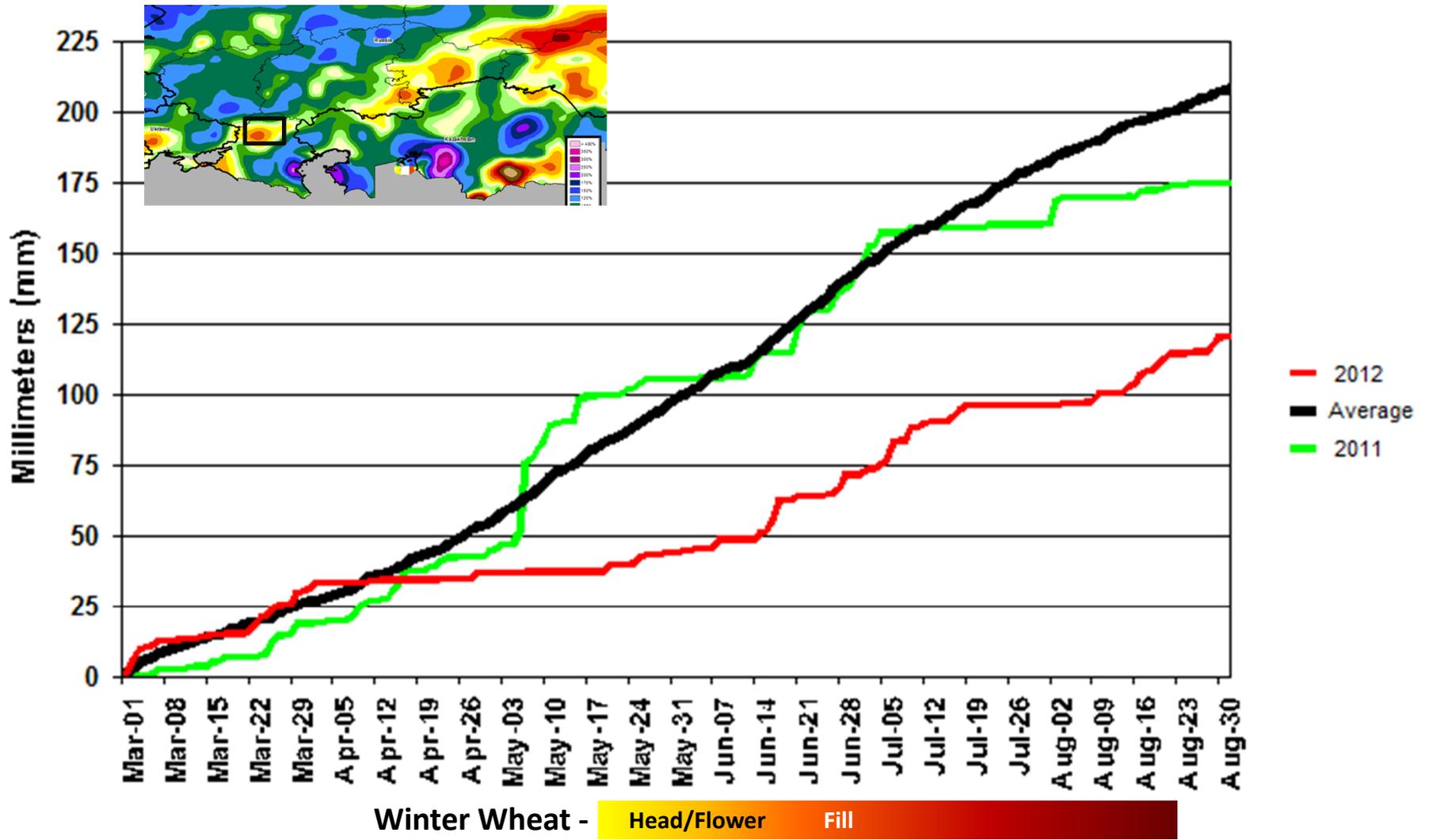
# Percent of Normal Precipitation

Summer, 2012

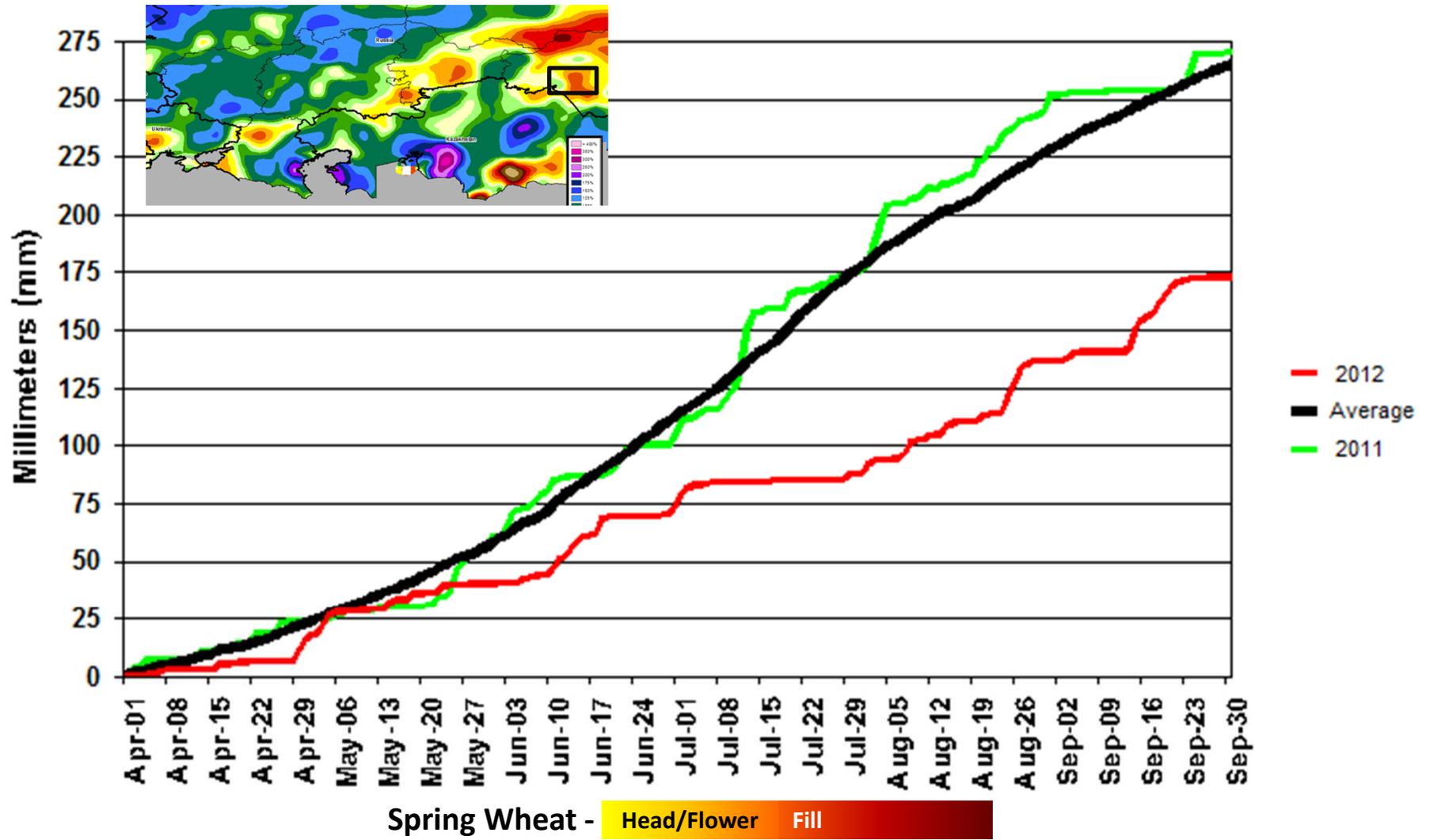
June 1 - August 31, 2012



# Russia: Northern portions of the Southern District Cumulative Precipitation, March 1 – August 31



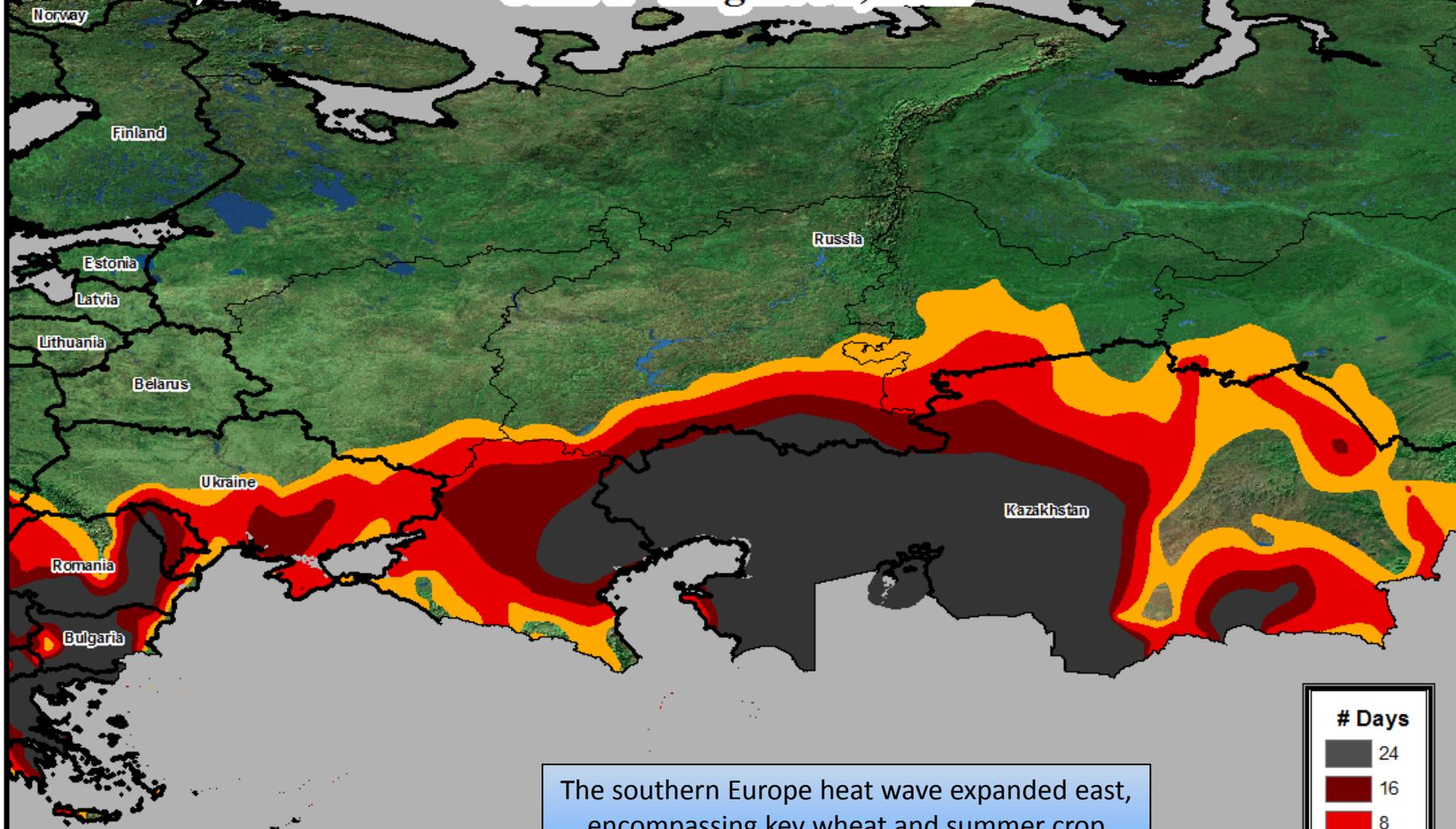
## Russia: Siberia District, Novosibirsk Cumulative Precipitation, March 1 – August 31



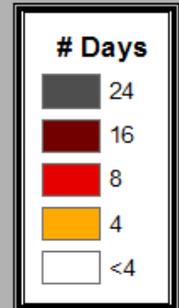
# Days Above 35°C (95°F)

