The Agricultural Outlook: USDA's Commodity Analysis Program and Current Market Prospects

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Chairperson

World Agricultural Outlook Board
Office of the Chief Economist
U.S. Department of Agriculture

Presented to

John Deere Executives

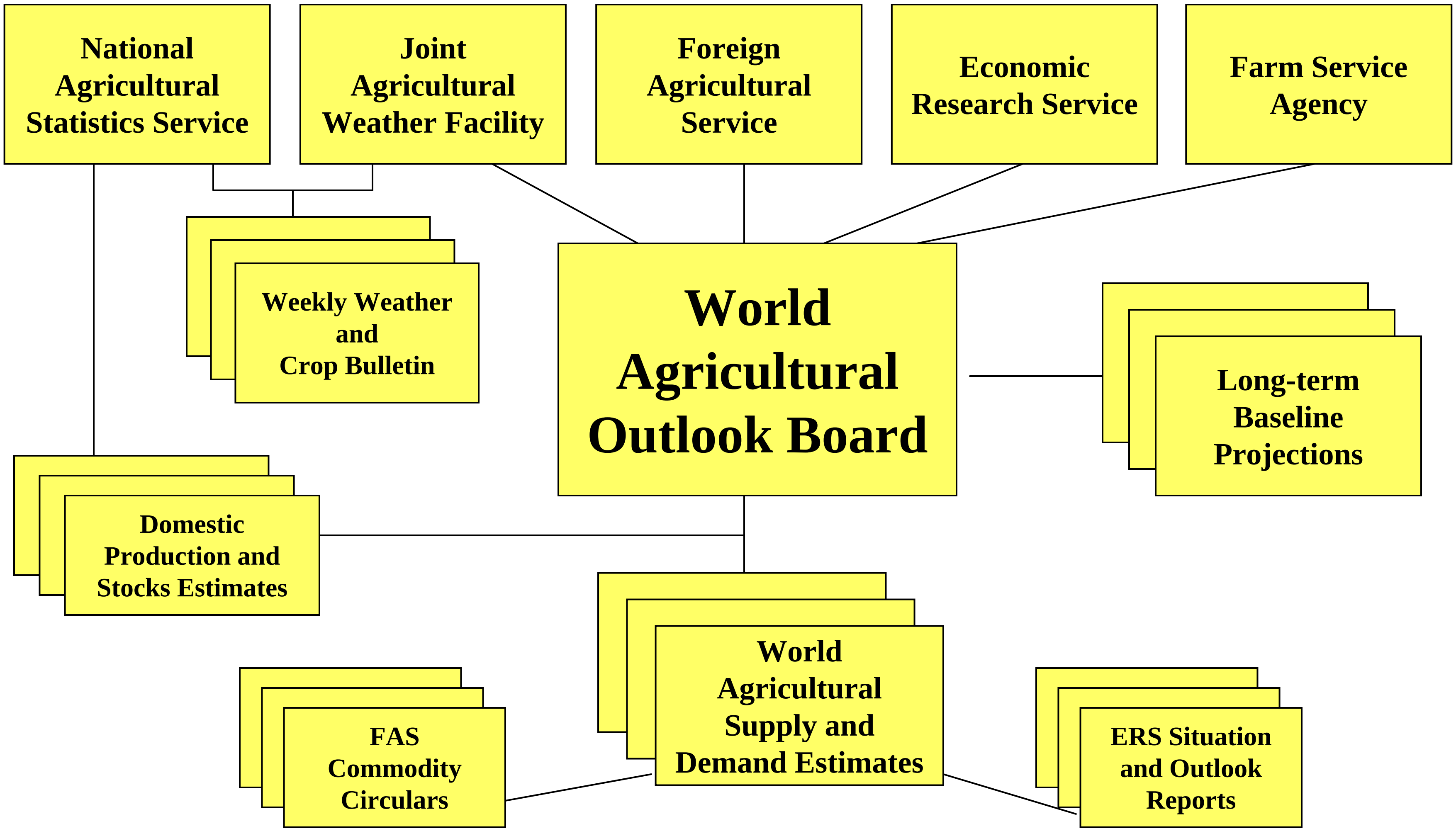
Moline, Illinois

July 22, 2008

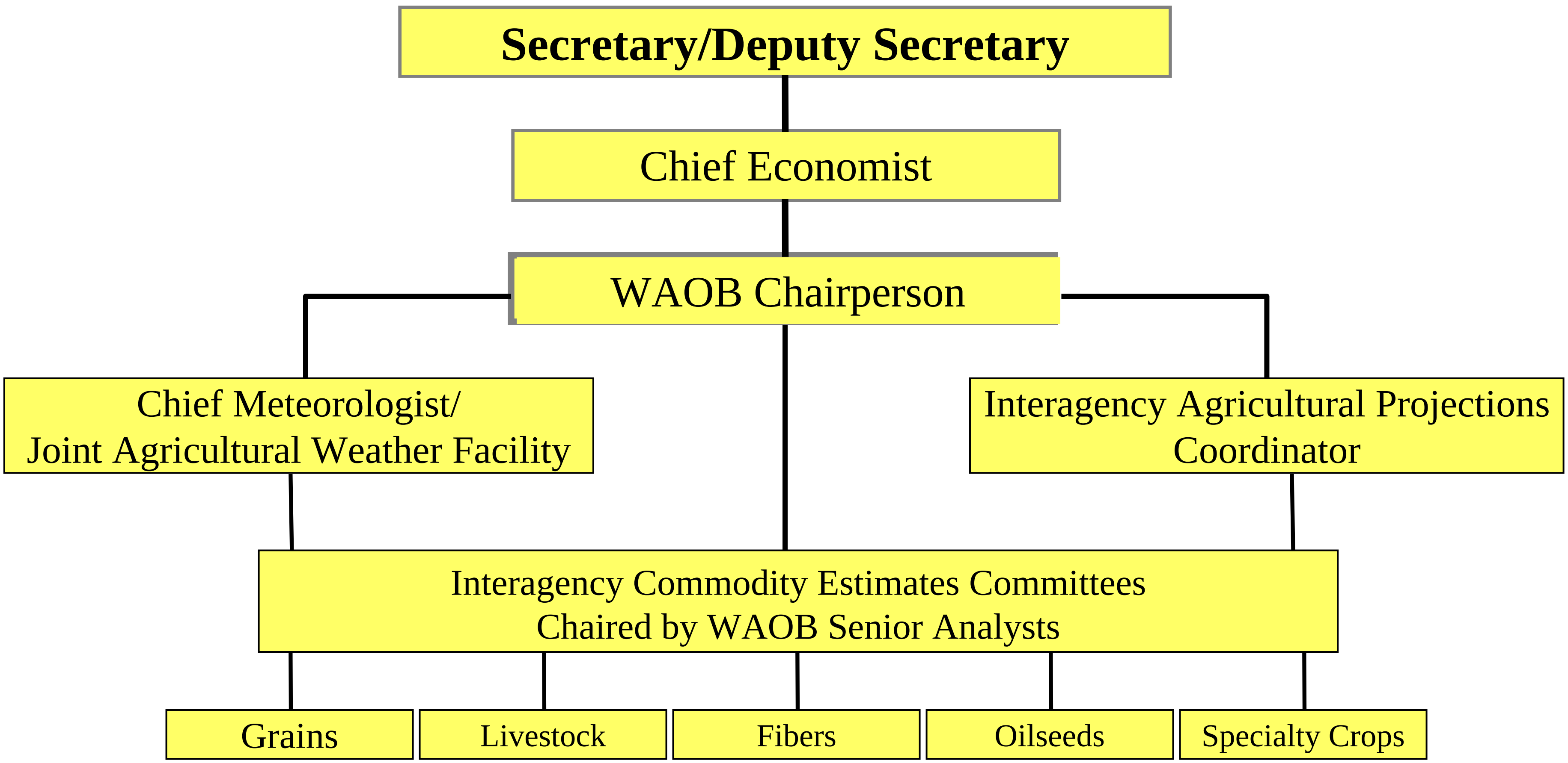
Topics for Discussion

- USDA's Analytical Program
- Commodity Situation and Outlook
- Impact of Renewable Energy
- Fuel vs. Food Debate
- Prospects for World Agricultural Growth

USDA's Economic Information System



Organizational Structure



Agency Roles in Analytical Process

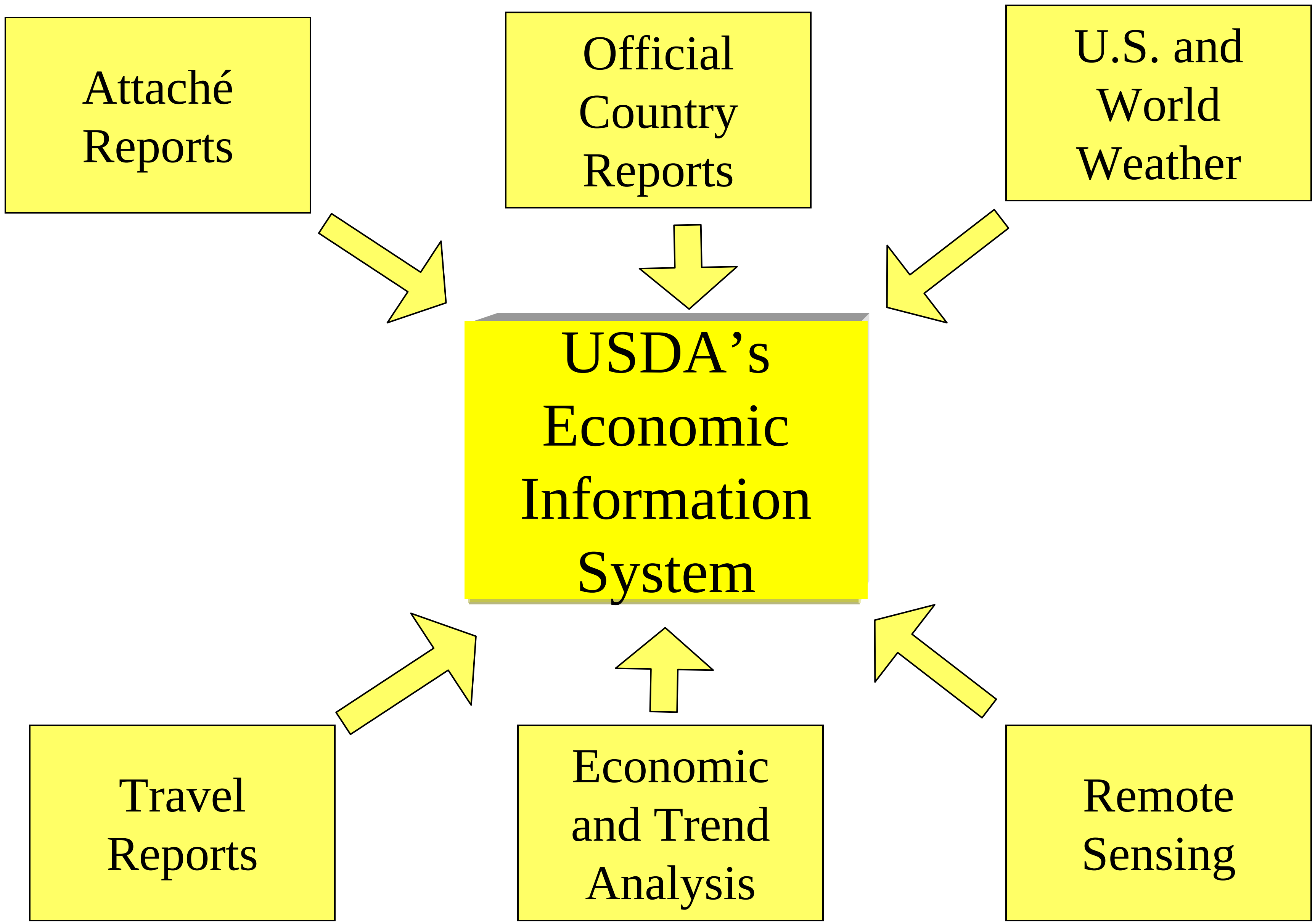
- **National Agricultural Statistics Service -** Planting Intentions, Crop Condition Assessments, Production and Stocks Estimates, Season Average Prices, Inventory Numbers, Marketing and Slaughter Data
- **Foreign Agricultural Service** - Attaché Service, Foreign Information, Remote Sensing, Trade Data, Maintain Official Data Base
- **Economic Research Service -** Survey and Evaluation of Current Information, Trade Economics, Food and Industrial Use Estimates, Foreign Country Macroeconomic Assessments
- **Farm Service Agency** - U.S. Farm Program Participation, Program Analysis, Budget Liaison, Mandatory Reports
- **Agricultural Marketing Service** - Domestic Market Information, Wholesale Prices, Warehouse Inventories, Shipments Data, Grain Inspections, Border Crossings

World Agricultural Outlook Board

- Chairs Interagency Committees
  - Commodity Supply and Demand Estimates
  - Agricultural Projections
- Clears USDA Outlook Reports
- Directs Weather Analysis
  - Joint Agricultural Weather Facility
  - World Meteorological Organization Liaison
- Coordinates Climate and Remote Sensing Activities
  - Landsat Imagery
  - Meteorological Satellite Data

Goals of USDA’s Analytical Program

- **Objectivity**
  - Provide unbiased information
- **Reliability**
  - Based on sound data and analysis
- **Timeliness**
  - Fast flow to users


Attaché Reports
Official Country Reports
U.S. and World Weather
USDA's Economic Information System
Travel Reports
Economic and Trend Analysis
Remote Sensing

Commodity Situation and Outlook (Overview)

- **Strong Demand Worldwide**
  - Income growth in developing countries – India, China, etc.
  - Japan and other Asian markets active buyers despite high prices
  - Weak U.S. dollar
- **Rising Petroleum Prices**
- **Increased Production of Renewable Fuels**
  - Corn for ethanol in the United States
  - Oilseeds for biodiesel in the European Union

Projected Growth Rates

	2008	2009	2010	Average
U.S.	1.6	1.7	3.3	2.2
EU-27	2.2	1.5	2.2	2.0
Japan	1.5	1.4	2.1	1.7
China	10.5	8.8	8.4	9.2
India	7.9	6.8	7.6	7.4
World	3.1	2.8	3.6	3.2

Source: Oxford Economics

Overview

(continued)

- **Tight Grain and Soybean Stocks**
  - U.S wheat stocks at 60-year low
  - World wheat stocks at 26-year low
  - Corn stocks forecast to decline sharply in 2008/09
  - U.S. soybean acres dropped sharply in 2007/08, stocks reduced from record beginning levels as use exceeds production by 450+ million bushels
  - South American soybean acres increased only modestly in 2007/08
  - China imports of soybeans forecast record high

Overview

(continued)

- **World Wheat Consumption has exceeded Production in 7 of the last 8 years**
  - Yields below trend in major exporting countries for the past 2 years
  - Australia recorded 2 back-to-back crop failures – lost more than one full year's output
  - E.U. crops below par
  - U.S. yields below trend
  - Canadian crops below average

Overview

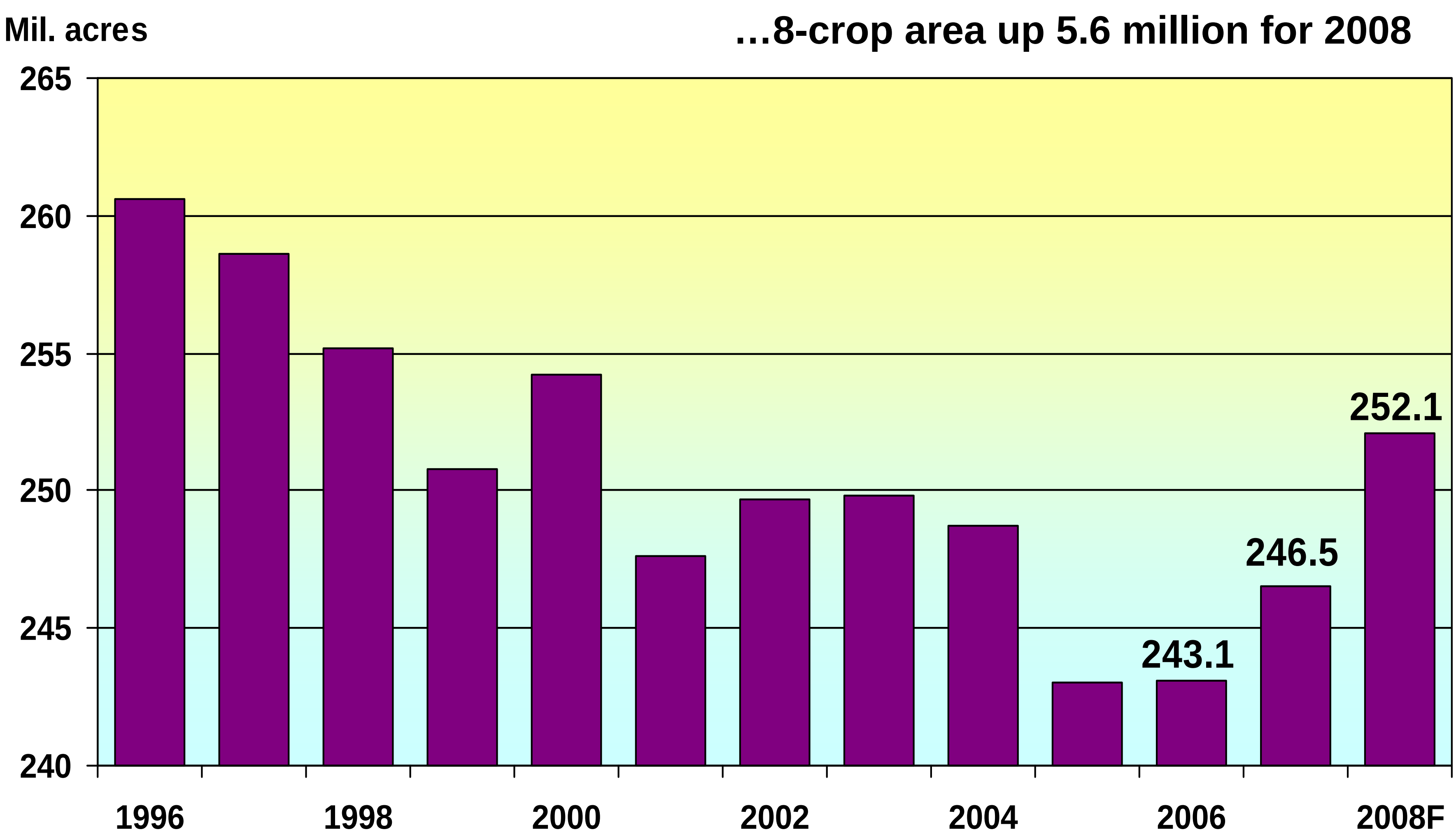
(continued)

- **Restrictions on World Exports**
  - Ukraine, Russia, and Kazakhstan curtailed grain exports
  - Argentina shut-off export registrations on corn and wheat and raised taxes on soybean exports
  - Thailand, Vietnam, India, Egypt, Cambodia, and China imposed various restraints on rice exports
  - Australian rice exportable supplies down sharply due to drought

Overview
(continued)

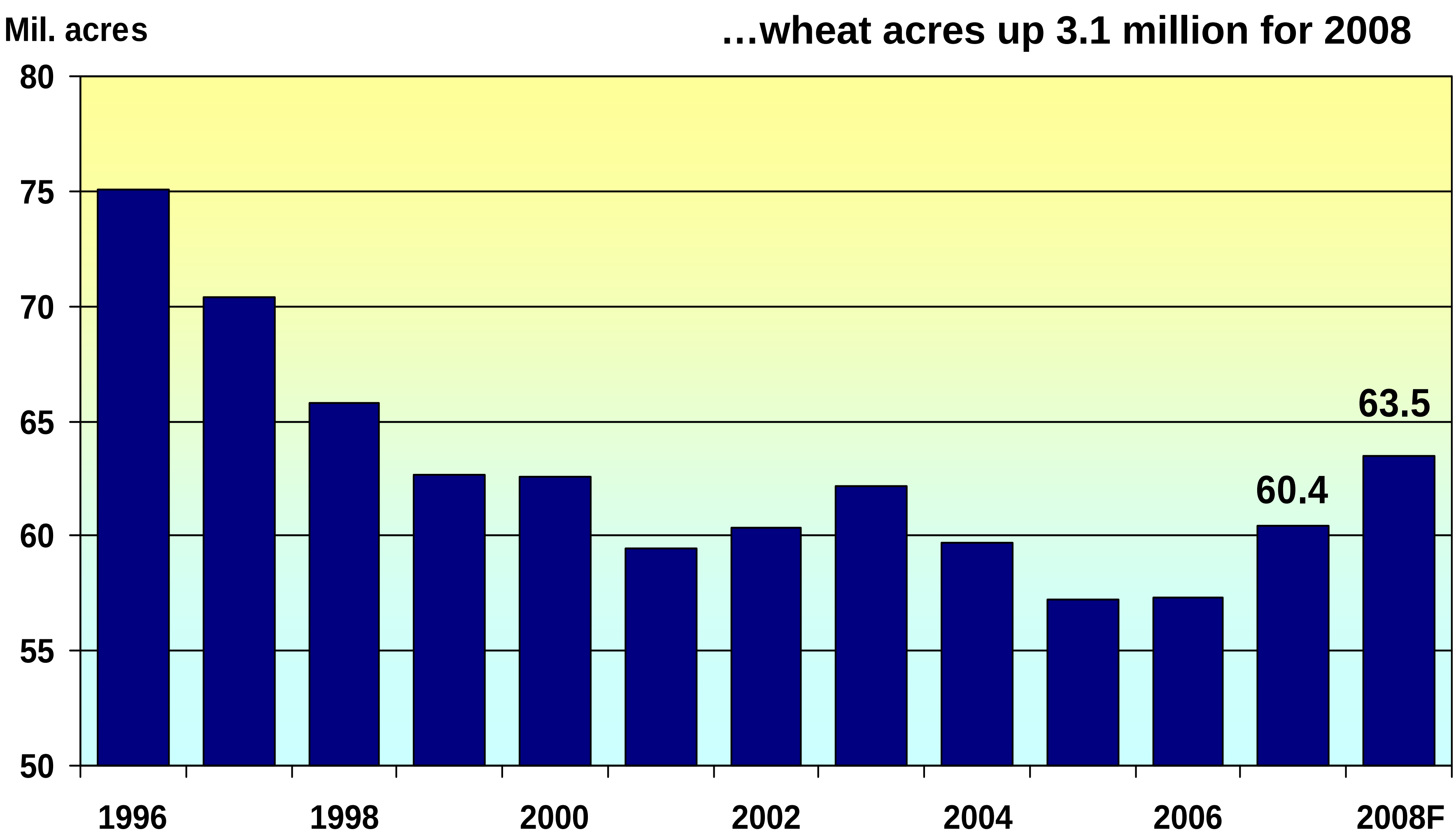
- **Rising Input Costs**
  - Fuel prices up sharply
  - Fertilizer prices at record highs
    - Strong global demand with higher incomes, improved cultural practices and more cultivated area amid rising prices for agricultural commodities
    - U.S. dependency on fertilizer imports is growing – domestic production accounts for less than half of nitrogen needs
  - Feed prices rising

U.S. 8-Principal Crop Planted Area



Note: 2008 planted area based on June 30, 2008, *Acreage* report. Includes wheat, feed grains, soybeans, upland cotton, and rice.

