Fundamental Analysis for Grain

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Texas A & M University Master Marketers Conference, Amarillo, Texas, January 13, 2010

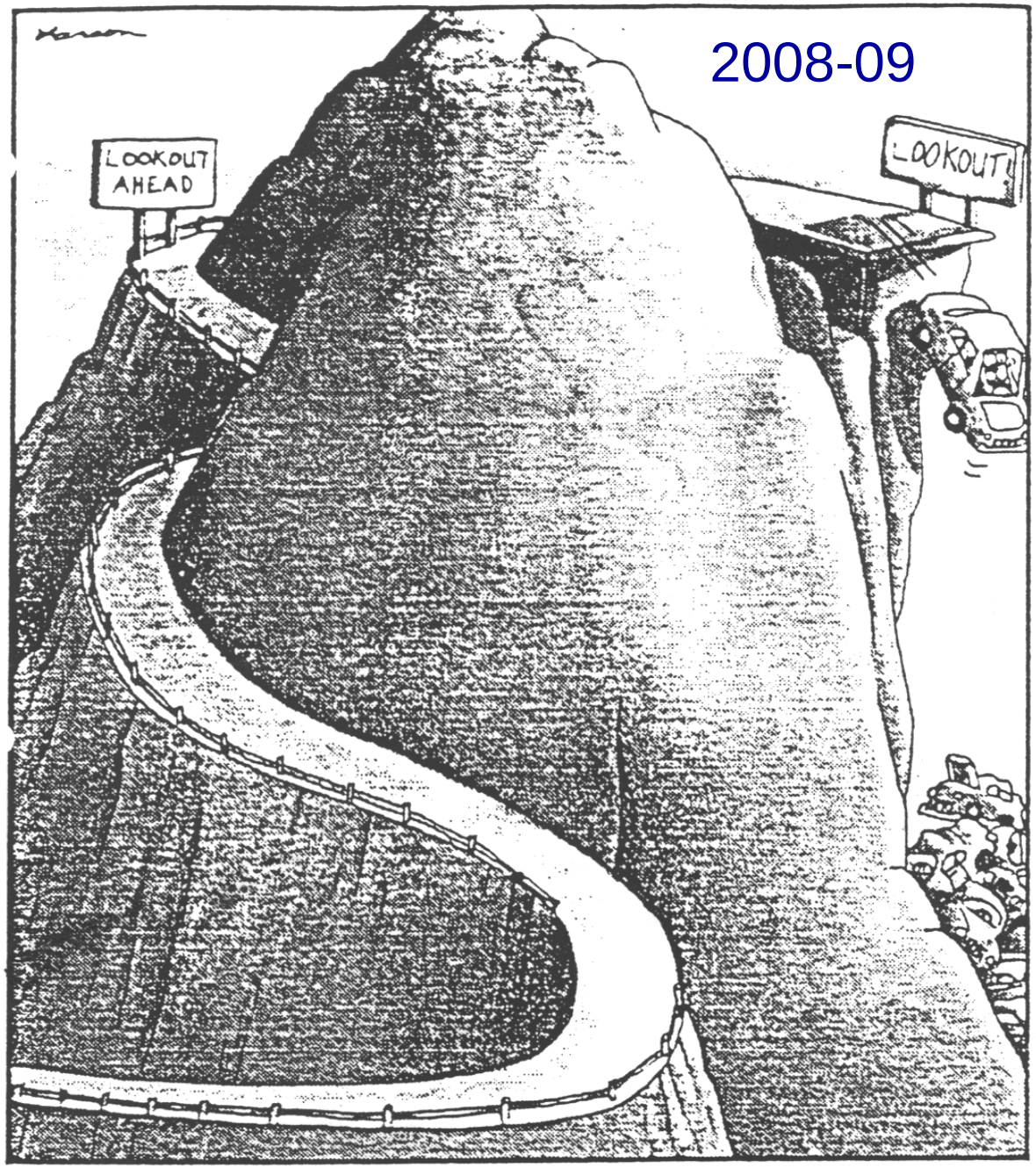
- **The process of analyzing supply and demand, developing price forecasts**

Objectives

- **Illustrate some key tools of grain price forecasting**
- **Explain the role of fundamental analysis in marketing**
- **Show our current outlook for corn, soybeans, & wheat – 2009 & 2010 crops**
- **Some longer-term developments**

Marketing Plan Fundamentals

- **Start early**
- **Know *your* cash-flow costs & *risk bearing* ability**
- **You can't go broke taking a profit**
- **Very often, the best corn & SB pricing opportunities are during Jan.-May before harvest. Consider puts @ planting time**
- **Use revenue insurance as companion to pre-harvest pricing, not substitute**
- **Be cautious with complicated new contracts**
- **Understand basis & storage costs**
- ***Use fundamental analysis as mktg. guide***


2008-09
LOOKOUT AHEAD
LOOKOUT!

Today's Risk Environment

- **Global Biofuels – large new Demand**
- **Low World Grain Reserves**
- **Newer Risk-Management Tools**
- **Uncertain Govt. Payments**
- **Insurance: a companion tool for mktg.**
- **World Competition, esp. wheat**

Topics to Be Discussed

- Processes for Grain Supply-Demand Analysis
  - Old-crop & new-crop
- U.S. Ethanol Trends & Effects on Global Feed Supply-Demand
- USDA & other information sources
- Key Players in World Grain & Feed Trade
- Emerging Developments in China's Grain
- The Future: Potential Areas for increased Crops
  - South America
  - Former Soviet Republics
  - China Corn?

Fundamental Analysis

- **A Key Concept – Balance Sheets**
- **Analyzing Export Demand**
- **Analyzing Domestic Demand**
- **Analyzing Potential Supply**
- **S-D, Carryover & price relationships**
- **Seasonality**
- **Some Key Web Sites**
- **Current Examples**

Why Forecast?

Market Risks are large

Business Decisions: based on committed & expected future costs & returns

- **Crop acreage mix depends on prices**
- **How much N to put on corn**
- **Sell @ harvest, store into summer?**
- **Contract for harvest or later delivery?**

Base decisions on hunch or best available information?

Role of Fundamental Analysis

- **Shows what to watch**
- **Gives guide to market sensitivity**
- **Helps quantify new market impacts**
- **Provides a benchmark price for plans**
- **Guiding principle: Price *influenced* by *expected* supply and demand**

Fundamental vs. Technical Analysis

- *Technical:* road map and driving rules for traders as they follow market reaction to Supply-Demand
- *In the short run, markets over re-act & deviate from fundamentals, but supply & demand ultimately rule the market*

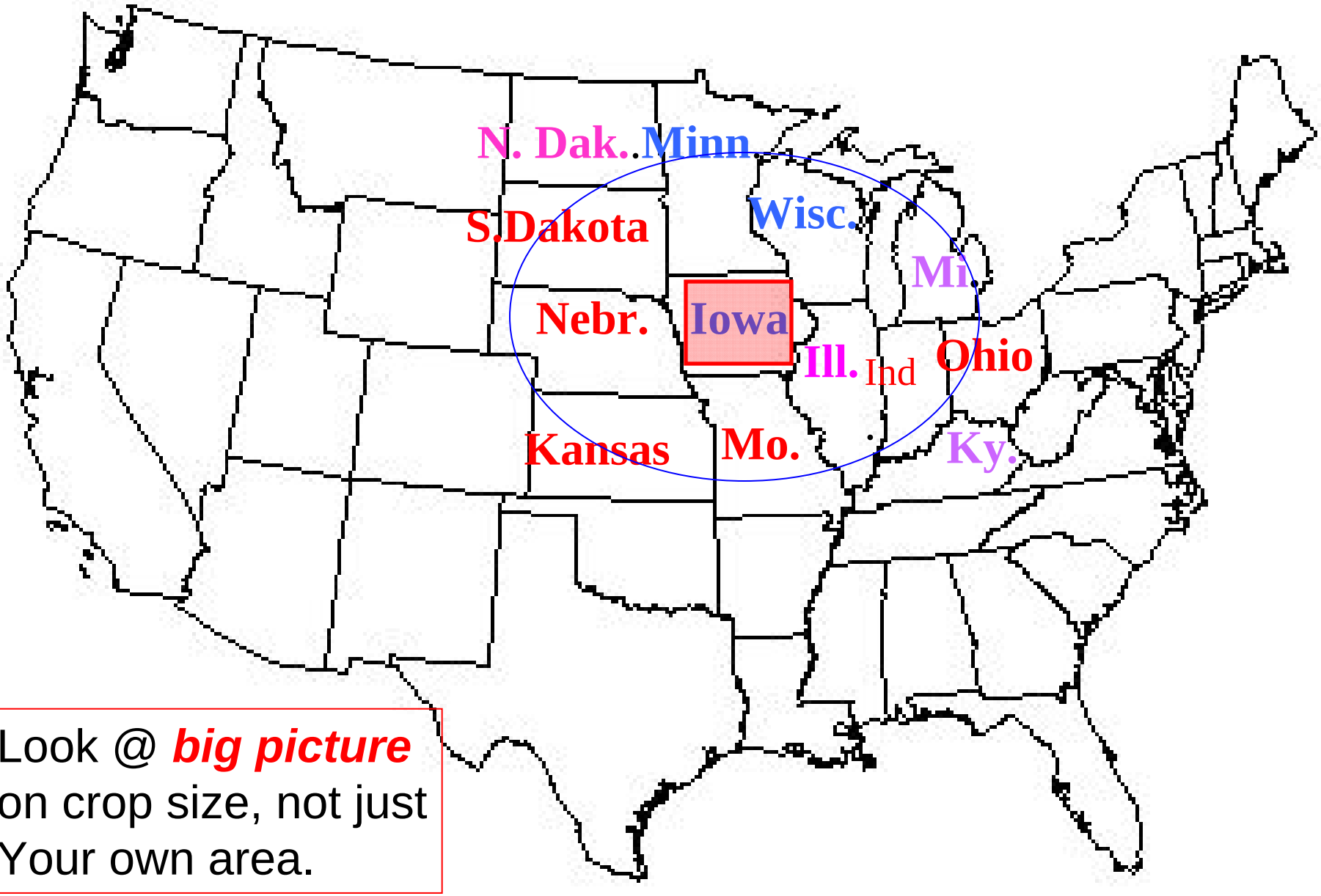
Objectives in This Session

- Not to make you expert forecasters
- Understand how good forecasts are made
- Understand limitations of forecasts
- Identify good information sources
- Provide guides to help anticipate market reactions
- Update on grain outlook for 2009-11 and how outlook was developed

Forecasting Rules

- Search for the big picture
- New-crop futures markets are not good forecasters
- *Never say always or never*
- If you forecast, forecast often
- Have a good historical perspective
- **Be a contrarian:** majority of traders is often wrong
- Respect market trends
- Inflation seldom increases corn & bean prices (but may via oil & $)

The U.S. Corn/Soybean Belt



Look @ ***big picture***
on crop size, not just
Your own area.

81% of U.S. corn & 85% of soybeans are grown outside Iowa

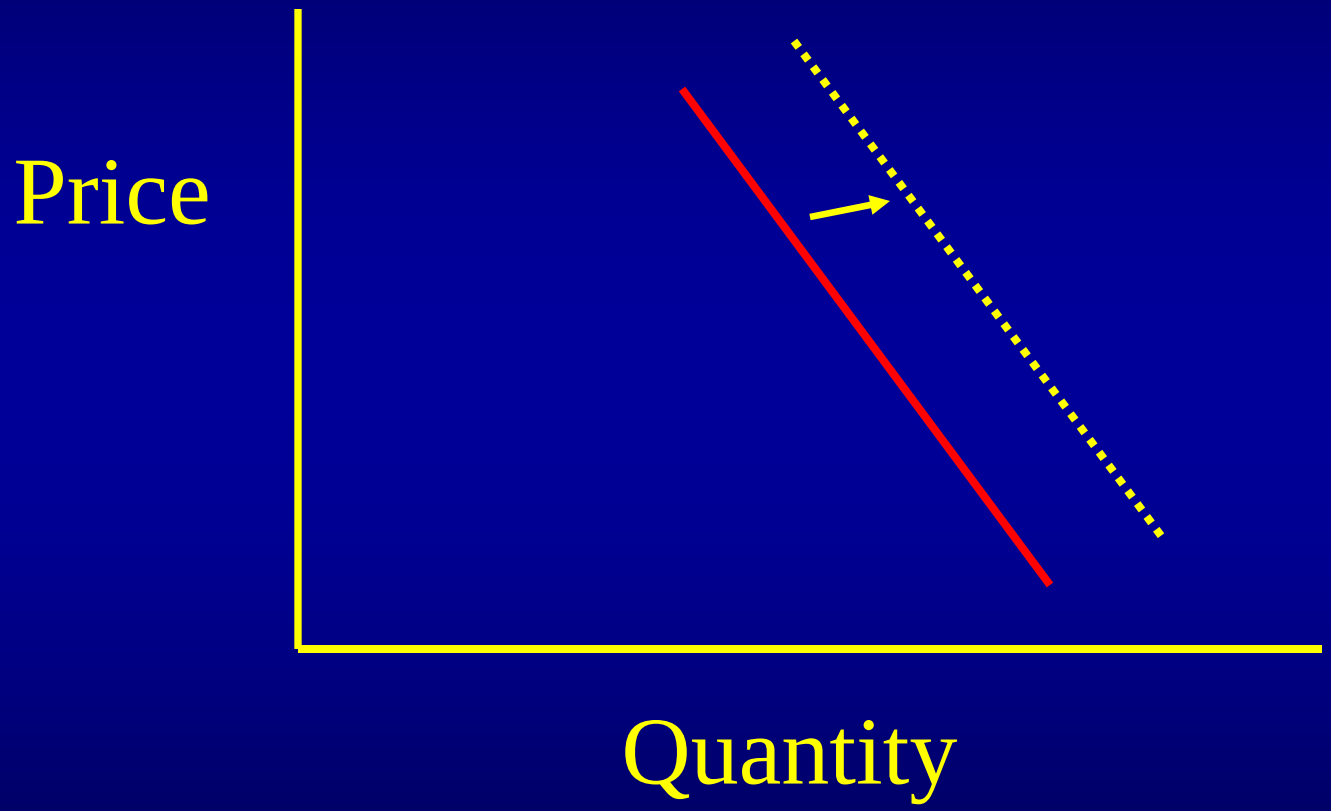
Some Principles

- **The market guides production**
- **Demand has two dimensions: *quantity & price***
- **Supply is two dimensional: *quantity & price***
- **Market equilibrium: *price where quantity demanded equals quantity supplied***
- **If quantity supplied exceeds quantity demanded, price declines**

FORECASTING CONSIDERATIONS: GRAIN

- Price influenced by supply, demand, & competing products S-D
- Prices influenced by current & expected future conditions
- Grain is a global Market
- Weather: a major supply factor
- Government policy: U.S. & foreign

Demand: Two dimensions



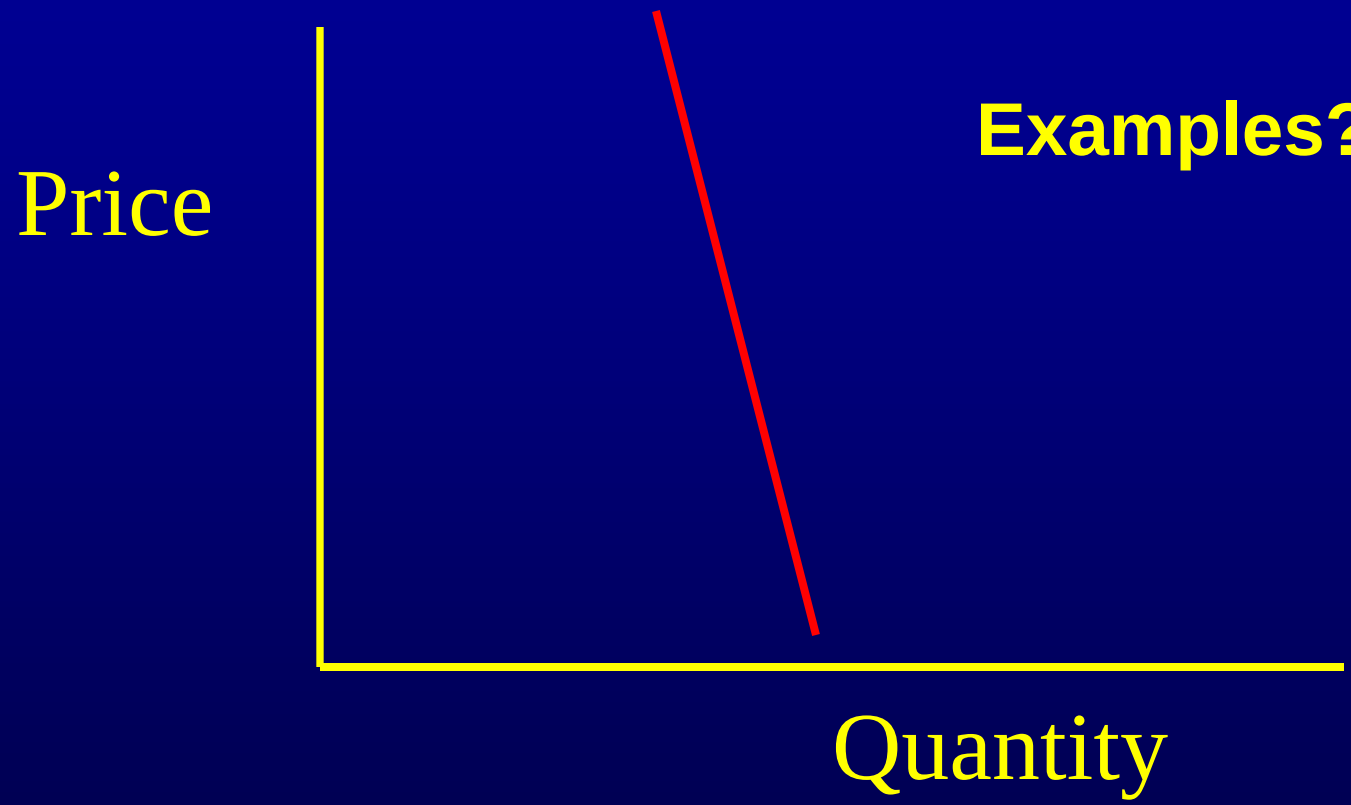
Price Elasticity of Demand

- How quantity demanded changes with price
- Mathematical expression:

% change in Quantity with a 1% change in price

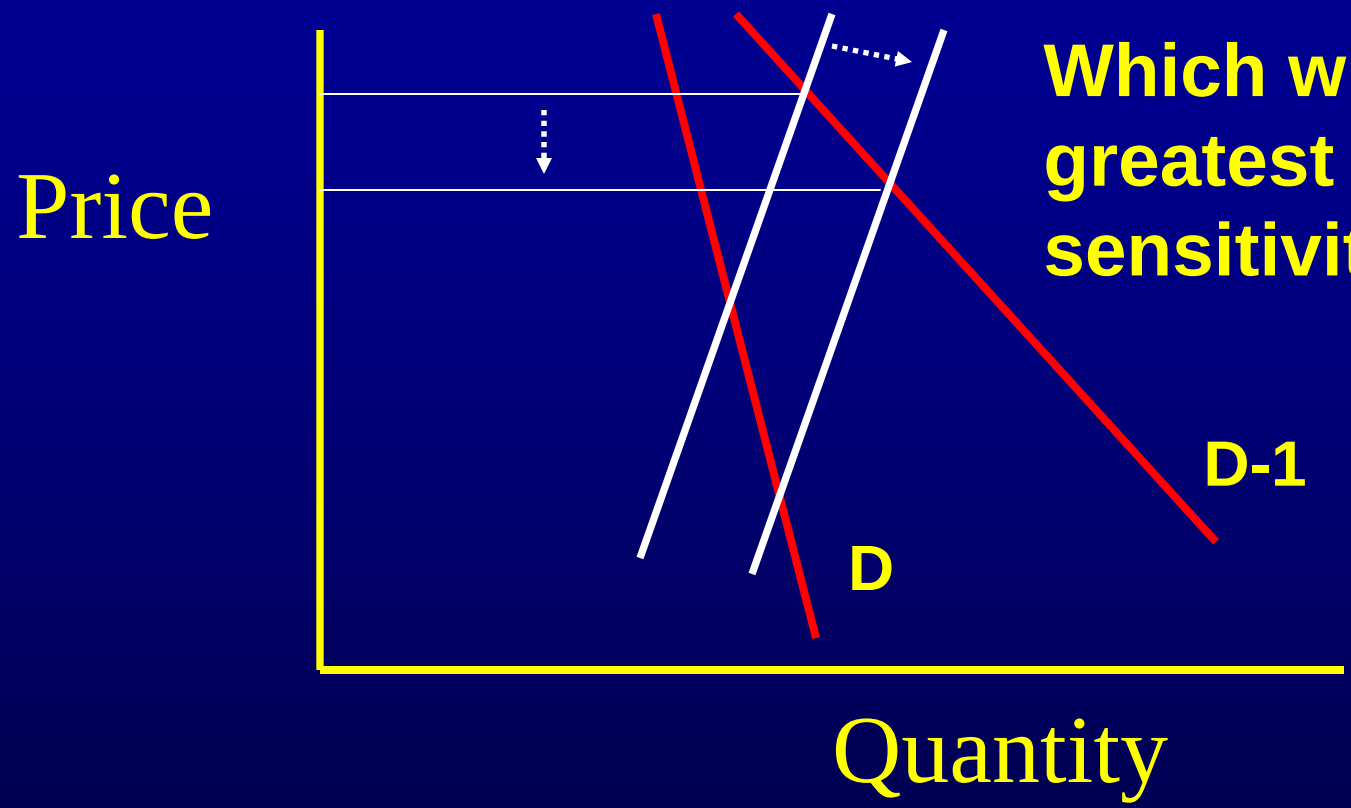
- Price flexibility: 1/elasticity (price impact with supply change)

Inelastic Demand



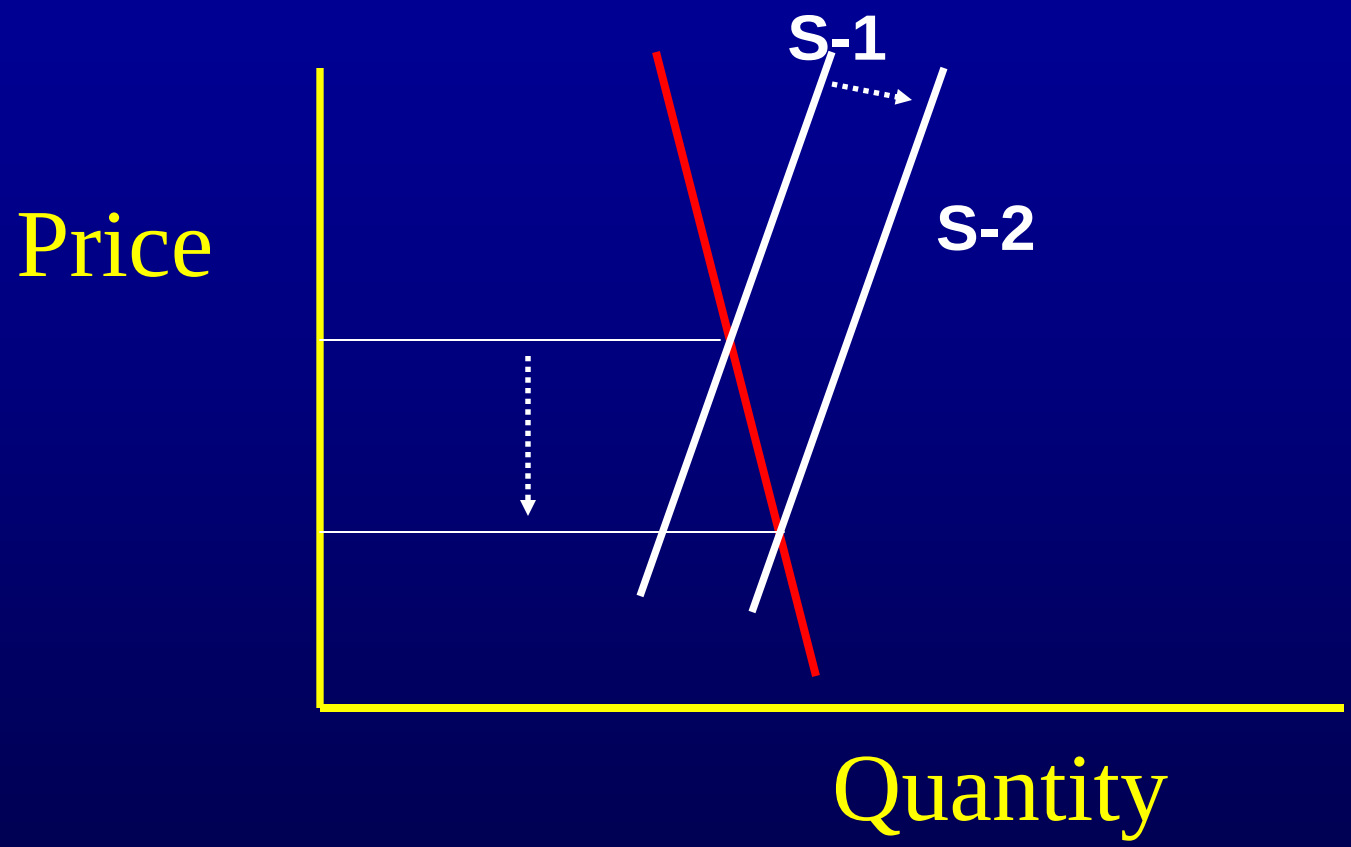
Examples?