Summer, 2012

June 1 - August 31, 2012



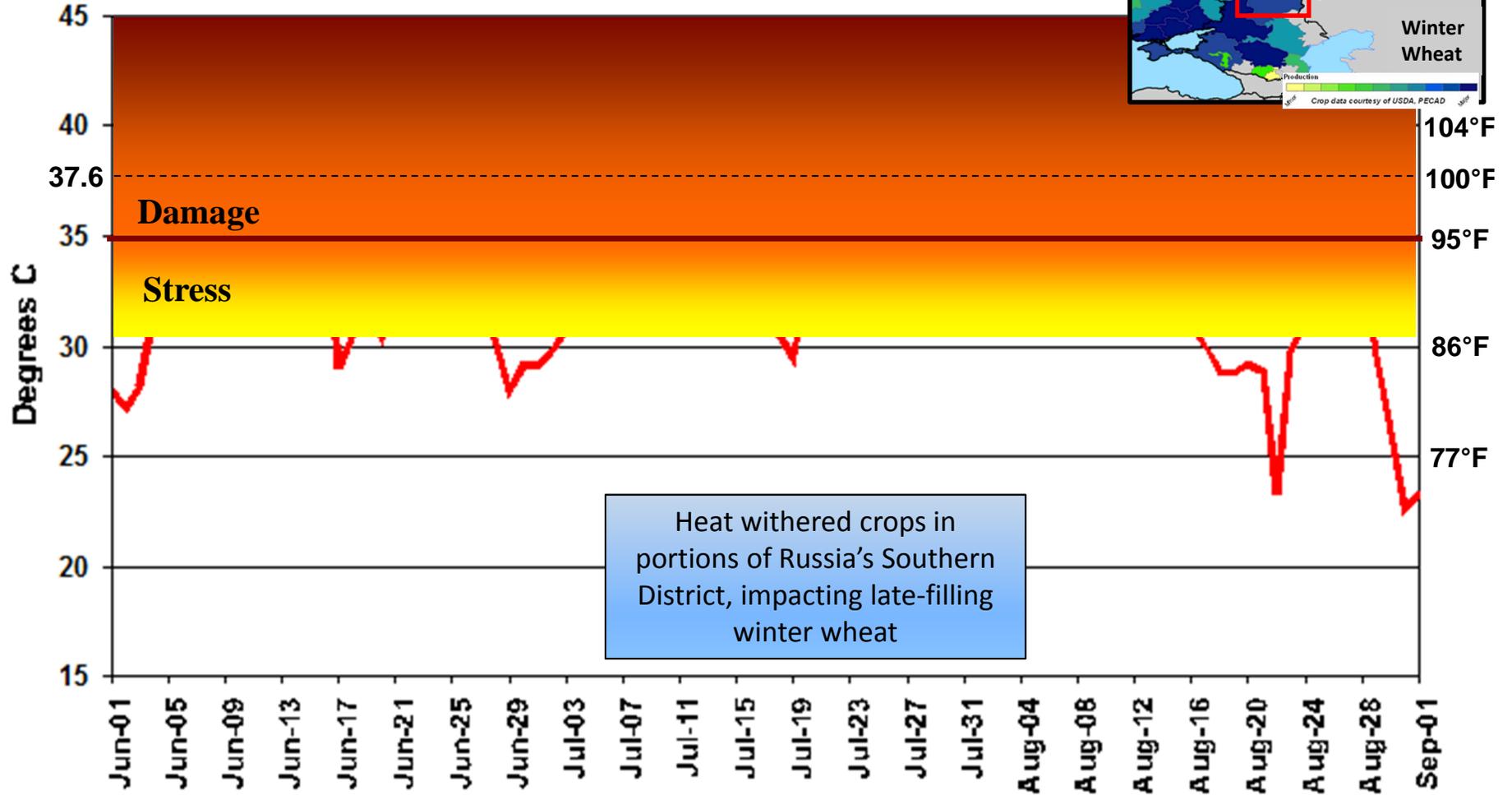
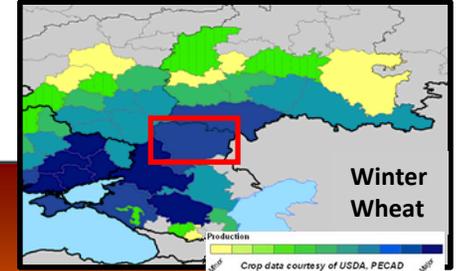
The southern Europe heat wave expanded east, encompassing key wheat and summer crop areas of Ukraine, Russia, and Kazakhstan



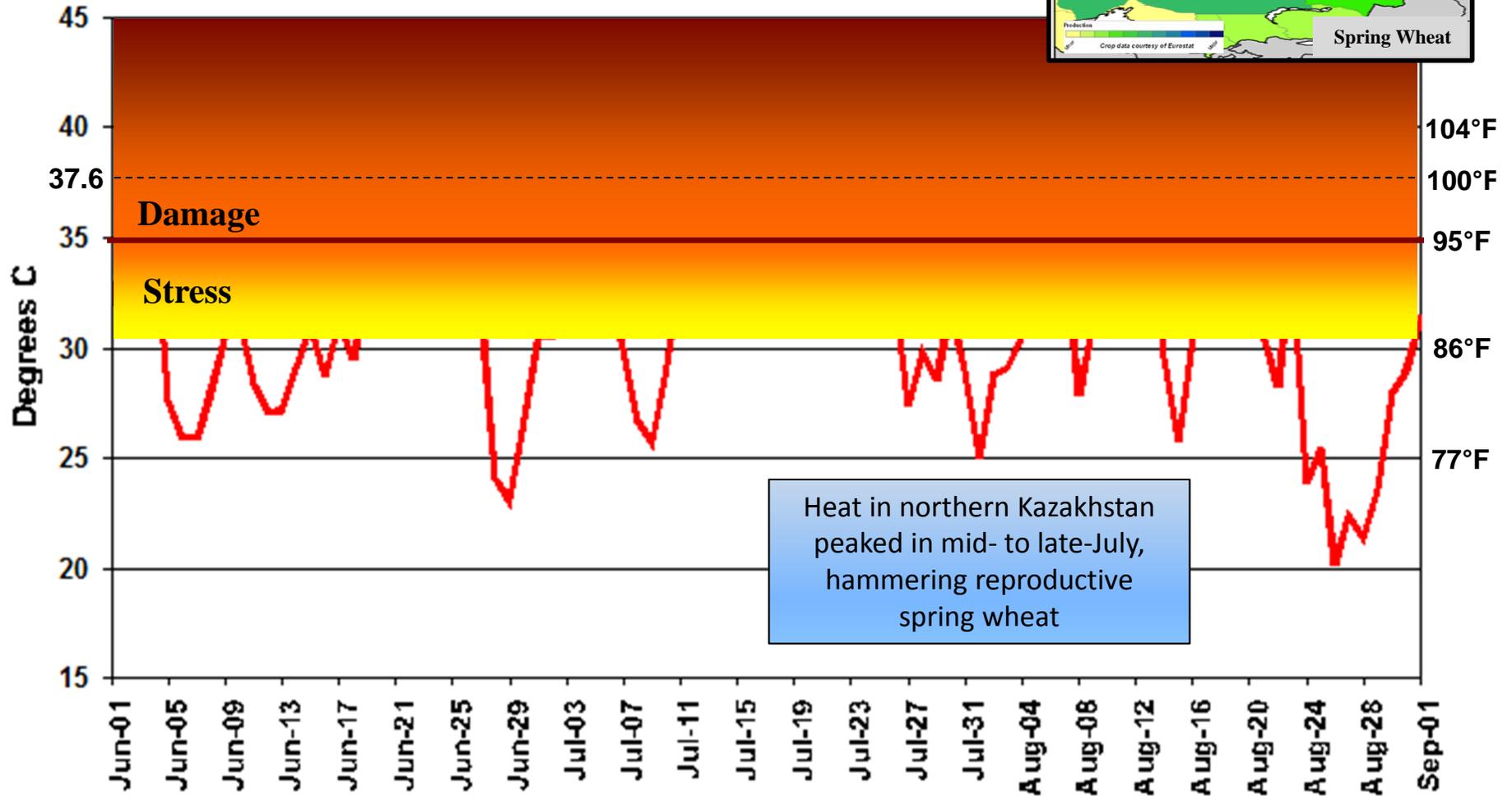
# Russia: Northern portions of the Southern District

## Daily Maximum Temperature

### June 1 – August 31



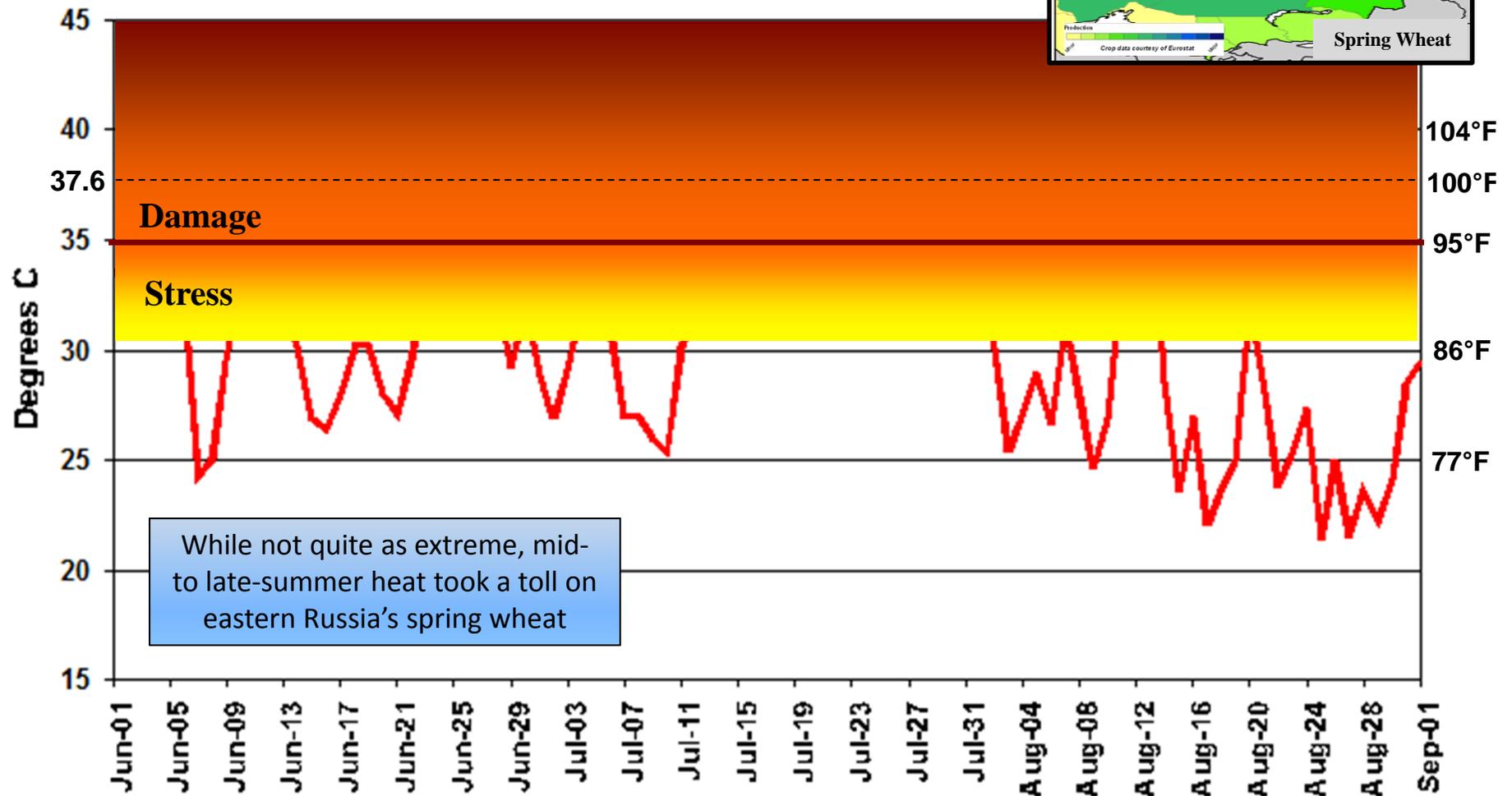
# Northwestern Kazakhstan Daily Maximum Temperature June 1 – August 31