U.S. Wheat Planted Area



Note: 2008 planted area based on June 30, 2008, *Acreage* report.

U.S. Wheat Supply and Demand

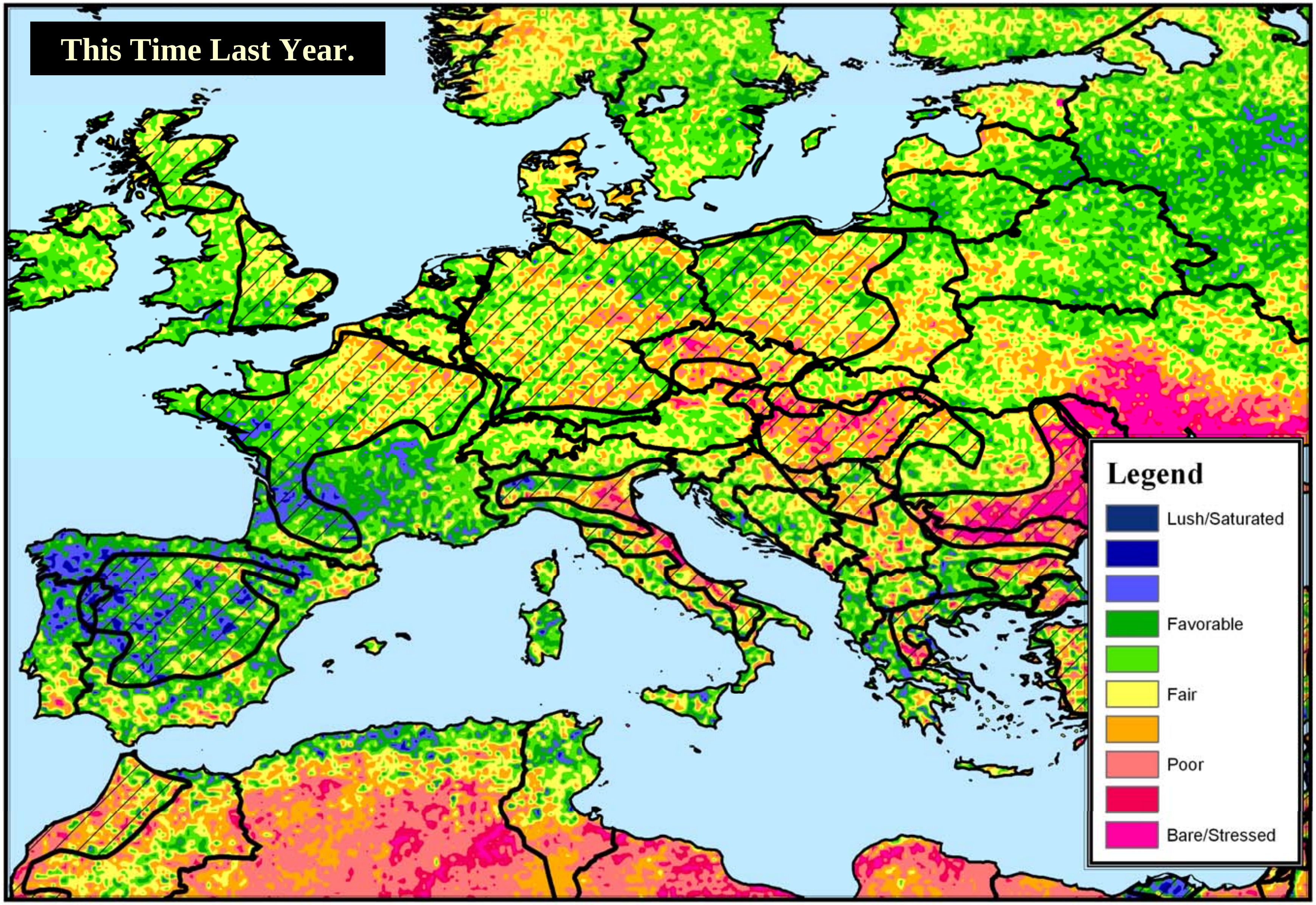
	2007/08 estimate	2008/09 forecast	Change from 2007/08
			Percent
Planted area (million acres)	**60.4**	**63.5**	**5.0**
Harvested area (million acres)	**51.0**	**56.6**	**10.9**
Yield (bushels per acre)	**40.5**	**43.5**	**7.4**
		Million bushels	
Beginning stocks	**456**	**306**	**-33.0**
Production	**2,067**	**2,461**	**19.1**
Imports	**108**	**100**	**-7.4**
Total supply	**2,631**	**2,866**	**8.9**
Food use	**950**	**960**	**1.1**
Seed	**88**	**84**	**-4.7**
Feed and residual	**20**	**285**	**1,323.5**
Domestic use	**1,058**	**1,329**	**25.6**
Exports	**1,267**	**1,000**	**-21.1**
Total use	**2,325**	**2,329**	**0.2**
Ending stocks	**306**	**537**	**75.8**
		Percent	
Stocks to use ratio	**13.1**	**23.1**	
		Dollars per bushel	
Average market price	**6.48**	**6.75/8.25**	**15.7**

World Wheat Production

Country or Region	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million Tons		*Percent*
World	610.8	664.2	**8.8**
United States	56.2	67.0	**19.1**
Foreign	554.5	597.3	**7.7**
Argentina	16.0	14.5	**-9.4**
Canada	20.1	24.5	**22.2**
Australia	13.0	25.0	**91.7**
European Union	119.5	141.7	**18.6**
Russian Federation	49.4	54.0	**9.3**
Iran	15.0	10.0	**-33.3**
China	109.9	114.0	**3.8**
India	75.8	76.8	**1.3**

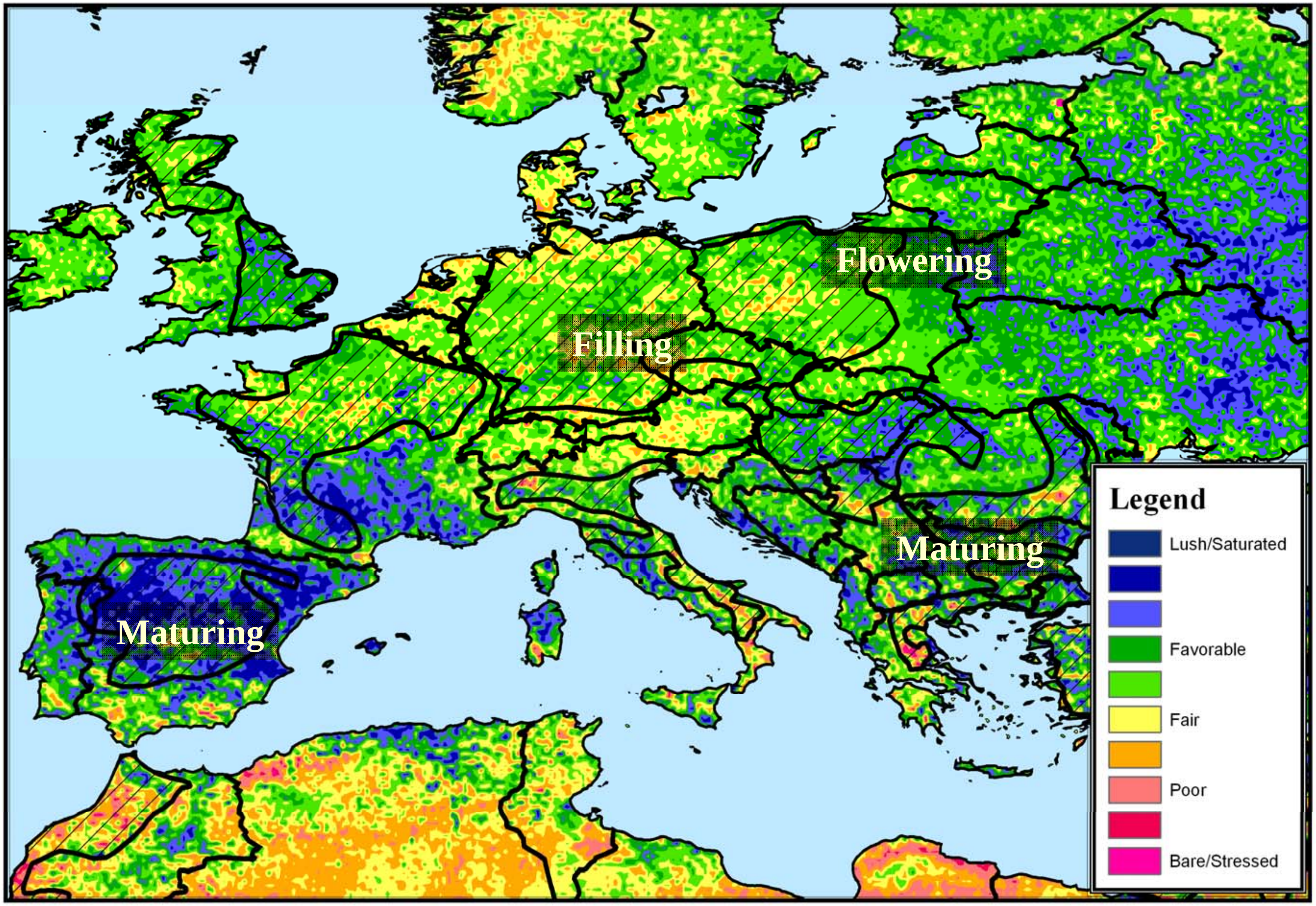
Vegetation Health Index

July 7, 2007



Vegetation Health Index

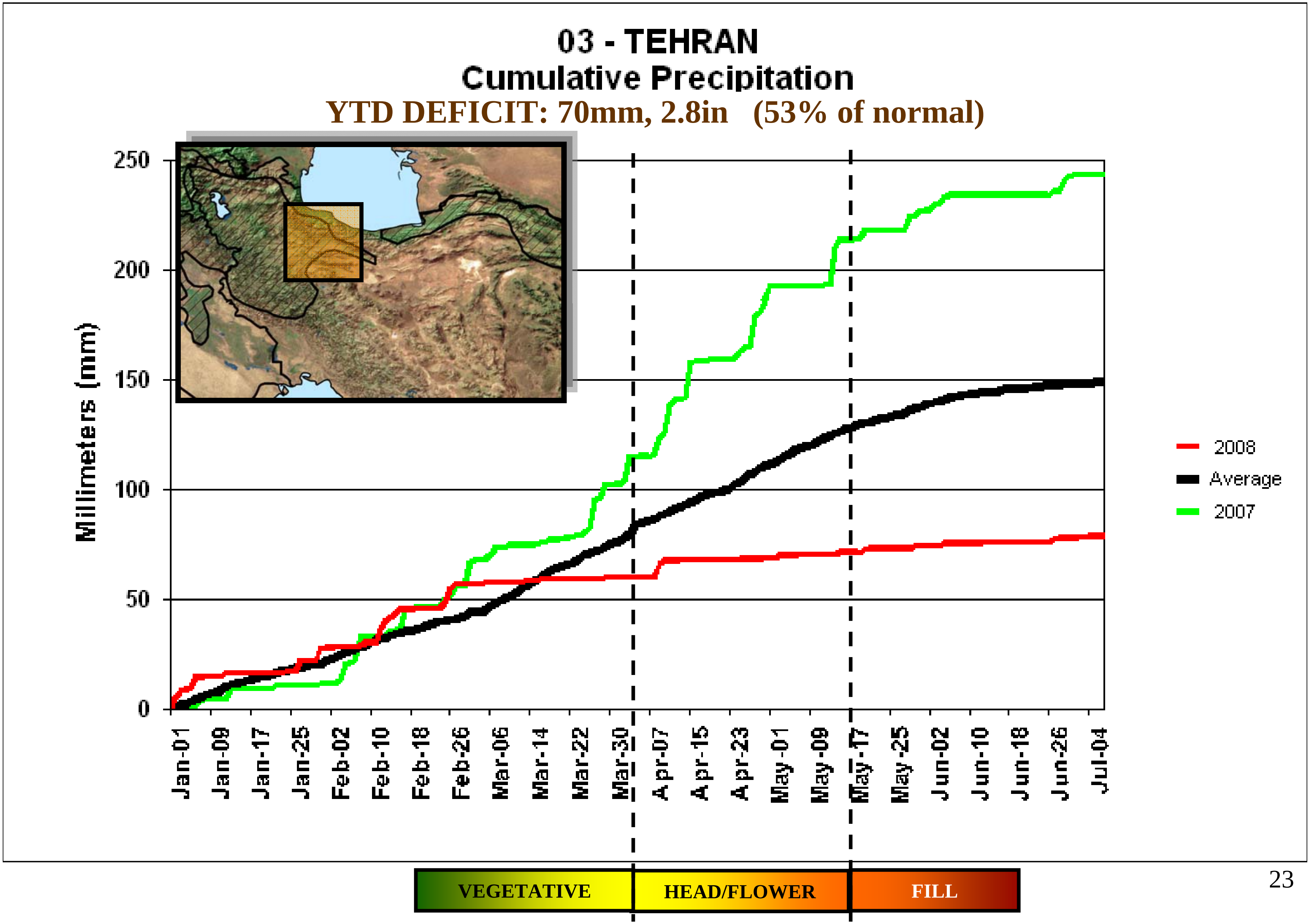
July 7, 2008

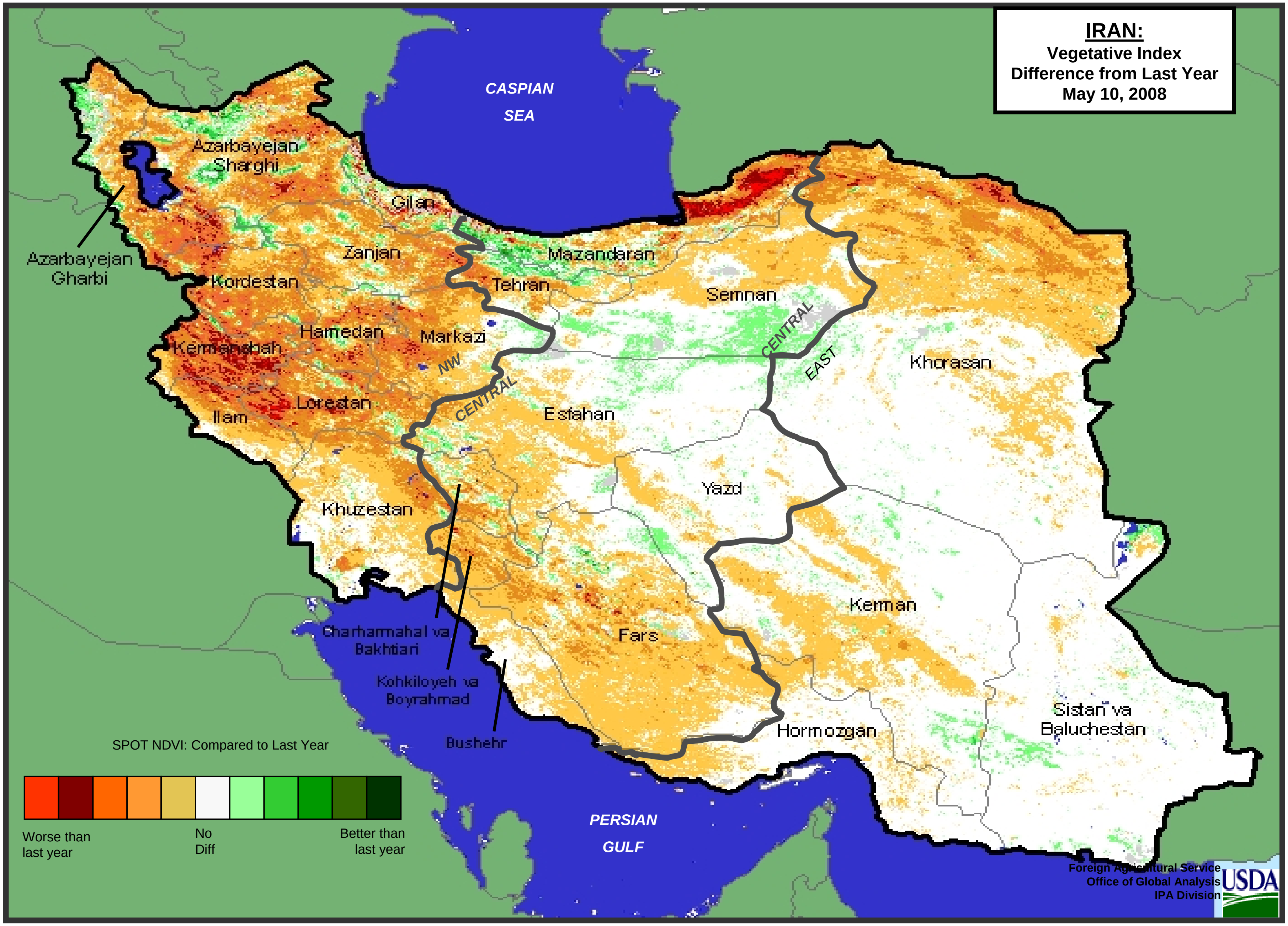


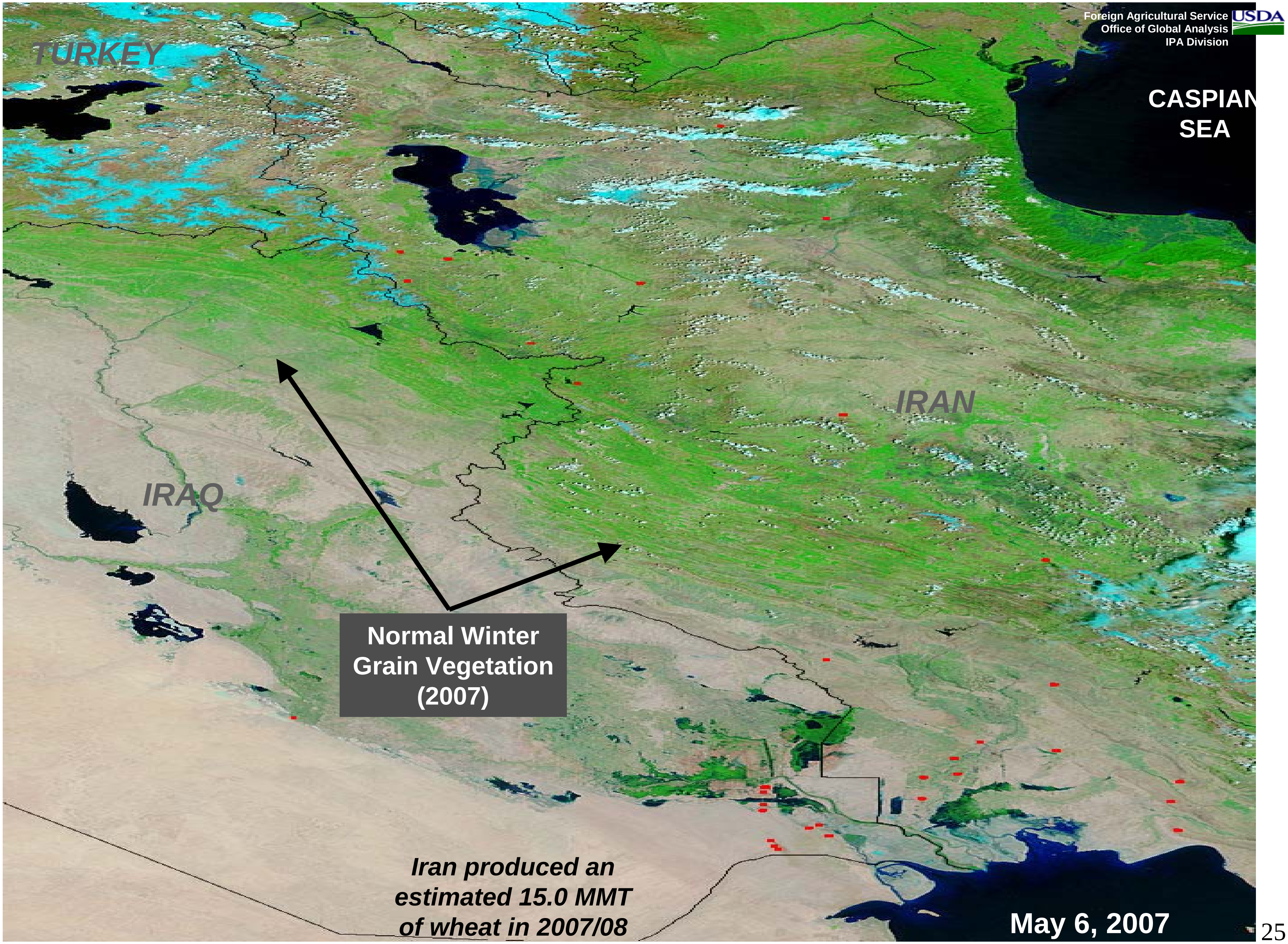

Northern Poland 08-July-2008

Iran Wheat

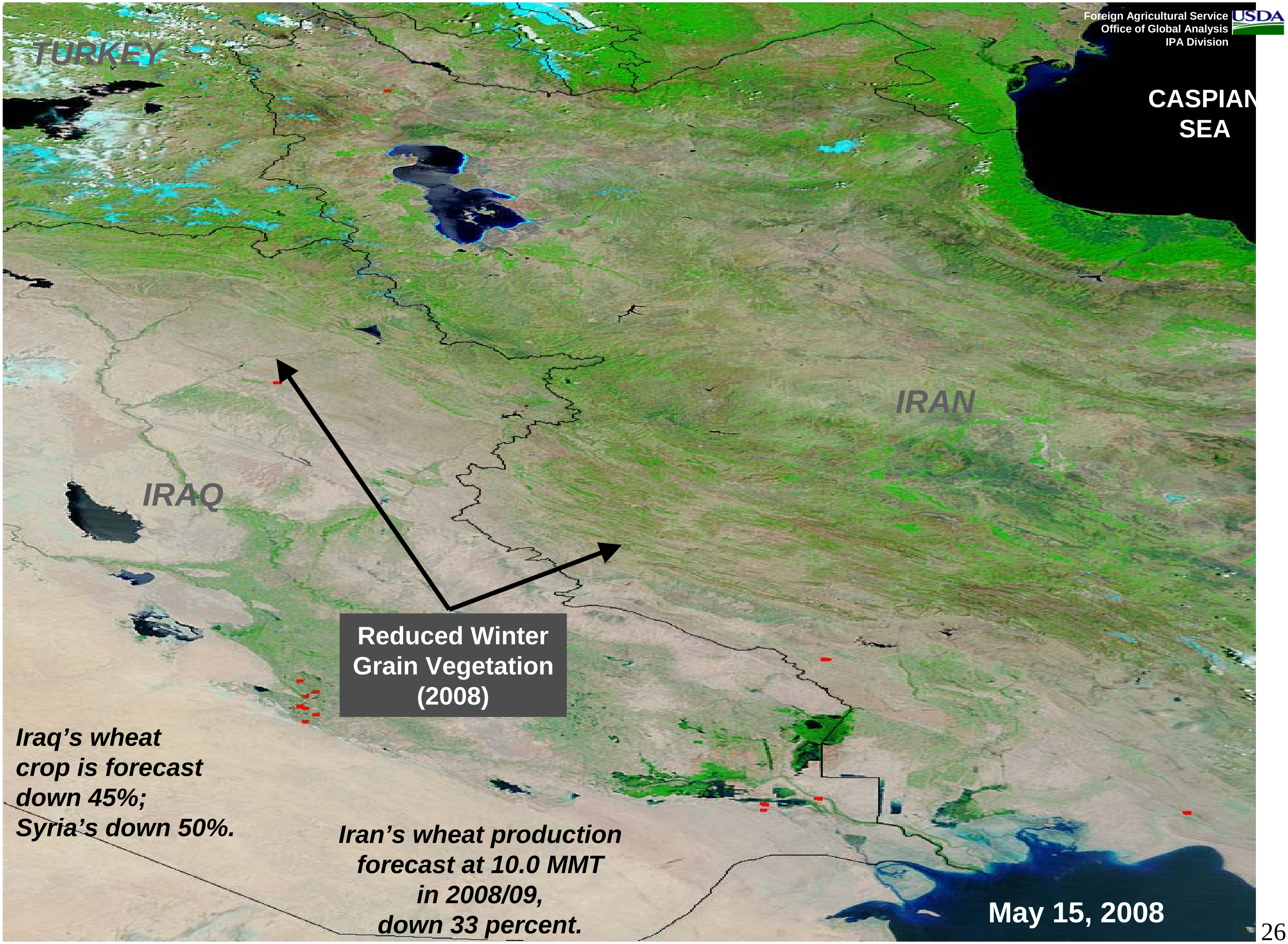
Year	Area	Yield	Production
	Million hectares	*Tons/hectare*	*Million tons*
2003/04	6.4	2.10	13.4
2004/05	6.6	2.21	14.6
2005/06	7.0	2.06	14.3
2006/07	6.5	2.23	14.5
2007/08	6.9	2.17	15.0
2008/09 f	5.9	1.71	10.0