Elastic & Inelastic Demand



Which will cause greatest price sensitivity?

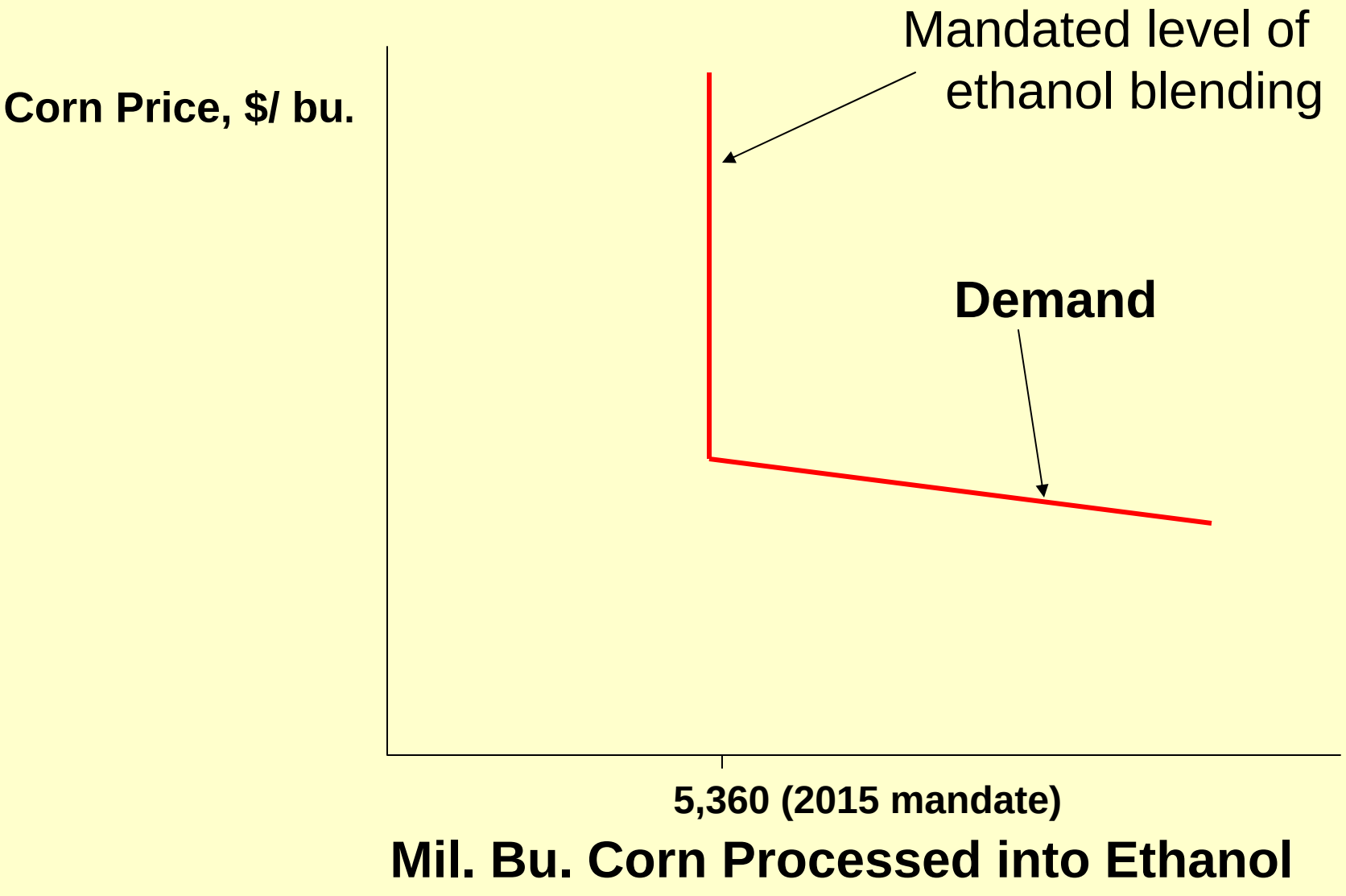
Inelastic Demand



Is elasticity of D for corn changing?

Elasticity of Demand

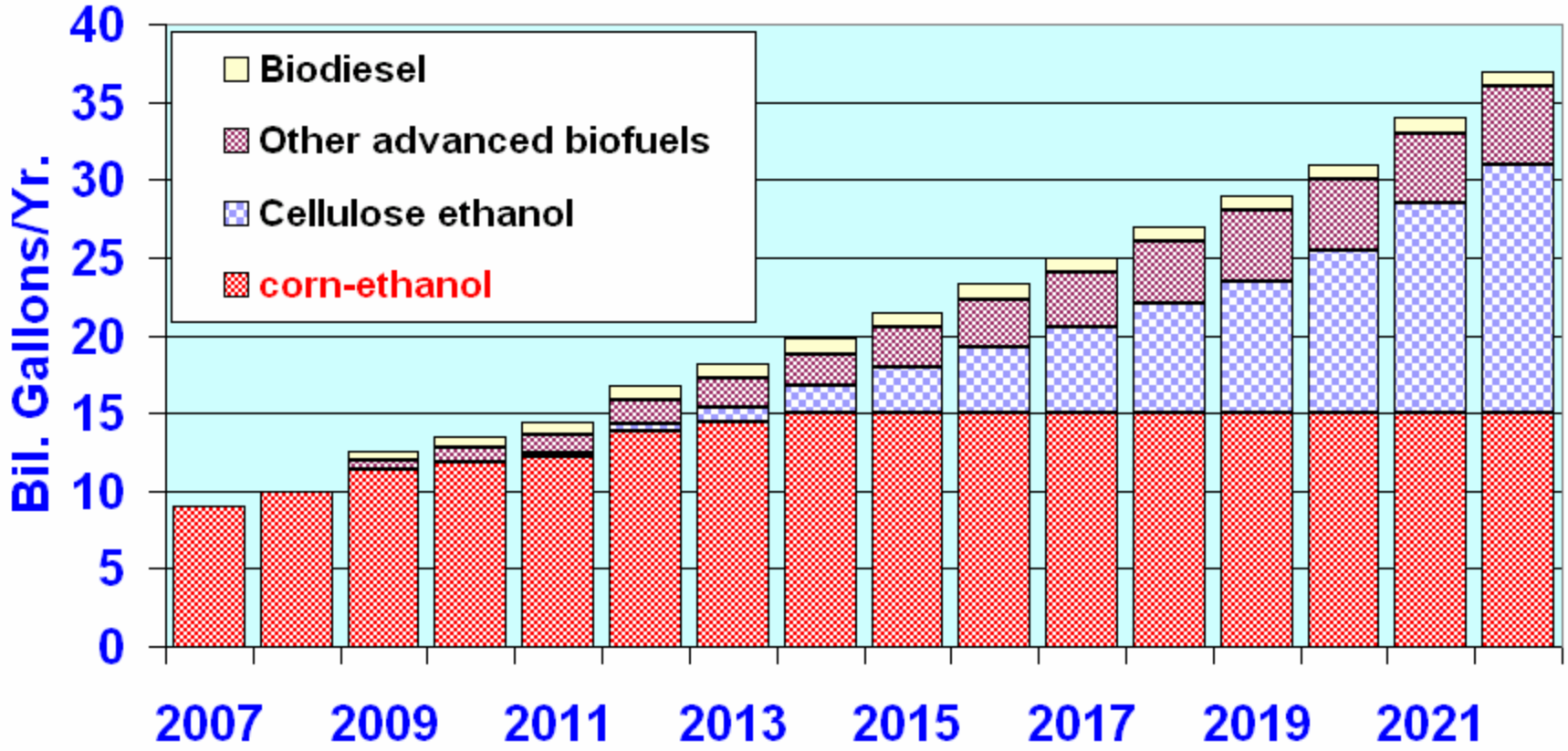
- **Percent change in Quantity demanded with one percent change in Price**
- **Corn: formerly -.5% (this may now be -.2)**
- **Soybeans: -.4% (this may now be -.25)**
- **Or 1% chg. in corn S = 5% chg. In price**
- **1% chg. In SB S = 4% chg. in price**
- ***With all other market factors unchanged***



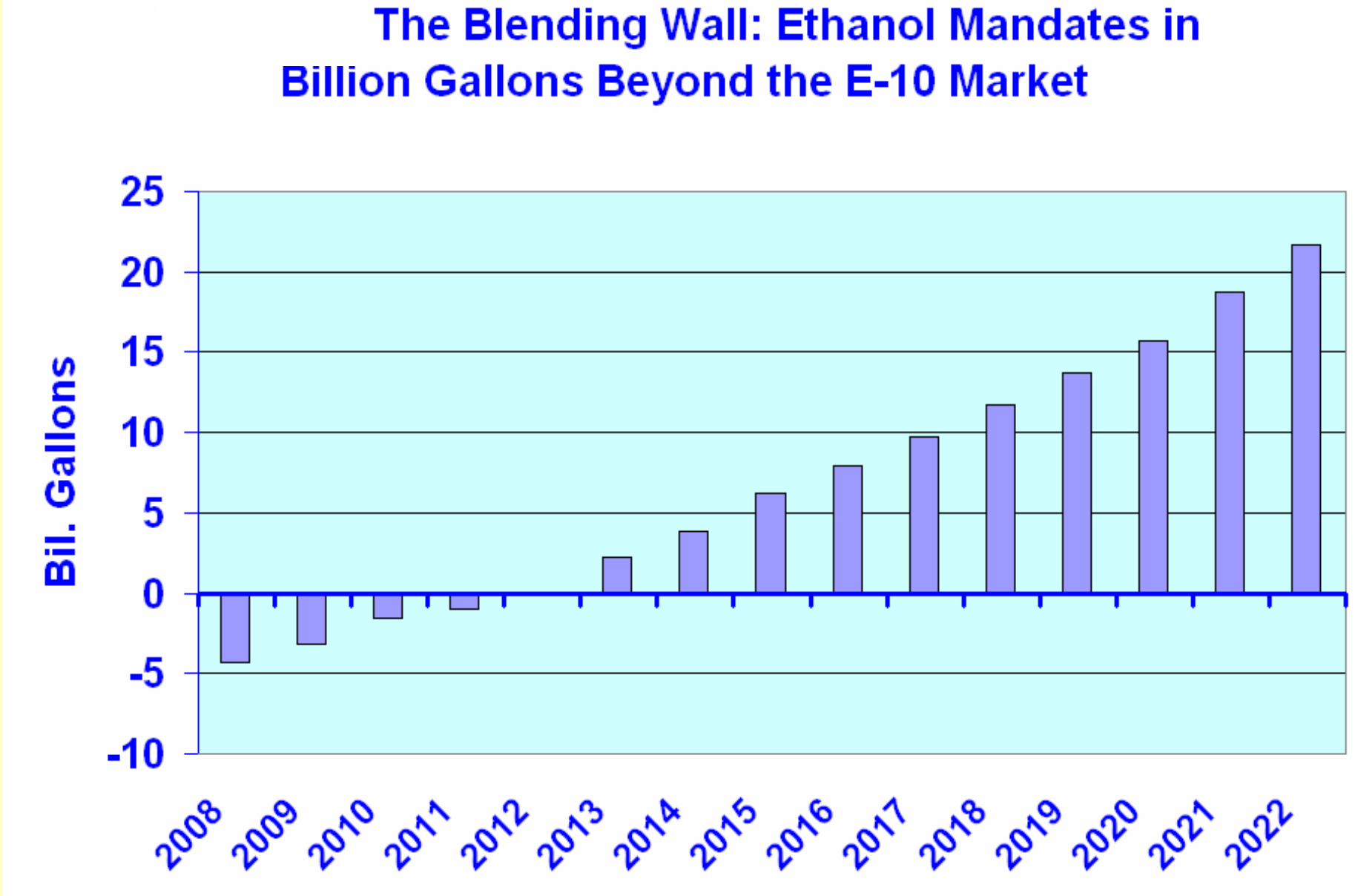
Demand for U.S. Corn for ethanol With Mandates

GHG Emissions Also a Big Issue

2007 U.S. Energy Act Biofuels Mandates

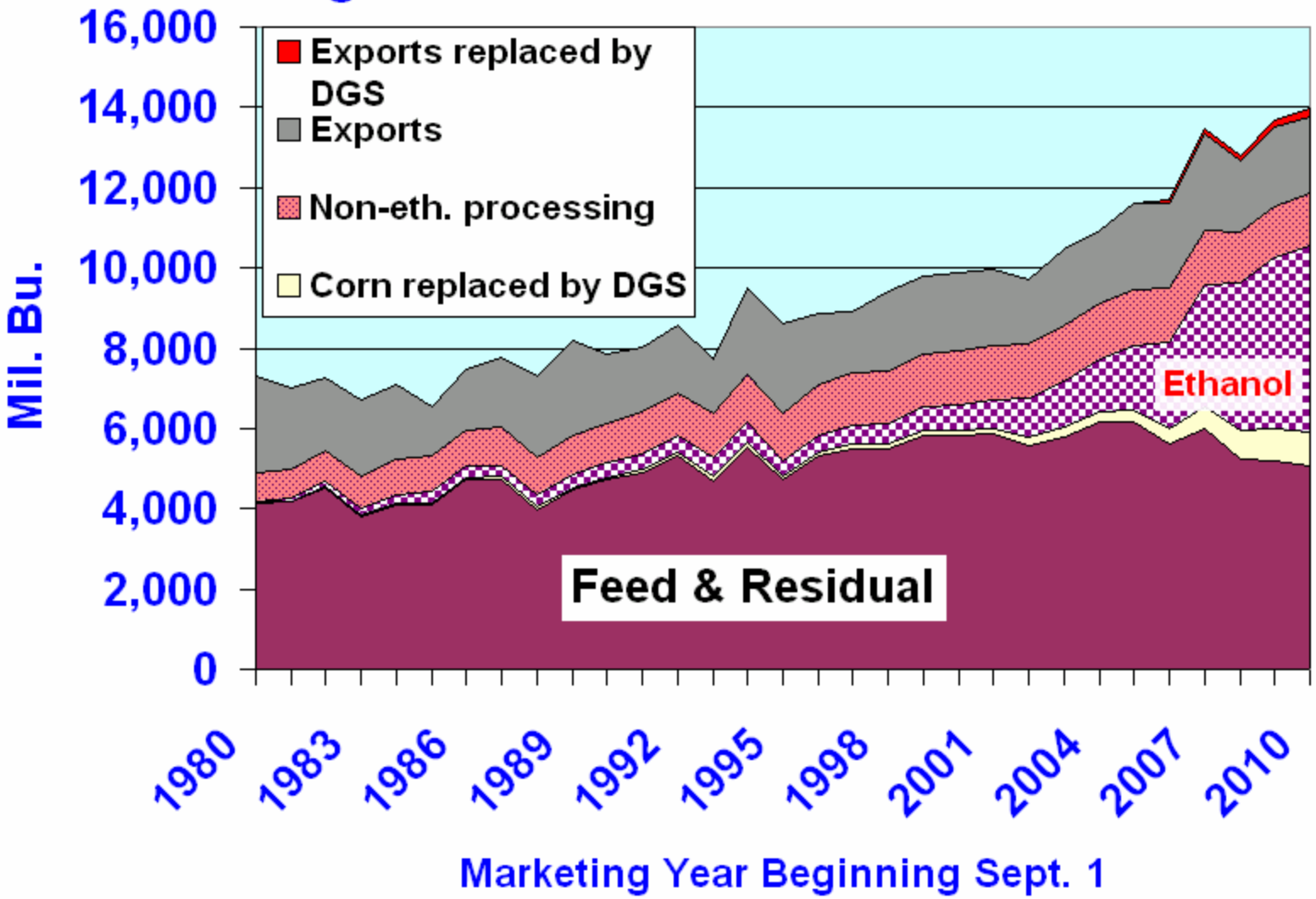


One gallon = 3.87 liters



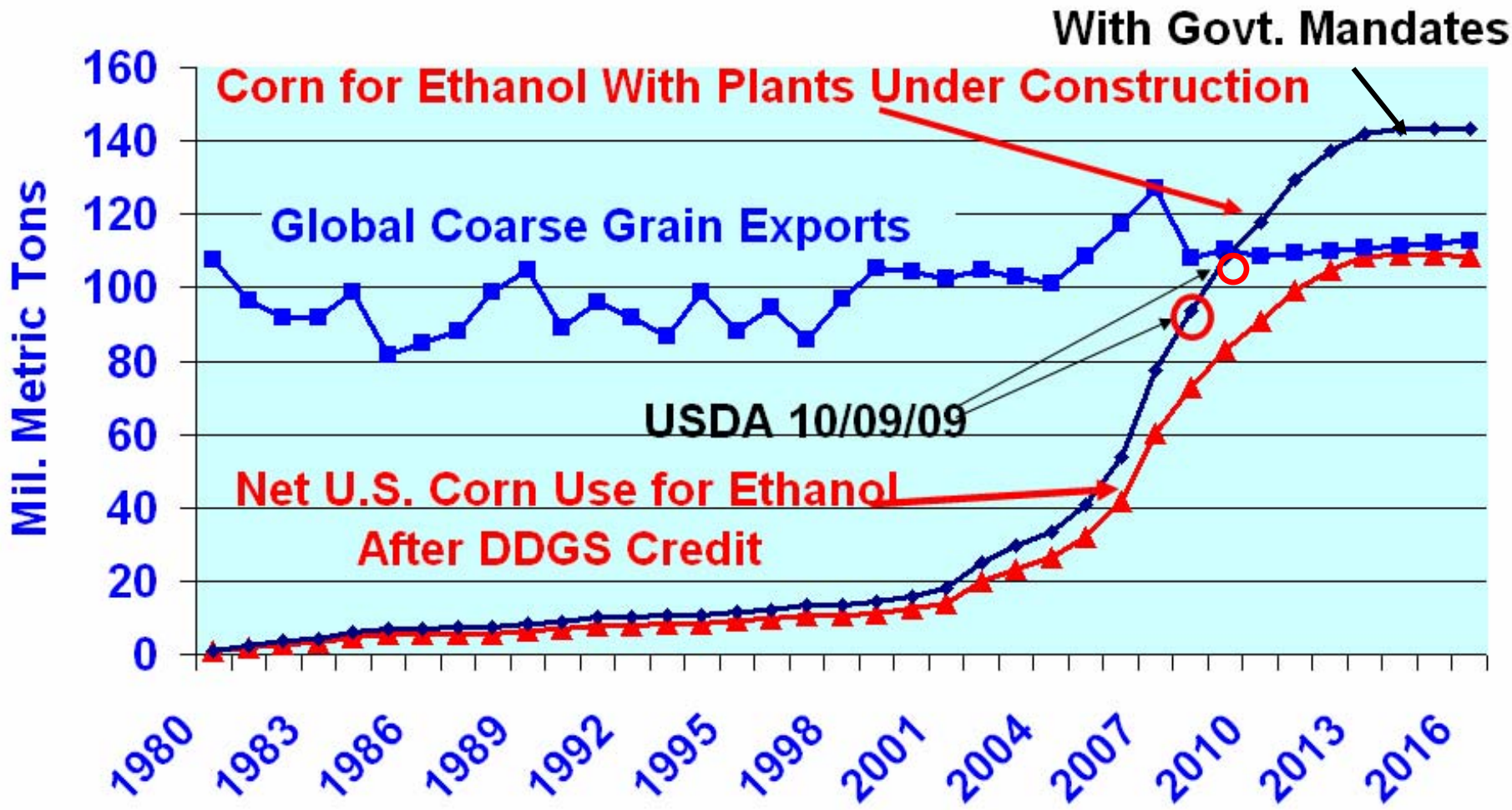
Current U.S. Ethanol Markets: E-10 & E-85