# Russia: Siberia District, Novosibirsk

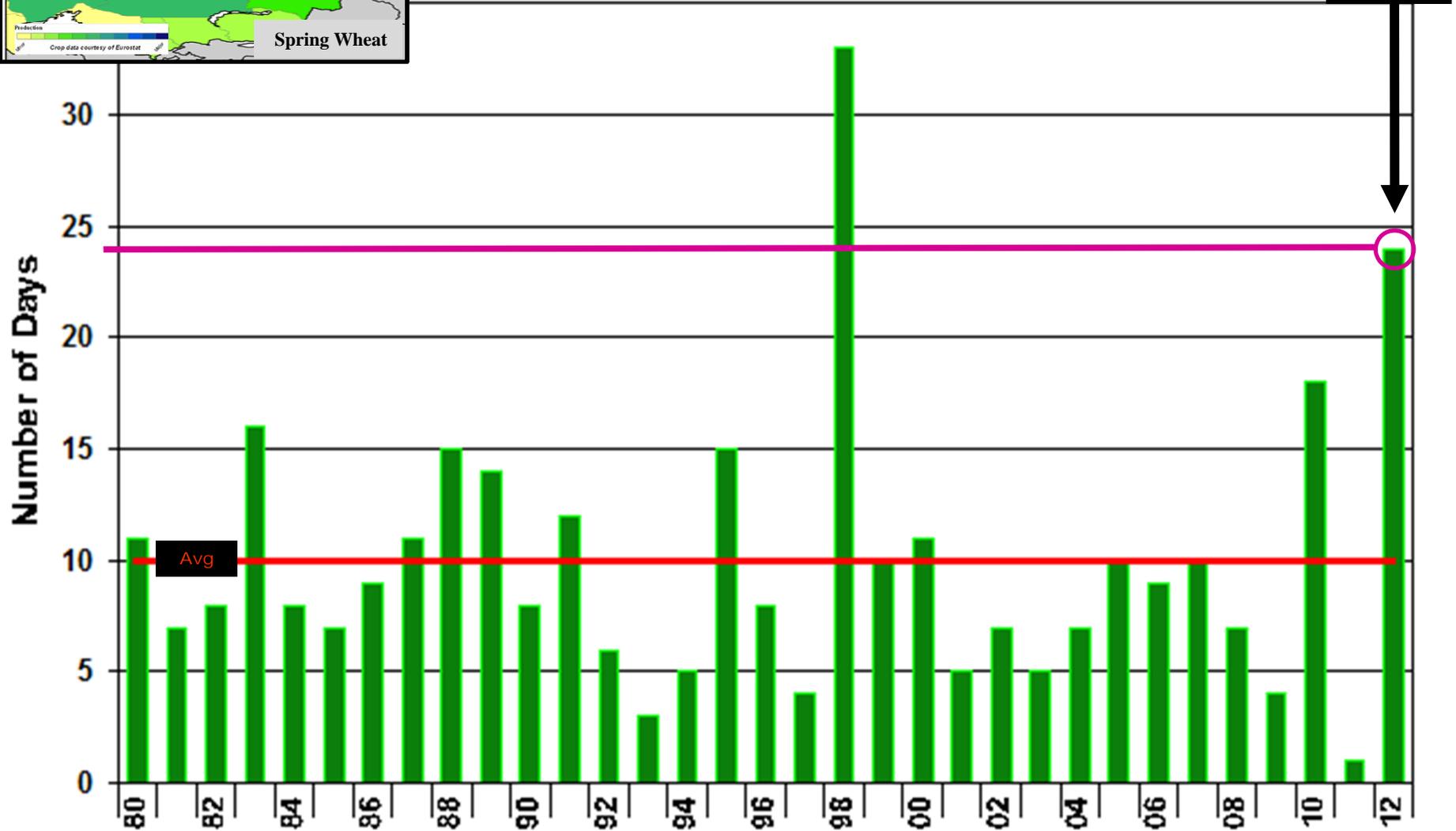
## Daily Maximum Temperature

### June 1 – August 31



# Northwestern Kazakhstan

Days at or above **95°F**  
June 1 – August 31, 1980-2012

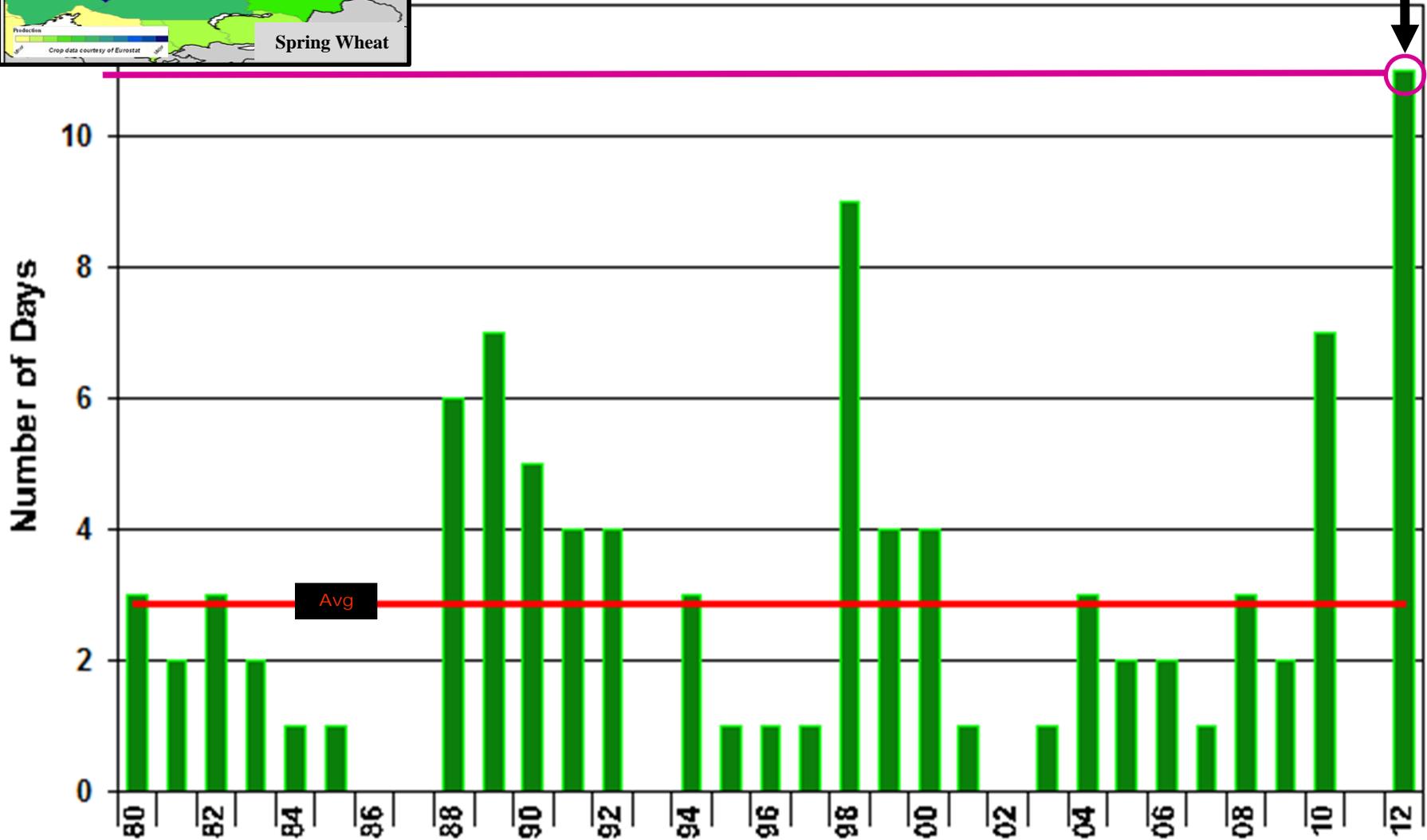


# Russia – Siberia District, Omsk

Days at or above **95°F**  
June 1 – August 31, 1980-2012



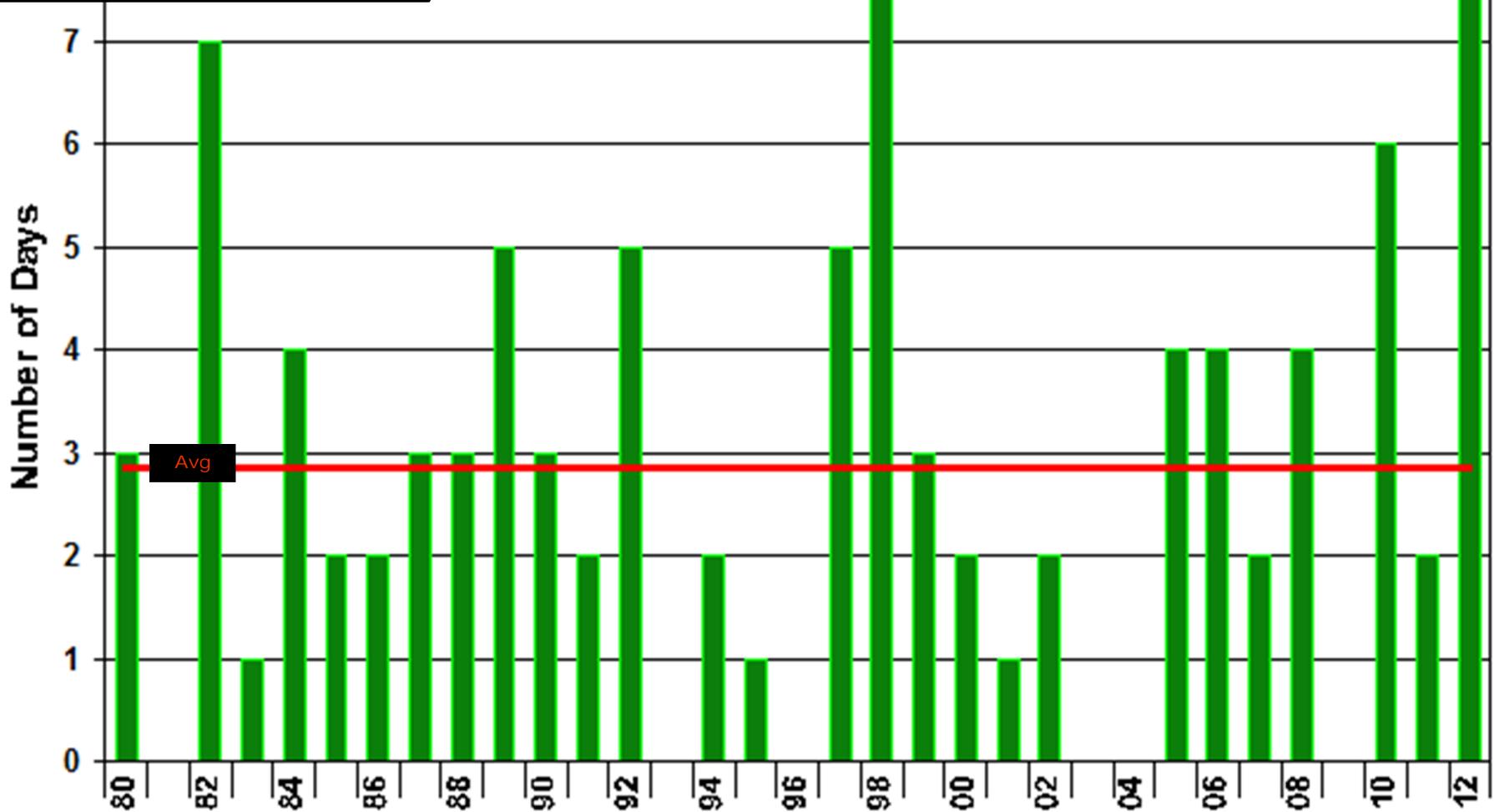
Most:  
11 Days  
(3 Avg)