03 - TEHRAN
Cumulative Precipitation
YTD DEFICIT: 70mm, 2.8in (53% of normal)
Millimeters (mm)
250
200
150
100
50
0
Jan-01
Jan-09
Jan-17
Jan-25
Feb-02
Feb-10
Feb-18
Feb-26
Mar-06
Mar-14
Mar-22
Mar-30
Apr-07
Apr-15
Apr-23
May-01
May-09
May-17
May-25
Jun-02
Jun-10
Jun-18
Jun-26
Jul-04
2008
Average
2007
VEGETATIVE
HEAD/FLOWER
FILL


IRAN:
Vegetative Index
Difference from Last Year
May 10, 2008
CASPIAN
SEA
PERSIAN
GULF
Azarbayejan
Sharghi
Azarbayejan
Gharbi
Gilan
Zanjan
Mazandaran
Kordestan
Tehran
Semnan
Hamedan
Markazi
Kermanshah
NW
CENTRAL
CENTRAL
EAST
Khorasan
Lorestan
Ilam
Esfahan
Yazd
Khuzestan
Kerman
Charharmahal va
Bakhtiari
Fars
Kohkiloyeh va
Boyrahmad
Sistan va
Baluchestan
Bushehr
Hormozgan
SPOT NDVI: Compared to Last Year
Worse than
last year
No
Diff
Better than
last year
Foreign Agricultural Service
Office of Global Analysis
IPA Division
USDA



NASA Modis Terra Satellite

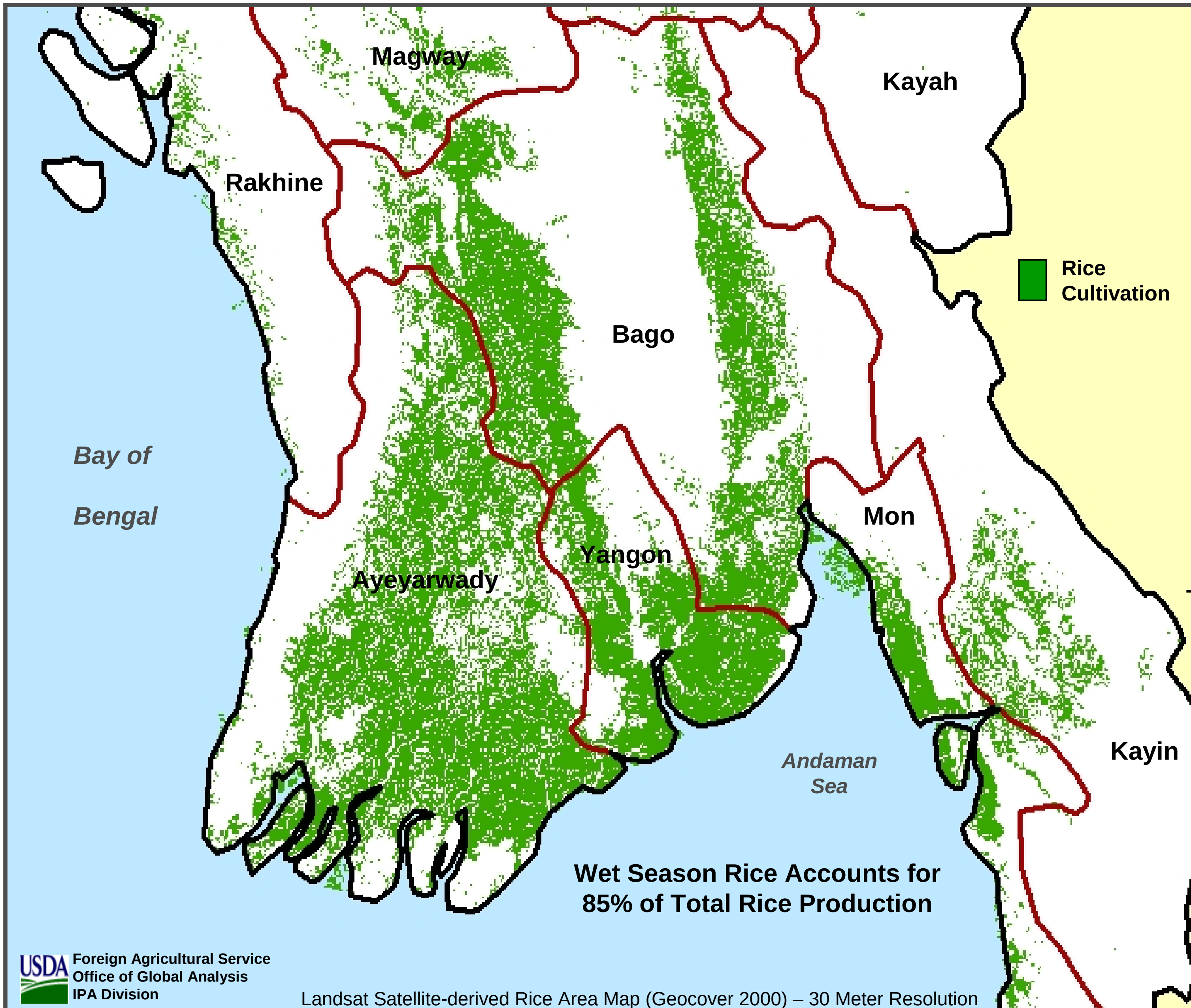


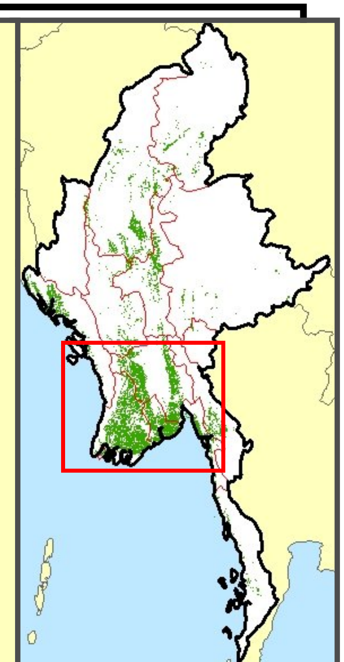
NASA Modis Terra Satellite

World Rice Production

Country or Region	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million Tons		*Percent*
World	428.0	431.7	**0.9**
United States	6.3	6.6	**3.8**
Foreign	421.7	425.1	**0.8**
Brazil	8.1	8.5	**4.6**
China	129.8	130.6	**0.5**
India	95.7	96.0	**0.3**
Burma	10.7	9.4	**-12.4**
Pakistan	5.5	5.6	**1.8**
Thailand	18.5	18.8	**1.6**
Vietnam	23.9	23.7	**-0.9**

Burma: Rice Land Distribution



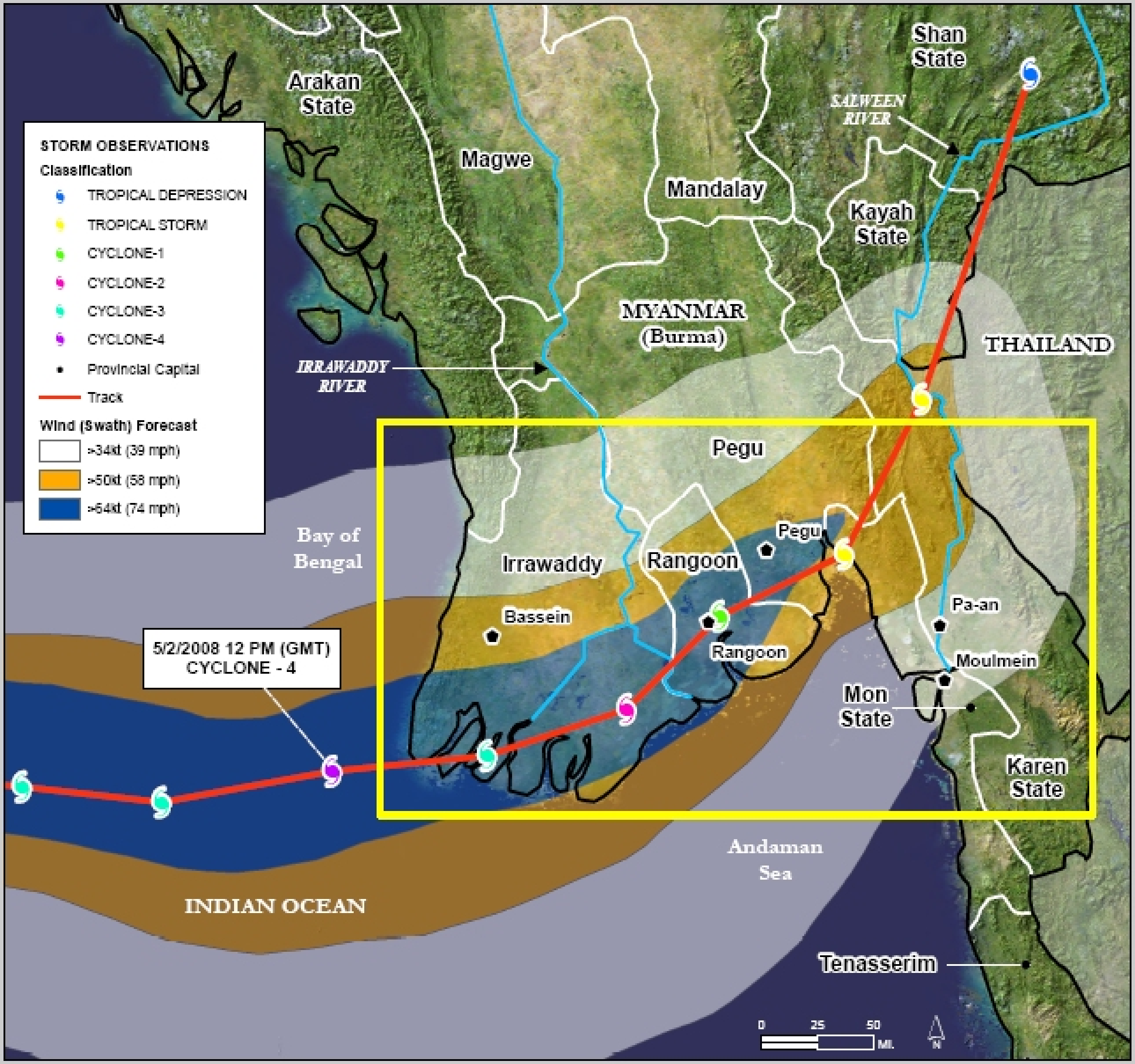


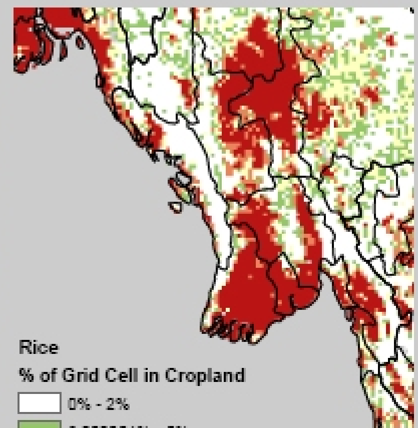
Total Rice Area (MHa)	
Ayeyarwady	2.0
Yangon	0.6
Bago	1.1
Mon	0.3
Subtotal	4.0
Others	3.0
Total	7.0

USDA Foreign Agricultural Service
Office of Global Analysis
IPA Division

Landsat Satellite-derived Rice Area Map (Geocover 2000) – 30 Meter Resolution

Myanmar (Burma) - Impact Analysis of Tropical Storm Nargis - 2008





Rice
% of Grid Cell in Cropland

- 0% - 2%
- 2.000001% - 5%
- 5.000001% - 10%
- 10.000001% - 20%
- 20.000001% - 100%

MODIS Terra Rapid Response System Imagery updates every day, at about 1200Z, with images taken during the previous day.

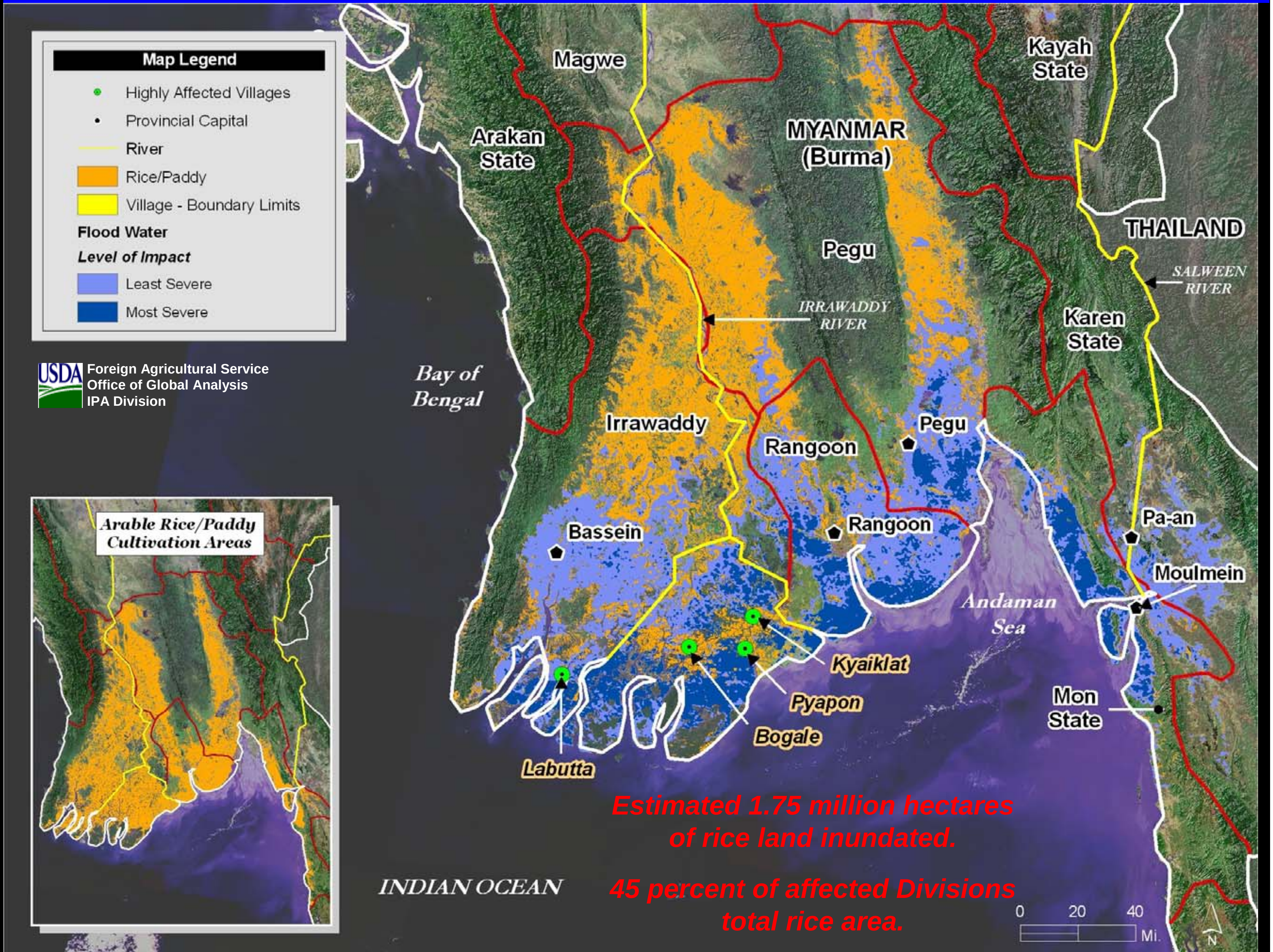
ESRI-NASA MRIS Imagery (Earth_1km) - 2001

Sustainability and the Global Environment (SAGE) - 1992

HurricaneMapping.com/Joint Typhoon Warning Center - 2008 (http://metocph.nmci.navy.mil/jtwc.php)

USDA United States Department of Agriculture Foreign Agricultural Service

Myanmar (Burma) Cyclone Nargis Rice Impact Analysis: May 14, 2008



U.S. Rice Supply and Demand

Rough Equivalent of Rough and Milled Rice

	2007/08 estimate	2008/09 forecast	Change from 2007/08
			Percent
Planted area (million acres)	**2.76**	**2.90**	**4.9**
Harvested area (million acres)	**2.75**	**2.88**	**4.8**
Yield (pounds per acre)	**7,185**	**7,121**	**-0.9**
	Million cwt		
Beginning stocks	**39.3**	**26.1**	**-33.6**
Production	**197.5**	**205.0**	**3.8**
Imports	**23.0**	**23.5**	**2.2**
Total supply	**259.8**	**254.6**	**-2.0**
Domestic use	**124.7**	**126.0**	**1.1**
Exports	**109.0**	**107.0**	**-1.8**
Total use	**233.7**	**233.0**	**-0.3**
Ending stocks	**26.1**	**21.6**	**-17.2**
	Percent		
Stocks/use	**11.2**	**9.3**	
	Dollars/cwt		
Average market price	**12.8**	**16.30/17.30**	**31.3**

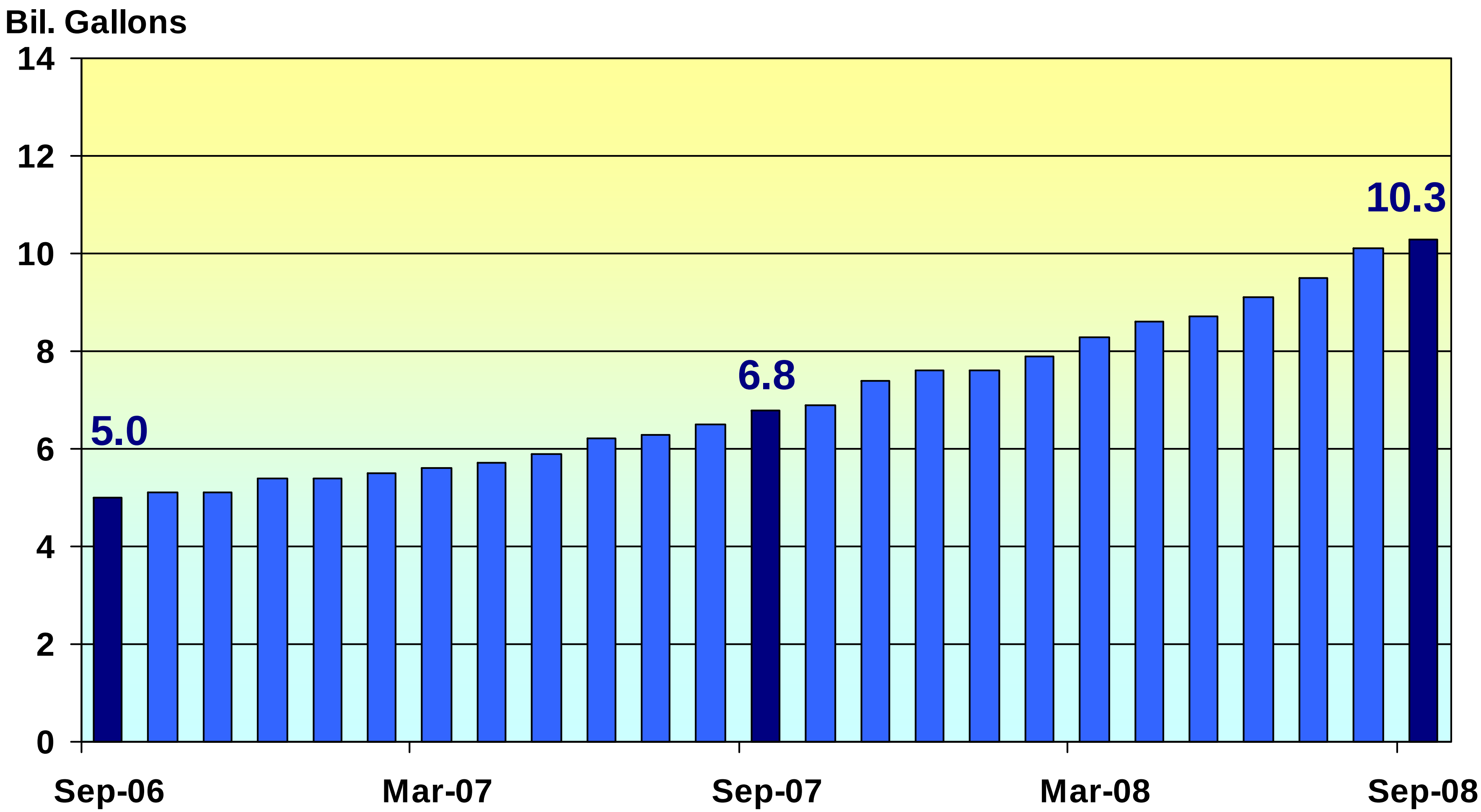
2007 Energy Act

- **Mandates very ambitious renewable fuel standard (RFS), starting at 9.0 billion gals in 2008 and increasing to 36 billion gals by 2022. [1]**
- **15 billion gallons of the RFS will be corn-based ethanol starting in 2015.**
- **By 2016, all of the RFS increase must be met with cellulosic ethanol or other non-corn starch biofuels.**

[1] The 2005 Energy Act mandated 5.4 billion gals by 2008, rising to 7.5 billion by 2012.