Figure 2. Corn Utilization Trends



10/09/09

Mil. Tons Global Coarse Grain Exports & U.S. Corn Use for Fuel Ethanol

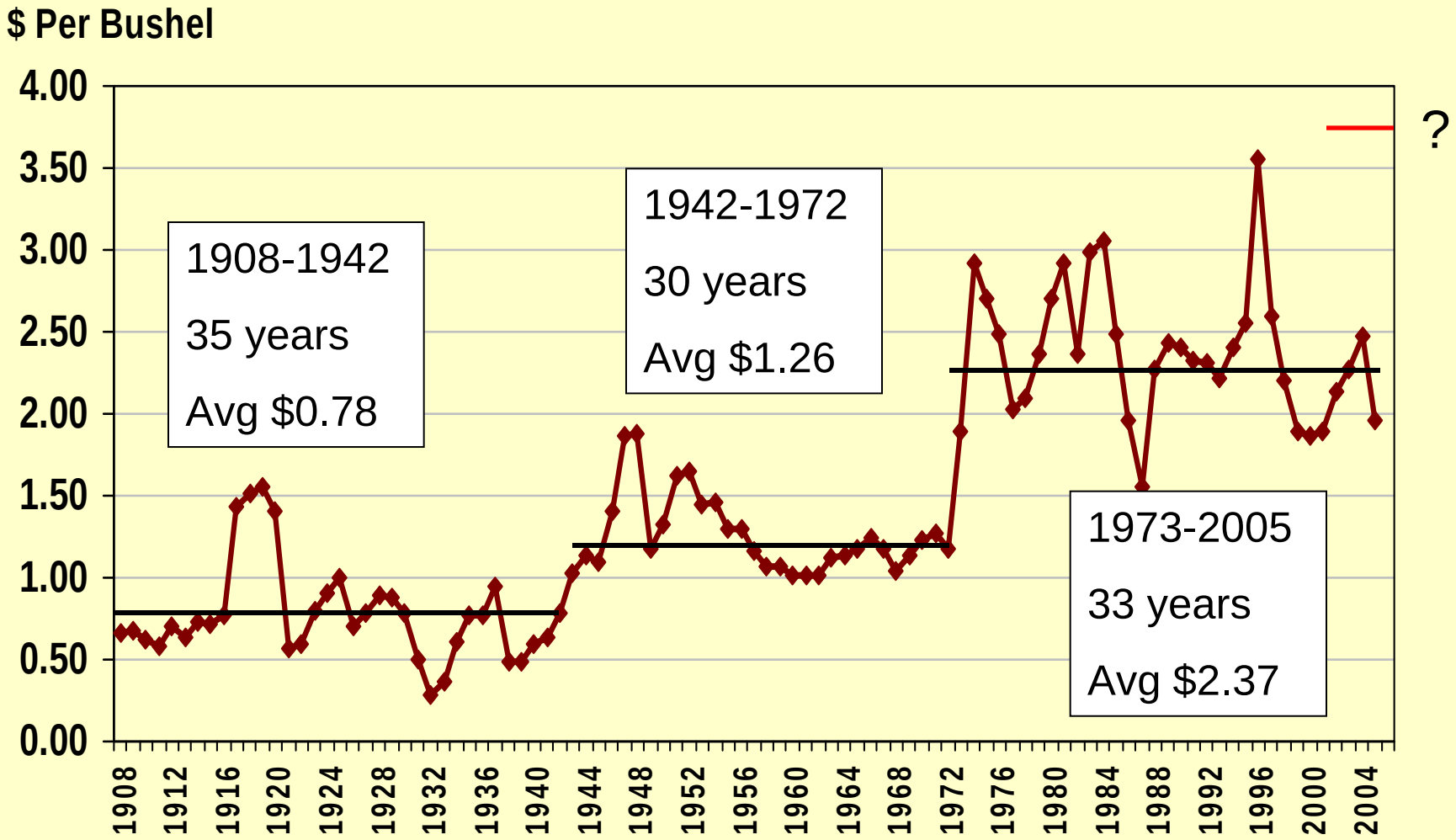


Three Grain Price Forecasting Methods

1. Carryover percent of total use
2. Computer forecasting model
3. Price flexibility based on elasticity of demand

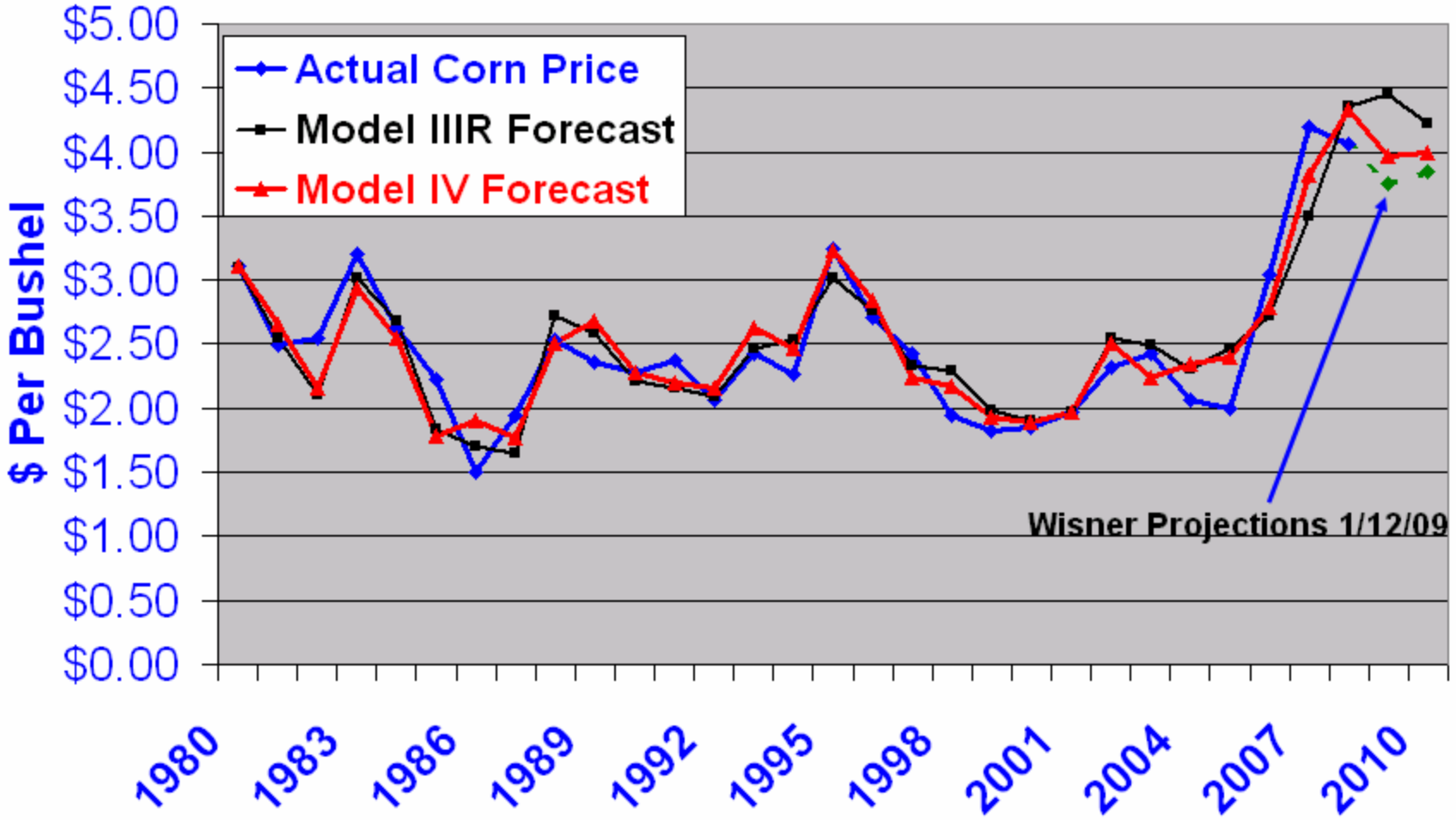
					Updated: 1/18/2009					
Corn Balance Sheet - R. Wisner				Proj. 2009-10	Projected 2010-2011			Projected 2011-2012		
	2006-07	2007-08	2008-09		Low	Med.5/	High	Low	Med.5/	High
Yield (bu. per acre)	149.1	150.7	153.9	165.2	150.0	159.0	164.0	152.0	161.0	168.0
Long-term Historical Yield Probability:					18%	65%	17%	18%	65%	17%
Supplies:										
Planted acres (million)	78.3	93.5	86.0	86.5	88.5	88.5	88.5	88.5	88.5	88.5
Harvested acres (million)	70.6	86.5	78.6	79.6	80.9	81.5	81.5	80.9	81.5	81.5
Production (mil. bu.)	10,535	13,038	12,101	13,151	12,135	12,959	13,366	12,297	13,122	13,692
Beginning carryover (mil. bu.)	1,967	1,304	1,624	1,674	1,634	1,634	1,634	1,634	1,634	1,634
Total Supply (incl. imports)	12,514	14,362	13,739	14,834	13,784	14,605	15,013	13,946	14,768	15,339
Total Usage: (mil. bu.)										
Feed & residual	5,598	5,913	5,254	5,580	5,050	5,250	5,275	5,075	5,250	5,275
Ethanol	2,117	3,049	3,677	4,275	4,450	4,650	4,700	4,675	4,900	4,925
Food, ind. & seed	1,371	1,338	1,276	1,270	1,270	1,280	1,285	1,270	1,275	1,280
Exports	2,125	2,437	1,858	2,075	1,890	1,975	1,980	1,890	2,000	2,025
Total Usage	11,210	12,737	12,065	13,200	12,660	13,155	13,240	12,910	13,425	13,505
Ending Carryover: (mil. bu.)	1,304	1,624	1,674	1,634	1,124	1,450	1,773	1,036	1,343	1,834
Carryover, weeks of total use	6.0	6.6	7.2	6.4	4.6	5.7	7.0	4.2	5.2	7.1
Prices:										
U.S. weighted avg. farm price	$3.04	$4.20	$4.06	$3.75	$4.80	$3.85	$3.70	$5.15	$3.90	$3.70
Iowa weighted avg. farm price	$2.99	$4.15	$4.01	$3.70	$4.75	$3.80	$3.65	$5.10	$3.85	$3.65
Counter-cyclical pmt.	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Harvest price (central Iowa)	$2.80	$3.30	$3.50	$3.70	$4.45	$3.40	$3.25	$4.60	$3.50	$3.30
Dec. futures price (harvest avg.)	$3.15	$3.80	$3.85	$4.05	$5.10	$3.95	$3.80	$5.25	$4.05	$3.85

U.S. Annual Average Corn Price, 1908-2005



Source: USDA/NASS

Actual and Forecast Corn Prices, RW Models, Based on 1980-81 to 2007-08 Data



Key Forecasting Variables

- Exports/total supply
- Ethanol/total use
- Corn Price lagged one year
- 0/1 weather variable for drought/flood years
- Wheat price lagged one year (Model IIIR)
- Current wheat price (Model IV)
- R^2 Model IIIR = .9044: All Var. Significant @ <6% probability except lagged wheat price
- R^2 Model IV = .9244: All Var. Significant @ <6%. Least significant is lagged corn price (All others significant at <1%)

Forecasting with price flexibilities

- Percent change in ’09-10 supply vs. Y/A
- Adjustment for demand growth
  - Feed use
  - Processing
  - Exports
- Forecast: Price flexibility x adjusted supply change x previous year’s price
- Adjustment for unusual developments

1/5/10

Forecasting with corn price flexibility (Price Elasticity -.2)

- 2009-10 corn supply + 866 mil. bu.
- Adjustment for demand growth
  - Feed & residual use +246 mil. bu.
  - Processing +602 mil. bu.
  - Exports +242
- Adjusted supply chg. -93 mil. Bu. or -.0677%
- Forecast:.0677% x 5 = +3.38% price impact
- **Price forecast: $4.06 x 1.0338 = $4.20 U.S. avg./bu.** (’09-10 mkt. yr.)
- *Forecast lowered, reflecting heavy forward contracting in spring-summer 2008 & weak economy + lower gas price*

1/12/10

Forecasting with corn price flexibility (Price Elasticity -.2)

Impact: USDA 1/12/10 Season Final crop est.:

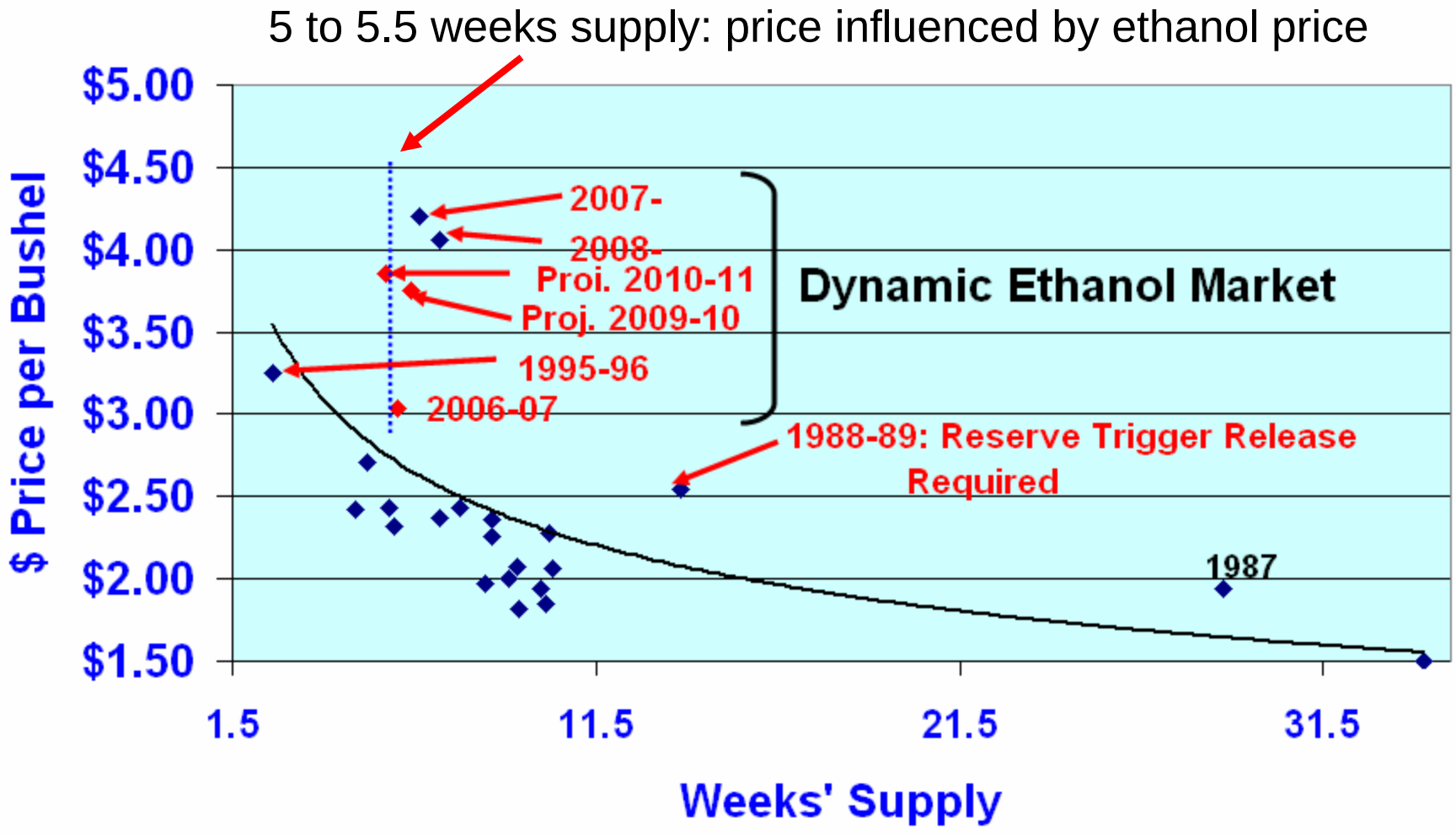
- 2009-10 corn supply chg. Vs. December report: + 229 mil. bu. (+1.57%)
- Forecast of price change from the report: 0.0157% x 5 = -7.85% price impact or -$.32 on $4.12 futures

After adjusting for demand changes:

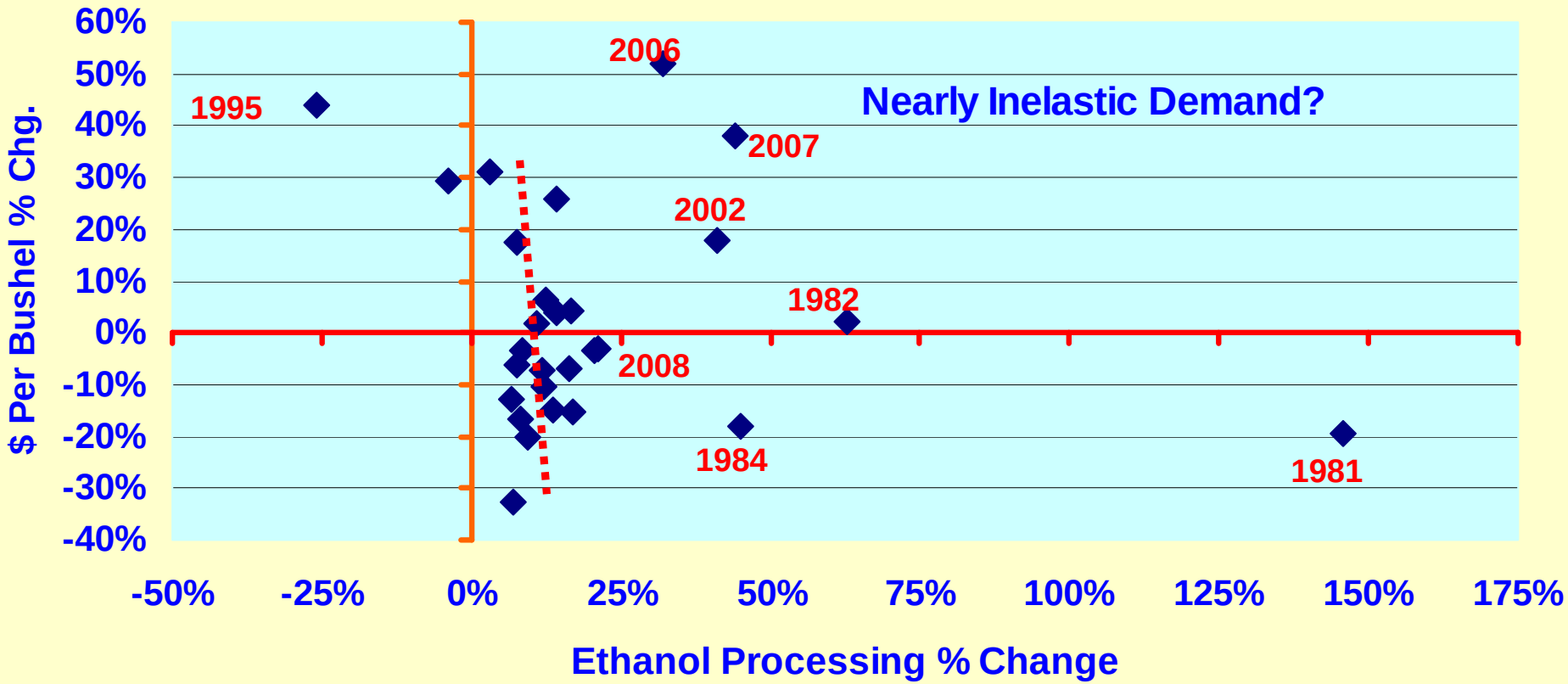
- Domestic use +140 mil.bu.: net supply chg. = +89 mil. Bu. or 0.006%. Price impact: $0.126
- *Caution: 20% or 2.6 bil.bu. of corn were still unharvested when USDA final survey was taken. Bad weather likely has caused field losses*

1/08/09

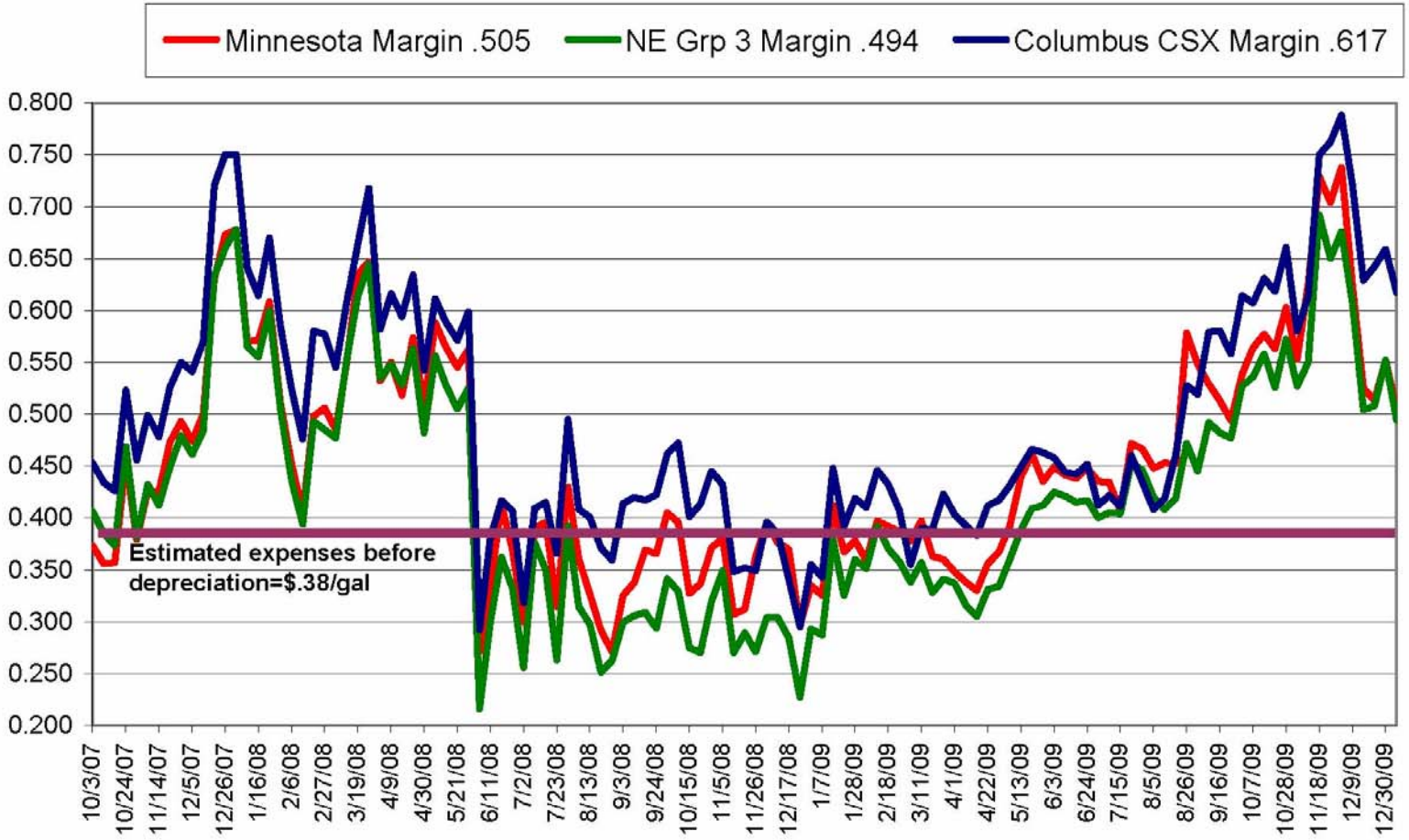
U.S. Corn Price & Carryover in Weeks Supply



Percent Change in U.S.Corn Price & Corn Processing for Ethanol, 1981-2008



ETHANOL GROSS MARGIN*



***Gross Margin**: **Inputs**: nearby corn futures/basis and nearby natural gas futures + 45 **Outputs:** DDGS (75% of cash corn) and ethanol nearby swaps with the western corn belt @ 12 under Chicago and eastern corn belt @ Chicago price.