# Russia – Siberia District, Novosibirsk

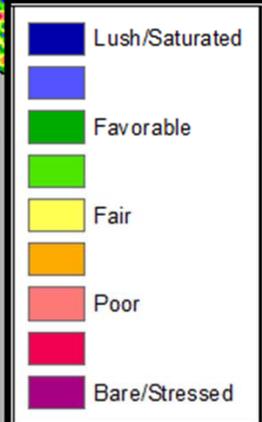
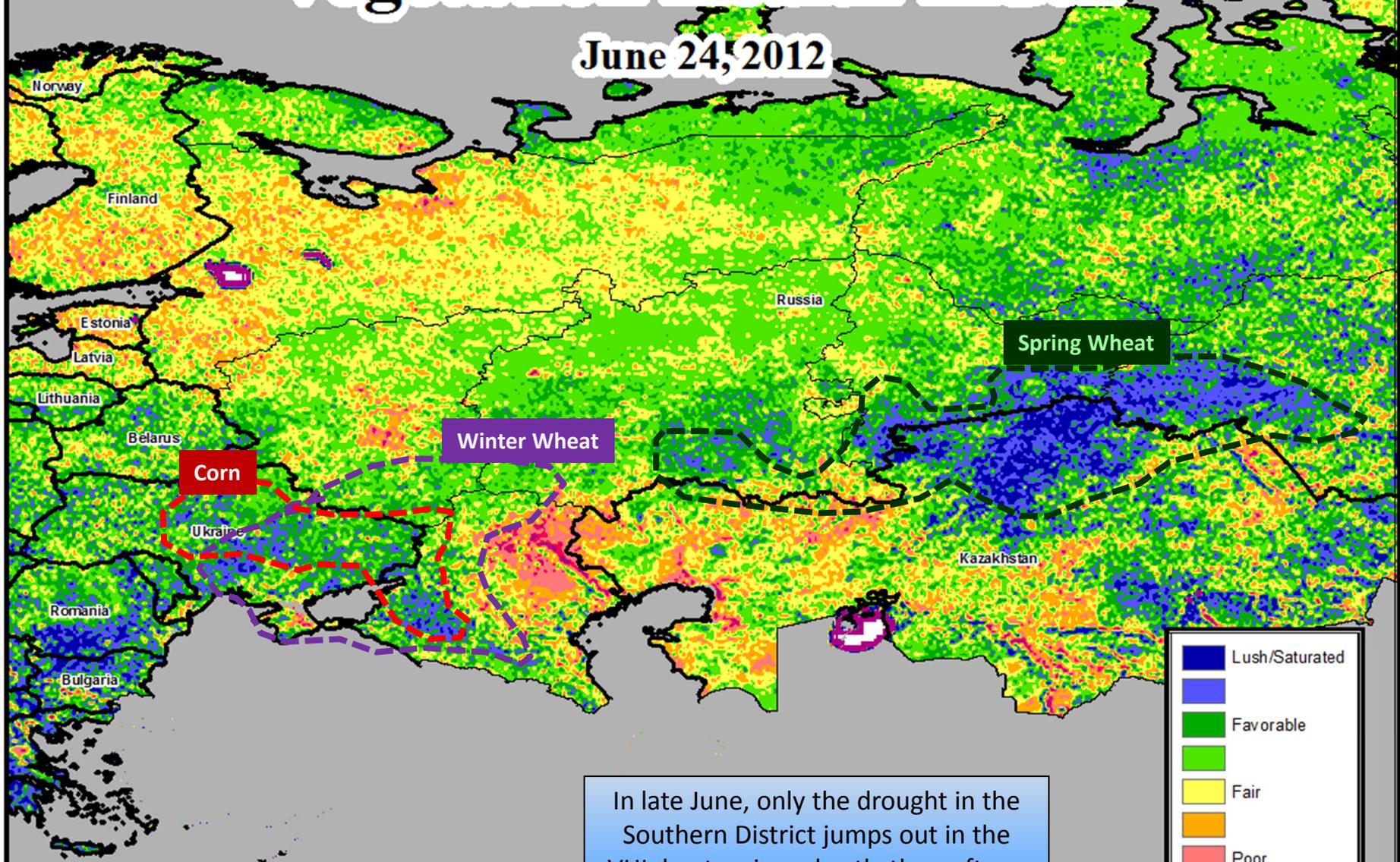
Days at or above **95°F**  
June 1 – August 31, 1980-2012

Tied – Most:  
8 Days  
(3 Avg)



# Vegetation Health Index

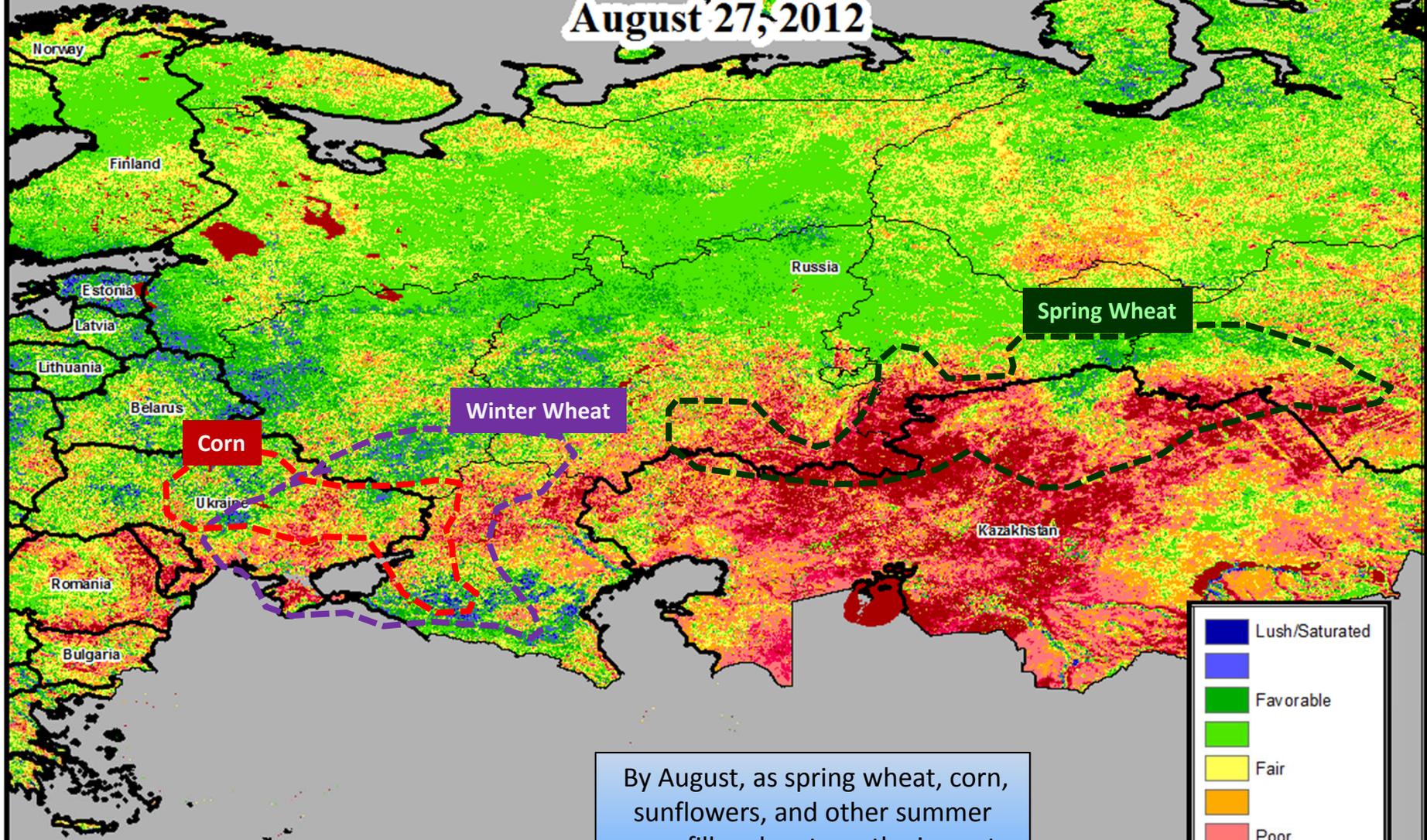
June 24, 2012



In late June, only the drought in the Southern District jumps out in the VHI; heat arrives shortly thereafter...

# Vegetation Health Index

August 27, 2012



Corn

Winter Wheat

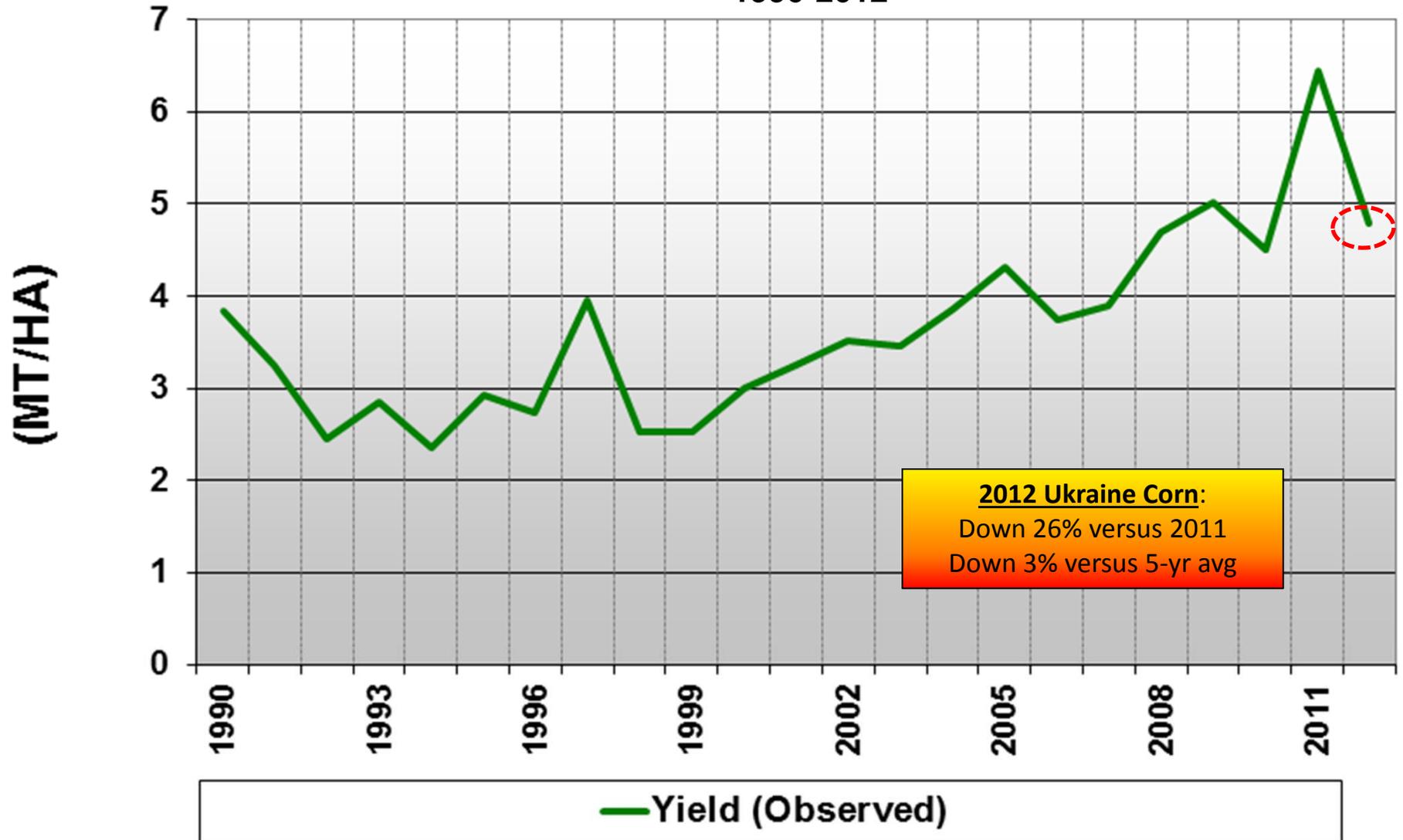
Spring Wheat

By August, as spring wheat, corn, sunflowers, and other summer crops fill and mature, the impacts are widespread