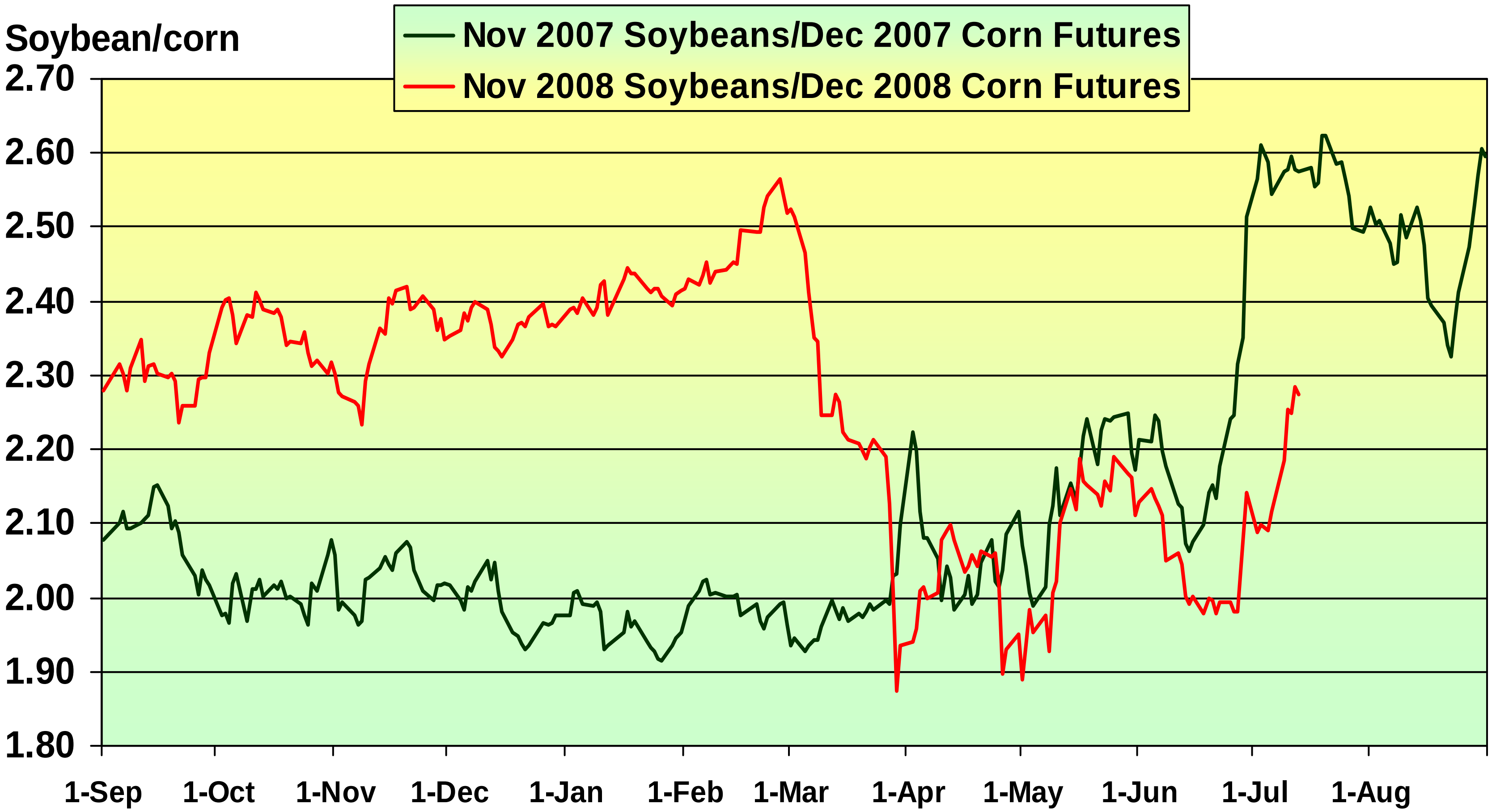
U.S. Ethanol Production Capacity

Annual Capacity by Month



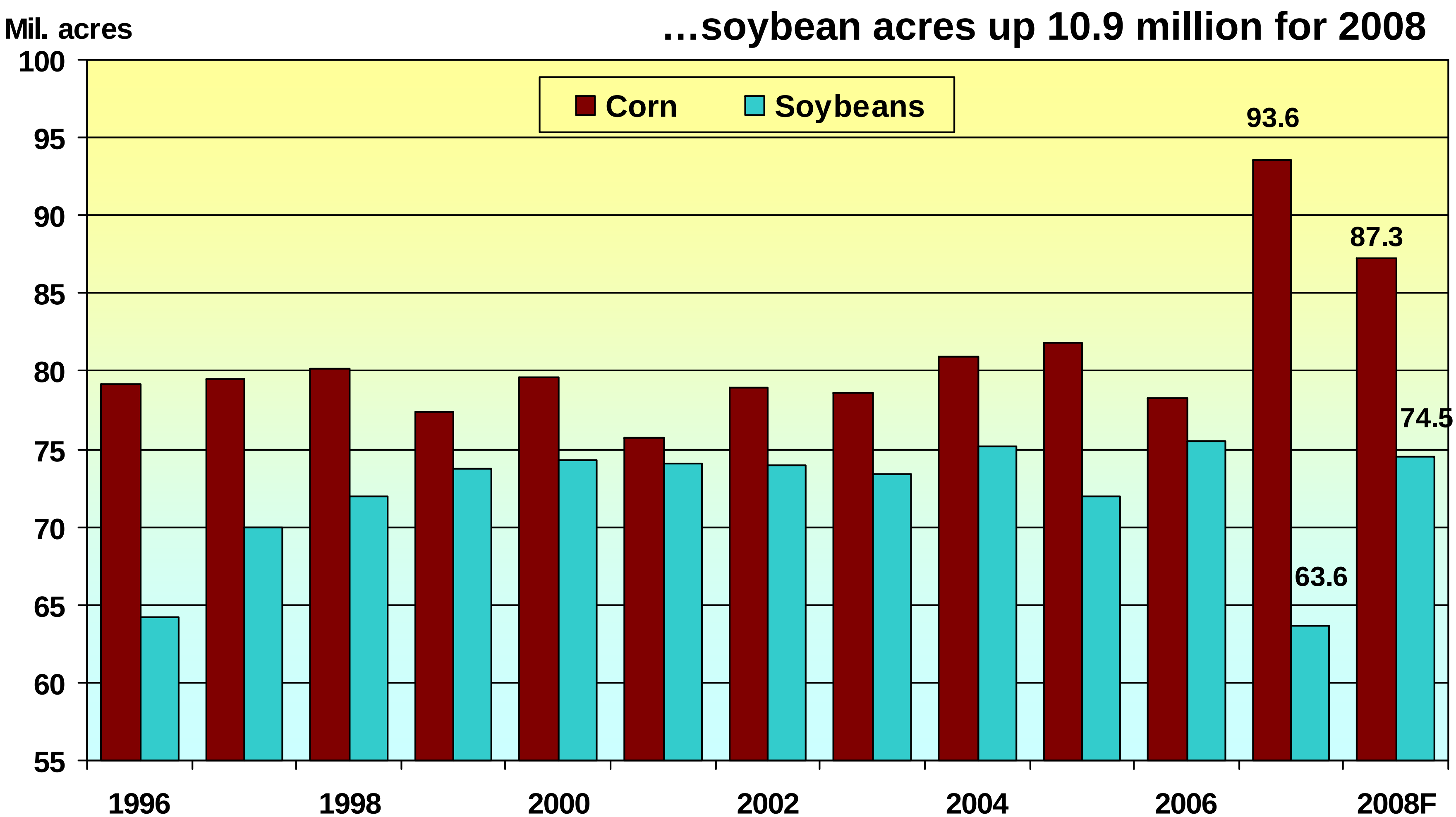
New-crop Soybean/Corn Price Ratios

2007-crop and 2008-crop through July 15, 2008



Note: Chicago Board of Trade daily settlement prices.

U.S. Corn & Soybean Planted Area

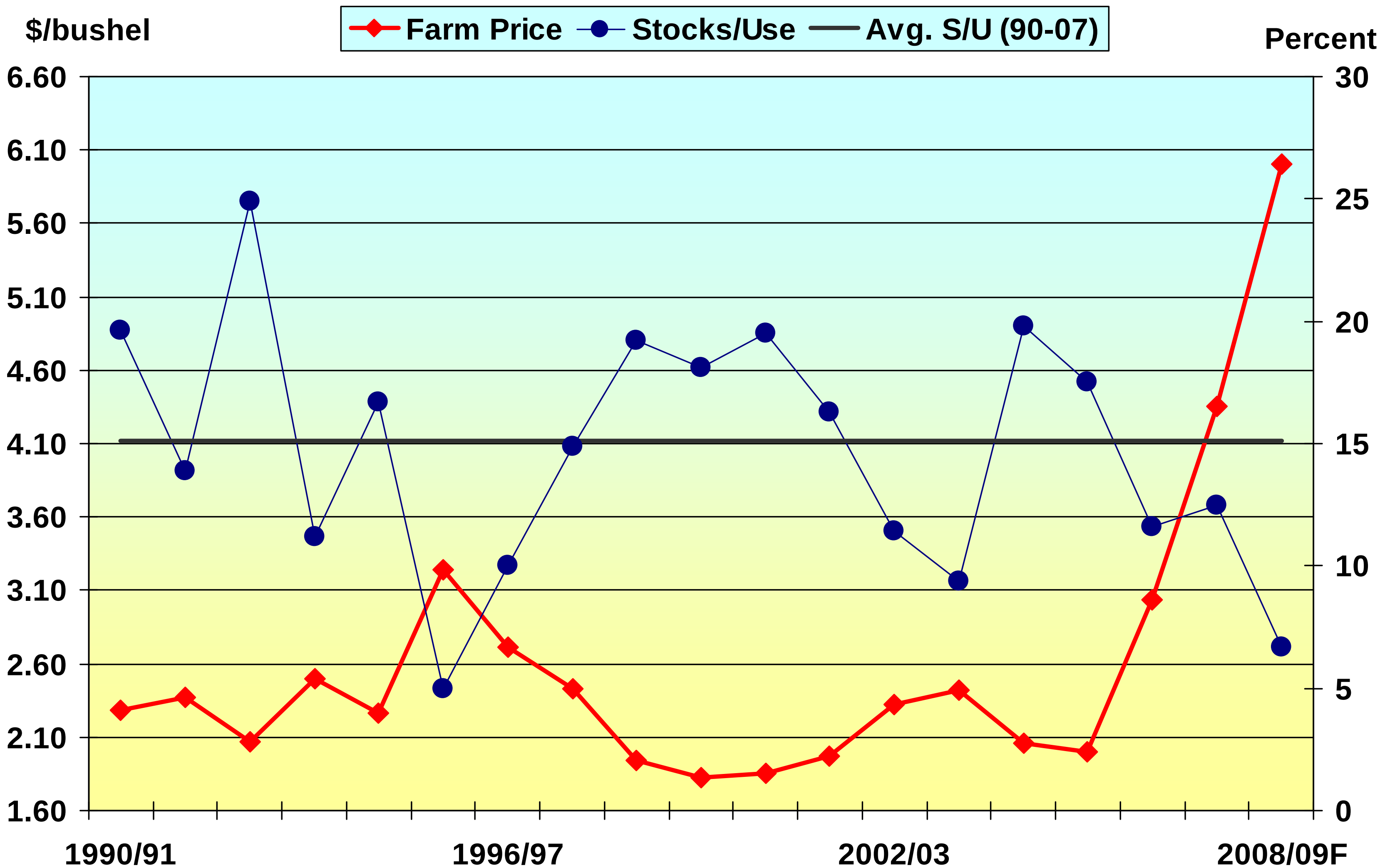


Note: 2008 planted area based on June 30, 2008, *Acreage* report.

U.S. Corn Supply and Demand

	2007/08 estimate	2008/09 forecast	Change from 2007/08
			Percent
Planted area (million acres)	**93.6**	**87.3**	**-6.7**
Harvested area (million acres)	**86.5**	**78.9**	**-8.8**
Yield (bushels per acre)	**151.1**	**148.4**	**-1.8**
	Million bushels		
Beginning stocks	**1,304**	**1,598**	**22.5**
Production	**13,074**	**11,715**	**-10.4**
Total supply	**14,393**	**13,328**	**-7.4**
Feed and residual	**6,050**	**5,200**	**-14.0**
Food, seed, and industrial	**4,295**	**5,295**	**23.3**
Ethanol	**2,950**	**3,950**	**33.9**
Domestic use	**10,345**	**10,495**	**1.4**
Exports	**2,450**	**2,000**	**-18.4**
Total use	**12,795**	**12,495**	**-2.3**
Ending stocks	**1,598**	**833**	**-47.9**
	Percent		
Stocks/use	**12.5**	**6.7**	
	Dollars/bushel		
Average market price	**4.25/4.45**	**5.50/6.50**	**37.9**

U.S. Farm Prices and Stocks/Use for Corn



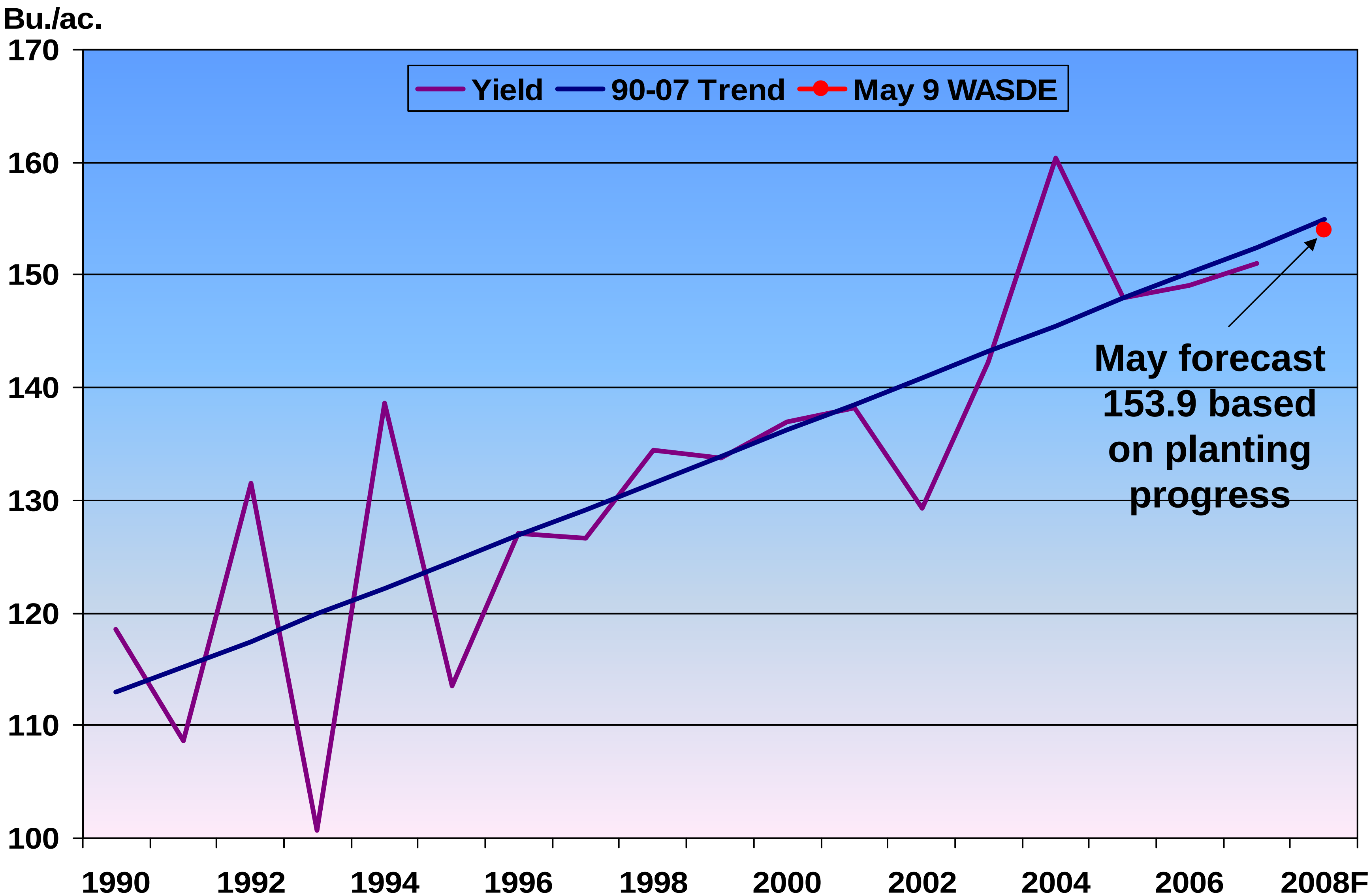
Note: 2007/08 and 2008/09 price projections from mid-points of ranges from the July 11, 2008, *World Agricultural Supply and Demand Estimates*.

USDA Planting Progress Corn Yield Model (May forecast)

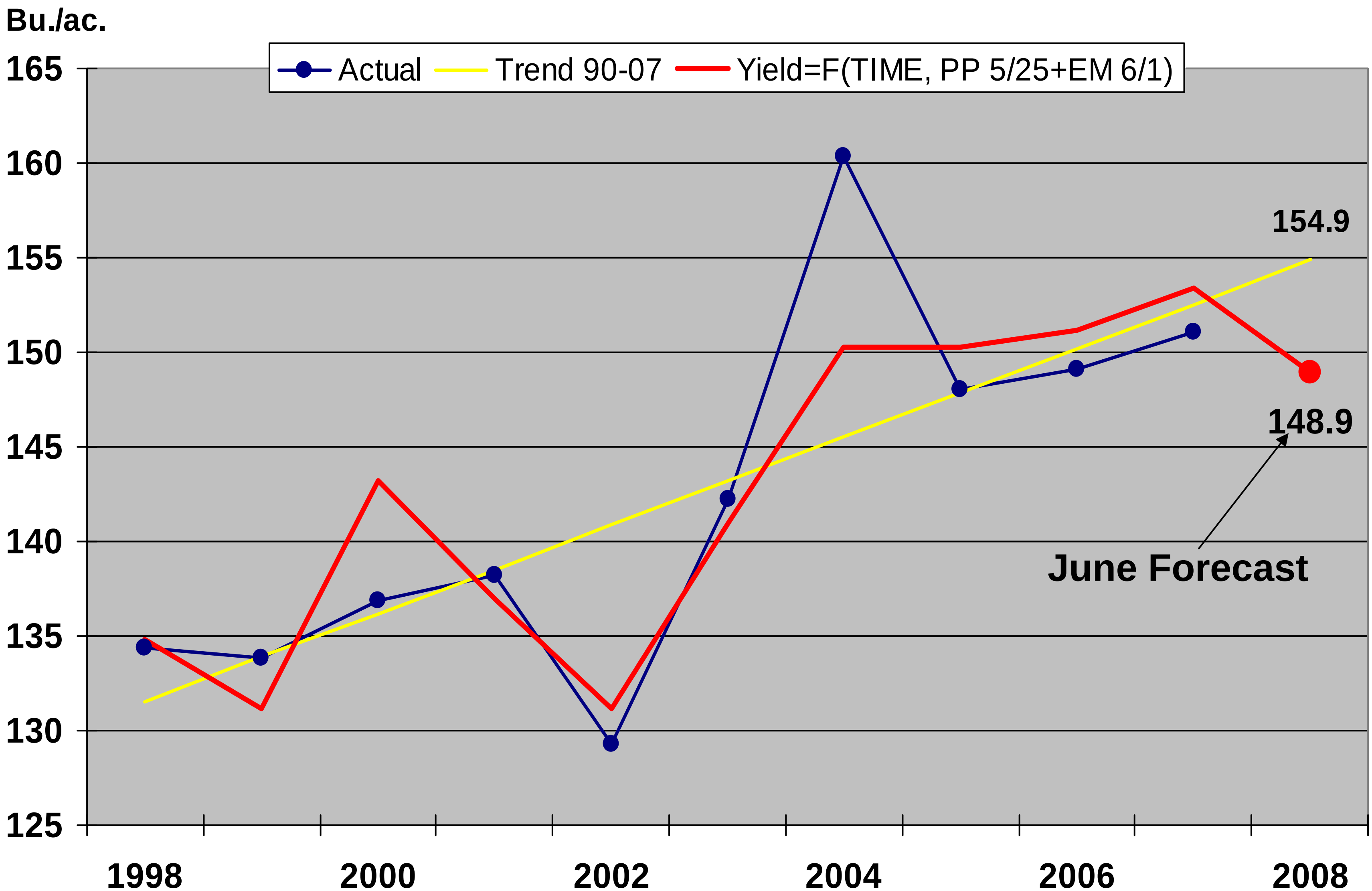
- May forecast based on yields in 5-state region
  - IL, IN, IA, MO, and OH (45% area / 52% production, 5-yr.avg.)
  - Highly correlated with U.S. national average yield
  - Function of mid-May planting progress (May 18, 2008)
  - Assumed average July rainfall and temperatures
  - Weighted by intended acreage
- In May, U.S. corn yield was projected at 153.9 bu./ac. - assumed 5-state May 18 progress of 82%

Note: Model estimated based on planting progress closest to May 15th each year.