Percent Change in U.S.Corn Price & % Deviation of Domestic Corn Feeding from Trend, 1981-2008

17% rise in price to
Get 5% cut in feeding

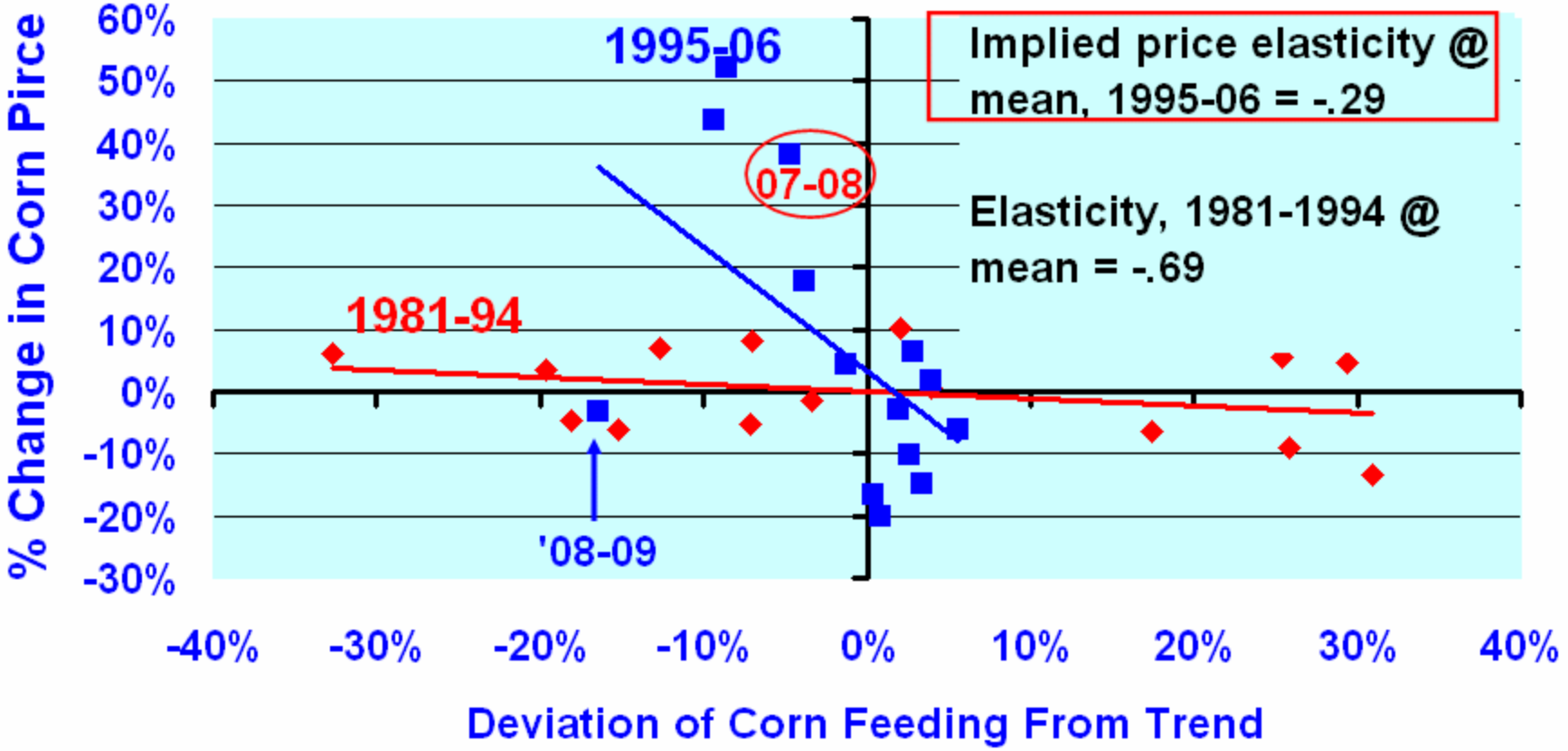
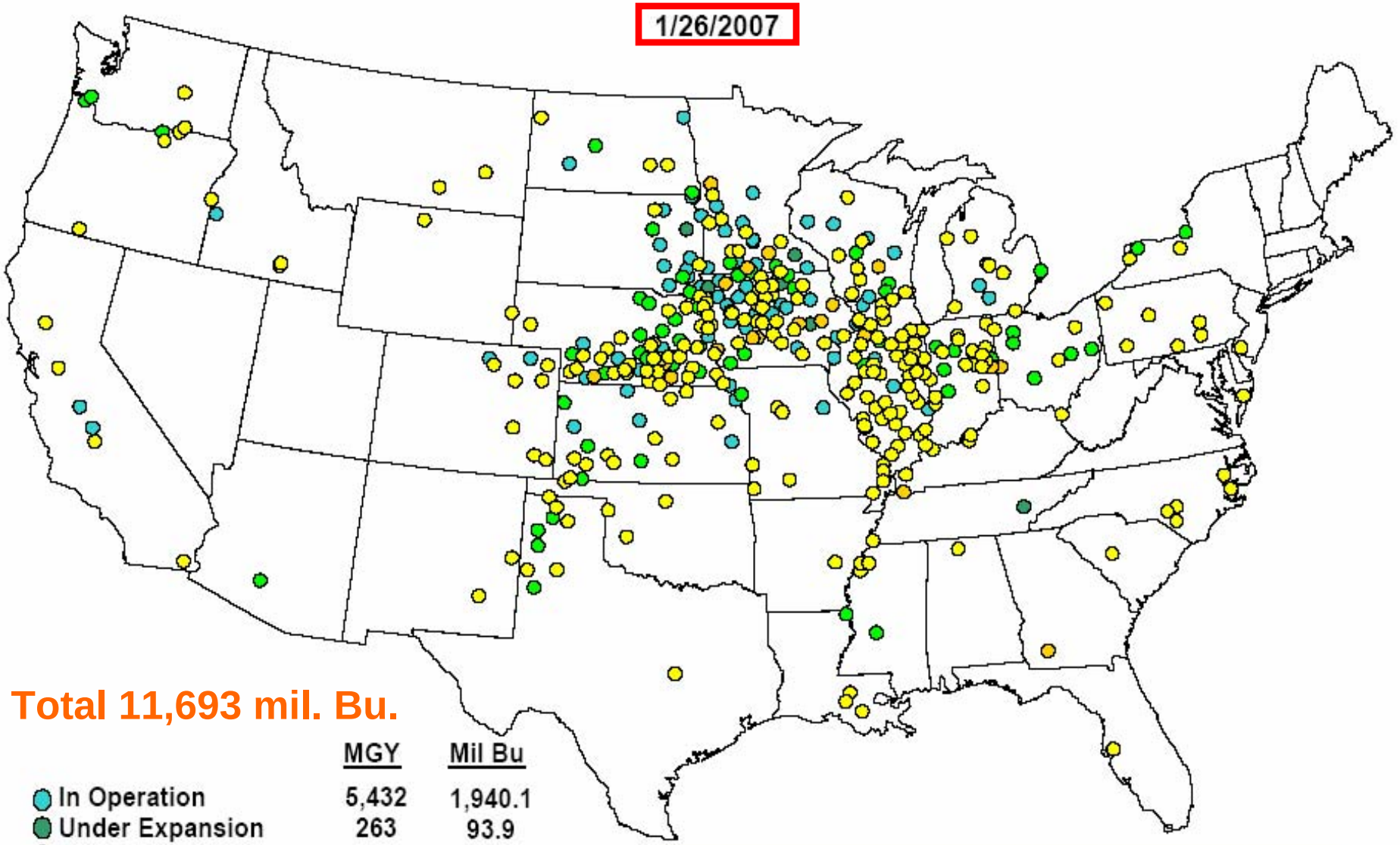


Figure 3. US Ethanol Plants

1/26/2007



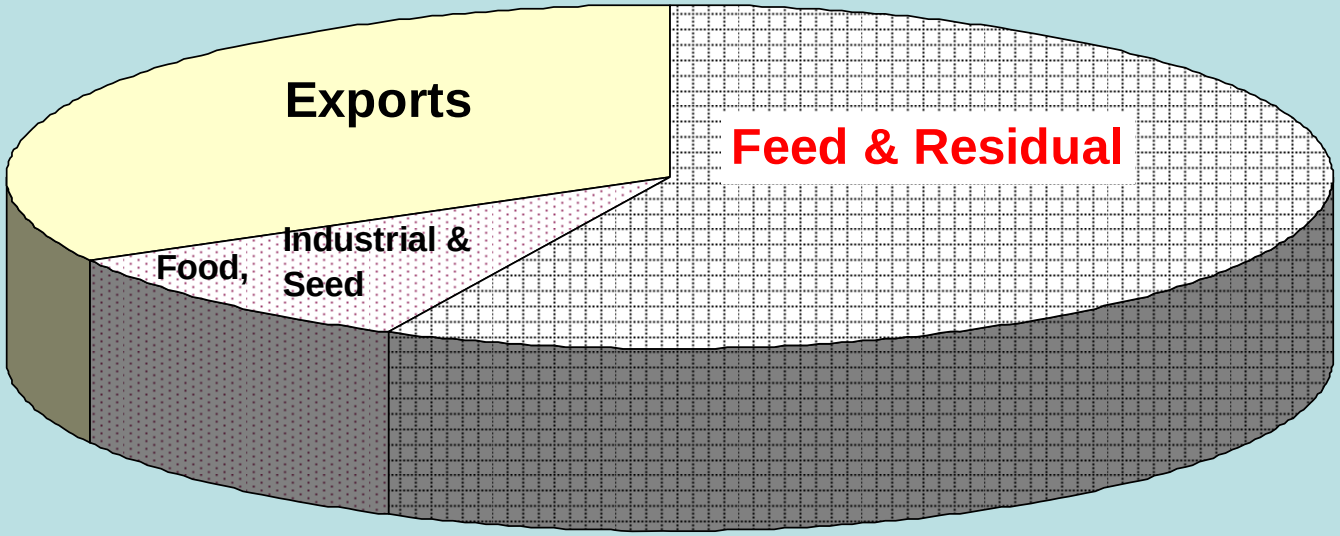
Total 11,693 mil. Bu.

	MGY	Mil Bu
In Operation	5,432	1,940.1
Under Expansion	263	93.9
Under Construction	4,872	1,740.0
Ground Broken	2,463	879.6
Planned	19,710	7,039.3

Plants "Under Construction" have broken ground and have poured concrete. Plants that have "broken ground" have begun site work but no actual construction. Plants that are "planned" have been talked about or announced in the news.

Changing corn market

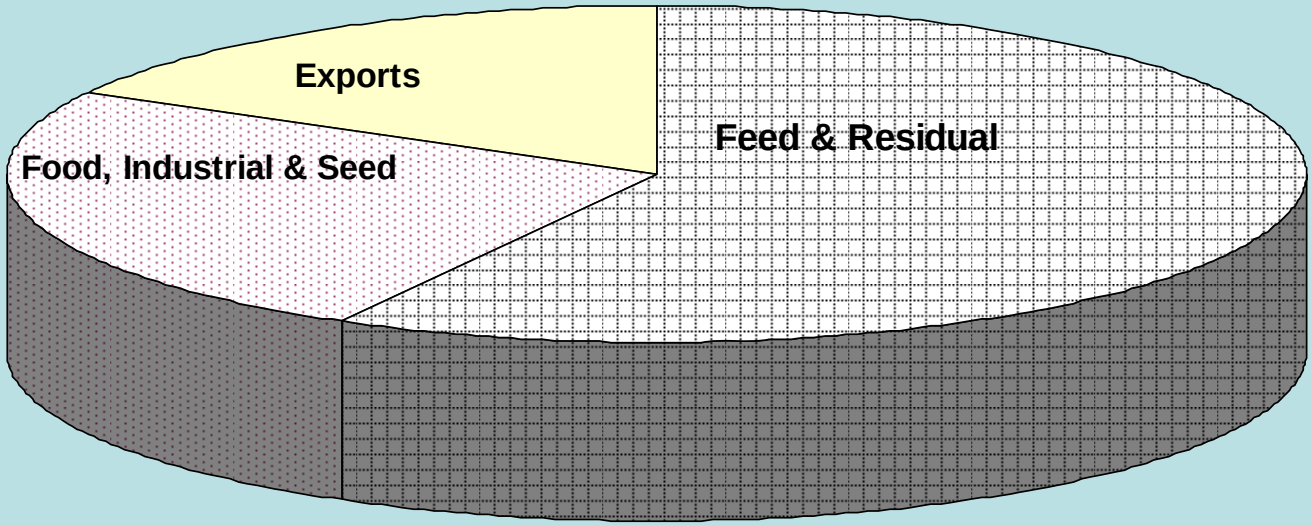
Relative Shares of Major Uses of U.S. Corn in 1980-01



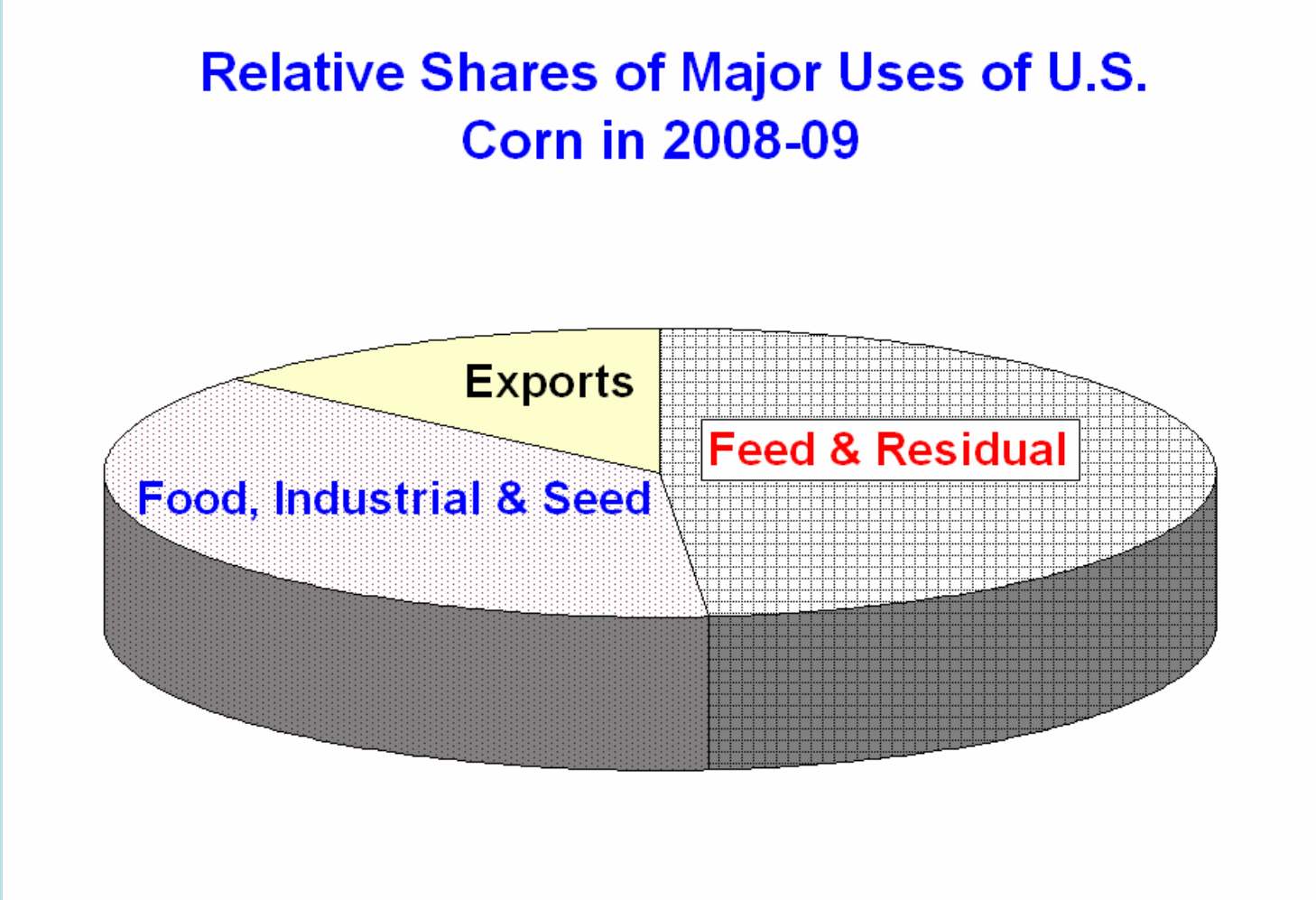
Big swing factor in markets was export demand

Changing corn market

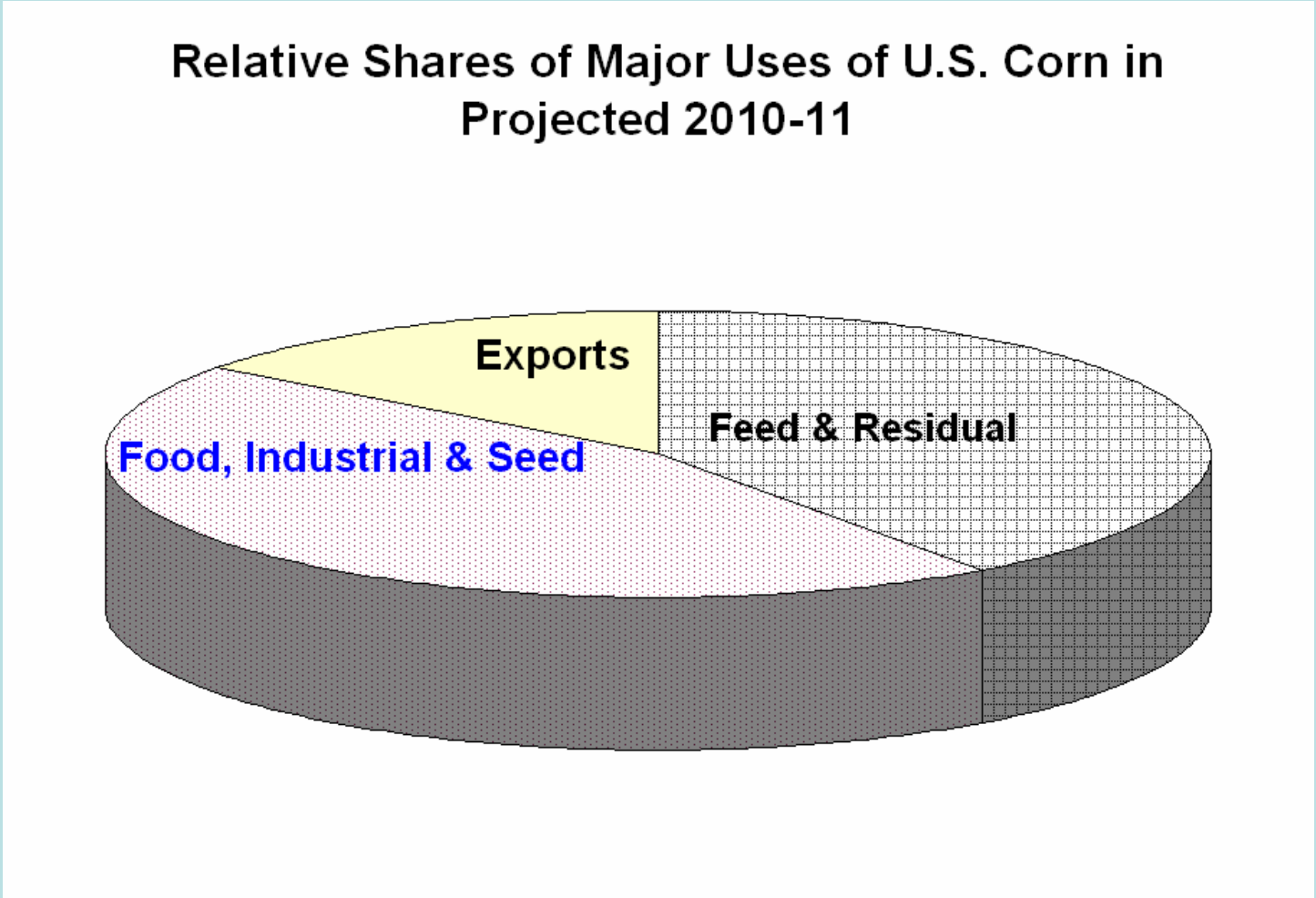
Relative Shares of Major Uses of U.S. Corn in 2004-05



Changing corn market



Changing corn market



What's ahead in next 5 years?

Cap & trade, GHG, animal agriculture, weather?