Dark Blue	Lush/Saturated
Light Blue	Favorable
Green	Fair
Yellow	Poor
Red	Bare/Stressed

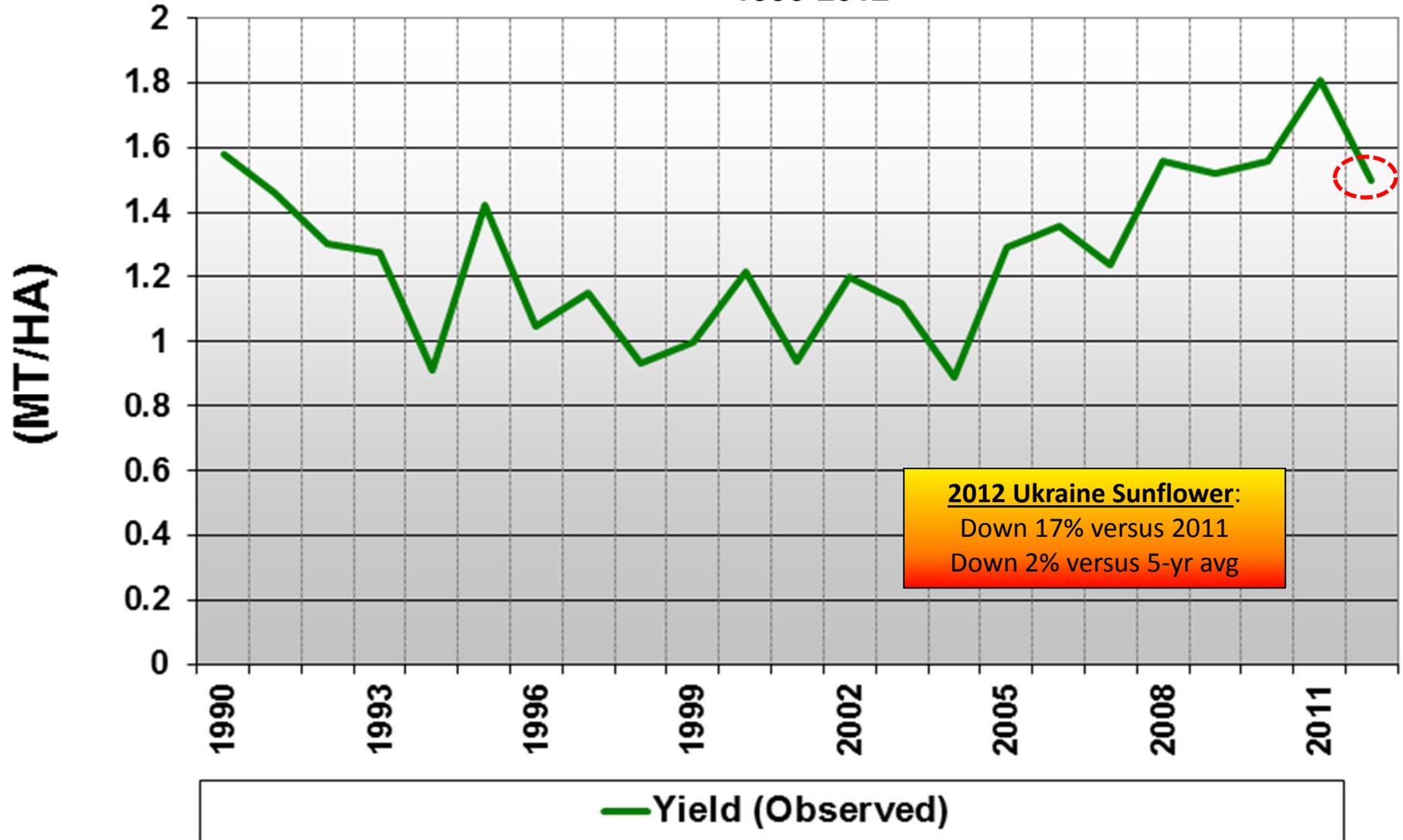
# Ukraine Corn Yield

1990-2012



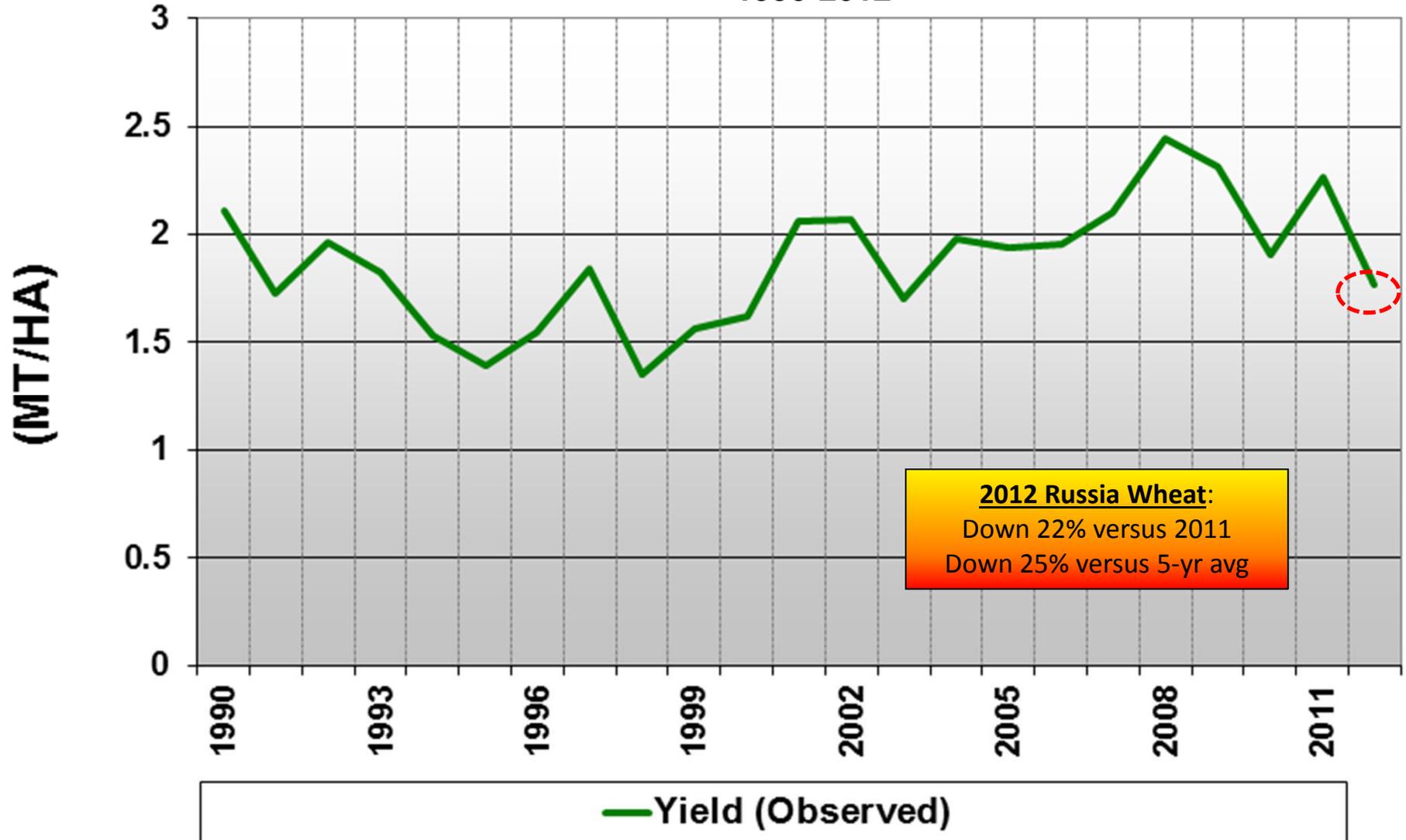
# Ukraine Sunflower Yield

1990-2012

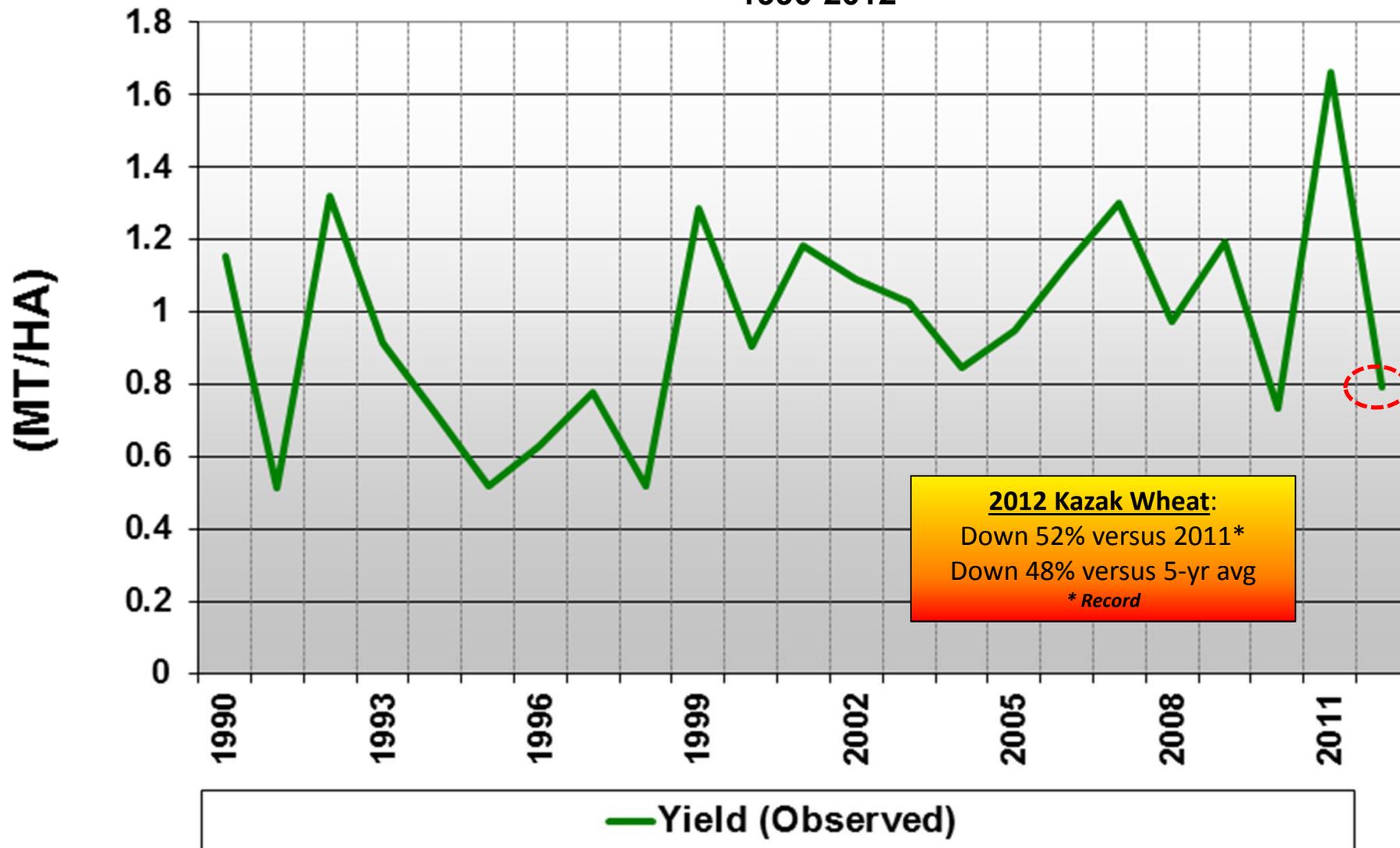


# Russia Wheat (All) Yield

1990-2012