U.S. Corn Trend Yields



U.S. Corn Yields, Planting Progress, Emergence

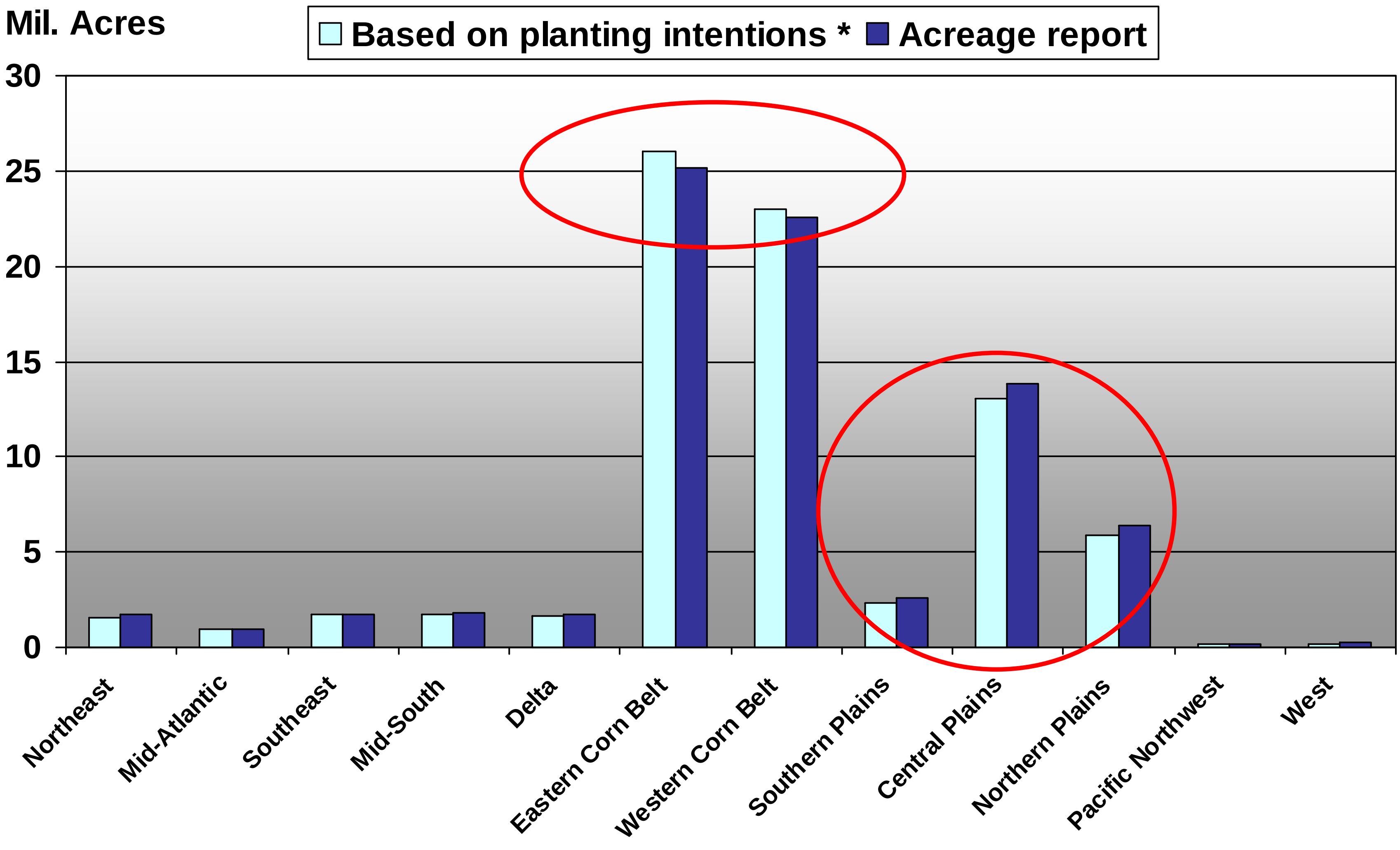


June *Acreage* Report Adjustments

- Raised planted area in Corn Belt
    - U.S. up 1.3 million acres
    - Eastern Corn Belt down 150,000 acres
    - Western Corn Belt up 500,000 acres
- Raised harvested area but lower in Corn Belt
    - U.S. up 146,000 acres from June *WASDE* projection
    - Eastern Corn Belt down 825,000 acres vs. 5-yr. H/P ratios
    - Western Corn Belt down 405,000 acres vs. 5-yr. H/P ratios
- Lowers yield trend 0.5 bushels per acre

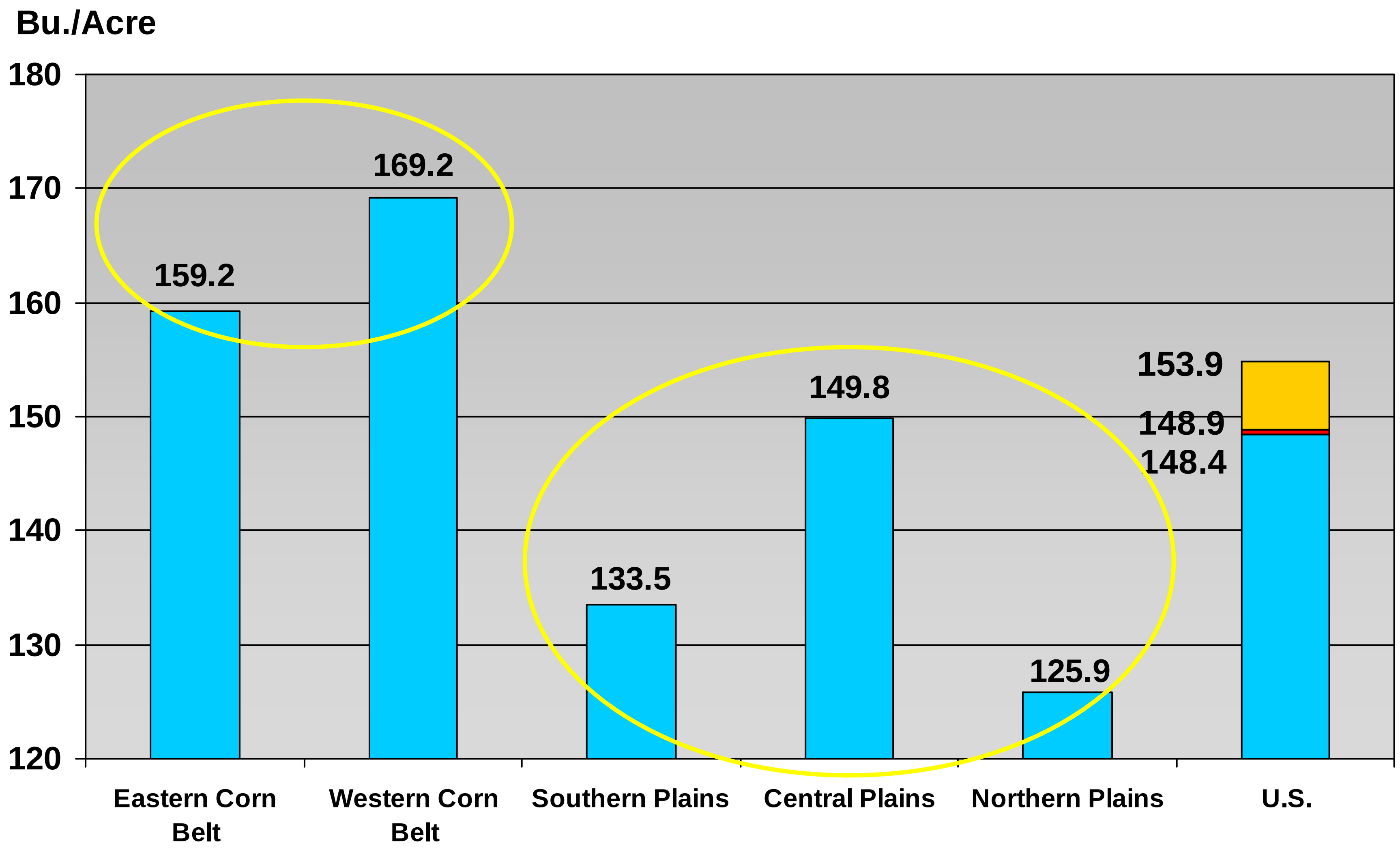
Corn Harvested Area for 2008

June *Acreage* report regional changes



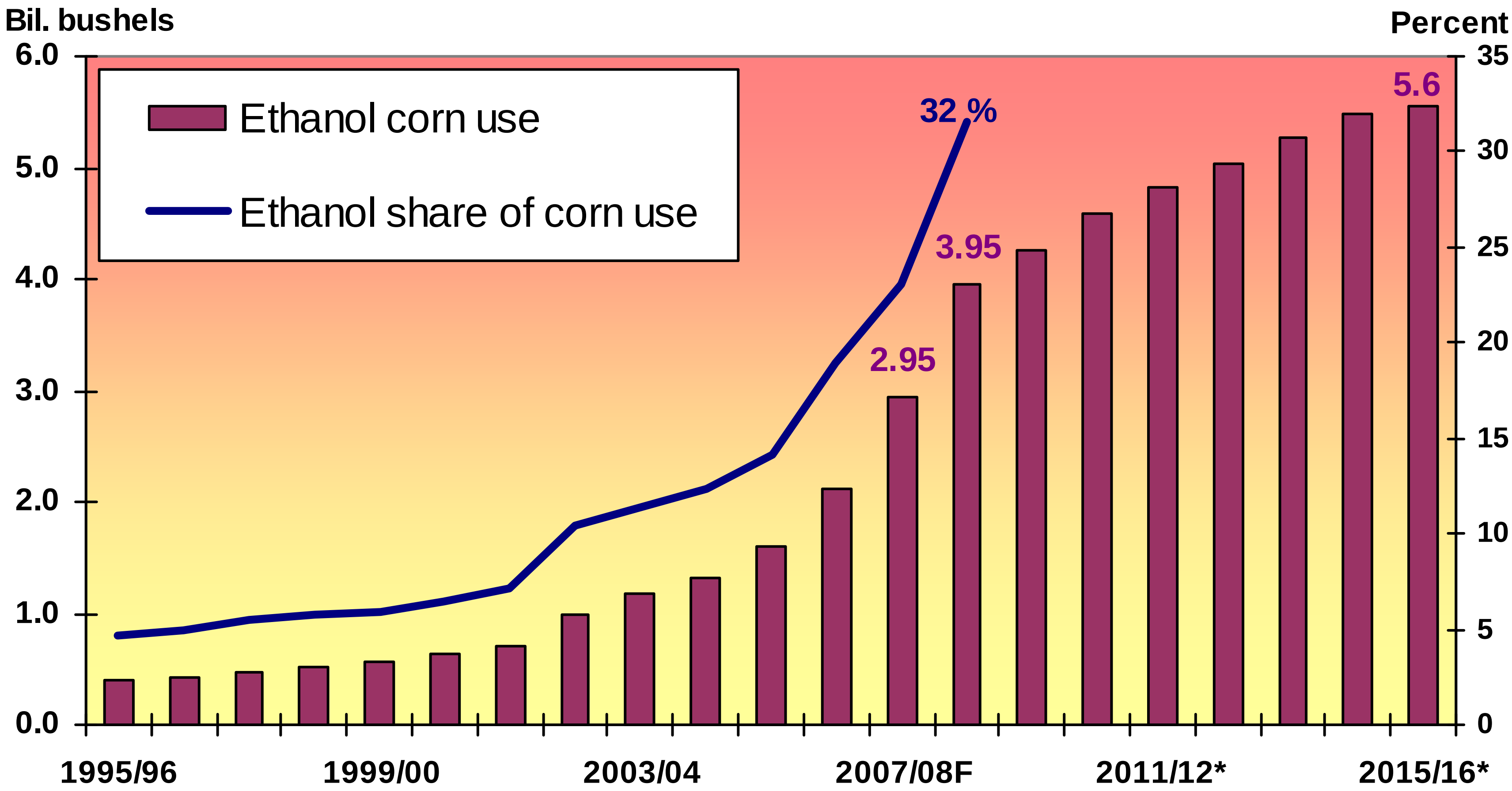
* Harvested area projected based on March *Prospective Plantings* and historical harvested-to-planted ratios.

Corn Trend Yields for 2008



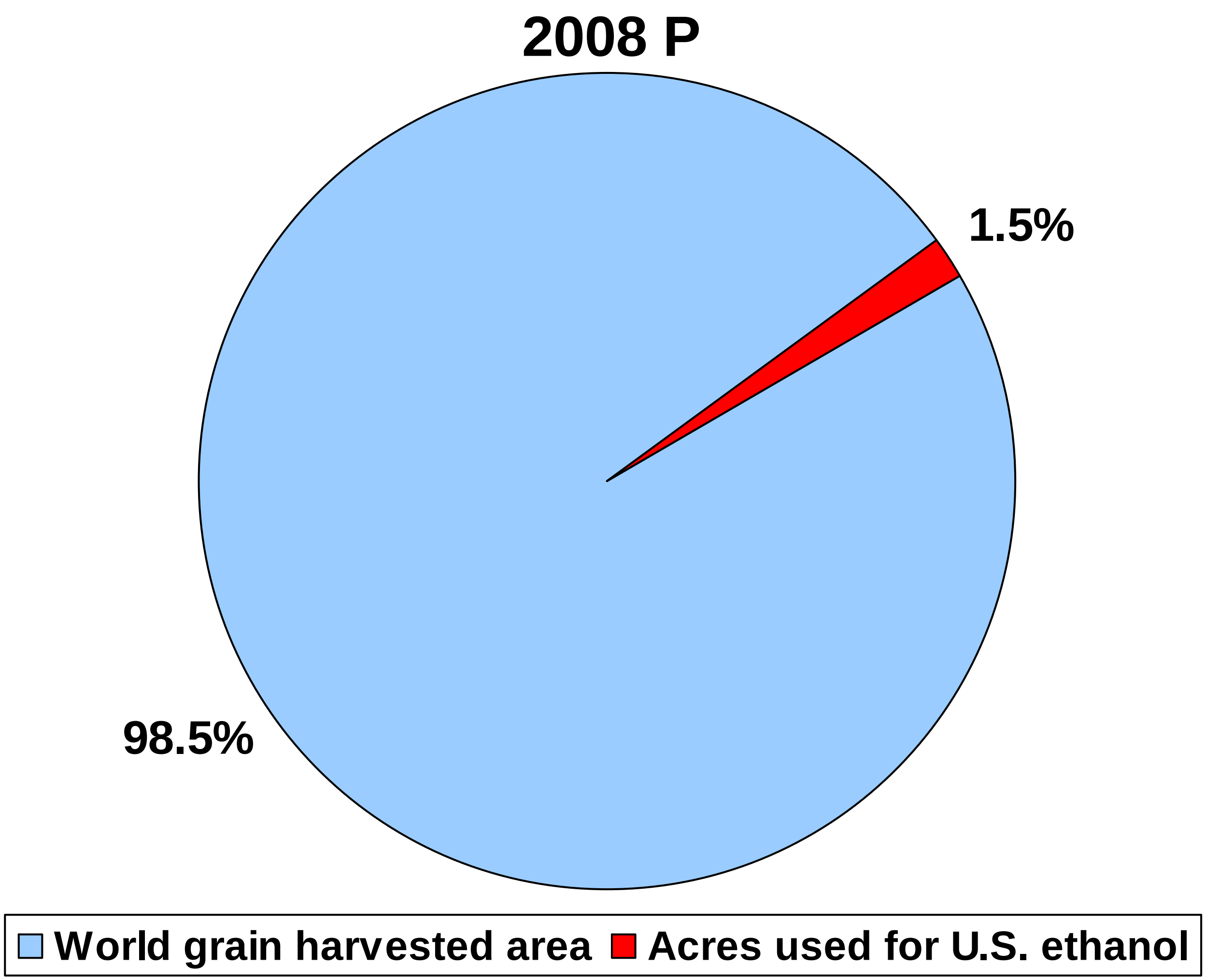
Note: Trends for 2008 are based on 1990-2007 yields.

U.S. Corn Used for Ethanol



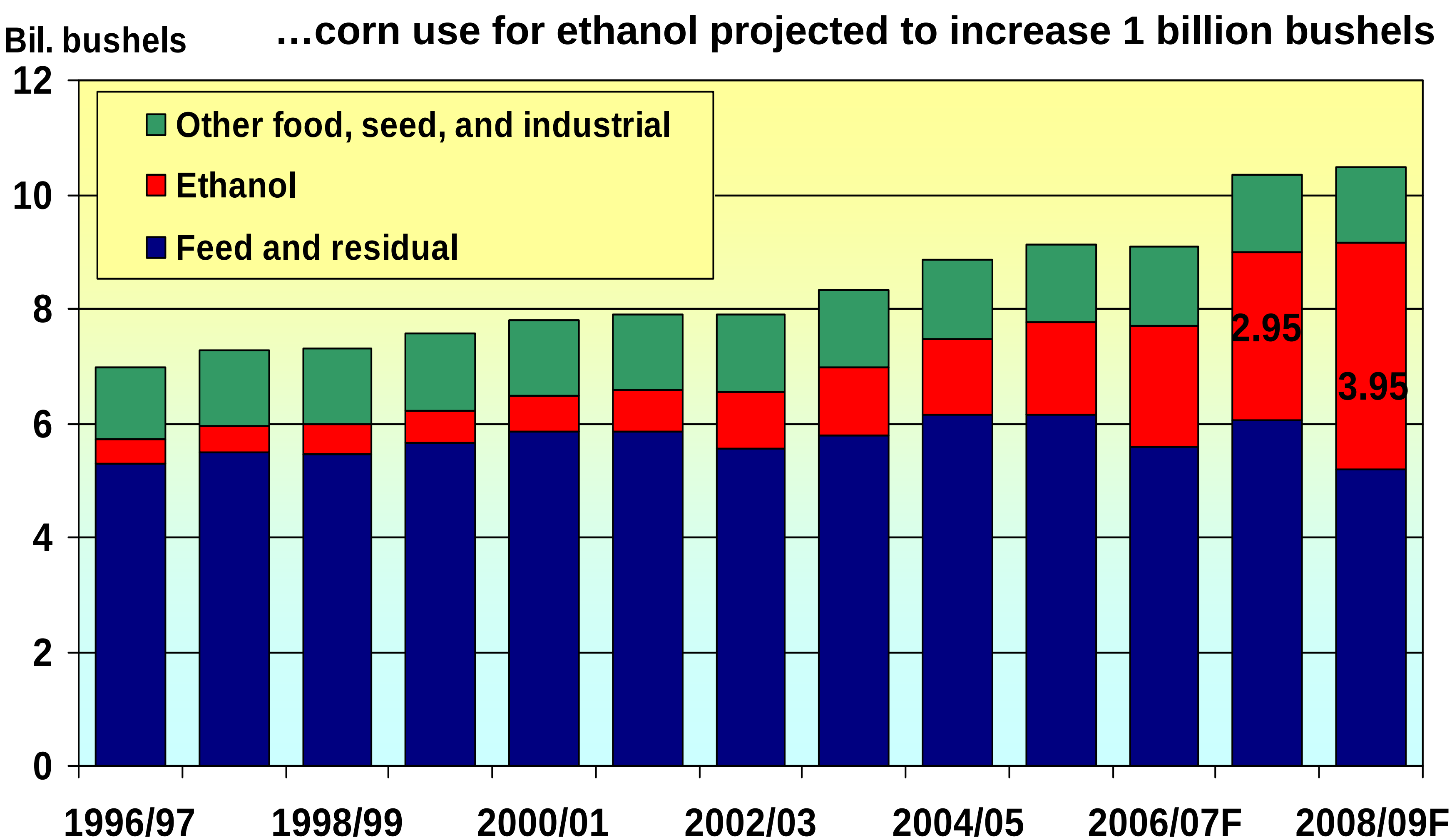
Note: 2007/08 and 2008/09 projections from the July 11, 2008, *World Agricultural Supply and Demand Estimates.* *Projections for 2009/10 and beyond based on RFS mandates for corn starch based ethanol under the Energy Independence and Security Act of 2007.

% World Grain Harvested Area Used for U.S. Ethanol



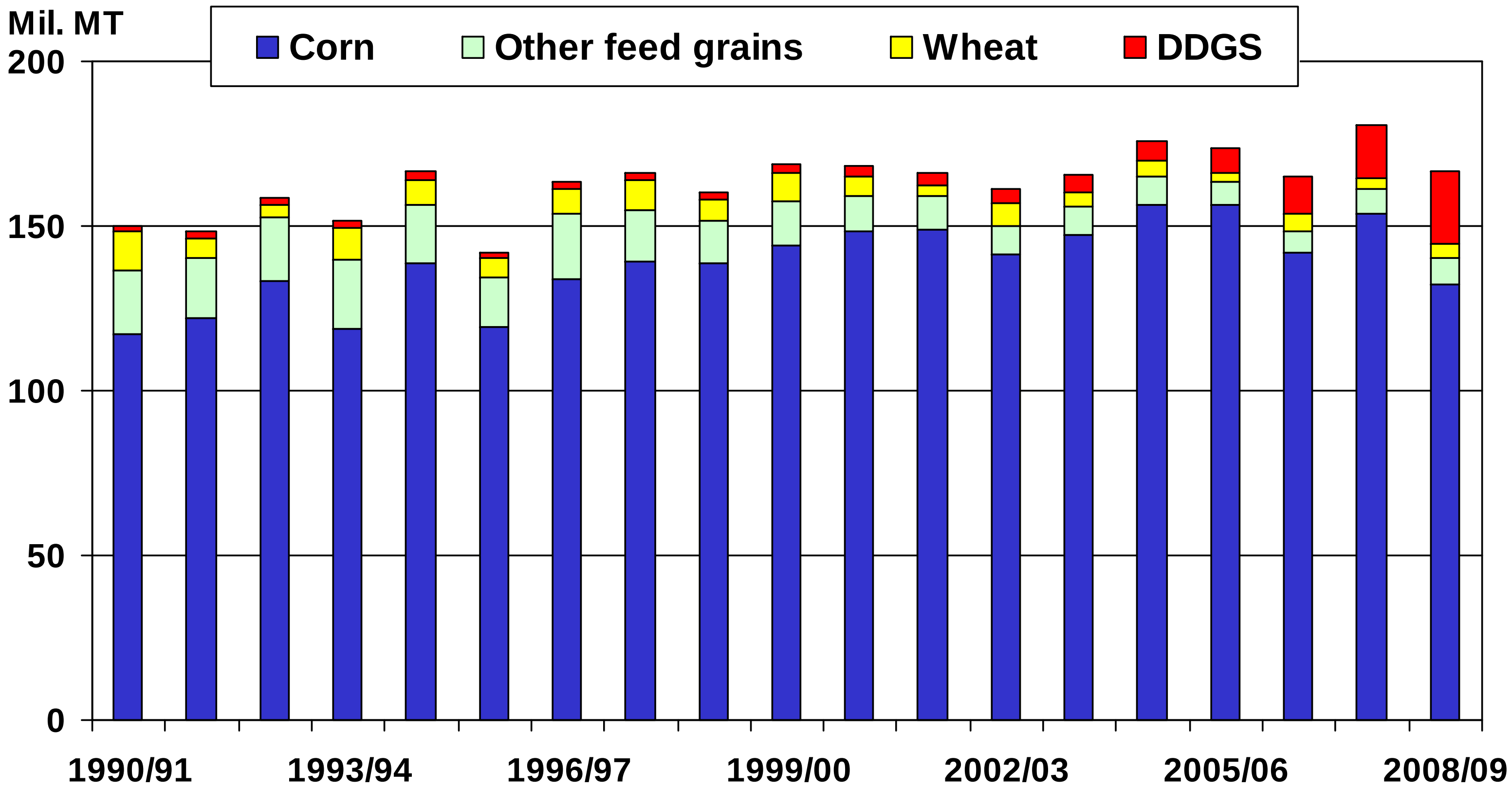
Source: U.S. Department of Agriculture

U.S. Corn Domestic Use



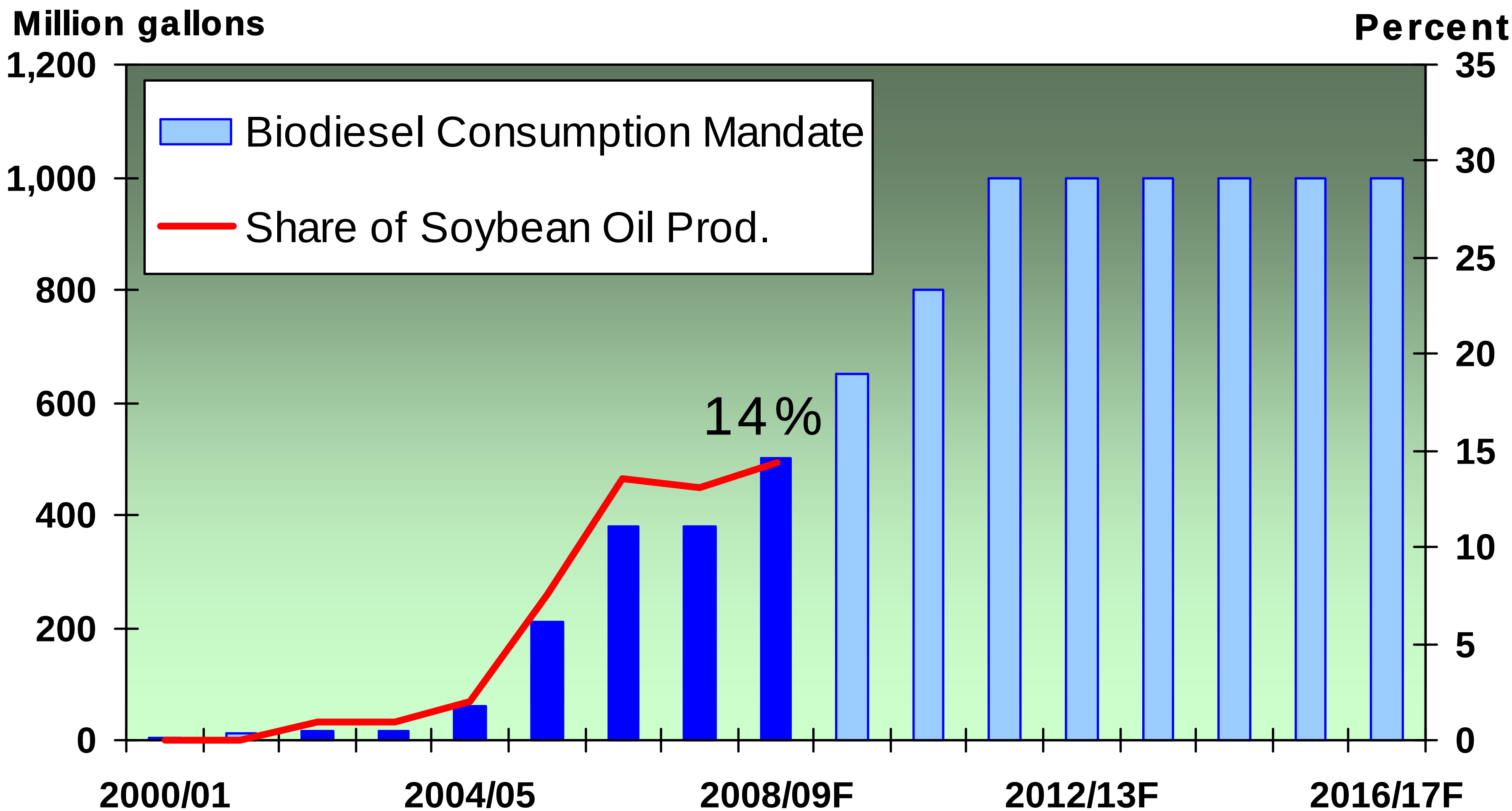
Note: 2007/08 and 2008/09 projections from the July 11, 2008, *World Agricultural Supply and Demand Estimates*.