Closing Corn Futures			
	1/5/2010		
			$/Bu.
March 2010			4.18
May			4.27
July			4.36
Sept.			4.40
Dec.			4.44
March 2011			4.52
May			4.59
July			4.65
Sept.			4.56
Dec.			4.48

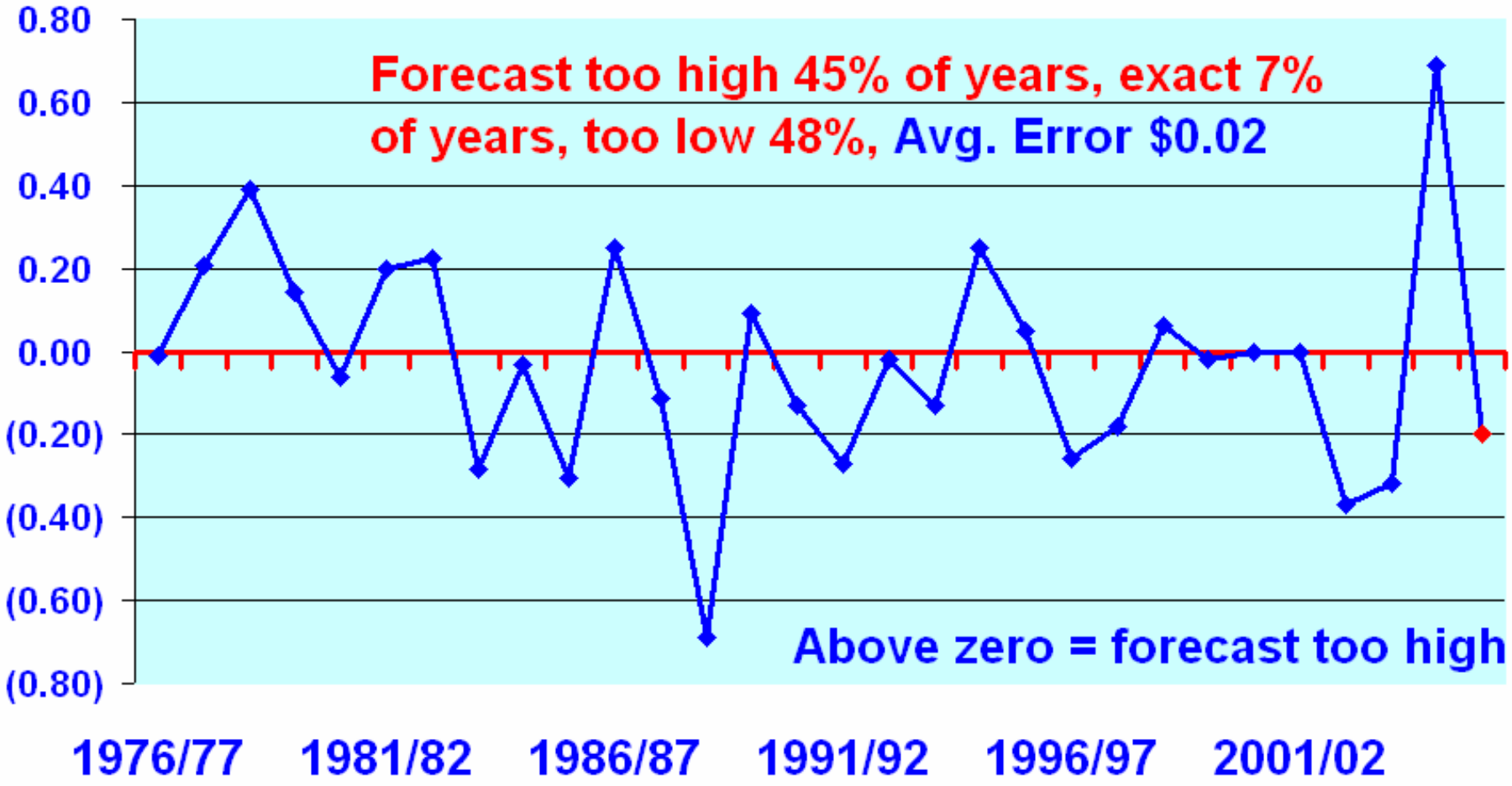
.18 cent carry to July 2010

R.W. normal weather forecasts

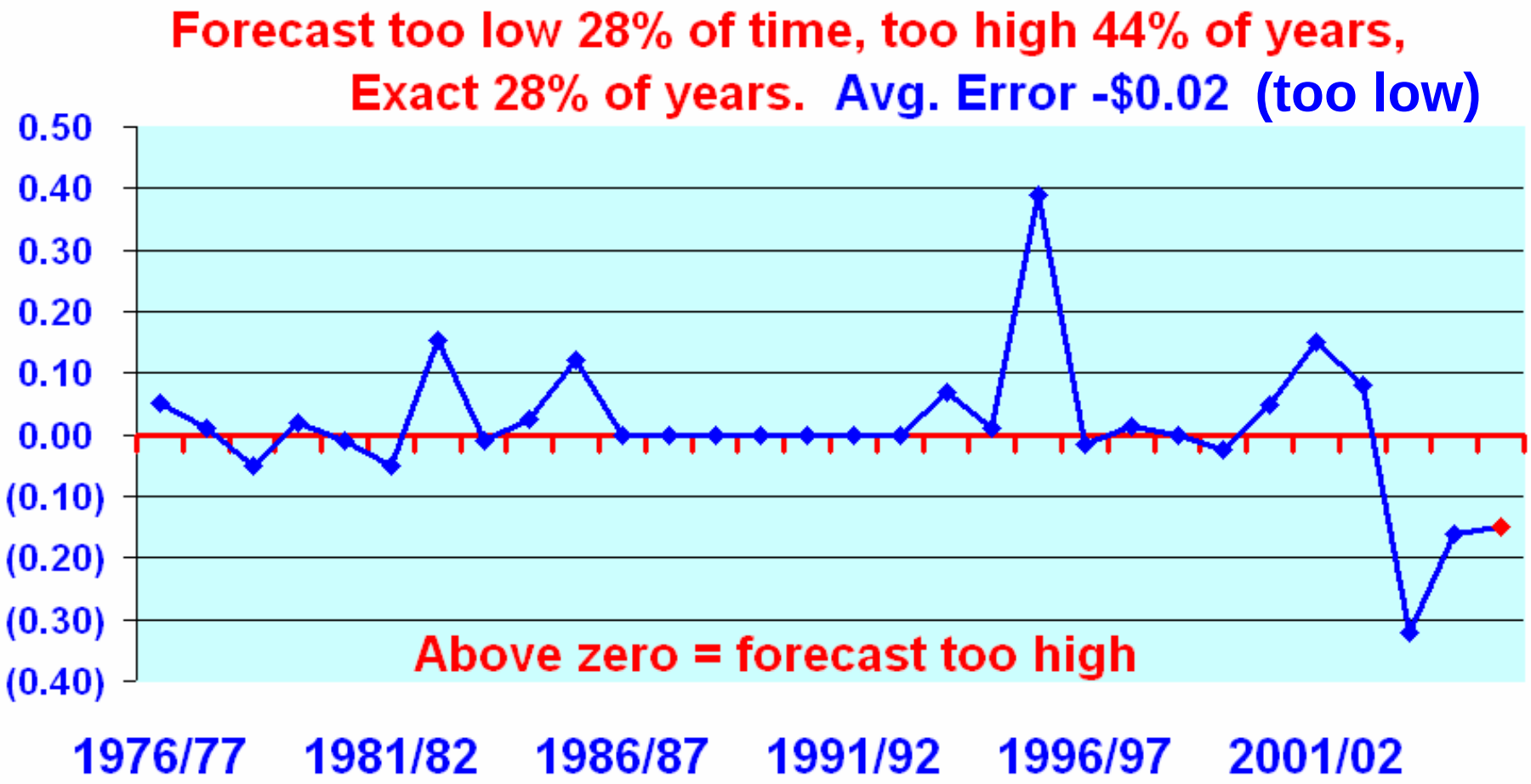
4.05

3.95

Error in USDA May Corn Forecasts for next season, Mid-Point of Prices



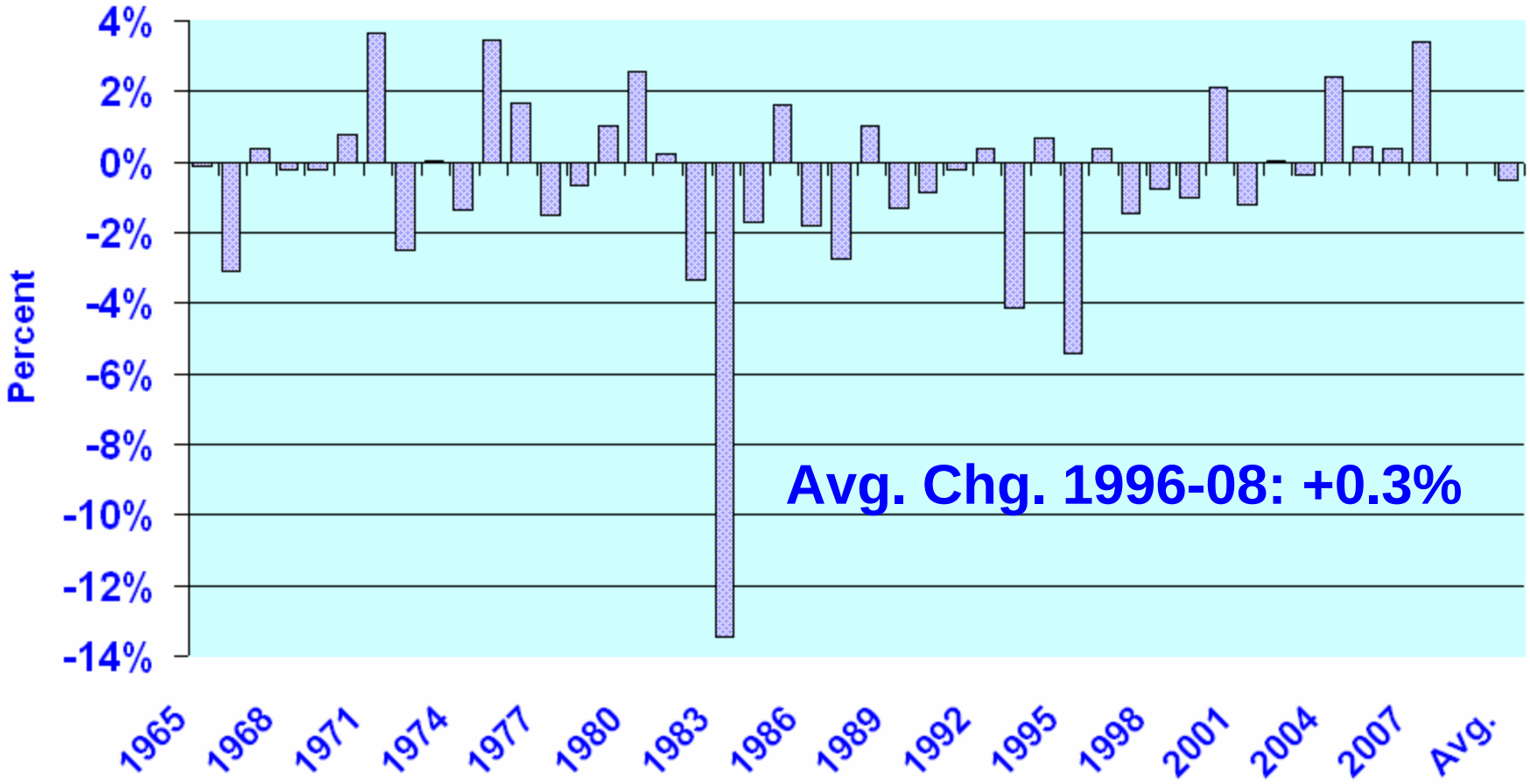
Error in USDA Nov. Corn Price Forecasts for next season, Mid-Point of Prices



Forecasting the New Crop Size
Key information sources

- USDA late March planting intentions report
- Weekly crop progress & condition reports
- Weather forecasts, weekly, monthly & other
- Monthly USDA crop forecasts – wheat: May to Sept., corn, milo, SB Aug. – Nov.
- Private forecasting reports
- Trend yields

Percent Change in U.S. Corn Plantings from Intentions Survey to Next January, 1965-2008



U.S. Corn Yield & Alternative Long-Term Trends, With USDA Nov. Forecast for 2009

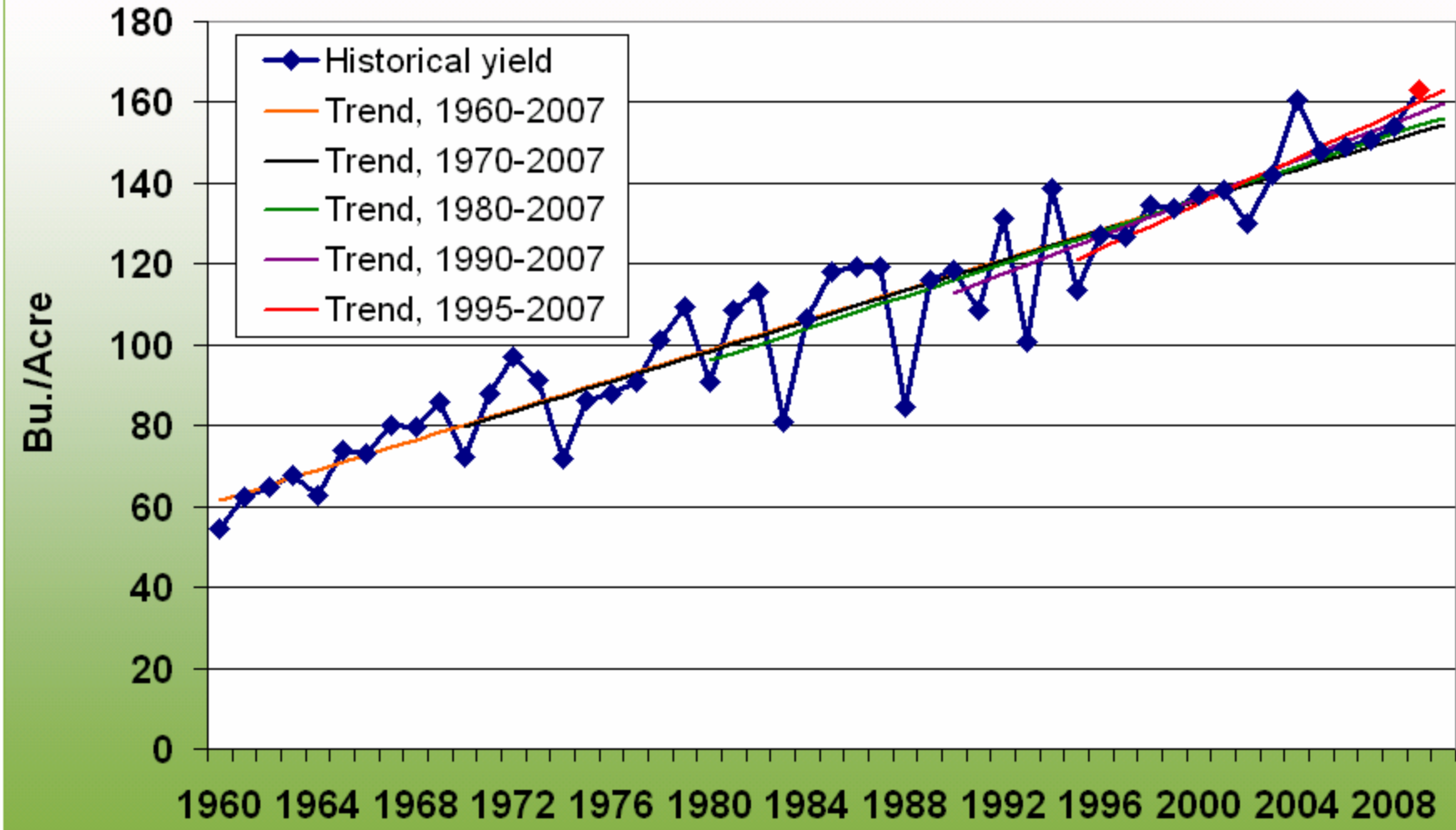
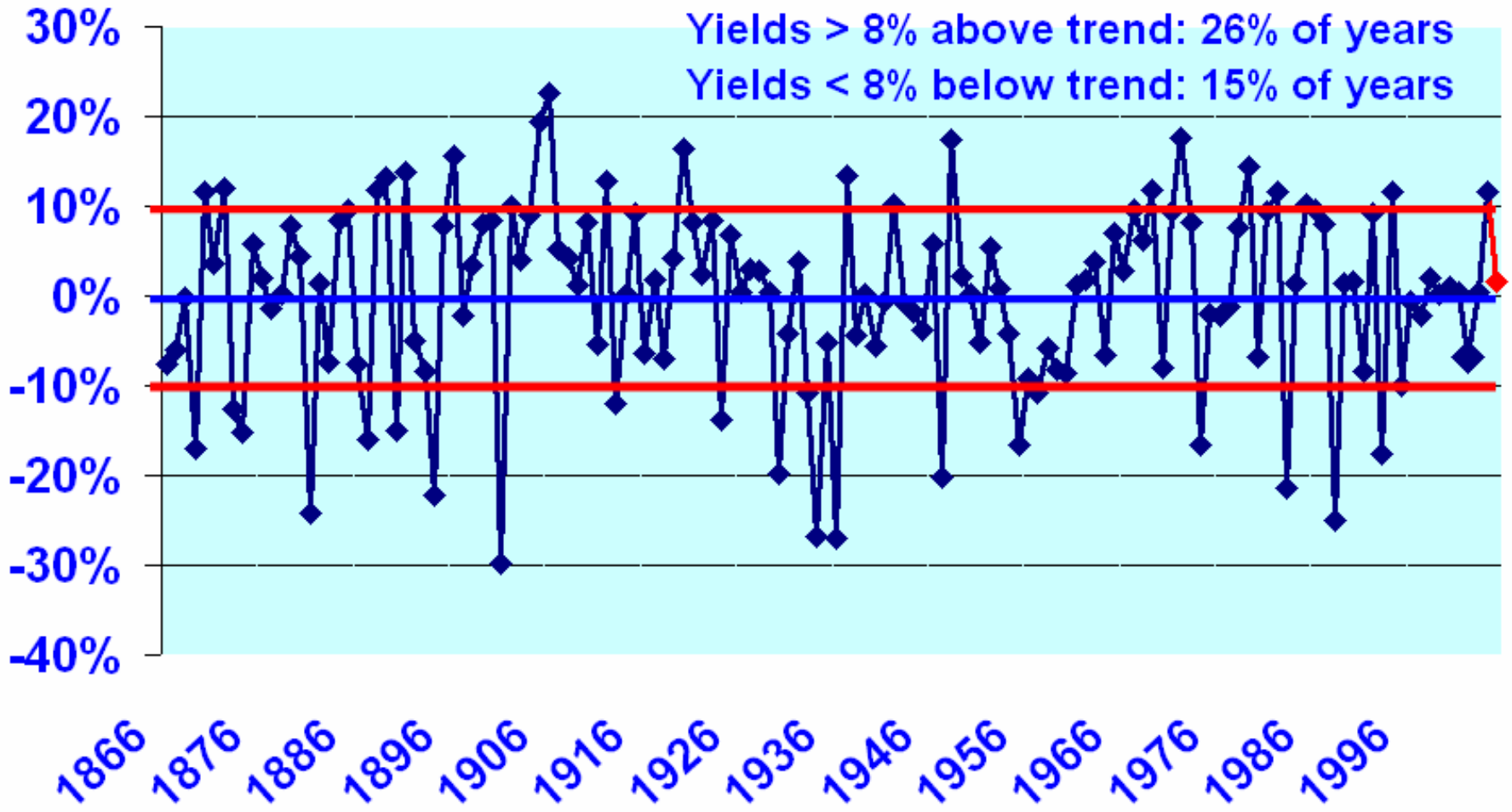
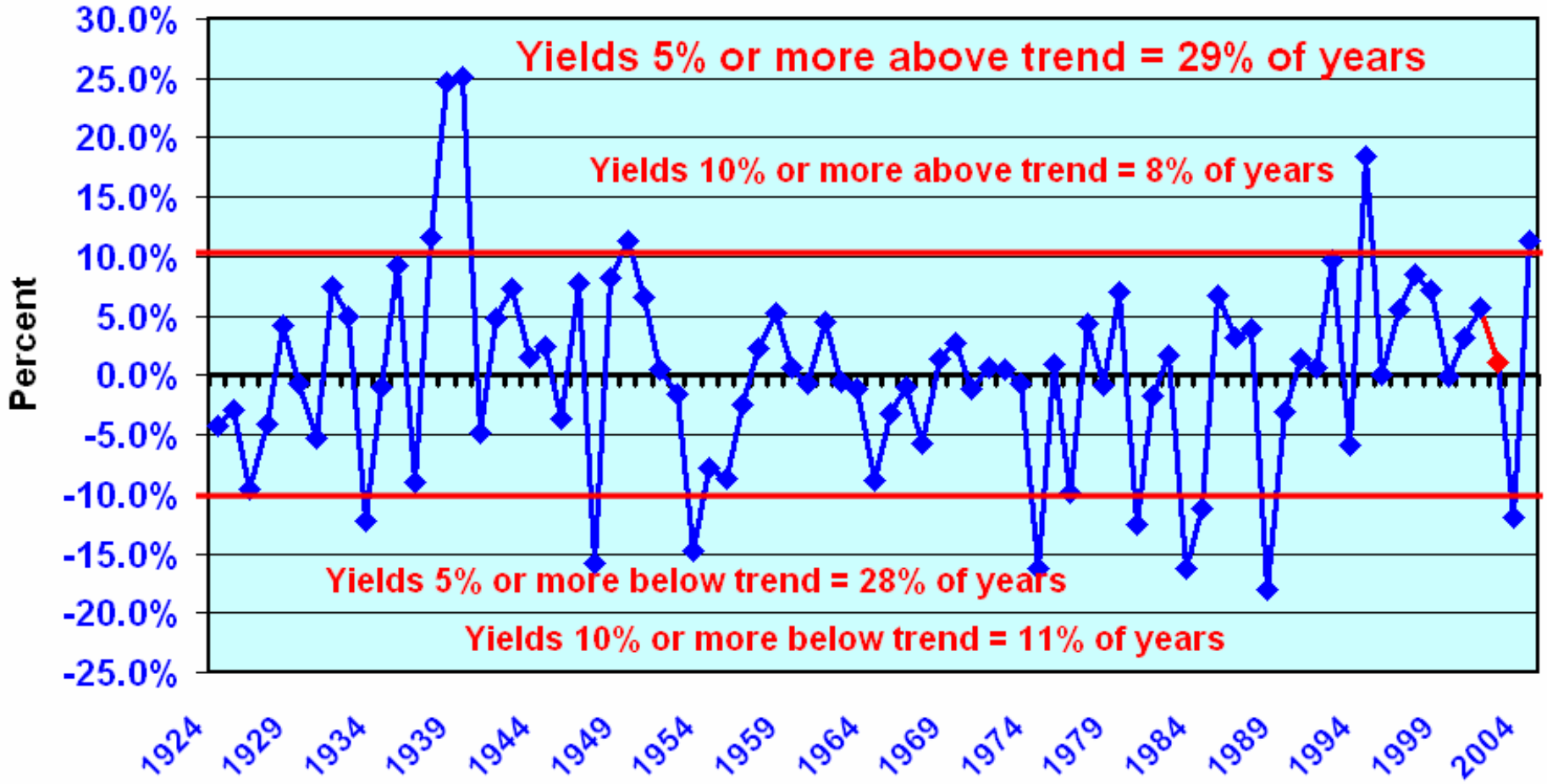