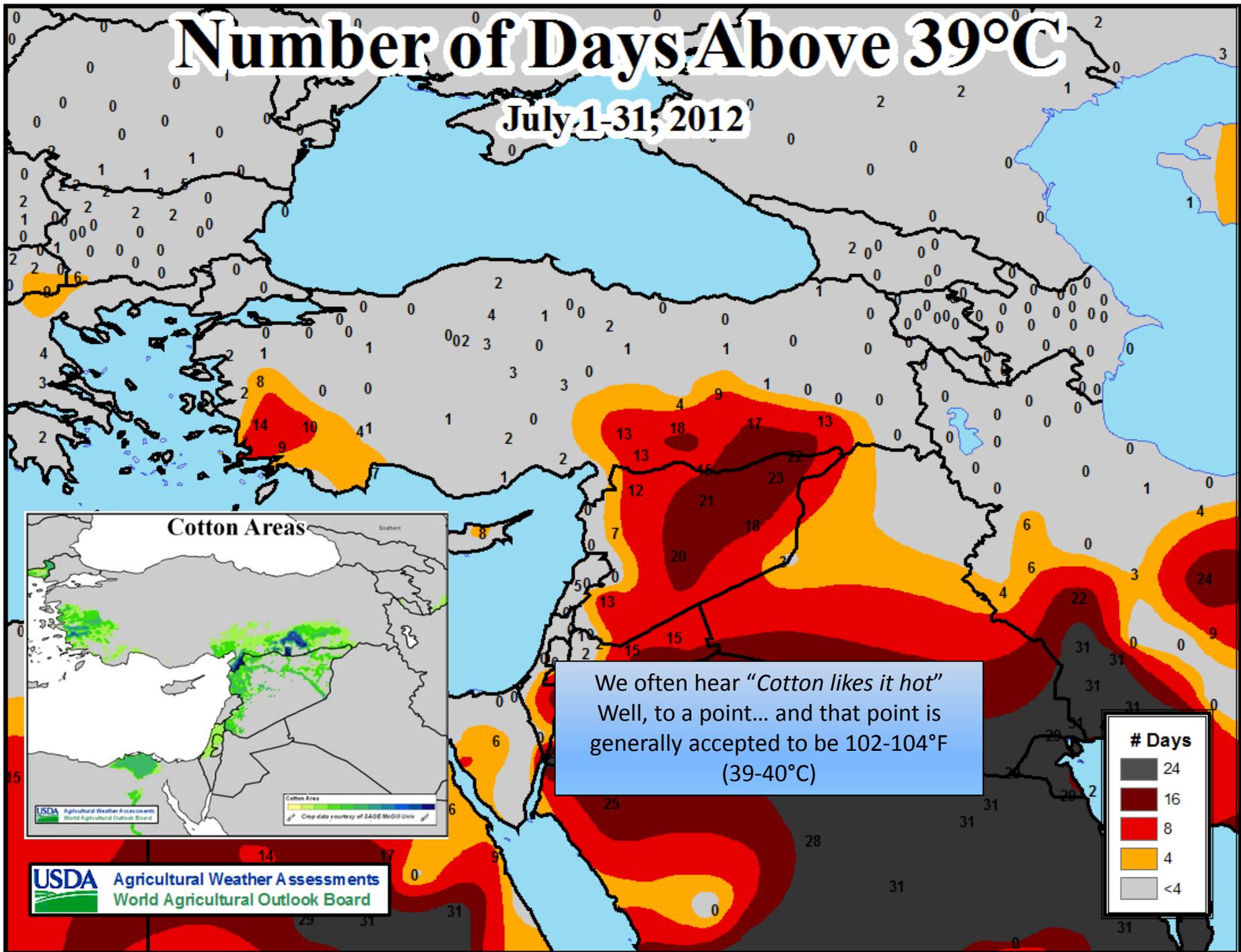


# Kazakhstan Wheat (Spring) Yield 1990-2012

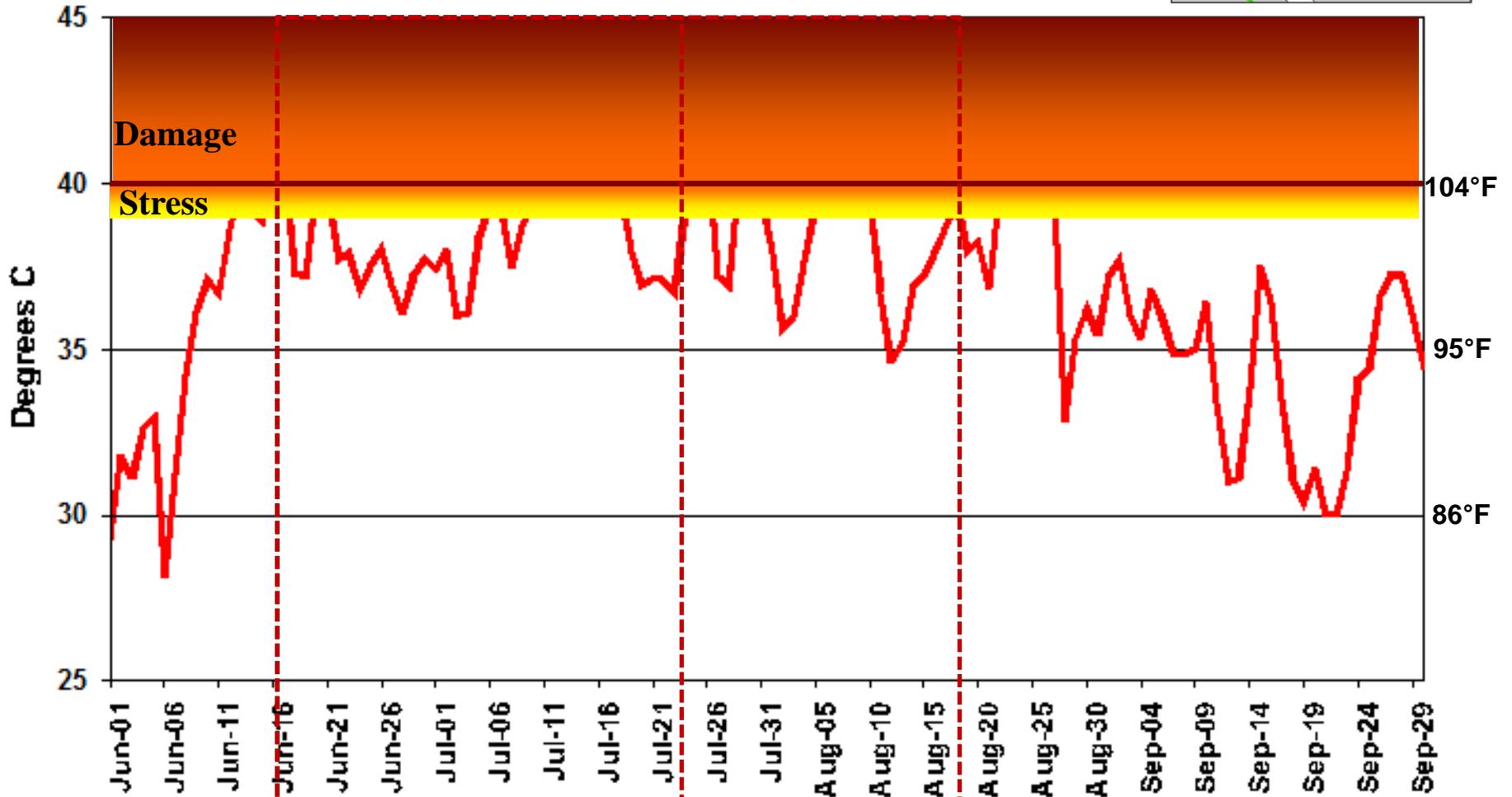
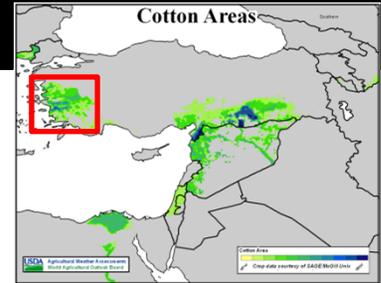


# Number of Days Above 39°C

July 1-31, 2012



# TURKEY: Western Cotton Extreme Maximum Temperatures



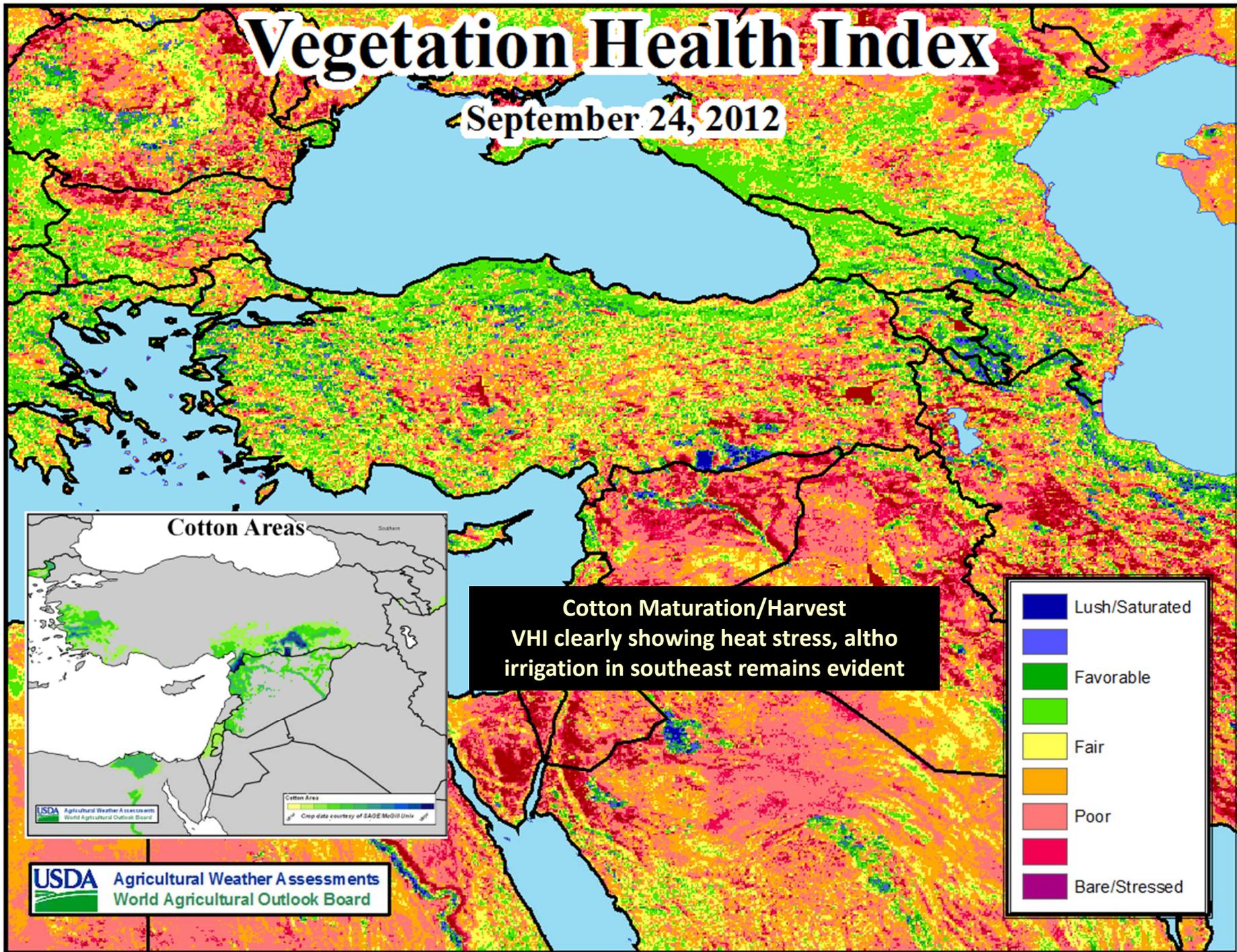
May Rainfall:

Flowering

Delayed  
Flowering?