U.S. Feed and Residual Use (Sep-Aug)



Note: 2007/08 and 2008/09 projections from the July 11, 2008, *World Agricultural Supply and Demand Estimates*.

U.S. Biodiesel Mandate (2007 Energy Act)

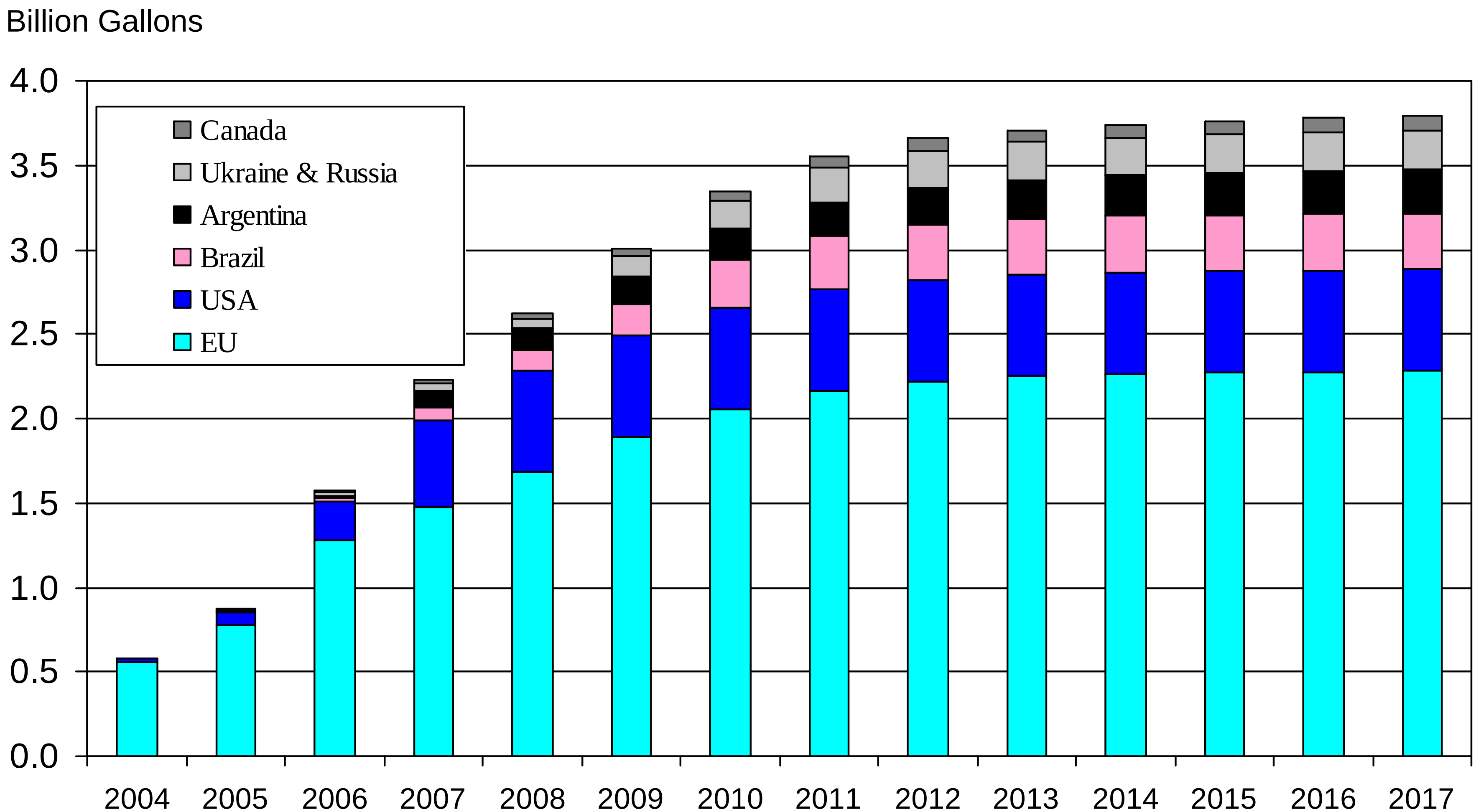


Note: 2007/08 and 2008/09 projections from the May 9, 2008, *World Agricultural Supply and Demand Estimates.* *Projections for 2009/10 and beyond based on RFS mandates under the Energy Independence and Security Act of 2007.

World Oilseed Production

Country or Region	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million Tons		*Percent*
World	387.8	417.3	**7.6**
United States	80.0	90.1	**12.7**
Foreign	307.8	327.2	**6.3**
Argentina	52.5	53.7	**2.3**
Brazil	64.0	66.8	**4.2**
China	52.2	55.8	**7.0**
India	33.9	34.5	**2.0**
European Union	24.3	26.7	**9.7**
FSU-12	17.1	20.4	**19.2**
Canada	11.6	13.0	**12.0**

Biodiesel production



Source: USDA Agricultural Projections to 2017

World Soybean Production

Country or Region	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million Tons		*Percent*
World	218.8	237.8	**8.7**
United States	70.4	81.6	**16.0**
Foreign	148.4	156.2	**5.2**
Argentina	47.0	48.0	**2.1**
Brazil	61.0	64.0	**4.9**
China	13.5	16.0	**18.5**

U.S. Soybean Supply and Demand

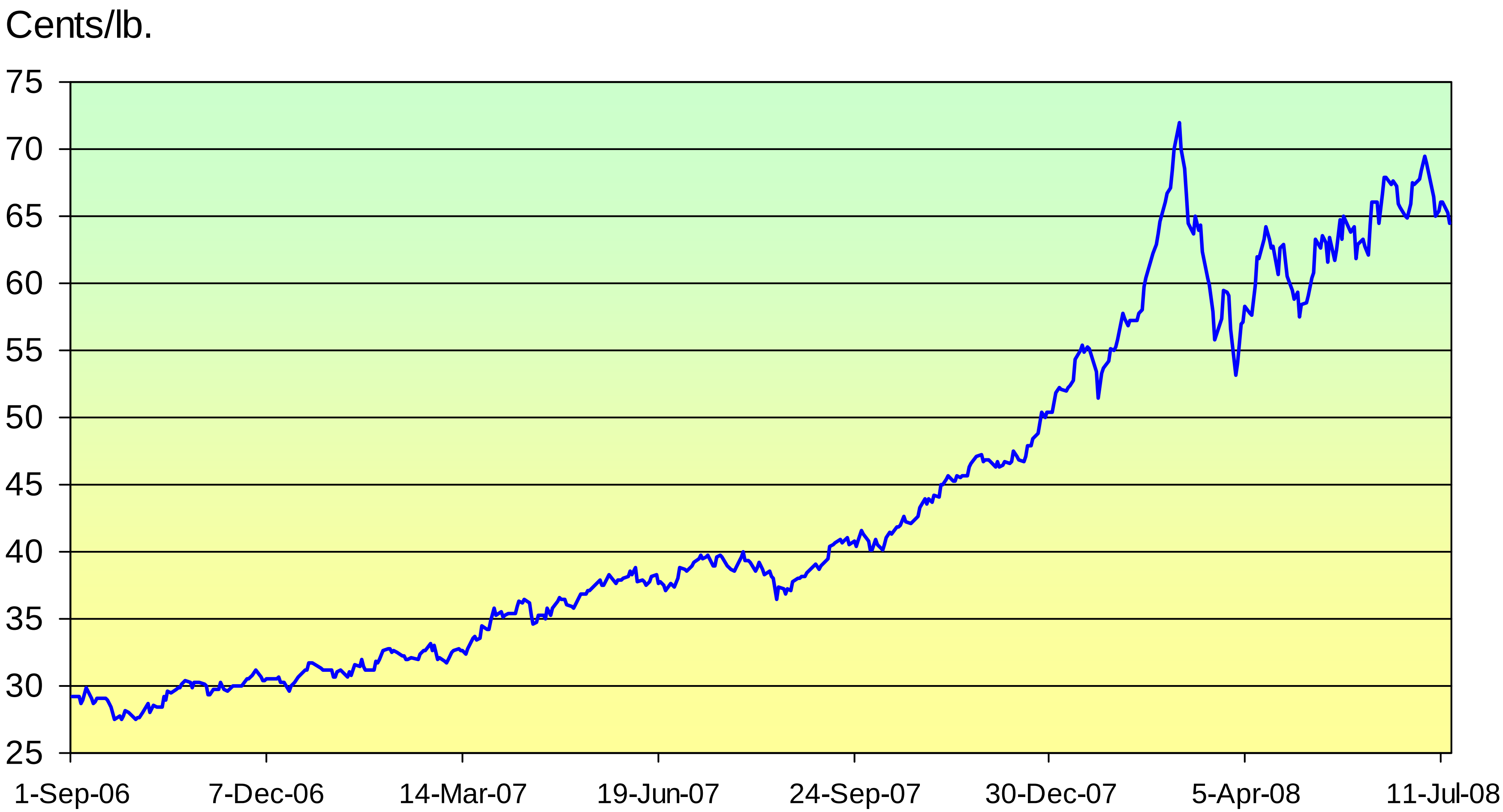
	2007/08 estimate	2008/09 forecast	Change from 2007/08
			Percent
Planted area (million acres)	63.6	74.5	17.1
Harvested area (million acres)	62.8	72.1	14.8
Yield (bushels per acre)	41.2	41.6	1.1
	Million bushels		
Beginning stocks	574	125	-78.2
Production	2,585	3,000	16.0
Imports	10	10	0.0
Total Supply	3,169	3,135	-1.1
Crush	1,840	1,830	-0.5
Seed and Residual	59	166	182.2
Domestic use	1,899	1,996	5.1
Exports	1,145	1,000	-12.7
Total Use	3,044	2,996	-1.6
Ending stocks	125	140	11.5
	Percent		
Stocks/use ratio	4.1	4.7	
	Dollars/bushel		
Average market price	10.15	12.00/13.50	25.6

U.S. Soybean Oil Supply and Demand

	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million pounds		*Percent*
Beginning stocks	**3,085**	**2,930**	**-5.0**
Production	**21,345**	**20,860**	**-2.3**
Imports	**50**	**50**	**0.0**
Total supply	**24,480**	**23,840**	**-2.6**
Domestic use	**18,400**	**18,500**	**0.5**
Methyl ester	**2,800**	**3,000**	**7.1**
Exports	**3,150**	**2,650**	**-15.9**
Total use	**21,550**	**21,150**	**-1.9**
Ending stocks	**2,930**	**2,690**	**-8.2**
	Cents per pound		
Average market price	**54.50**	**59.00/63.00**	**11.9**

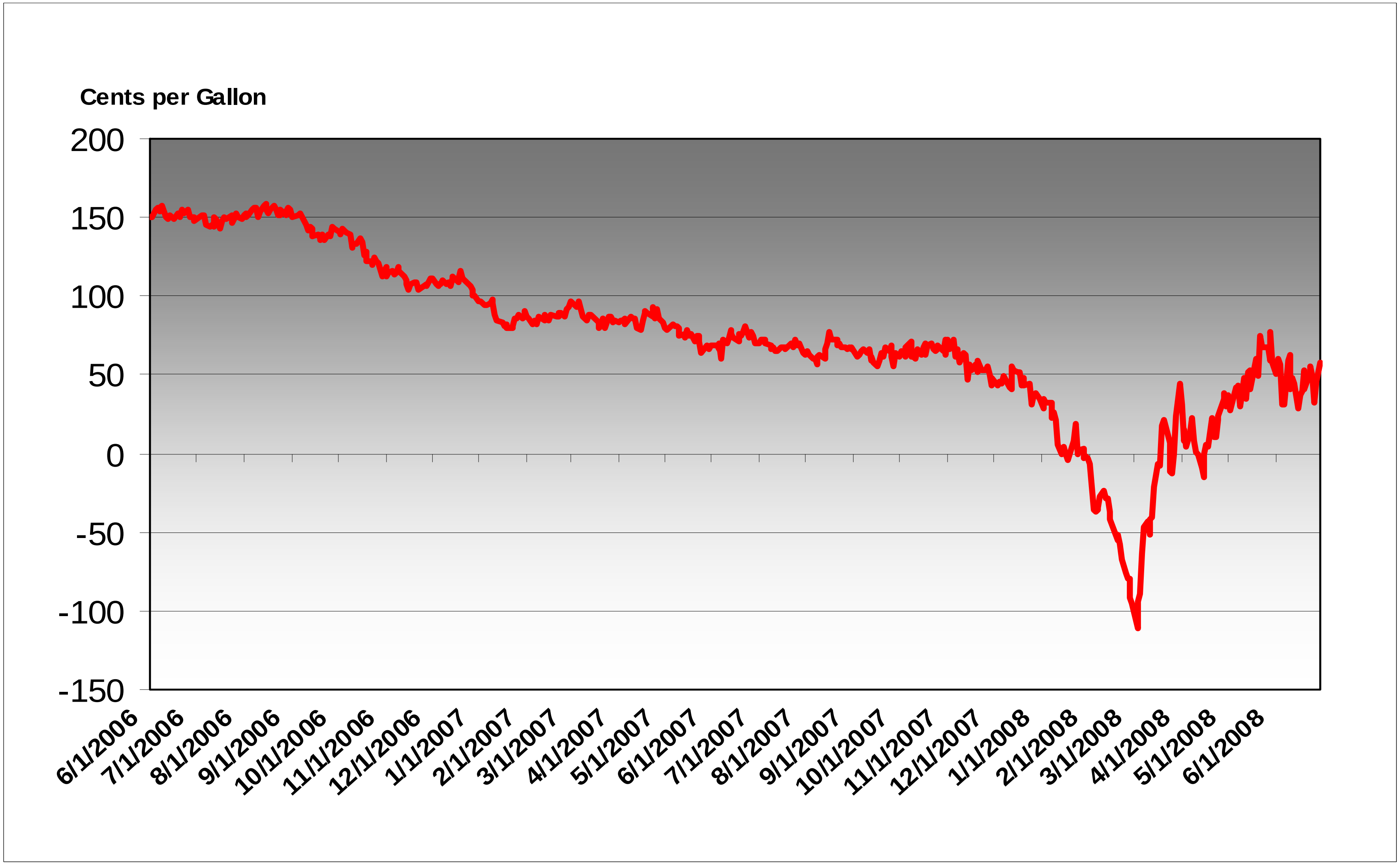
Soybean Oil Futures Prices

December 2008 Contract

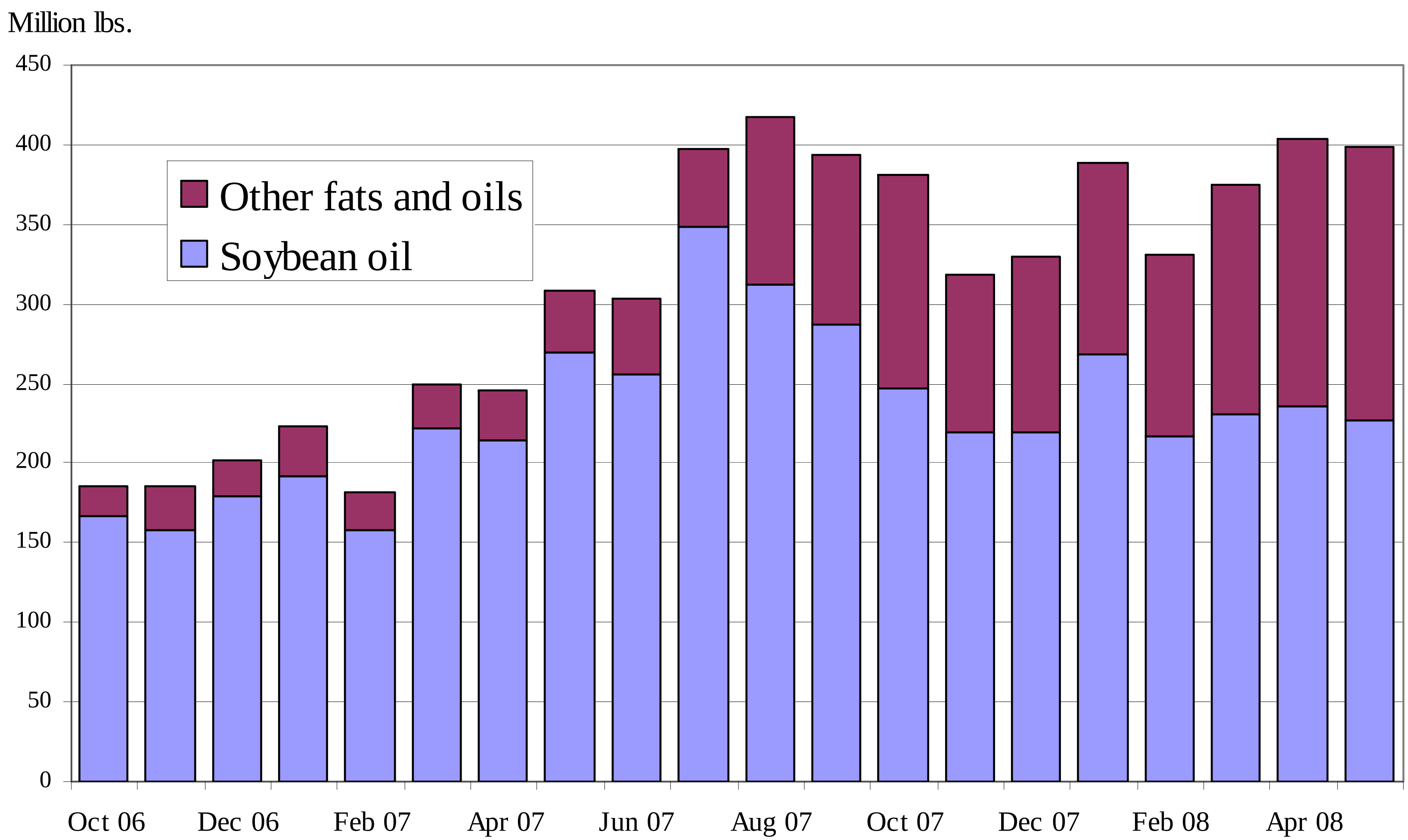


Note: Chicago Board of Trade daily settlement prices.

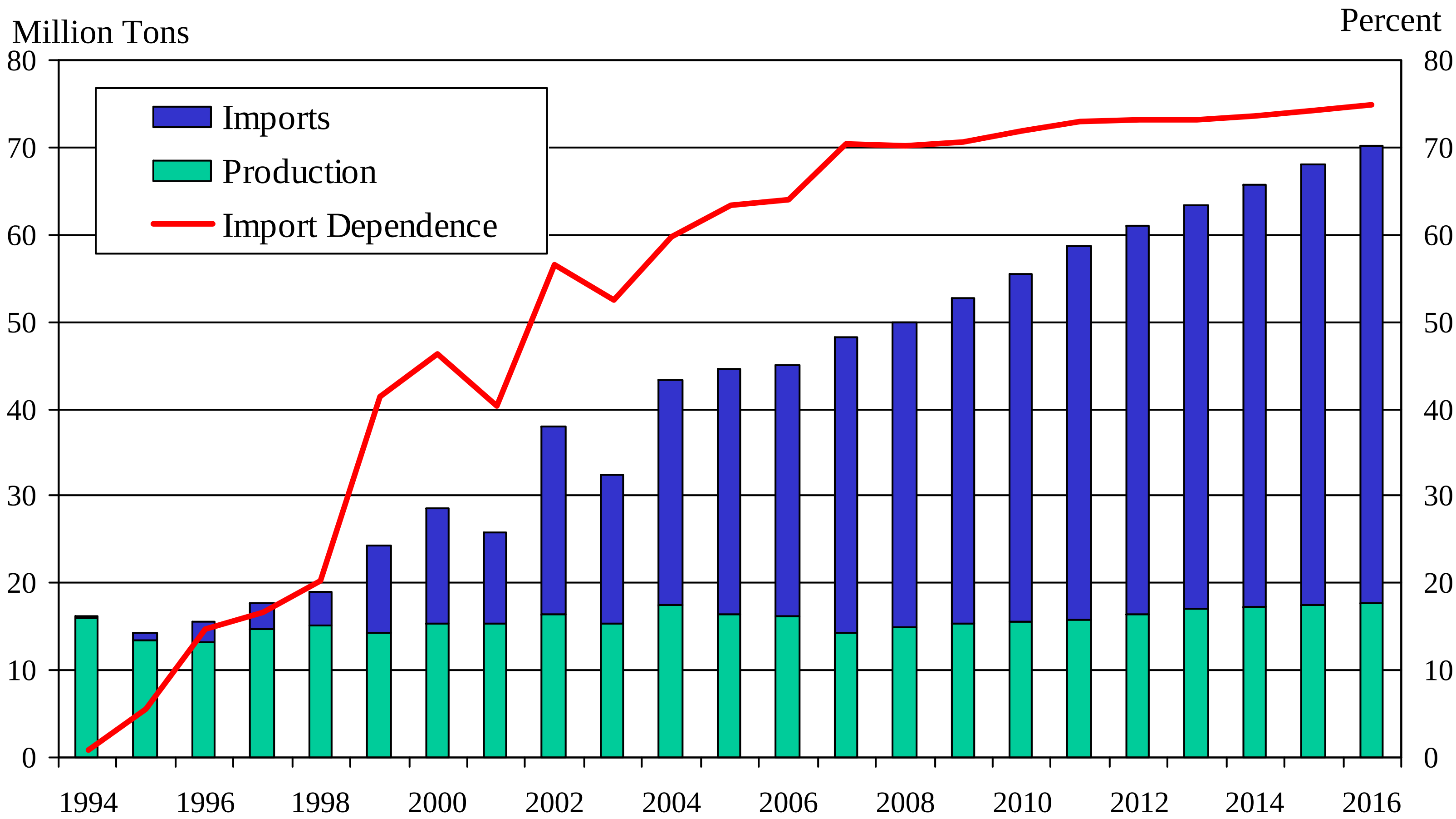
U.S. Domestic Biodiesel Production Margin