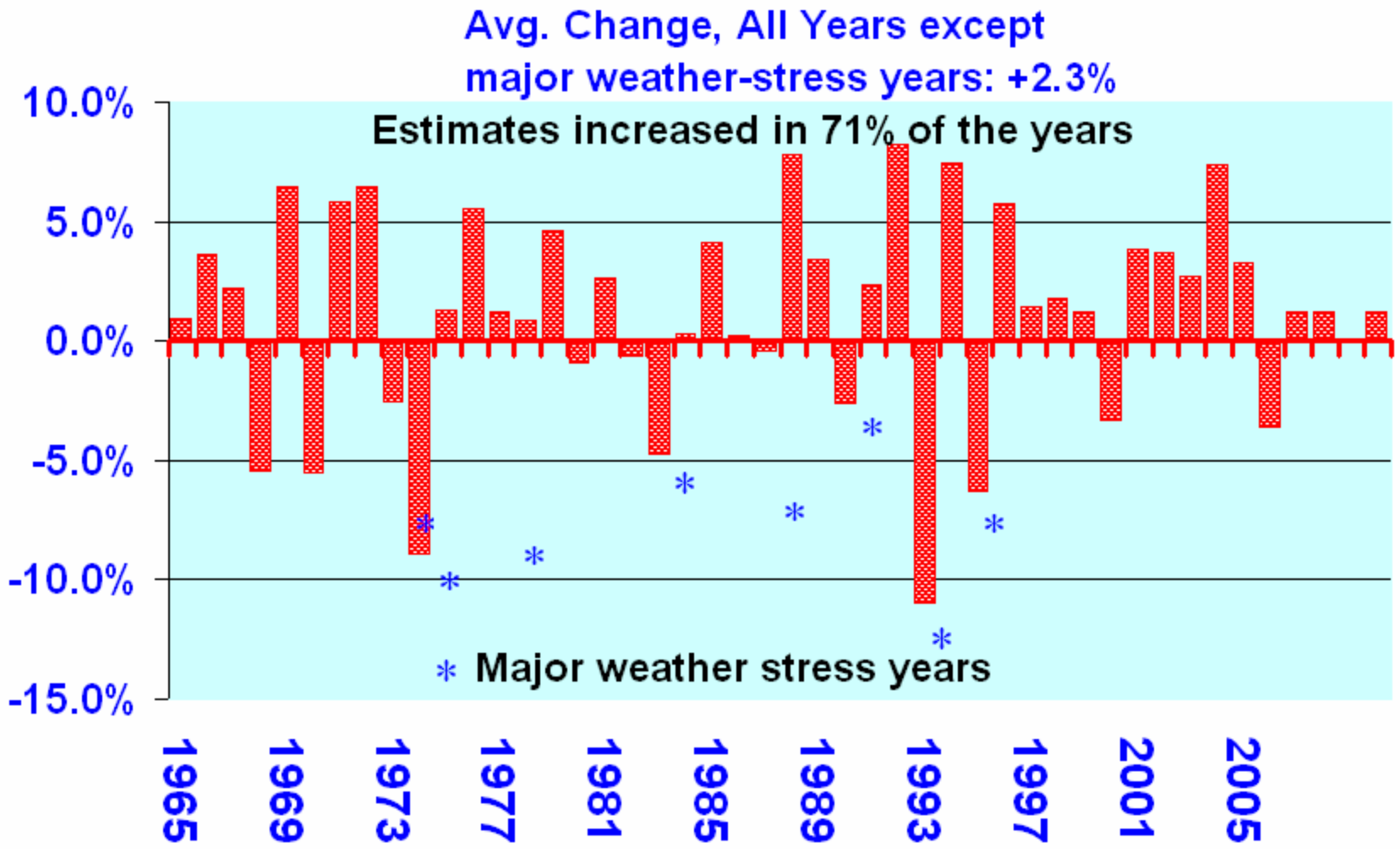
Figure 6. U.S. Corn Yield, Percent Deviation From Trend, 1866-2005



U.S. Soybean Yield, Deviation From Trend, 1924-2003

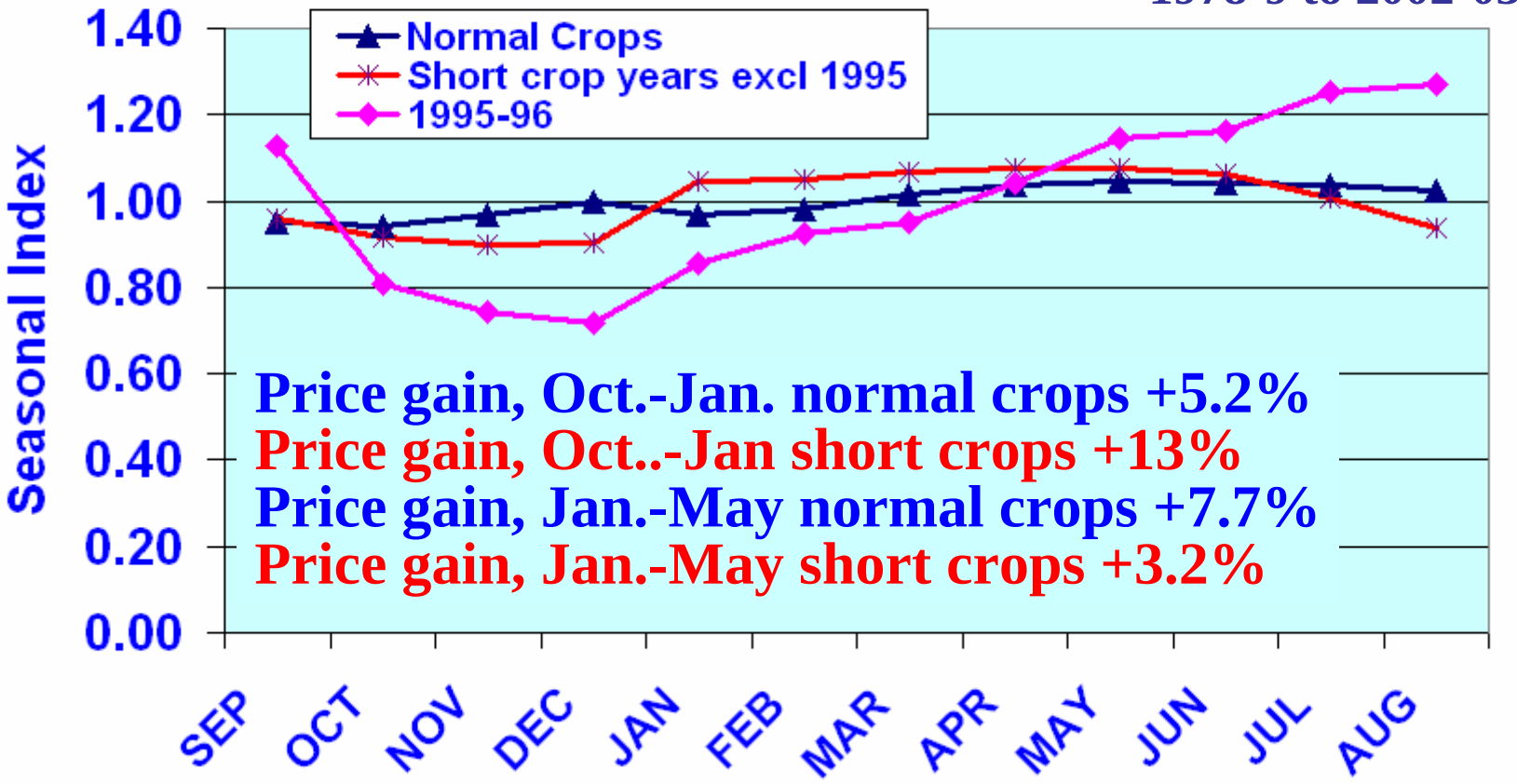


USDA Corn Yield Forecasts, Percent Change from September to Season Final Estimate

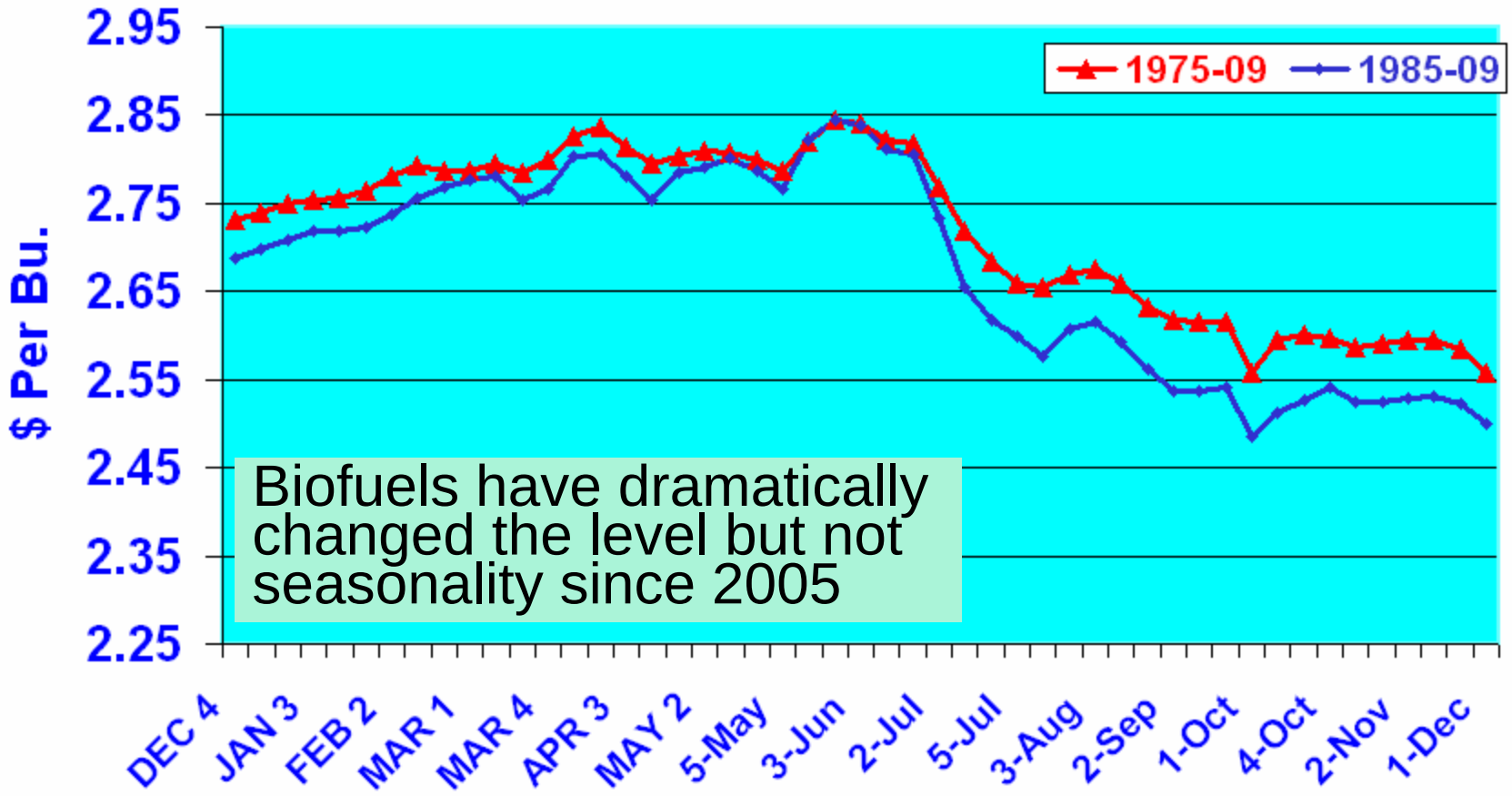


Seasonal Indices of Iowa corn prices with Normal, Short Crop, Short Crop Less 1995 Crop Year, and All Years

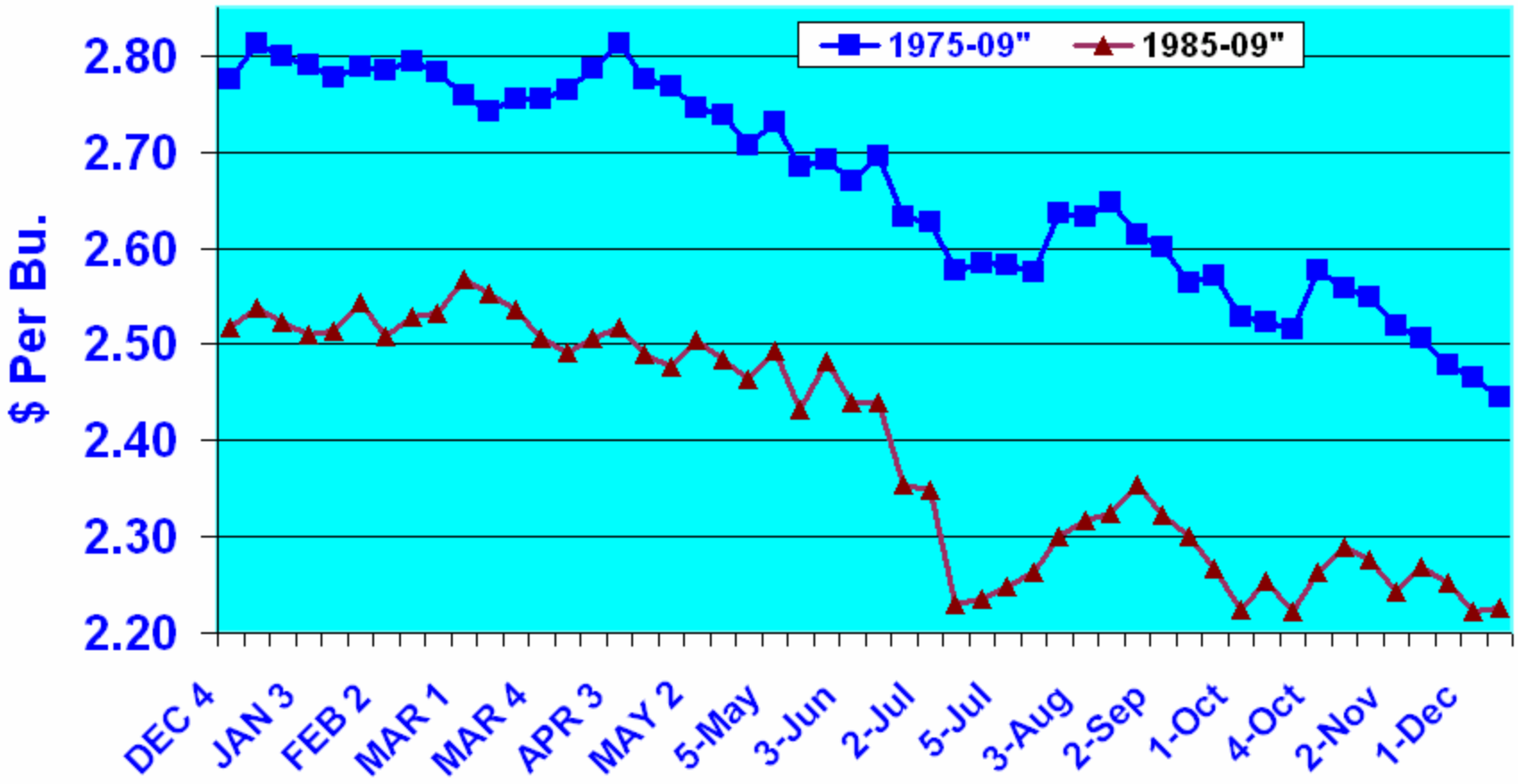
1978-9 to 2002-03



Weekly Average December Corn Futures, All Years, 1975 Through 2009 & 1985-2009--All Years



Weekly Average December Corn Futures, After Short Crops, 1975 Through 2009 & 1985-2009



RiskPremium in Dec. Corn futures
Mid-May vs. early Nov.

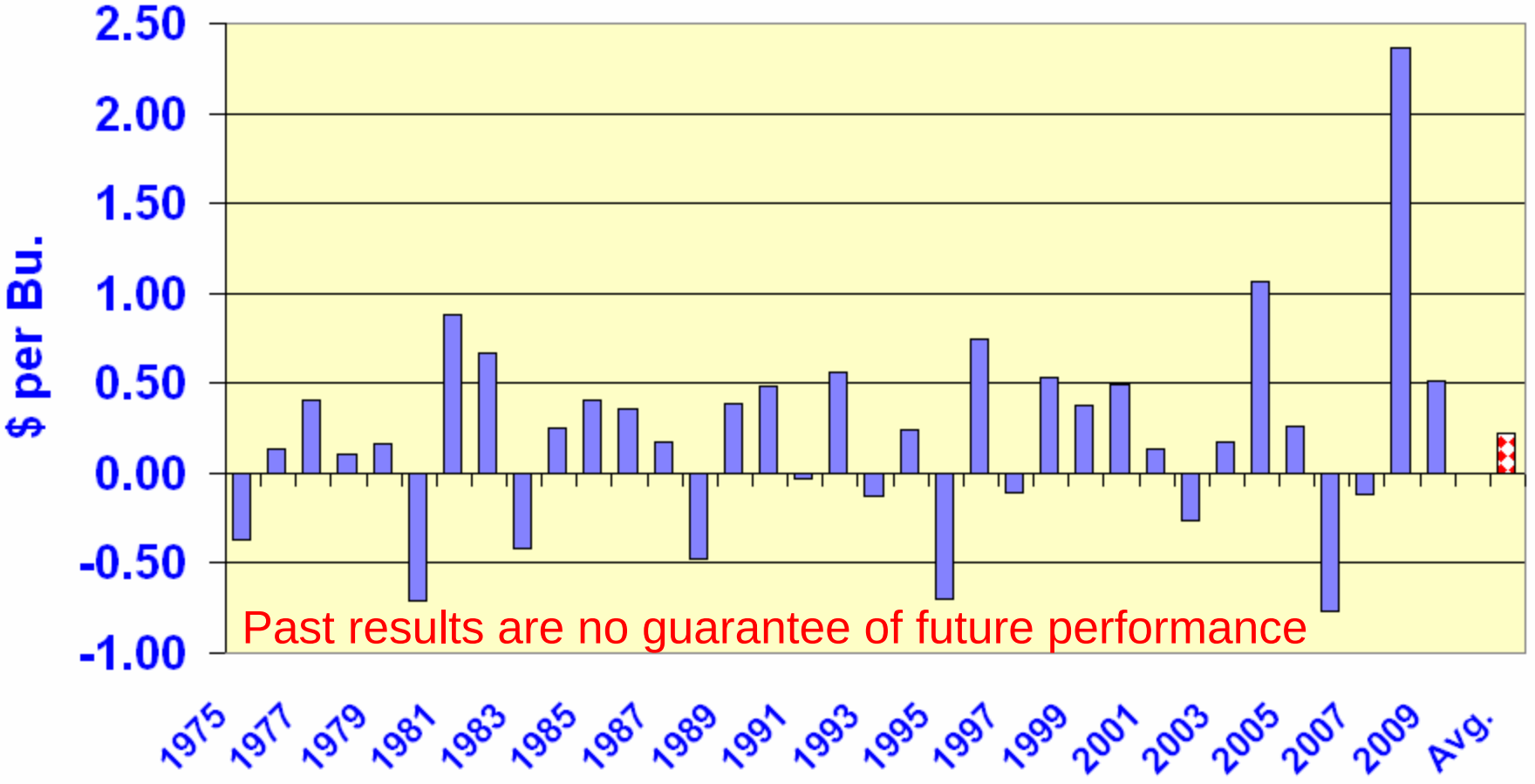


Figure 2. Weekly Nov. Soybean Futures Prices, All Years

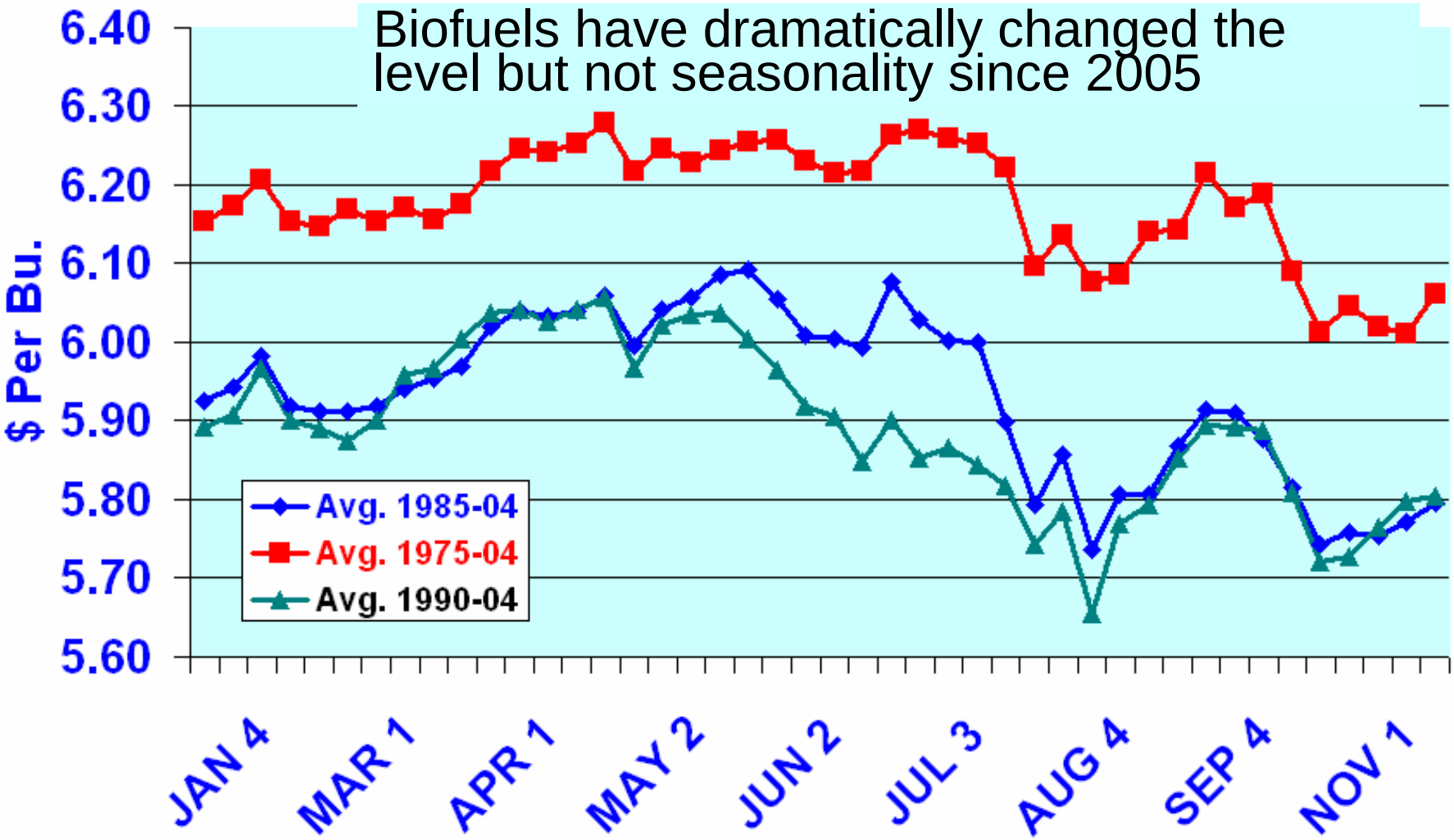
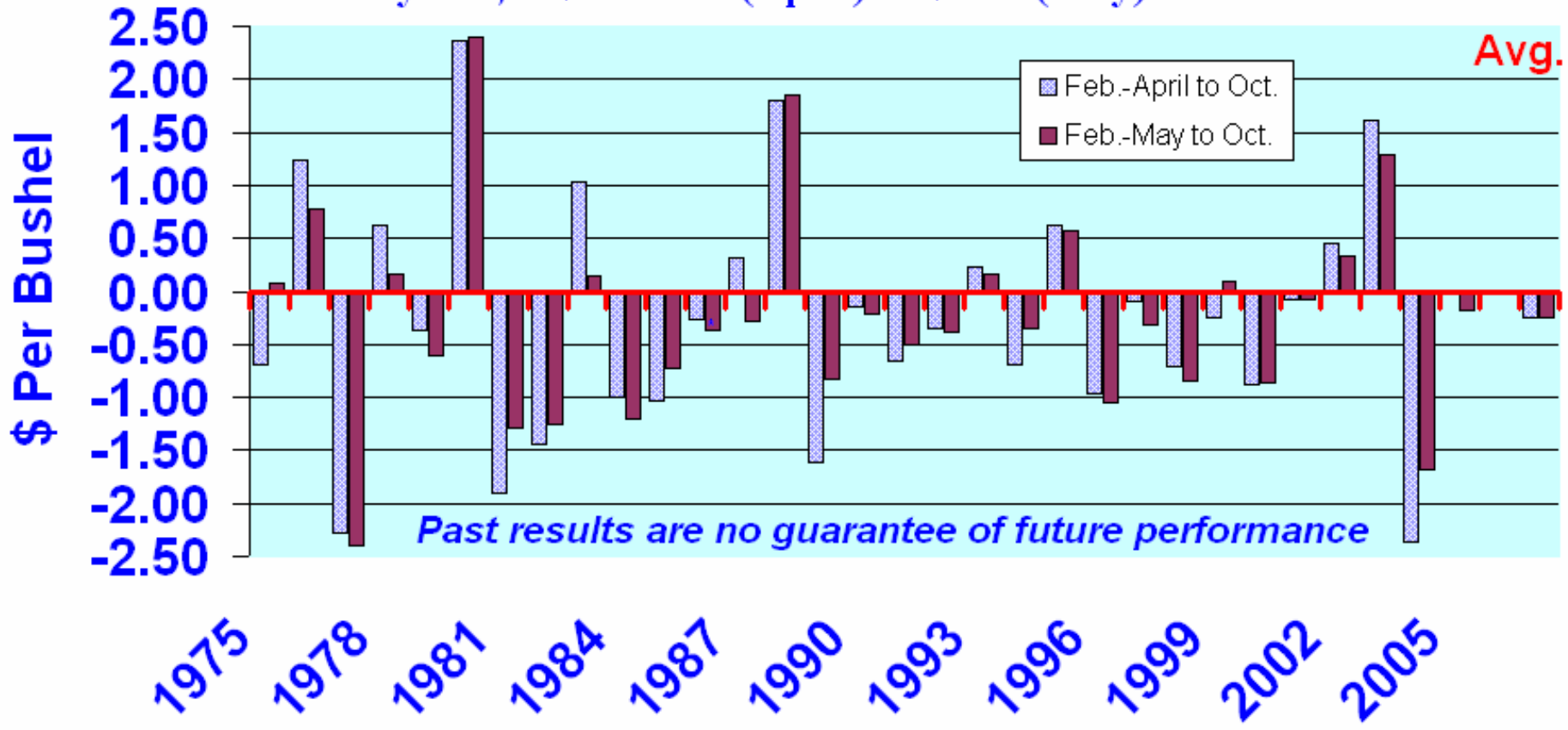