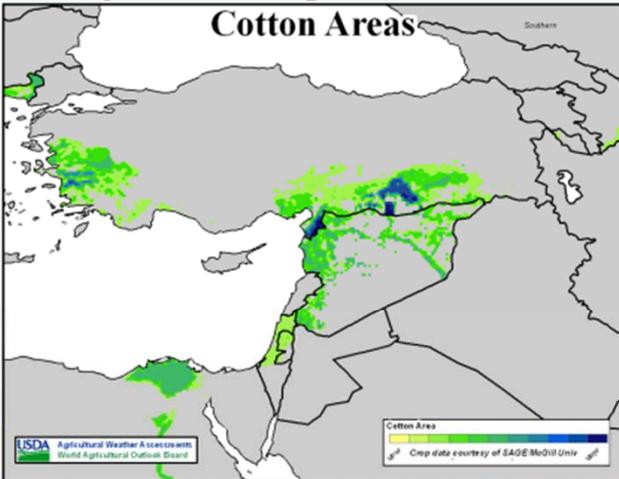
# Vegetation Health Index

September 24, 2012



- Lush/Saturated
- Favorable
- Fair
- Poor
- Bare/Stressed

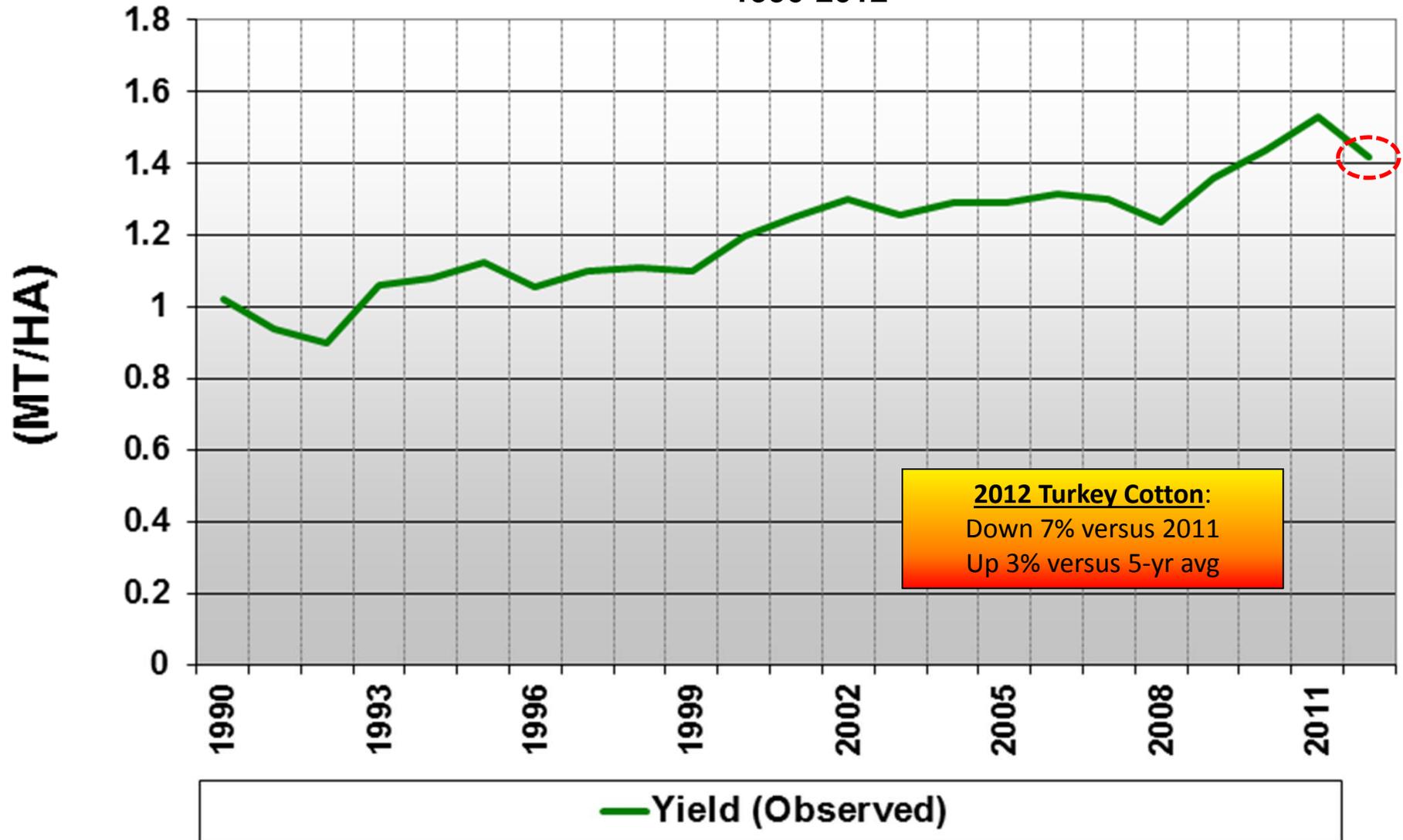
Cotton Maturation/Harvest  
VHI clearly showing heat stress, altho  
irrigation in southeast remains evident



USDA Agricultural Weather Assessments  
World Agricultural Outlook Board

# Turkey Cotton Yield

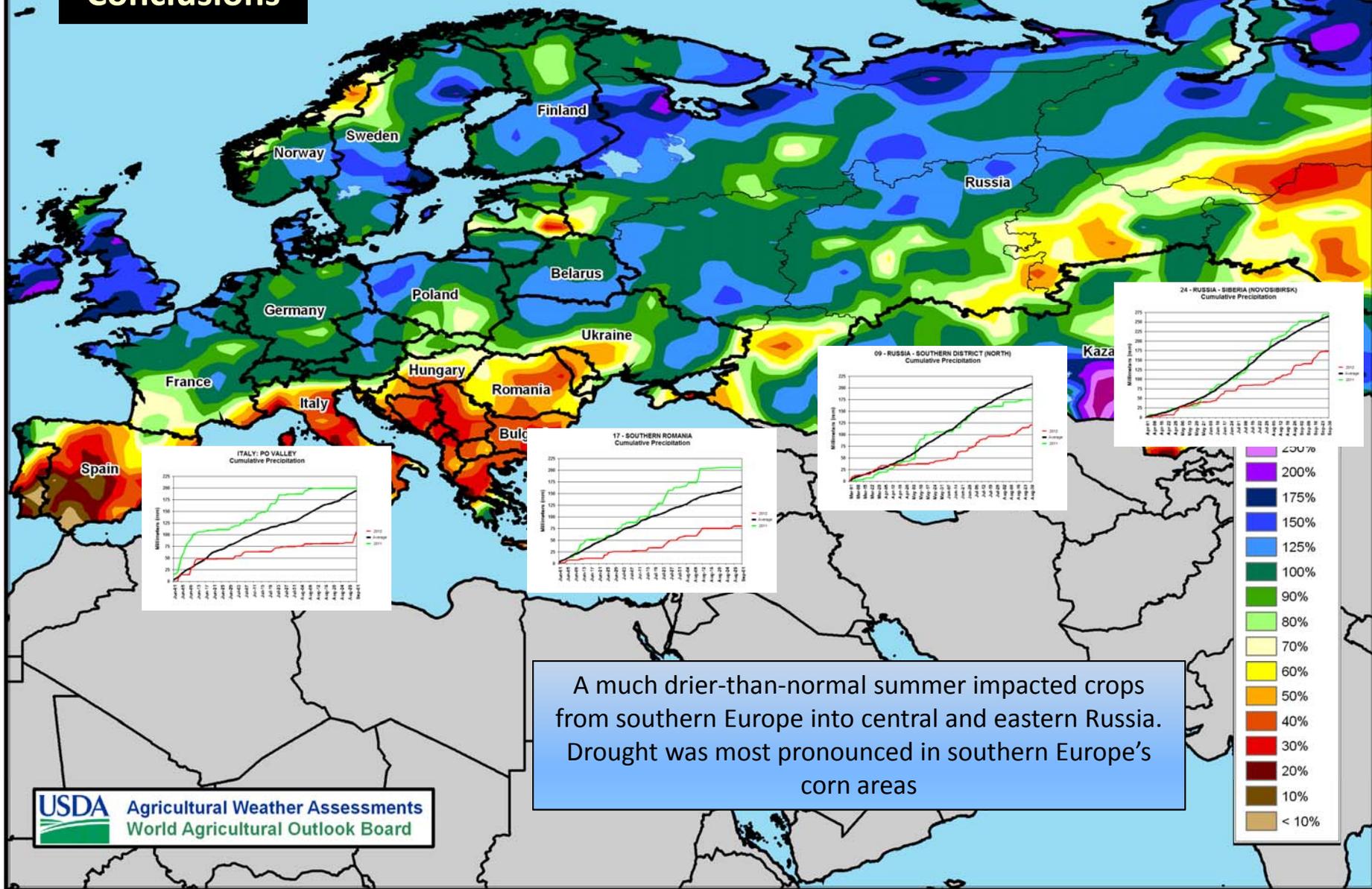
1990-2012



# Percent of Normal Precip

June 1 - August 31, 2012

## Conclusions

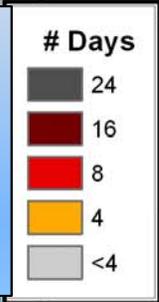
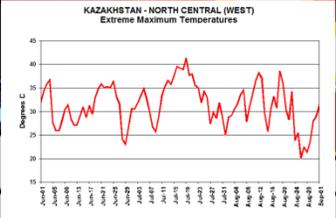
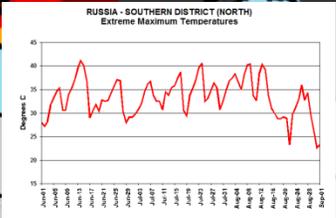
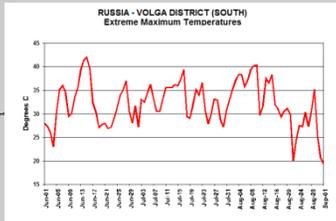
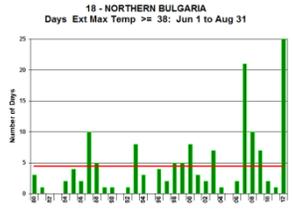
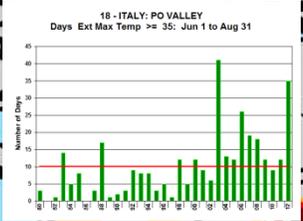
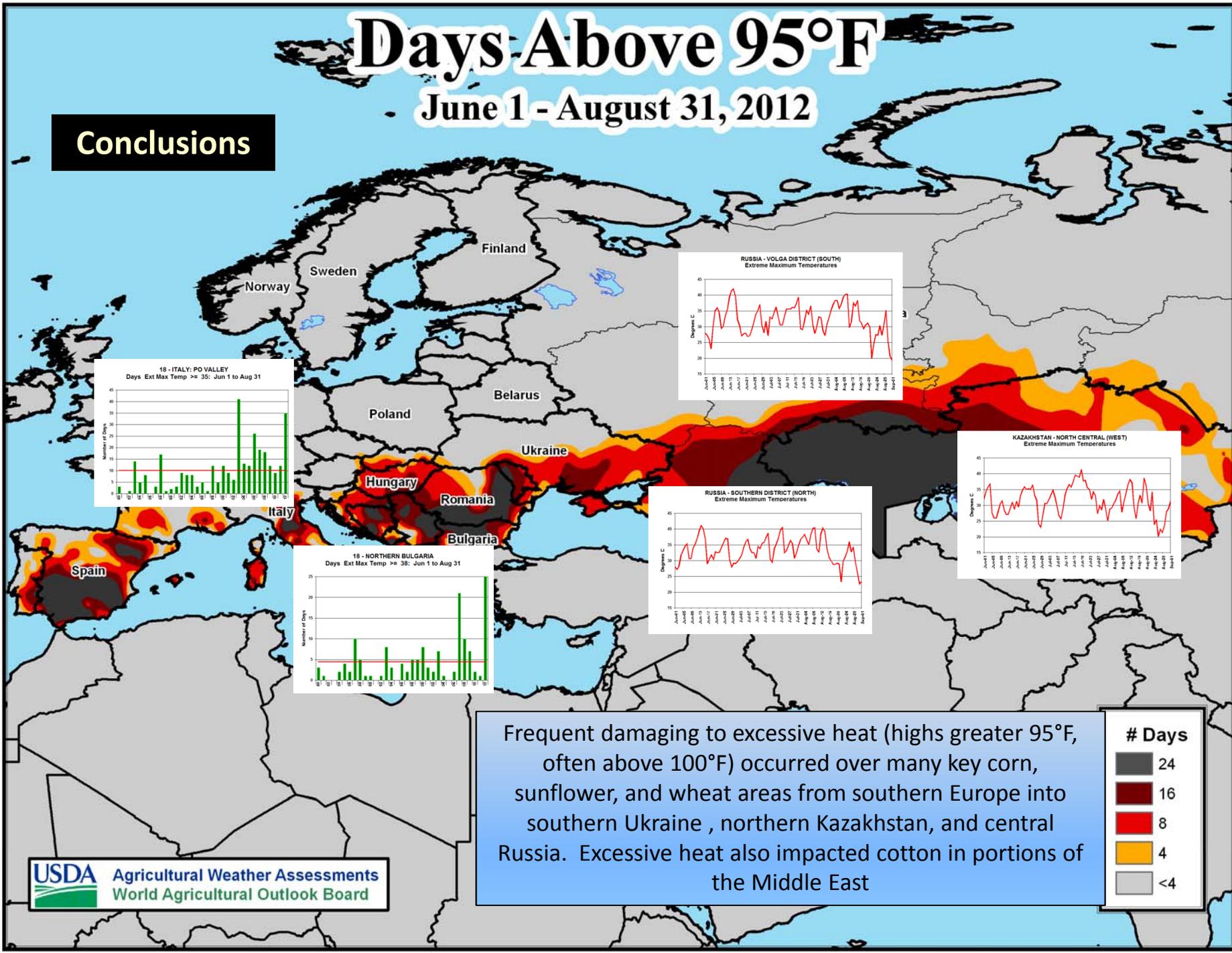