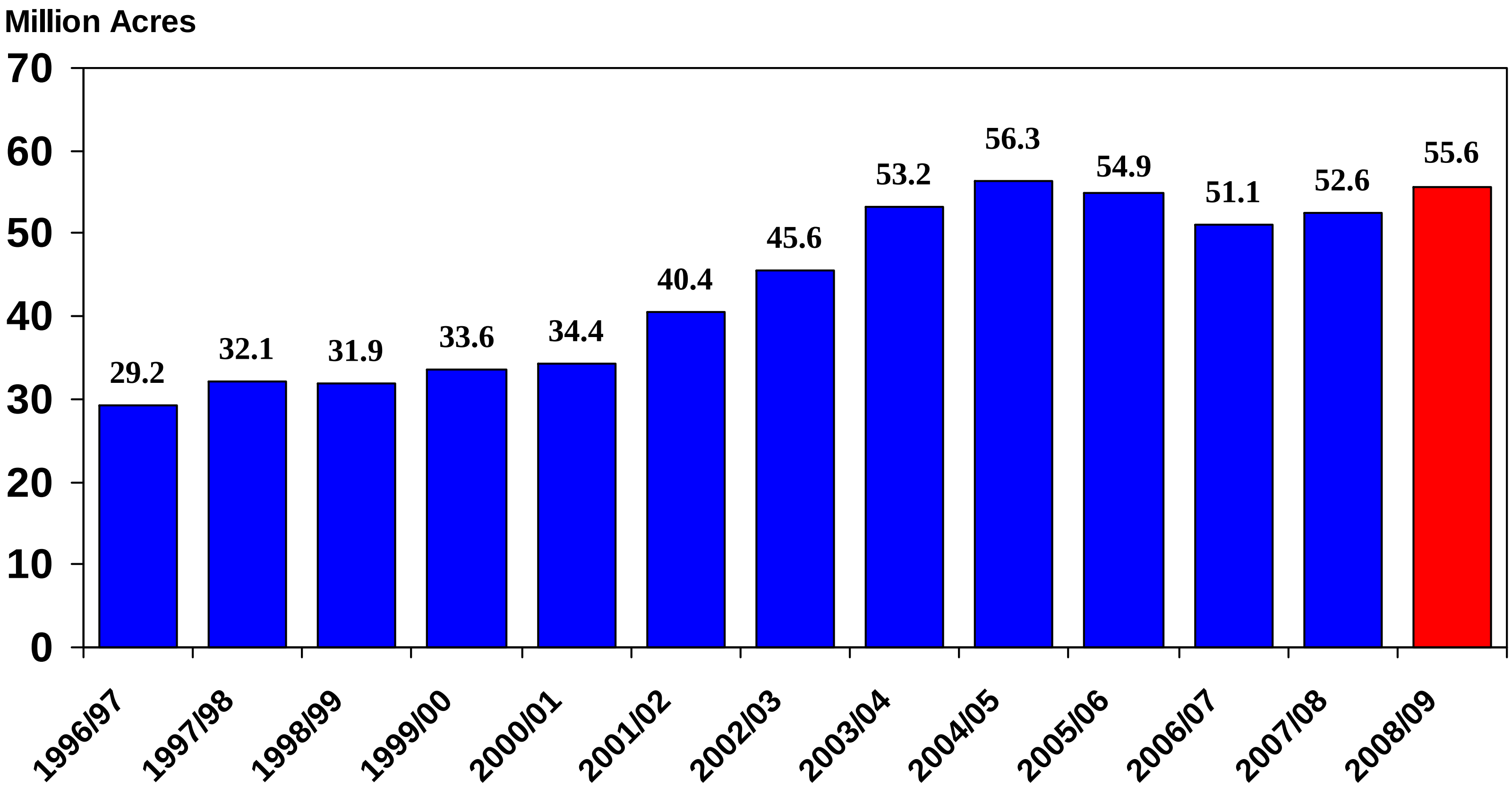
Methyl Ester from Soybean Oil



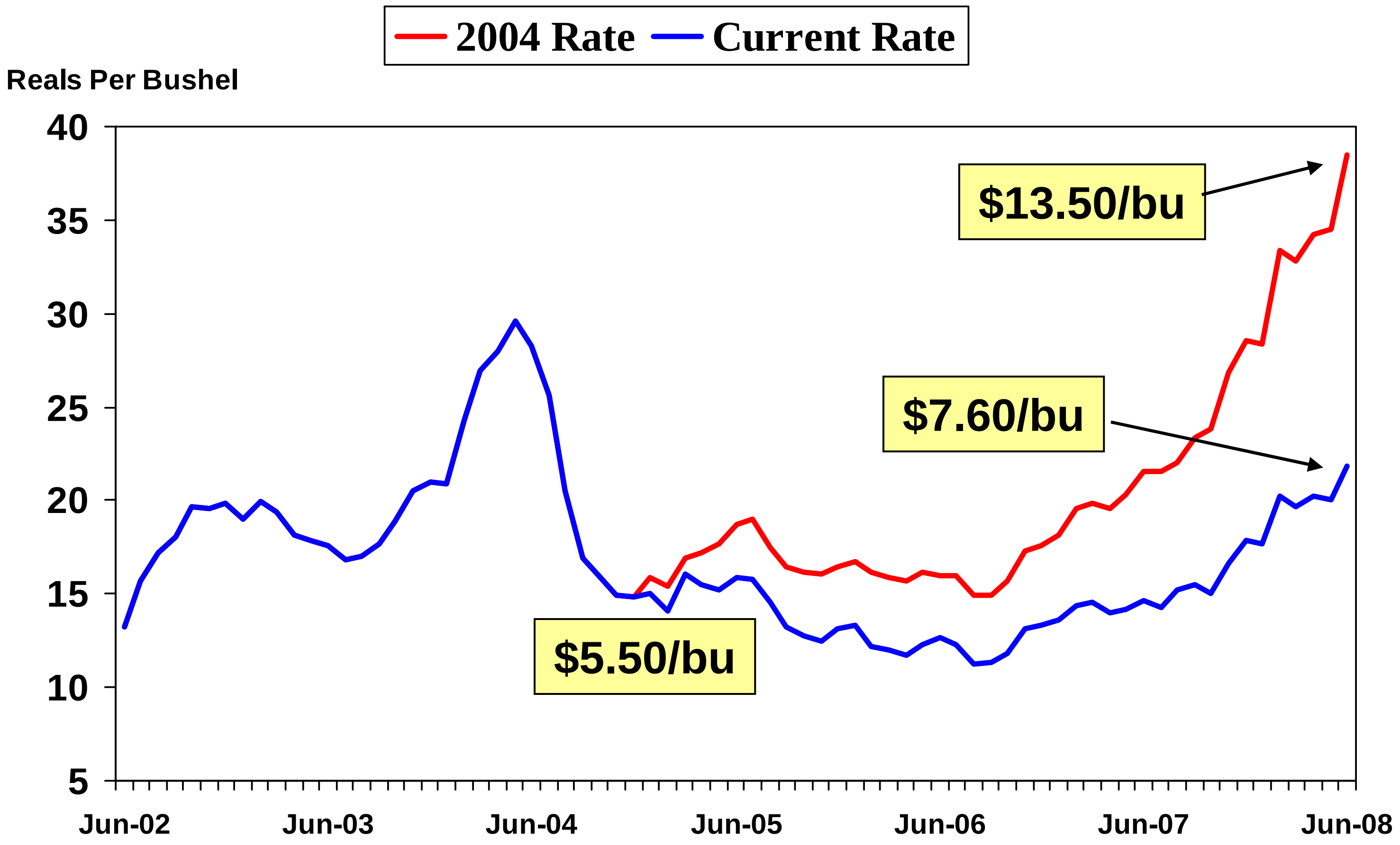
China Soybean Import Dependence Expected to Increase in the Next 10 Years



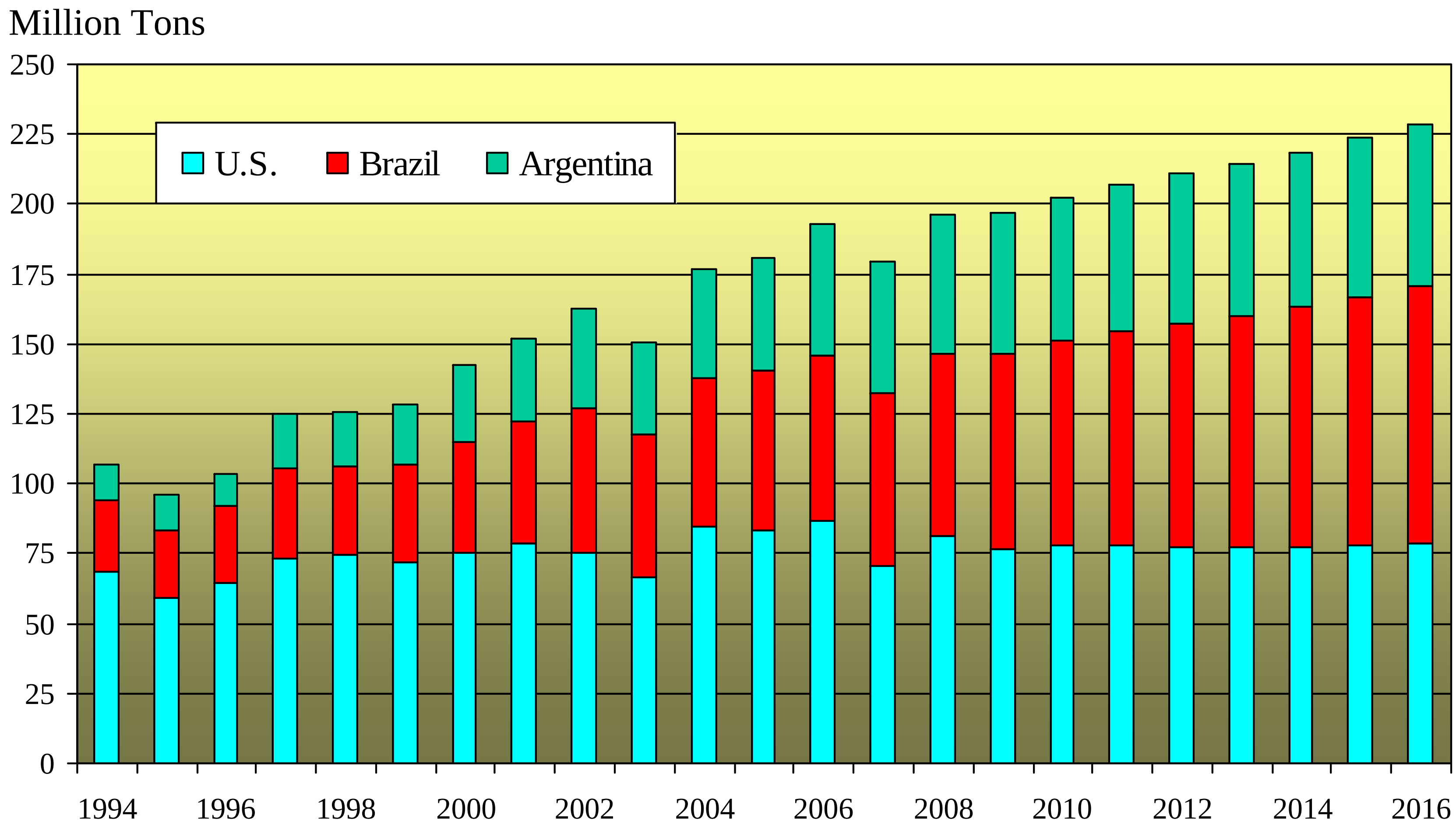
Only a moderate increase in Brazil's soybean area despite sharply higher prices



Effect of Dollar Devaluation on Brazil Soybean Price



Soybean Production Trends



Source: U.S. Department of Agriculture

U.S. Soybean Meal Supply and Demand

	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Thousand short tons		*Percent*
Beginning stocks	346	300	-13.3
Production	43,739	43,435	-0.7
Imports	165	165	0.0
Total supply	44,250	43,900	-0.8
Domestic	34,450	34,700	0.7
Exports	9,500	8,900	-6.3
Total use	43,950	43,600	-0.8
Ending stocks	300	300	0.0
	Dollars/short ton		
Average market price	345.00	355.00/415.00	11.6

World Cotton Production

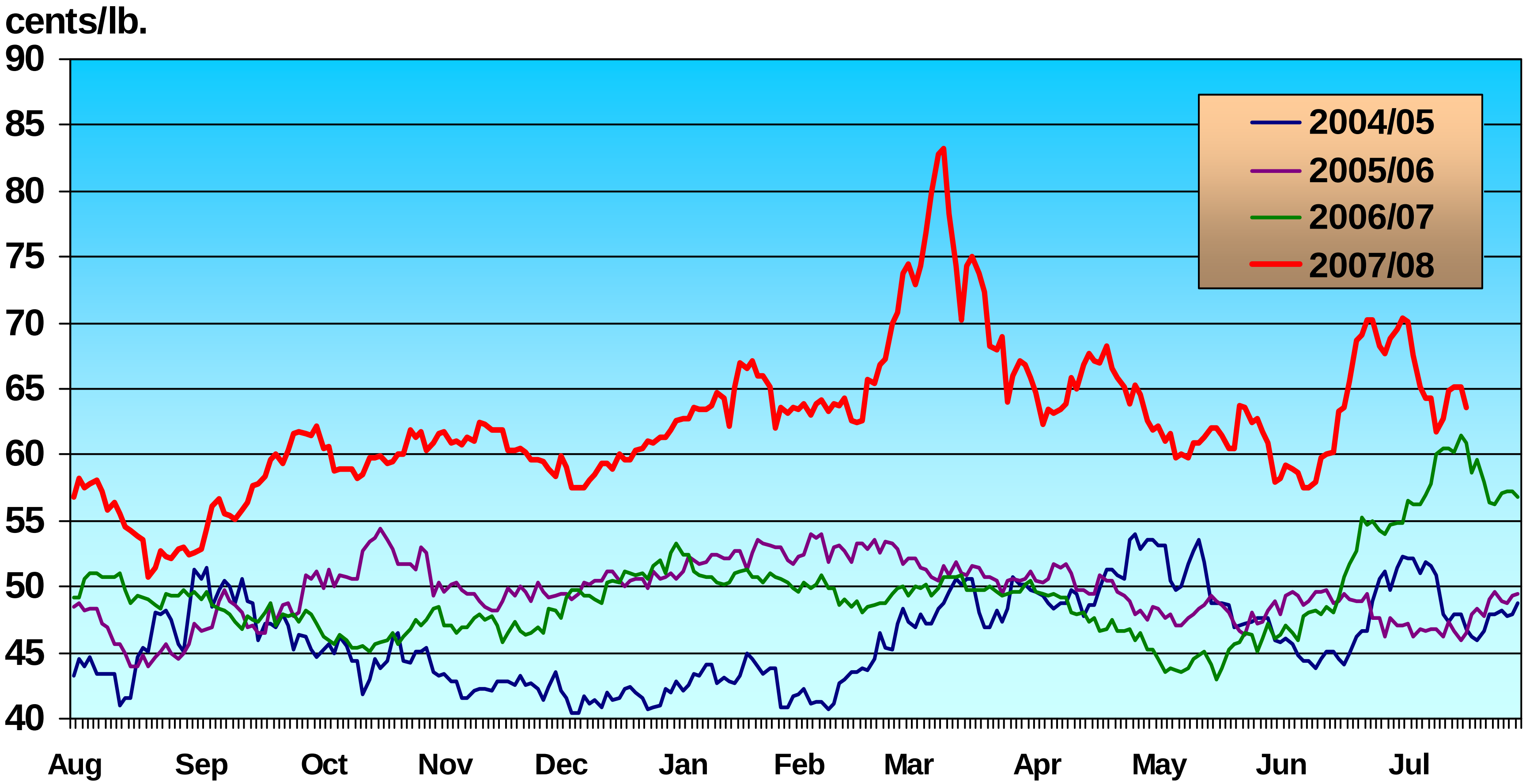
Country or Region	2007/08 estimate	2008/09 forecast	Change from 2007/08
	Million Bales		*Percent*
World	119.9	114.9	**-4.1**
United States	19.2	14.0	**-27.1**
Foreign	100.7	100.9	**0.2**
Brazil	7.2	6.4	**-10.5**
Australia	0.6	1.5	**150.0**
China	35.8	35.5	**-0.8**
India	25.3	25.5	**0.8**
Pakistan	8.9	9.4	**5.6**
Uzbekistan	5.5	5.1	**-7.3**
African Franc Zone	2.4	3.4	**39.9**

U.S. Cotton Supply and Demand

	2007/08 estimate	2008/09 forecast	Change from 2007/08
			Percent
Planted area (million acres)	10.83	9.25	-14.6
Harvested area (million acres)	10.49	8.10	-22.8
Yield (pounds per acre)	879	830	-5.6
	Million bales		
Beginning stocks	9.48	10.20	7.6
Imports	0.02	0.02	0.0
Production	19.21	14.00	-27.1
Total supply	28.70	24.22	-15.6
Mill use	4.60	4.40	-4.3
Exports	13.90	14.50	4.3
Total use	18.50	18.90	2.2
Unaccounted	0.00	0.02	
Ending stocks	10.20	5.30	-48.0
	Percent		
Stocks/use	55.1	28.0	
	Cents per pound		
Average market price	57.00	59.00/73.00	15.8

Daily Cash Market Cotton Prices

2004/05 through 2007/08 to date

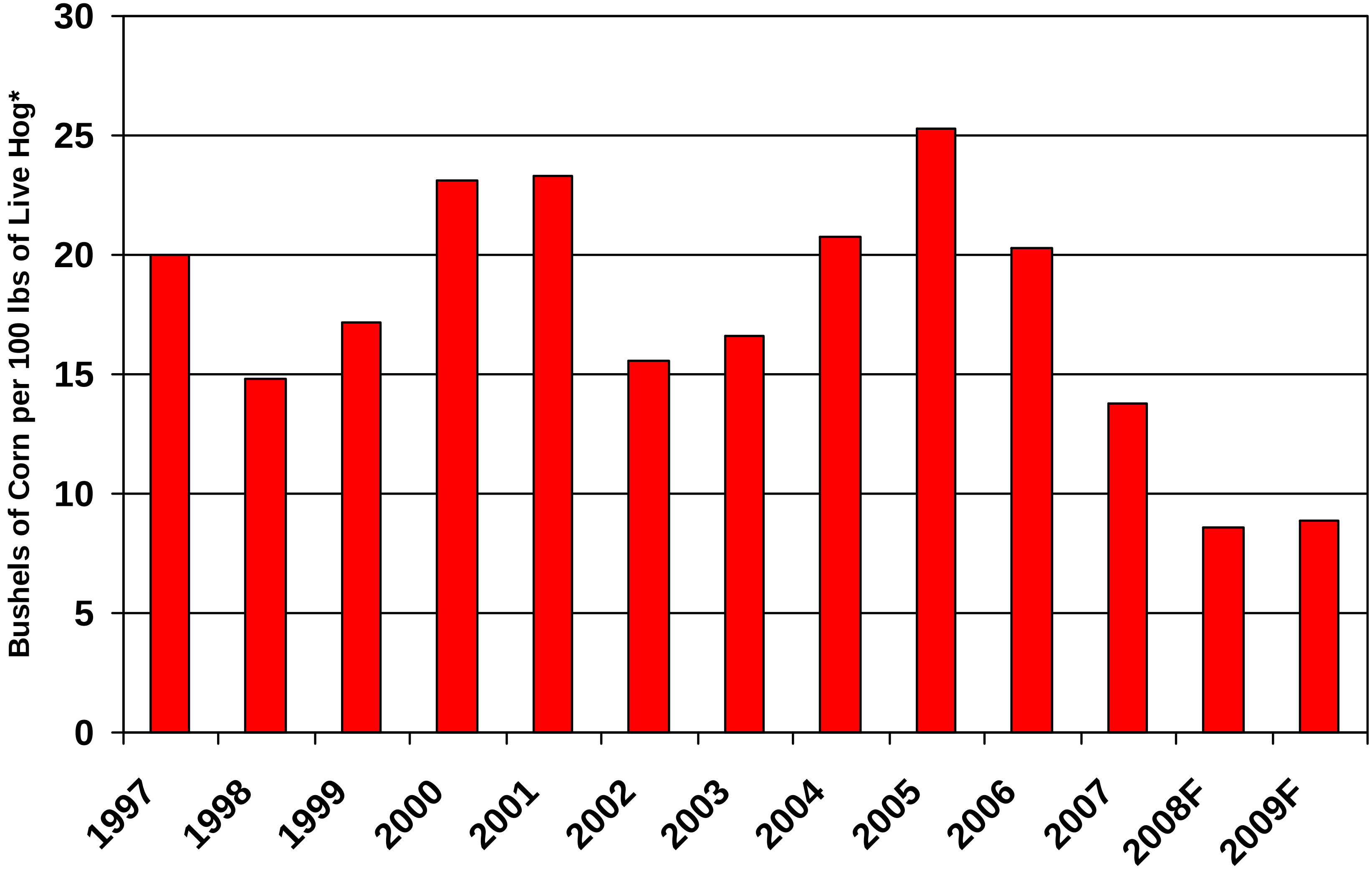


Note: Memphis 1 1/16.