Figure 4. Change in Nov. Soy Futures, Mid-Feb. After Short U.S. Crops & Early April or Mid-May After Normal Crops vs. Mid-Oct., 1975-2005

Prices Rose 32% of Years, Declined 68%. Avg. Decline, all years, = $0.26/Bu. (April) & $0.25 (May)



Forecasting U.S. Corn Yields

- **Yield: The biggest uncertainty in the Supply-Demand equation**
- **Corn Yield:10% below trend for 2010 would cut production 1.47 bil. Bu. below expected use**
- **10% above trend would put crop 1.12 bil. bu. Above expected use**
- ***Price implications: Very Large & w/low yld., Explosive for all grains***

Wisner Corn yield forecasting model, Key variables

- Weekly crop % good-to-excellent, major states
- Percent of the crop planted, major states—by 3rd week of May
- Weather variable: 0-1
- Time trend to reflect new technology
- Best results: late July & August

Key Web Sites

- http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1186 (weekly crop progress & condition)
- http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1288 (USDA ERS Situation Reports, World Ag Outlook supply-demand reports, NASS monthly crop forecasts & grain stocks reports
- http://www.nws.noaa.gov/ National Weather Service weather reports, current, 6-10 days up to monthly and season outlook
- http://www.cpc.ncep.noaa.gov/products/expert_assessment/drought_assessment.shtml NWS drought assessment
- http://www.cpc.ncep.noaa.gov/products/predictions/index.html NWS extended forecasts
- http://www.pecad.fas.usda.gov/cropexplorer/ International weather & crop conditions USDA Crop Explorer
- http://www.pecad.fas.usda.gov/cropexplorer/ USDA World crop explorer – satellite imagery by country
- http://www.econ.iastate.edu/faculty/wisner/grainbidlinks.docFutures Prices & cash prices at various locations
- http://ffas.usda.gov/export-sales/ USDA Weekly Export Sales Report

Example information
Iowa Crop Progress as of July 5, 2009

	Districts									State	Last Week	Last Year	Normal
	NW	NC	NE	WC	C	EC	SW	SC	SE				
Corn, tallest height, "	65	59	65	74	70	72	69	65	68	**67**	51	**49**	**65**
Corn, avg. height, "	54	44	48	58	54	54	53	44	50	**52**	37	**34**	**51**
Corn stand, % of Norm.	99	98	96	98	94	95	89	88	90	95	95	86	93
Soybeans % blooming	29	17	48	21	22	20	18	10	16	**23**	4	13	**28**

Iowa Crop Progress as of July 5, 2009

Illinois has similar information

	Corn Crop Condition		
	7/5/2009	Chg. Vs.	Chg. Vs.
	%G-E	Prev. Wk.	7/04/04
	2004 yield: + 11% vs, trend		
CO	75	-3	-19
IL	57	-1	-26
IN	64	2	-10
IA	82	1	7
KS	68	1	1
KY	74	3	0
MI	67	-4	27
MN	82	0	22
MO	54	0	-25
NE	84	2	4
NC	41	-35	-40
ND	76	-2	18
OH	77	-4	14
PA	81	5	-1
SD	62	-9	-18
TN	53	-4	-30
TX	40	5	-44
WI	78	-3	19
18 Sts	71	-1	-2
Wk ago	72	2	1
Yr ago vs. '03	62	1	-11
% Silked	8	3	-11

Frost Concerns

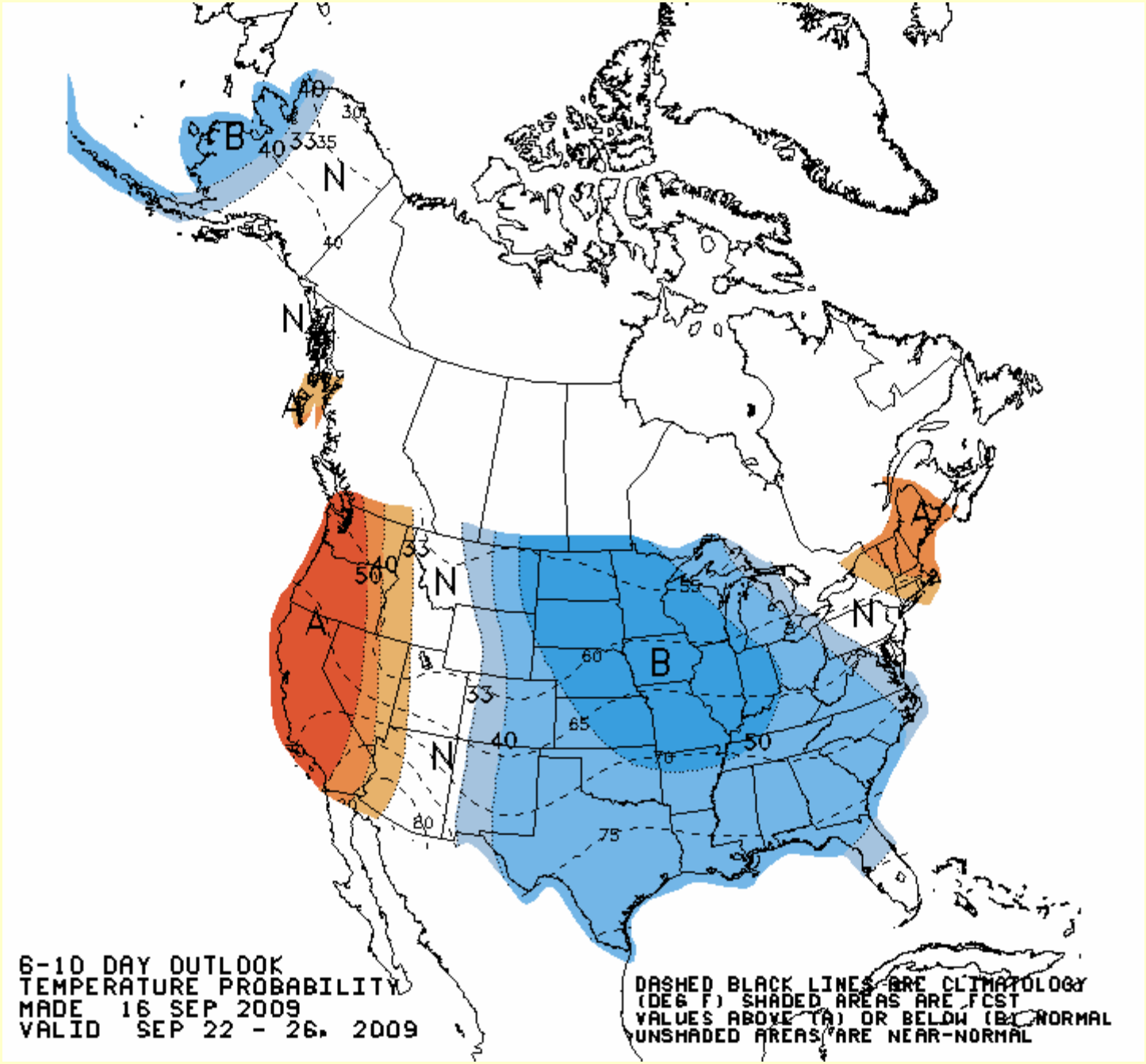
Iowa Crop Progress as

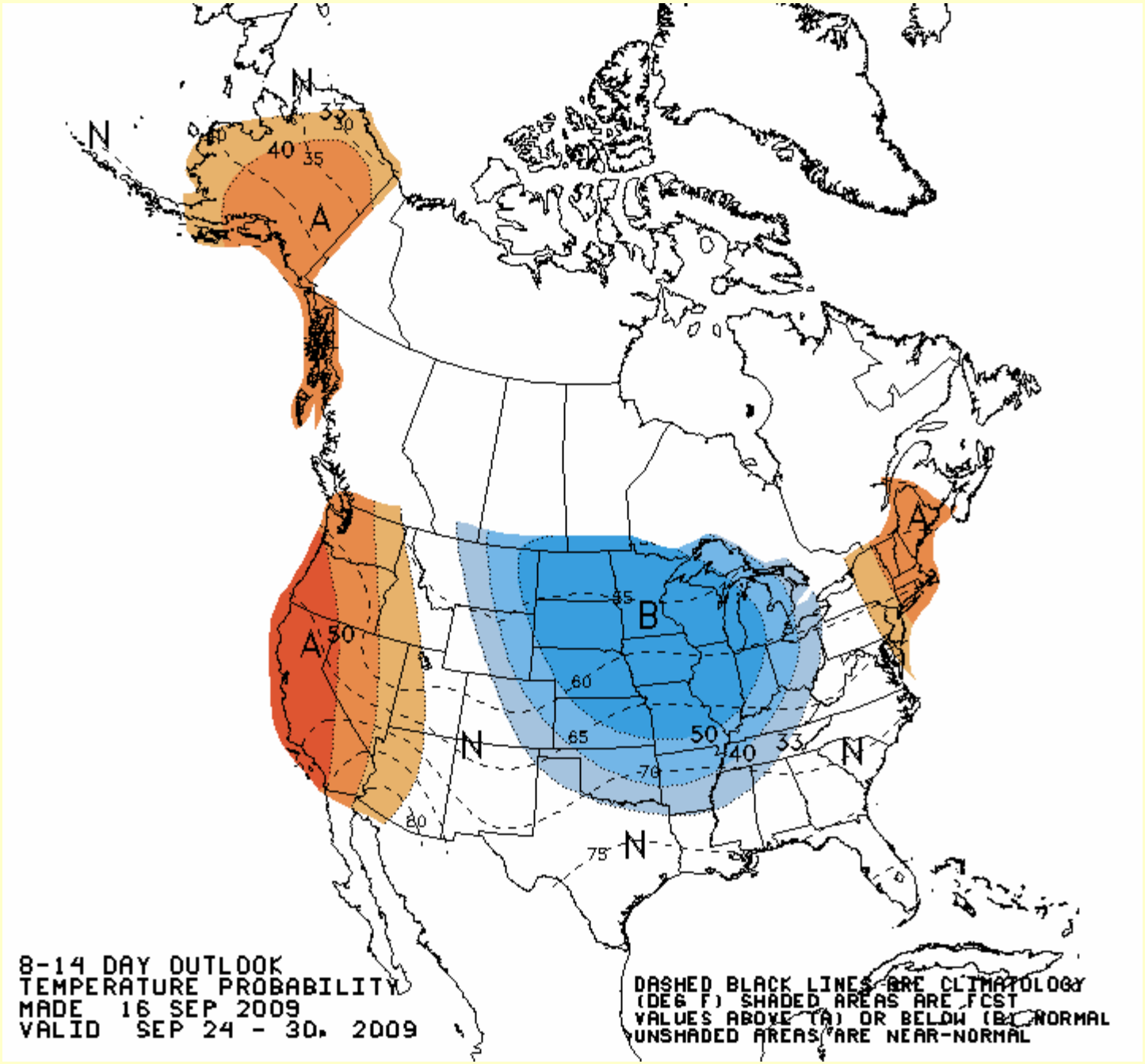
State	Corn Percent Dented		
	9/13/ 2009	9/13/ 2008	5-Year Avg.
CO	58	77	67
IL	56	75	92
IN	60	75	87
IA	76	68	86
KS	86	93	95
KY	92	92	96
MI	41	77	75
MN	56	78	82
MO	85	80	94
NE	85	83	89
NC	100	99	99
ND	23	52	70
OH	66	80	86
PA	56	69	78
SD	57	78	83
TN	97	100	100
TX	95	94	97
WI	40	46	63
18 Sts.	66	76	86
Prev Wk.	50		

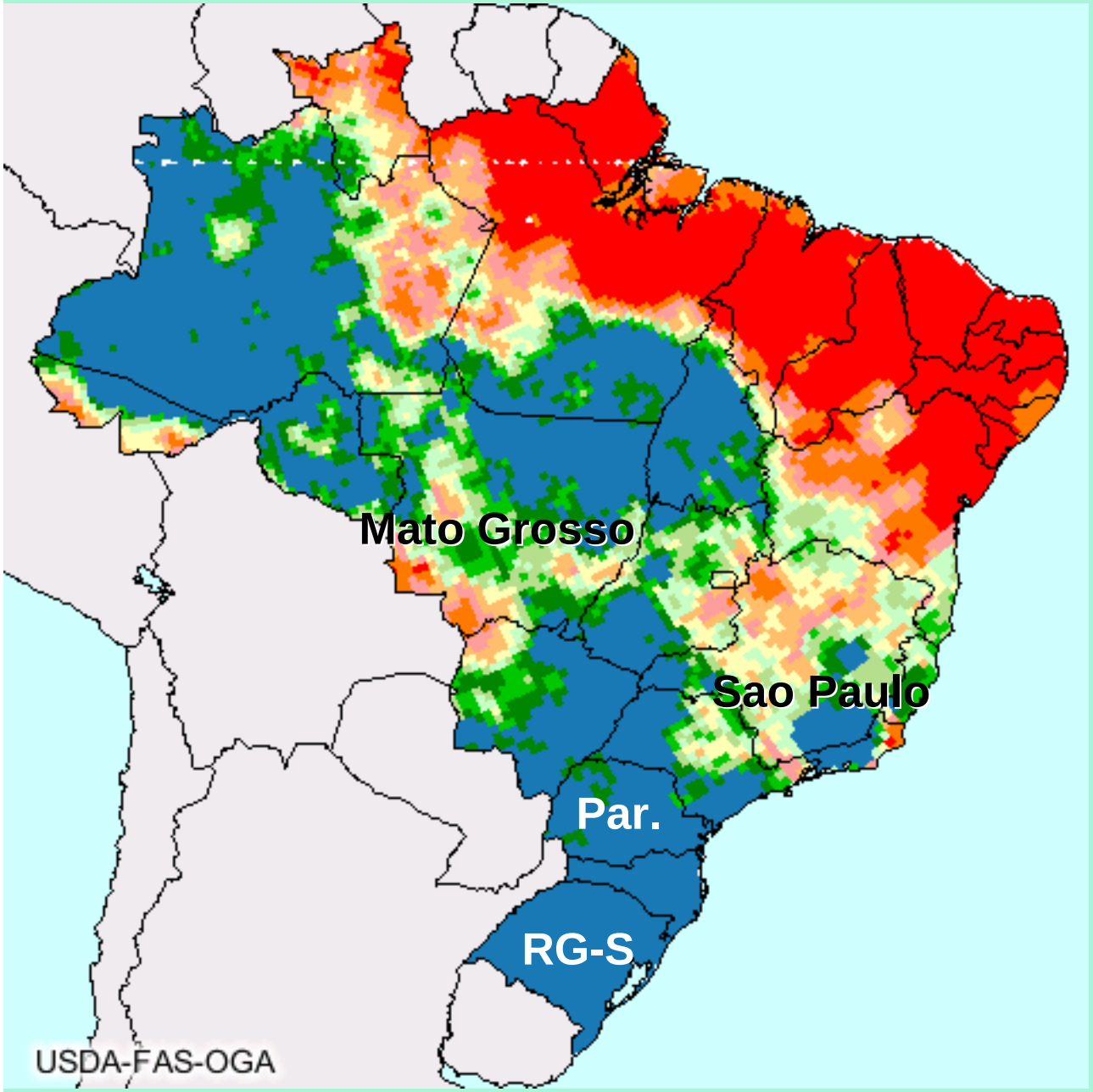
Frost Impact?

Iowa Crop Progress as

State	Corn Percent Mature			
	10/11/ 2009	10/4/ 2009	10/11/ 2008	5-Year Avg.
CO	79	63	86	88
IL	56	41	86	97
IN	69	51	87	92
IA	86	71	81	95
KS	95	89	91	97
KY	94	86	99	99
MI	61	38	86	87
MN	71	37	81	92
MO	89	78	89	98
NE	76	63	77	89
NC	100	100	100	100
ND	37	23	73	82
OH	67	46	86	88
PA	62	53	89	90
SD	84	57	82	91
TN	97	93	100	100
TX	97	92	92	98
WI	58	33	76	80
18 Sts.	74	57	84	92


6-10 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 16 SEP 2009
VALID SEP 22 - 26. 2009
DASHED BLACK LINES ARE CLIMATOLOGY
(DEG F) SHADED AREAS ARE FCST
VALUES ABOVE (A) OR BELOW (B) NORMAL
UNSHADED AREAS ARE NEAR-NORMAL


N
N
33
30
40
35
A
A
A
50
B
85
60
65
50
40
33
N
N
70
80
75
N
8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 16 SEP 2009
VALID SEP 24 - 30, 2009
DASHED BLACK LINES ARE CLIMATOLOGY
(DEG F) SHADED AREAS ARE FCST
VALUES ABOVE (A) OR BELOW (B) NORMAL
UNSHADED AREAS ARE NEAR-NORMAL



Brazil Soil Moisture 11/20/09

Major Northern

Areas Improving,

South ok

% of Normal

Red = 0-10%

Orange = 10-20%

Green = 80-90%

Blue = 90-100%

What to Look For in Sources of Outlook Information

- *Good detail on international conditions*
- *Use of sensitivity analysis & probabilities*
- *Up-to-date S-D*
- *Advisable to use several sources + USDA*
- *Technical analysis can supplement fundamental analysis*
- *Keys for 2009-10: U.S. crops, China,*
- *S. Am. crops, E-15*

Wheat: world competition is strong

-- Large U.S. Carryover expected, world – more modest

-- Need weather concerns for price strength

-- Soft red acres likely down for 2009-10

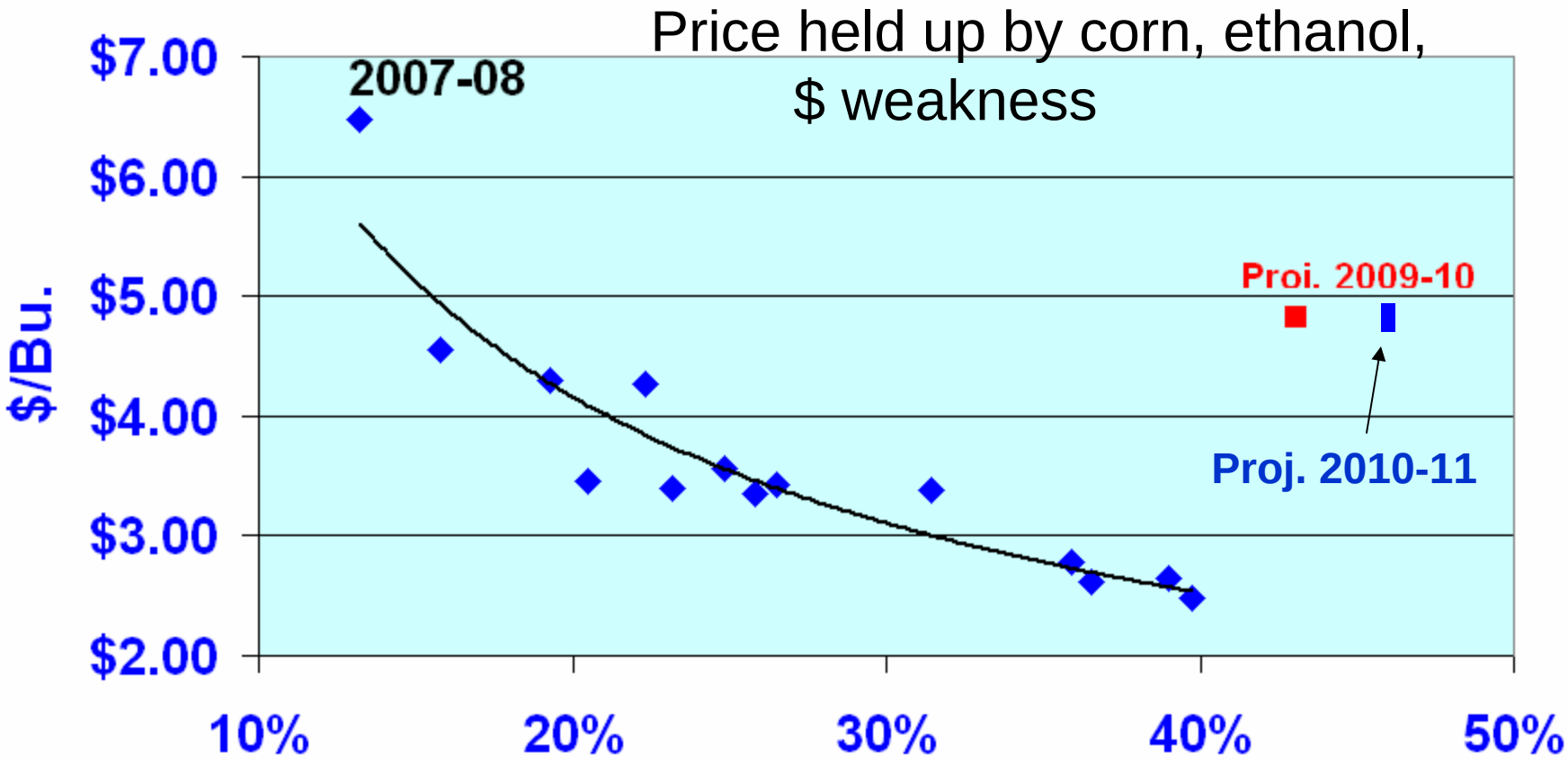
-- Uncertain areas: Argentine frost damage, 2010 world production