A much drier-than-normal summer impacted crops from southern Europe into central and eastern Russia. Drought was most pronounced in southern Europe's corn areas

# Days Above 95°F

## June 1 - August 31, 2012

### Conclusions

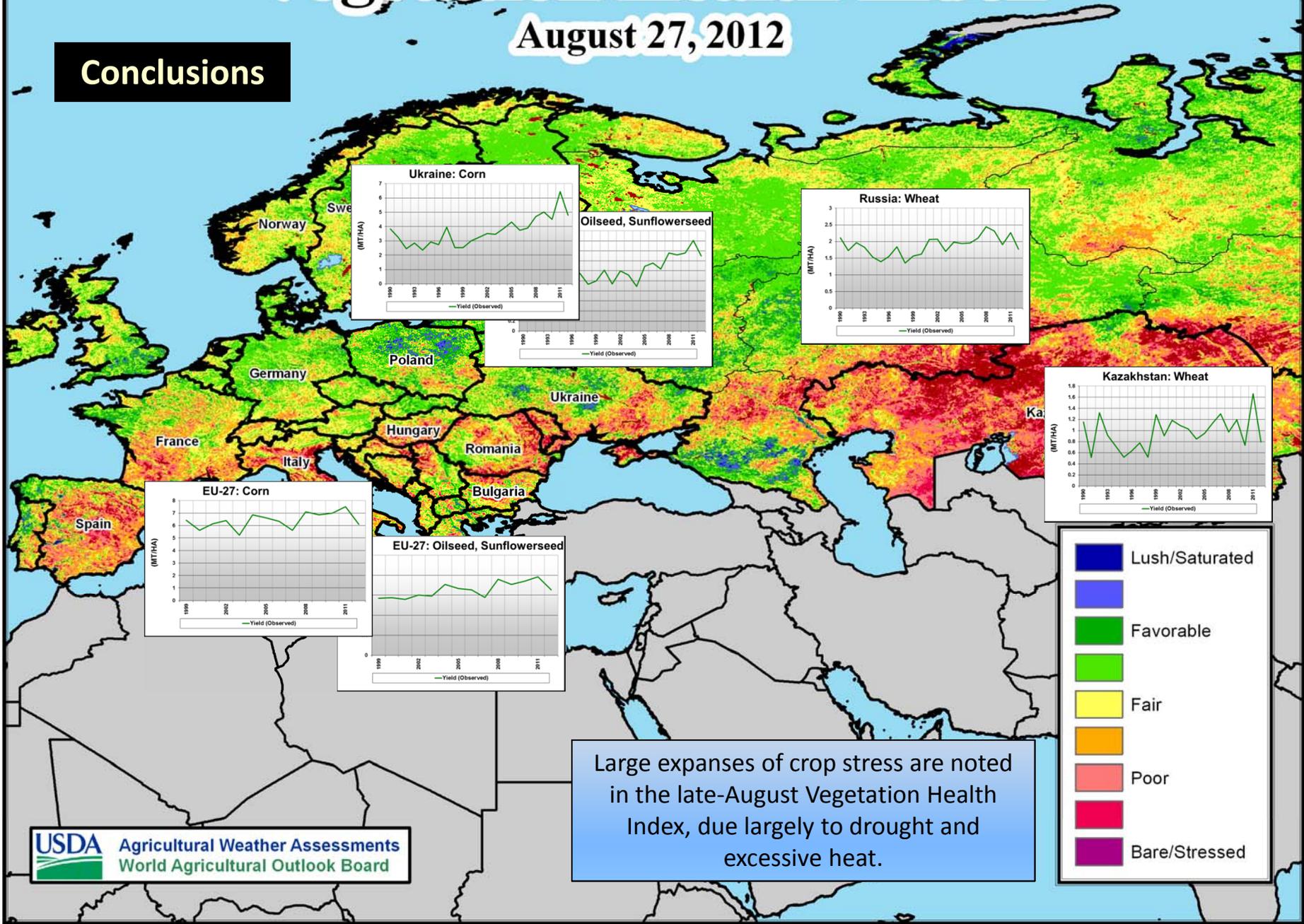


Frequent damaging to excessive heat (highs greater 95°F, often above 100°F) occurred over many key corn, sunflower, and wheat areas from southern Europe into southern Ukraine, northern Kazakhstan, and central Russia. Excessive heat also impacted cotton in portions of the Middle East

# Vegetation Health Index

August 27, 2012

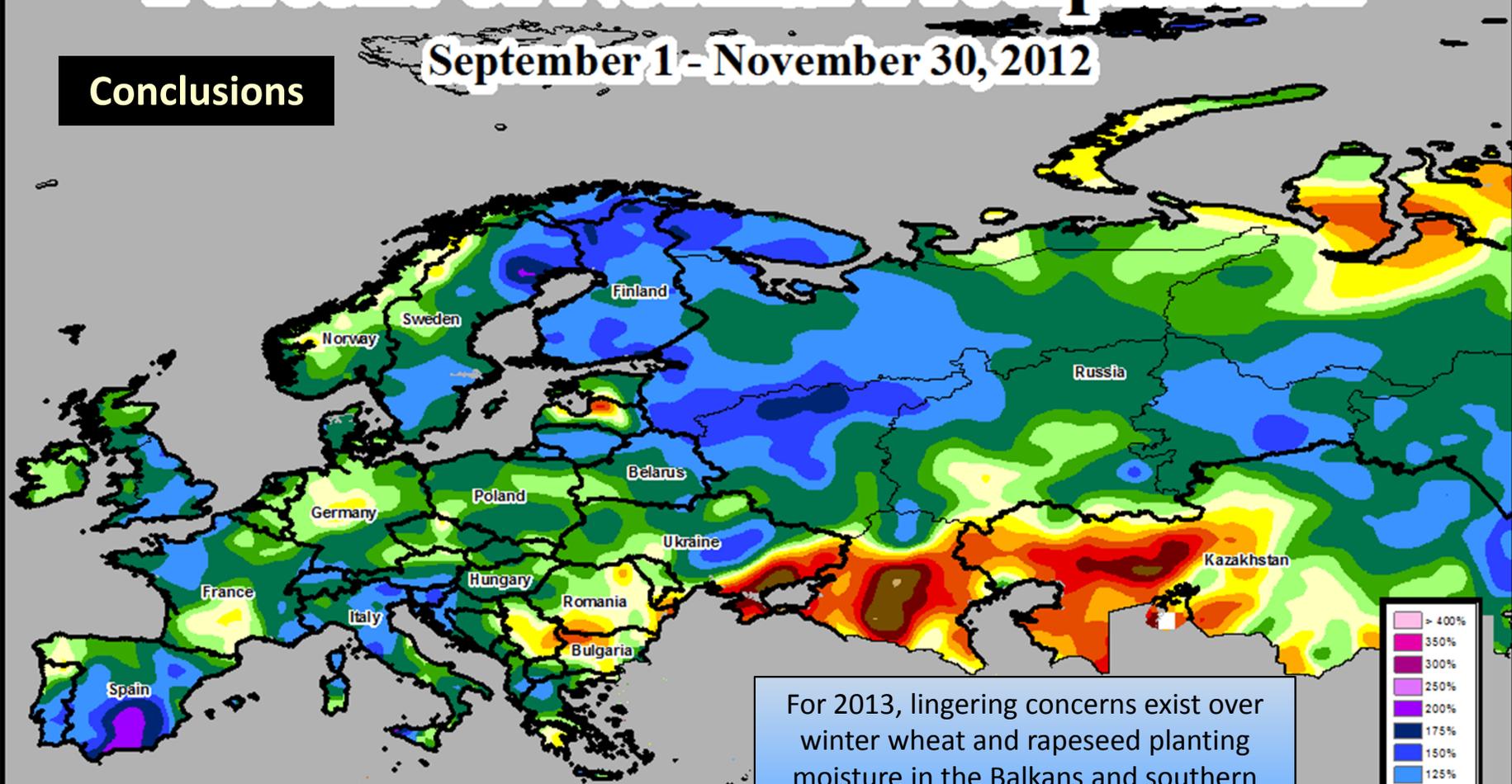
## Conclusions



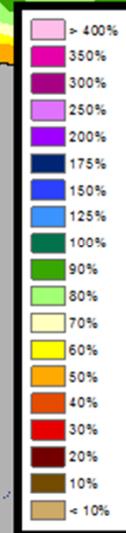
# Percent of Normal Precipitation

September 1 - November 30, 2012

## Conclusions



For 2013, lingering concerns exist over winter wheat and rapeseed planting moisture in the Balkans and southern portions of Ukraine and Russia



# Meteorology

On a side note, February 5<sup>th</sup> was “National Weatherman’s Day” ... I didn’t know it existed until this year, when I was sent the following summary of our profession...

What half of society thinks I do



What I want to do



What my friends think I do



What I actually do

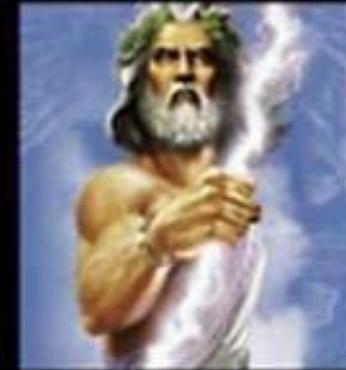
# Meteorology



What half of society thinks I do



What my parents think I do.



What kids think I do.



What I want to do.



What my friends think I do.



What I actually do.

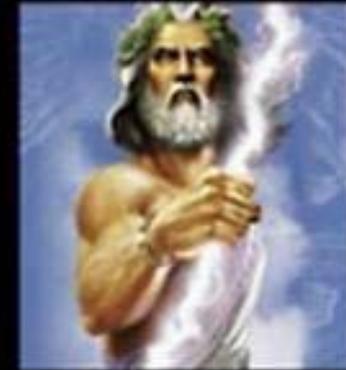
# Meteorology



What half of society thinks I do



What my parents think I do.



What kids think I do.

*Questions?*



What I want to do.



What my friends think I do.



What I actually do.