U.S. Meat Production and Prices

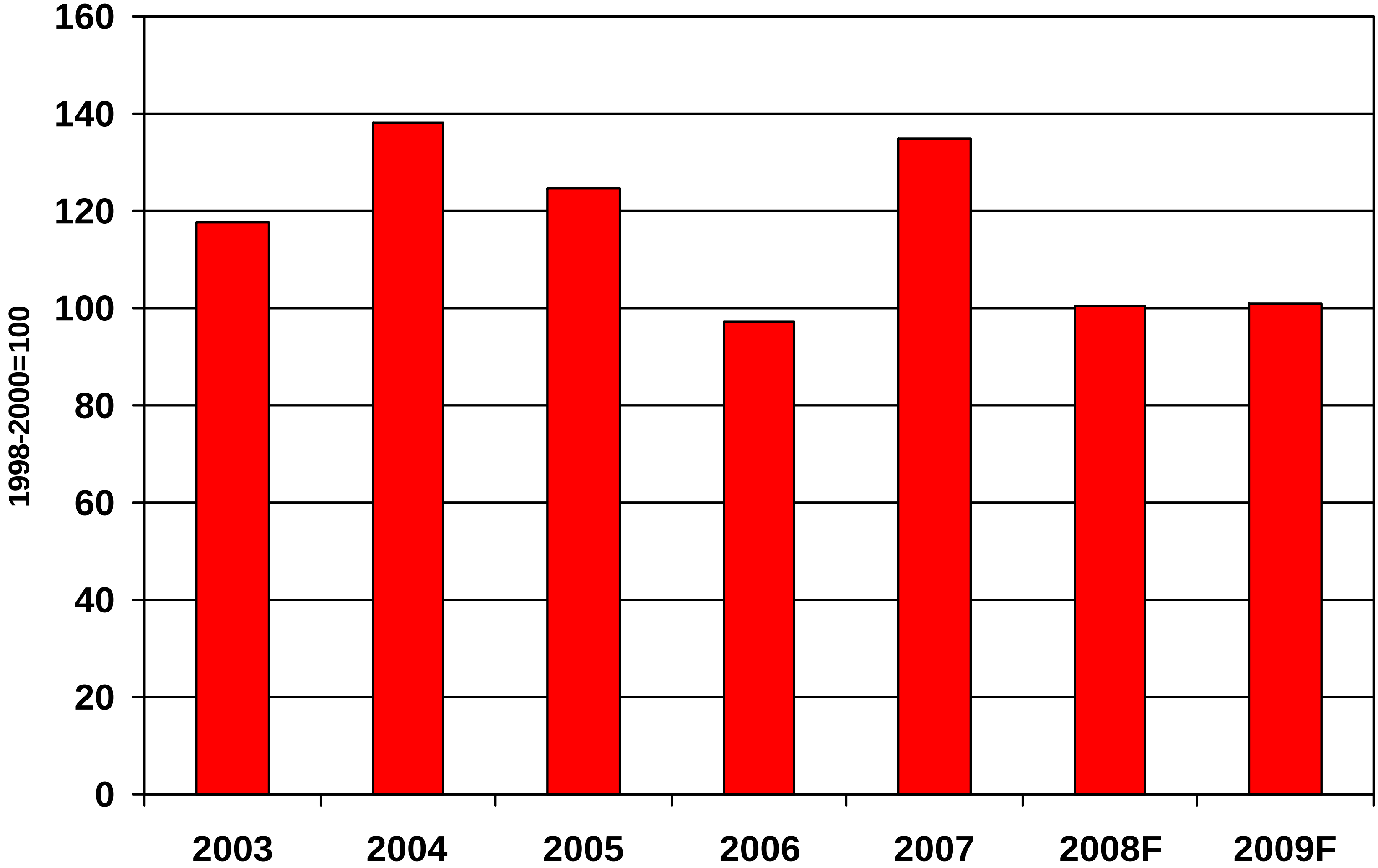
	2008 forecast	2009 forecast	Change from 2008
Production	*Billion pounds*		*Percent*
Beef	26.57	26.39	-0.7
Pork	23.48	22.75	-3.1
Broilers	37.01	36.59	-1.1
Turkey	6.18	6.05	-2.2
Total meat	94.10	92.61	-1.6
Prices	*Dollars/cwt*		
Steers	92.60	95.00	2.6
Hogs	47.04	49.50	5.2
	Cents/lb		
Broilers	81.93	88.75	8.3
Turkey	88.83	92.50	4.1

Hog-Corn Price Ratio



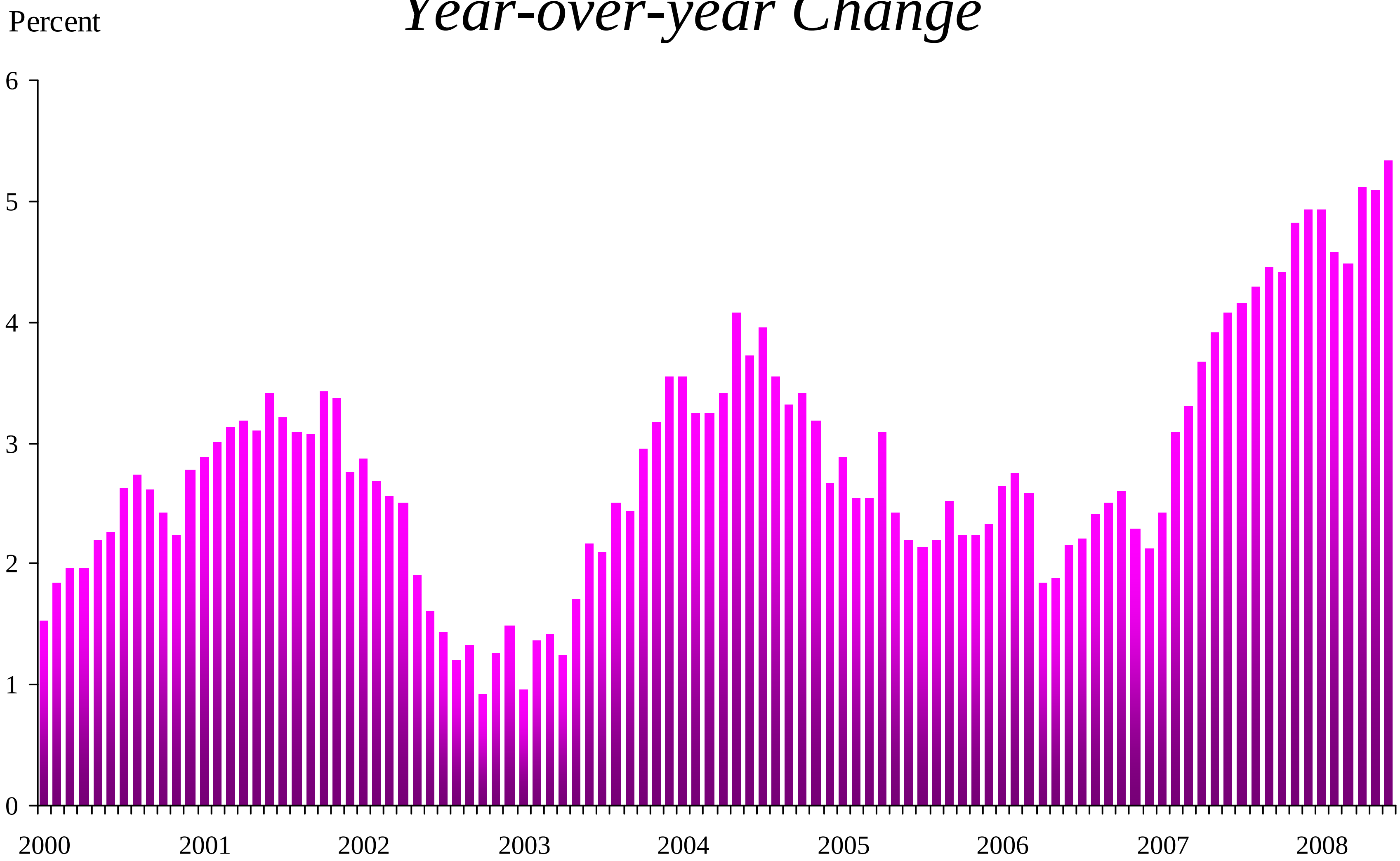
*Based on NASS Prices Received

Index of Broiler Market Price Less Feed Costs

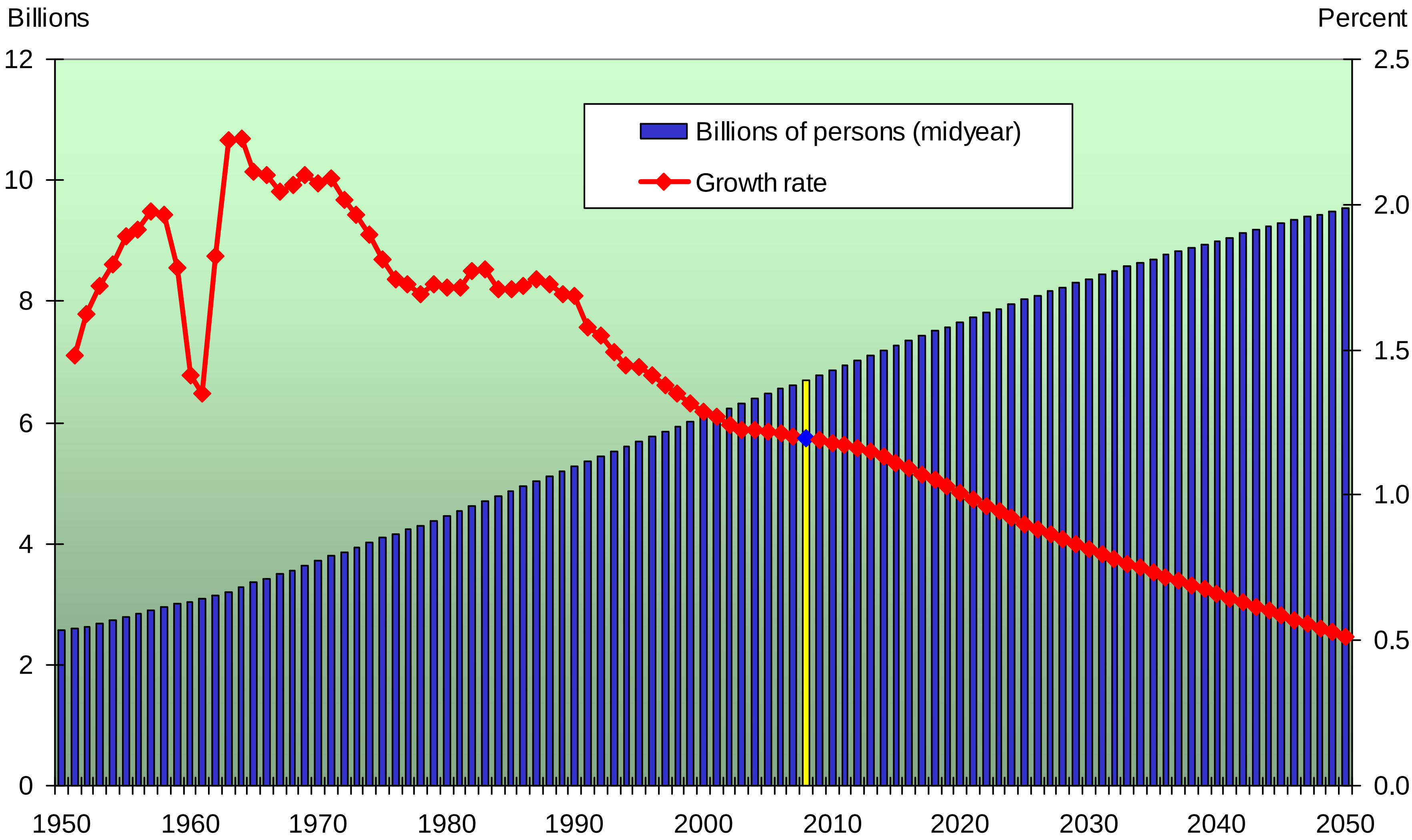


CPI for Food

Year-over-year Change

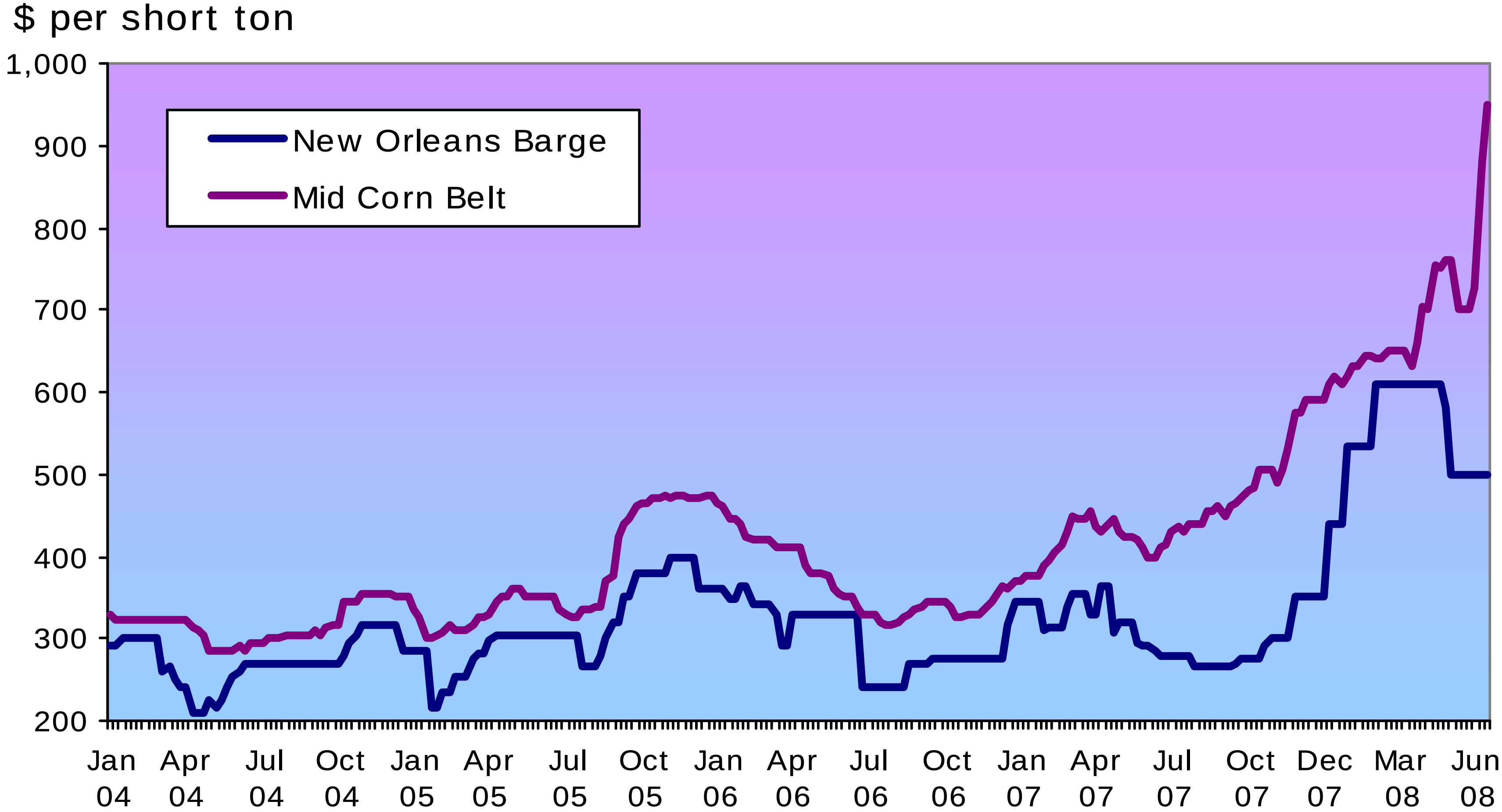


World Population and Population Growth



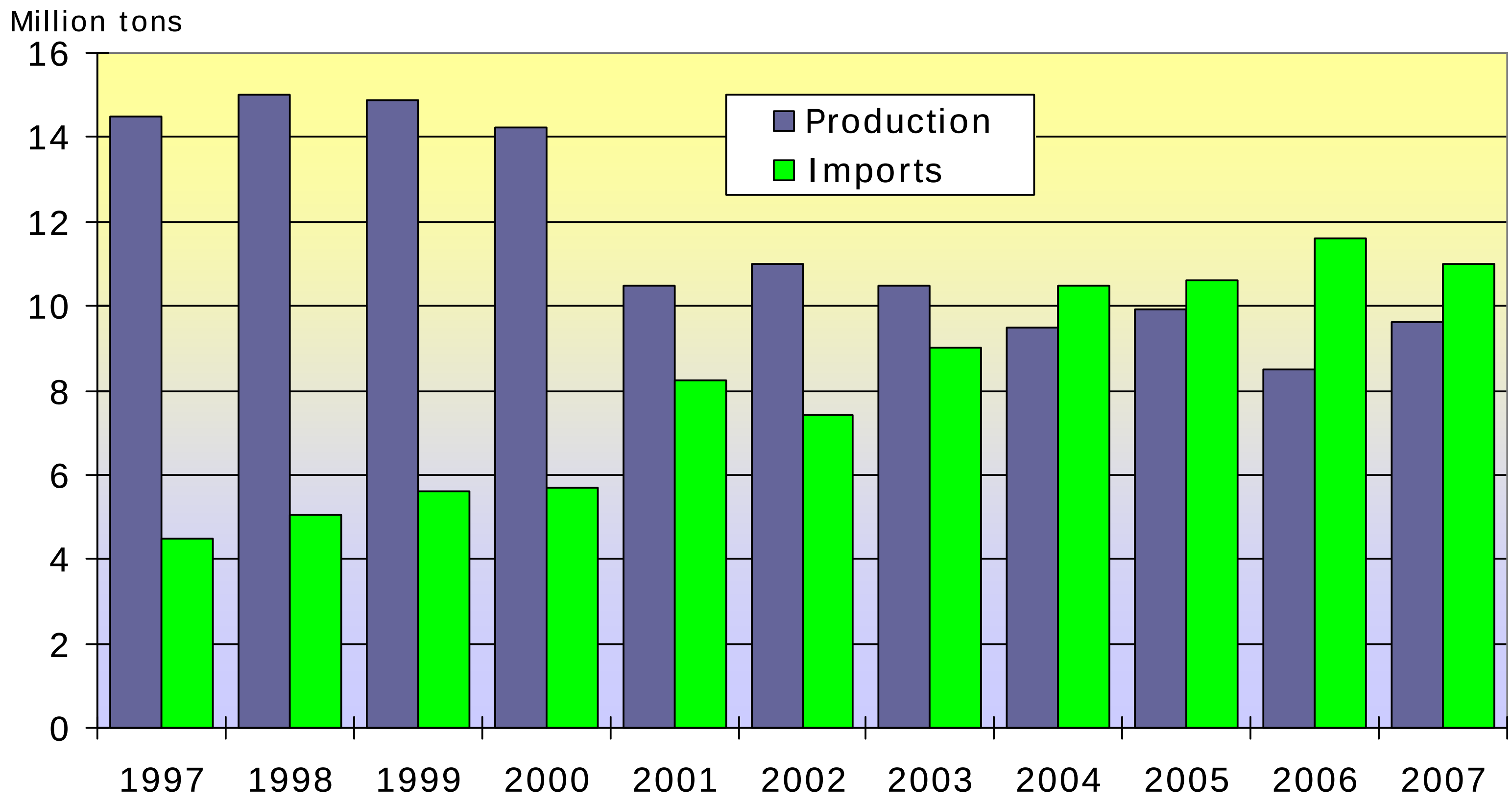
Source: U.S. Bureau of the Census

U.S. Ammonia Prices, weekly



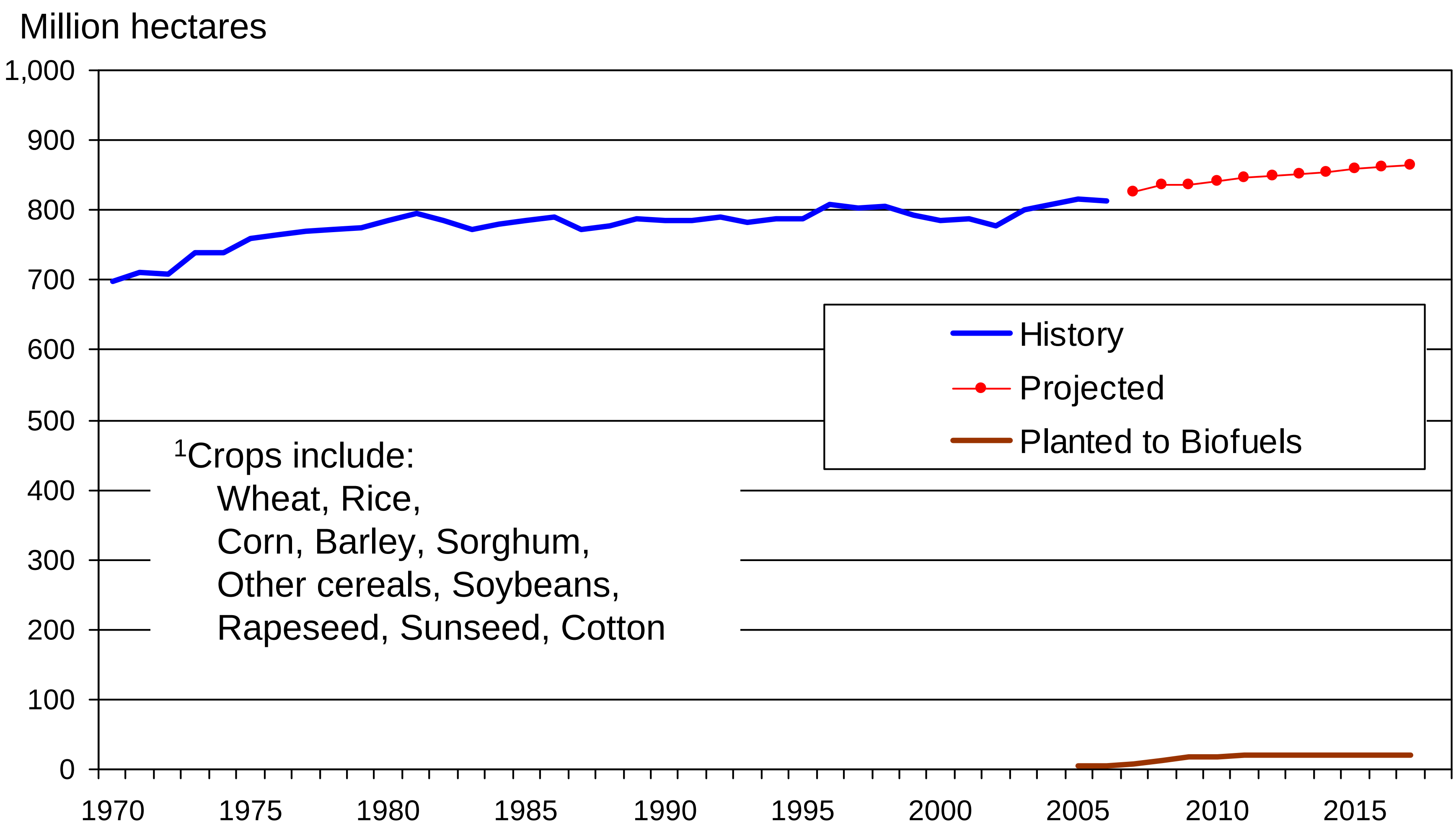
Source: Green Markets Fertilizer Market Intelligence Weekly

U.S. Nitrogen Production and Imports



Global Area Planted

Including to Plant Biofuel Feedstocks



Source: Ron Trostle, "Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices," USDA, Economic Research Service, May 2008. http://www.ers.usda.gov/Publications/WRS0801/WRS0801.pdf

Brazil: Land Utilization Statistics

	Million Hectares	Percent of Total Area
Total Forest Area [1]	444.0	53
Total Remaining Cerrado Area [2]	140.0	17
Total Pasture Area [3]	177.0	21
Total Agricultural Area [4]	41.8	5
Total Non-Arable & Other Area [5]	42.9	5
Total Land Area	847.5	100

[1] UNEP World Conservation Monitoring Program, Cambridge, England
[2] EMBRAPA Cerrados Research Center, Brasilia, Brazil 2002
[3, 4] IBGE 1995-96 Agricultural Census
[5] FAO/USDA Estimate

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Estimated Land Availability For Mechanized Agriculture

	Million Hectares	Percent of Total Area
Virgin Cerrado [1]	**65**	**46**
Pasture Conversion [2]	**70 - 90**	**40 - 50**
Comprised of:		
a) Cerrados Region	20 - 30	
b) Southeastern Para	20	
c) Other Brazil	30 - 40	
Amazonia [3]	**10**	**3**
Total Availability	**145 - 170**	**17 - 20**

[1] EMBRAPA Cerrados Research Center, Brasilia, Brazil 2002
[2] USDA/FAS/PECAD Estimate
[3] EMBRAPA, EMETER, or State Ag Depts (Amazonas, Rondonia, Para, Roraima, Amapa)

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Agricultural Outlook Forum

Feb. 26-27, 2009

End