USDA Wheat Balance Sheet

	2007/08	2008/09 Est.	2009/10 Proj. Nov.	2009/10 Proj. Dec.	R.W. 2010-11 1/11/10 Low Yld.	R.W. 2010-11 1/11/10 Norm. weather	R.W. 2010-11 1/11/10 Higher Yld.
Area (Mil. A.)							
Planted	60.5	63.2	59.1	59.1	57	57	57
Harvested	51	55.7	49.9	49.9	47.5	47.5	48.5
Yield, Bu./A.	40.2	44.9	44.4	44.4	40	43.5	44.5
Production, Mil. Bu.	2,051	2,499	2,216	2,216	1,900	2,066	2,158
Beginning stocks	456	306	657	657	900	900	900
Imports	113	127	110	110	110	105	105
Supply, total	2,620	2,932	2,983	2,983	2,910	3,071	3,163
Food	948	927	955	940	945	945	945
Seed	88	75	78	78	76	76	76
Feed and residual	16	258	190	190	180	200	250
Domestic, total	1,051	1,260	1,223	1,208	1,201	1,221	1,271
Exports	1,263	1,015	875	875	860	875	900
Use, total	2,314	2,275	2,098	2,083	2,061	2,096	2,171
Ending stocks	306	657	885	900	849	975	992
Weeks Supply	6.9	15.0	21.9	22.5	21.4	24.2	23.8
Stocks/use	13.2%	28.9%	42.2%	43.2%	41.2%	46.5%	45.7%
Avg. farm price ($/bu)	$6.48	$6.78	$4.85	$4.85	$5.80	$4.85	$4.65

U.S. Wheat Price & Stocks/Use
1994-05 to 2008-09

1/11/10



'09-Crop Export Sales Through 12/31/09

- **Soybeans: 1,161 mil. Bu. + 55% from yr.ago.**
  - ***87% of USDA projected mkt. yr. exports***
  - **USDA October proj. expts. Low 7 of 10 yrs.**
  - **China purchases up 69%**
- **Corn: 985 mil. bu. +19% from yr. ago**
- **Wheat, at 58% through mktg. yr.:**
  - **SRW: -51% vs. yr. ago**
  - **HRW: -42%**
  - **HRS: -10%**

Do pre-harvest new-crop wheat prices have a risk premium?

- OSU & KSU research says no
- U. of Minn. Studies hint at a possible small one

- Wheat: fundamentally different than corn & SB
  - Harvesting nearly year around globally
  - U.S. much smaller share of global production than corn & SB
  - Somewhat more weather resistant than corn & SB

World Wheat & Coarse Grain Area: Another 1996?

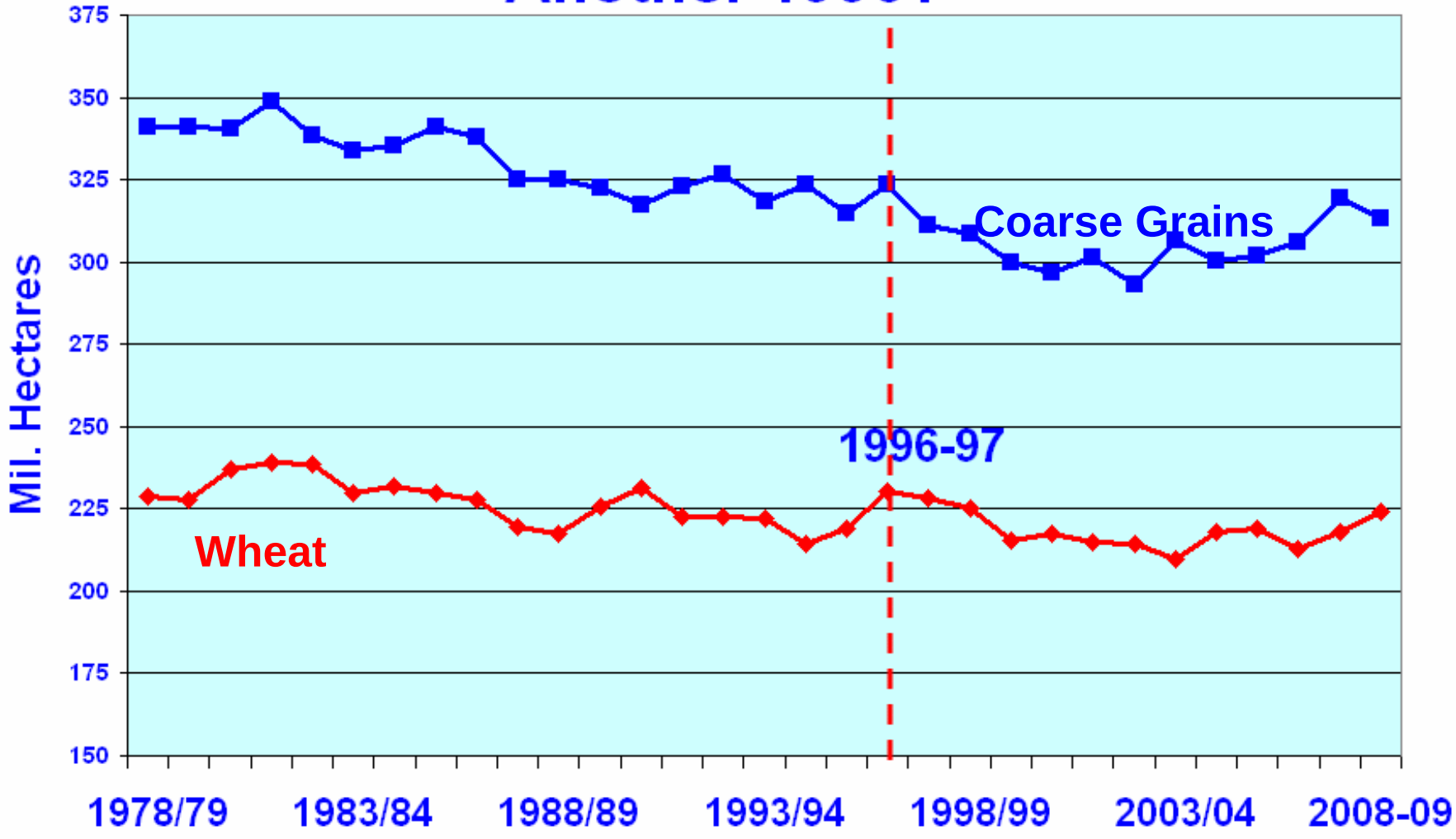


Table 3. South America Crop Prospects

1/12/10 USDA

Next Update: Feb. 10, 2010

	Mil. Bu. Chg. Spring'09 Vs. '08.	Proj. Chg. Spring 2010
• Argentina corn	-370	+95
• Argentina SB	-523	+773
• Brazil corn	-299	+0.0
• Brazil SB	-147	+294
• Paraguay SB	-110	+103
– Total corn change	-669	+95
– Total SB change	-780	+1,170

SB product export sales 12/31/09

- –SBM: +86% vs. yr. ago
- –SBO: +279%

Soy crush margin 12/31/09, Decatur, IL

- $1.21/bu. vs. $0.51 a year ago, meal yield -0.7% vs. y/a
- Oct. crush +6.4% vs. yr. earlier,

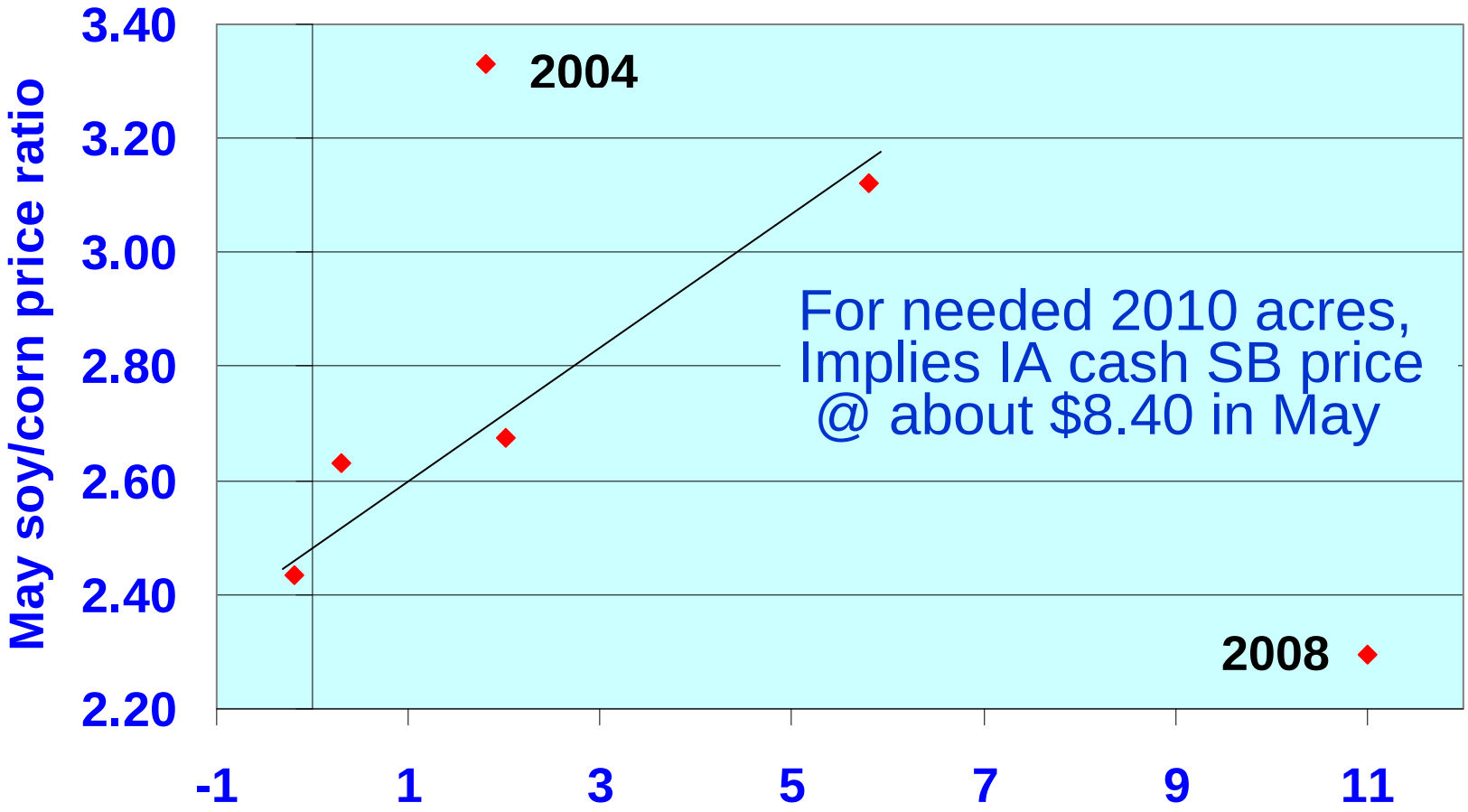
  Nov. +17.6%

SB Balance Sheet - R. Wisner				Updated: 1/12/2009						
				Proj. 2009-10	Projected 2010-2011			Projected 2011-2012		
	2006-07	2007-08	2008-09		Low	Med.	High	Low	Med.	High
Yield (bu. per acre)	42.9	41.7	39.7	44.0	39.5	43.1	44.5	39.5	43.1	44.5
Long-term historical yield probability:					18%	65%	17%	18%	65%	17%
Supplies:										
Planted acres (million)	75.5	64.7	75.7	77.5	75.7	76.0	76.0	75.7	76.0	76.0
Harvested acres (million)	74.6	64.1	74.7	76.4	75.1	75.5	75.5	75.1	75.5	75.5
Production (mil. bu.)	3,197	2,677	2,967	3,361	2,965	3,255	3,360	2,965	3,255	3,360
Beginning carryover (mil. bu.)	449	574	205	138	230	230	230	230	230	230
Total Supply	3,655	3,261	3,185	3507	3,205	3,490	3,594	3,205	3,490	3,594
Usage:										
Crush (mil. bu.)	1,808	1,803	1,662	1715	1,665	1,695	1,705	1,665	1,695	1,705
Seed & residual (mil. bu.)	157	93	101	177	185	175	175	185	175	175
Exports (mil. bu.)	1,116	1,159	1,283	1385	1,225	1,260	1,275	1,225	1,260	1,275
Total Usage	3,081	3,056	3,047	3277	3,075	3,130	3,155	3,075	3,130	3,155
Ending Soybean Carryover: (mil. bu.)	574	205	138	230	130	360	439	130	360	439
Carryover, weeks of total use	9.7	3.5	2.4	3.6	2.2	6.0	7.2	2.2	6.0	7.2
Prices:										
U.S. weighted avg. farm price	$6.43	$10.10	$9.97	$9.35	$11.75	$8.75	$7.95	$11.75	$8.75	$7.95
Iowa weighted avg. farm price	$6.38	$10.05	$9.92	$8.90	$11.65	$8.65	$7.85	$11.65	$8.65	$7.85
Harvest price (central Iowa)	$5.45	$8.45	$8.50	$9.50	$11.50	$8.35	$7.50	$11.50	$8.35	$7.50
Nov. futures price (harvest avg.)	$6.05	$9.45	$9.10	$9.95	$12.20	$8.95	$8.10	$12.20	$8.95	$8.10
Soy meal, Decatur, $/T 48% protein	$205	$336	$331	$295	$375	$255	$220	$375	$255	$220
Soy oil, $ per cwt.	$31.00	$52.03	$32.16	$37.00	$38.00	$36.00	$35.00	$38.00	$36.00	$35.00
Oil Yield	11.3	11.5	11.4	11.4	11.3	11.4	11.5	11.3	11.4	11.5
Soybean oil use for biodiesel, mil. lbs.	2,762	2,981	1,907	2,150	3,500	3,550	3,600	3,500	3,550	3,600

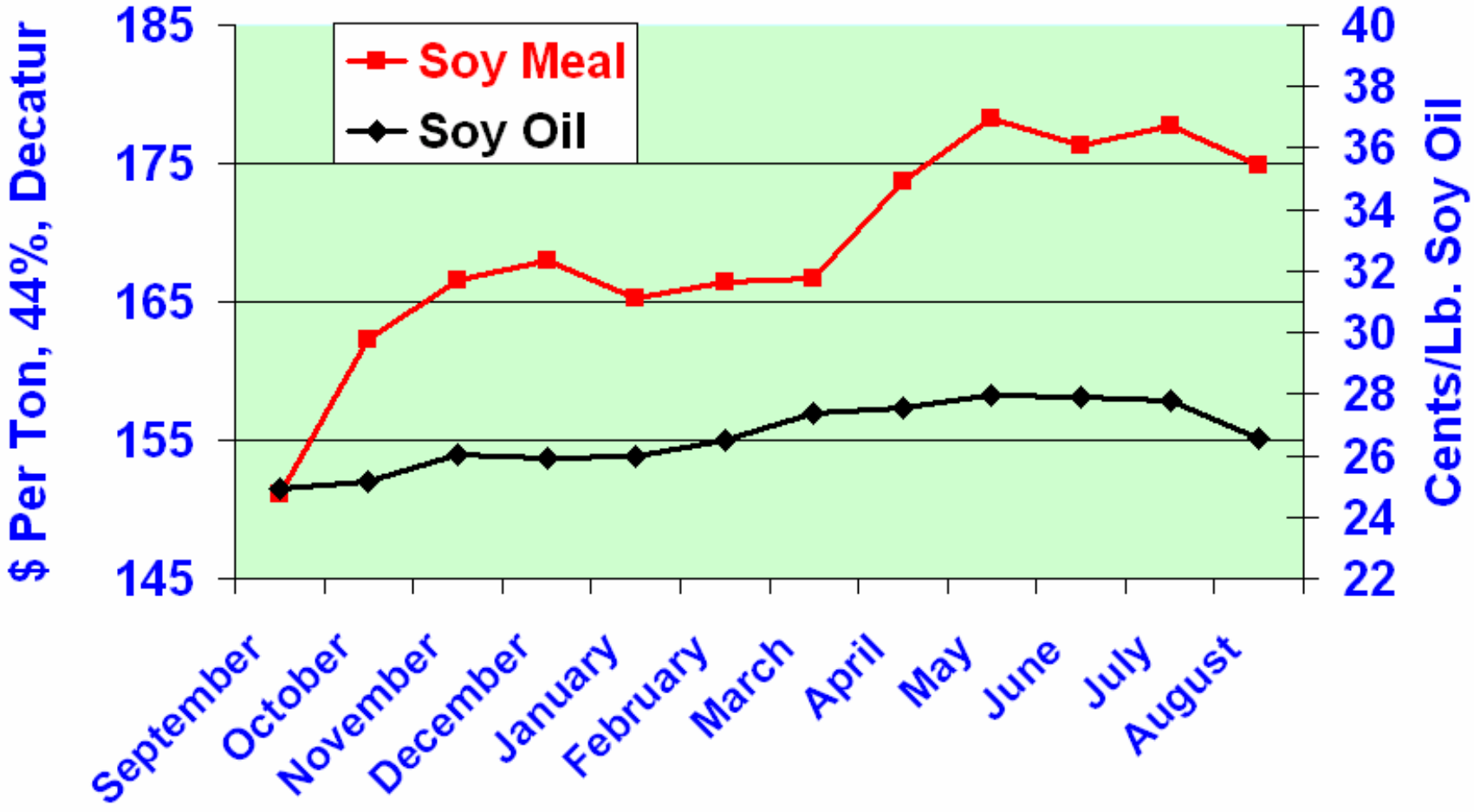
Using elesticity for SB forecast gives 2010-11price below $5.00/bu.

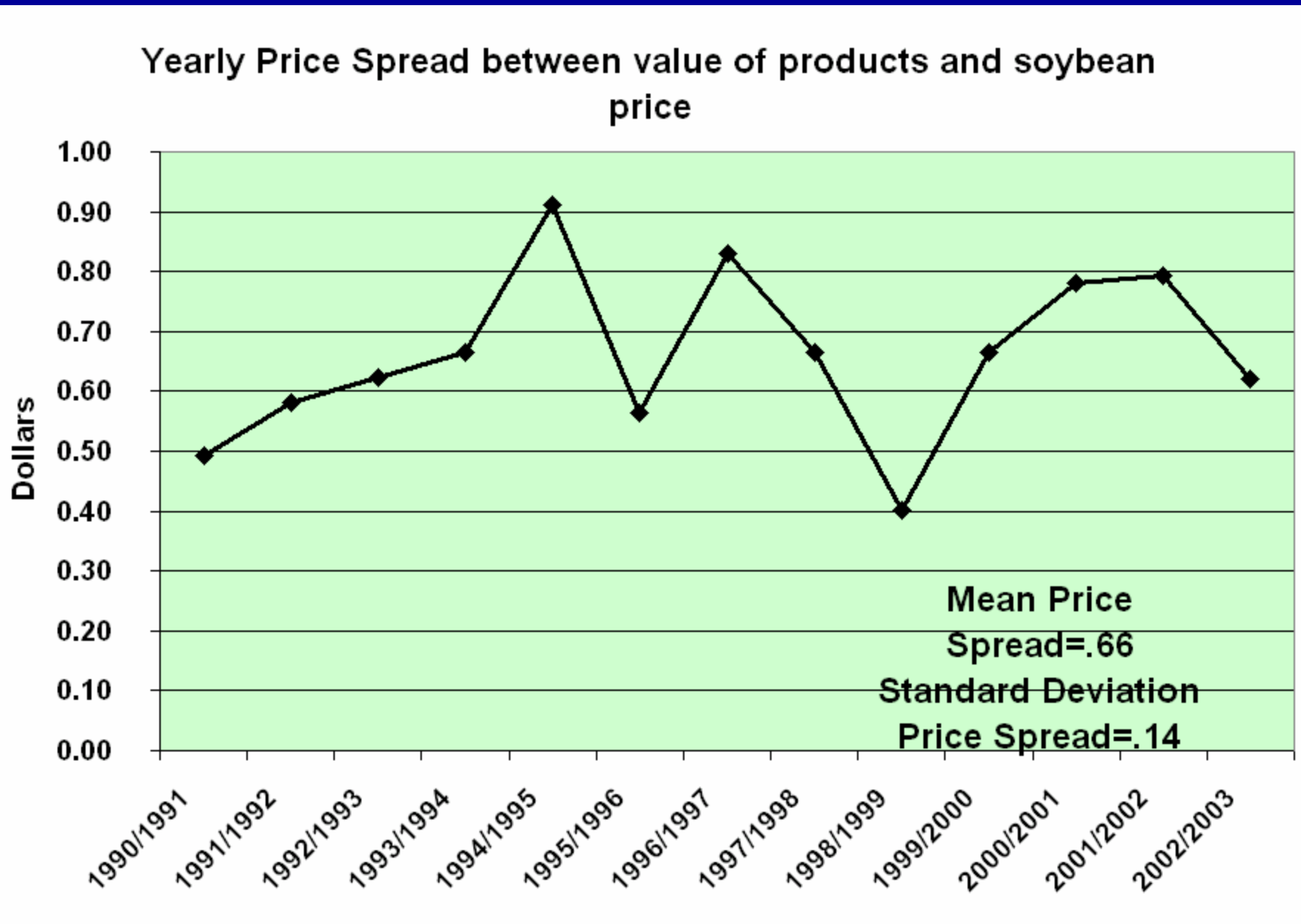
- **Corn price will keep soybean price higher**
- **The two markets will create a balance of needed acreages in 2010**
- **Biodiesel demand may also be a factor if Congress renews biodiesel tax credit & biodiesel mandates are enforced**
- **Seasonality: SB supplies are very tight until new S. American crop is available**

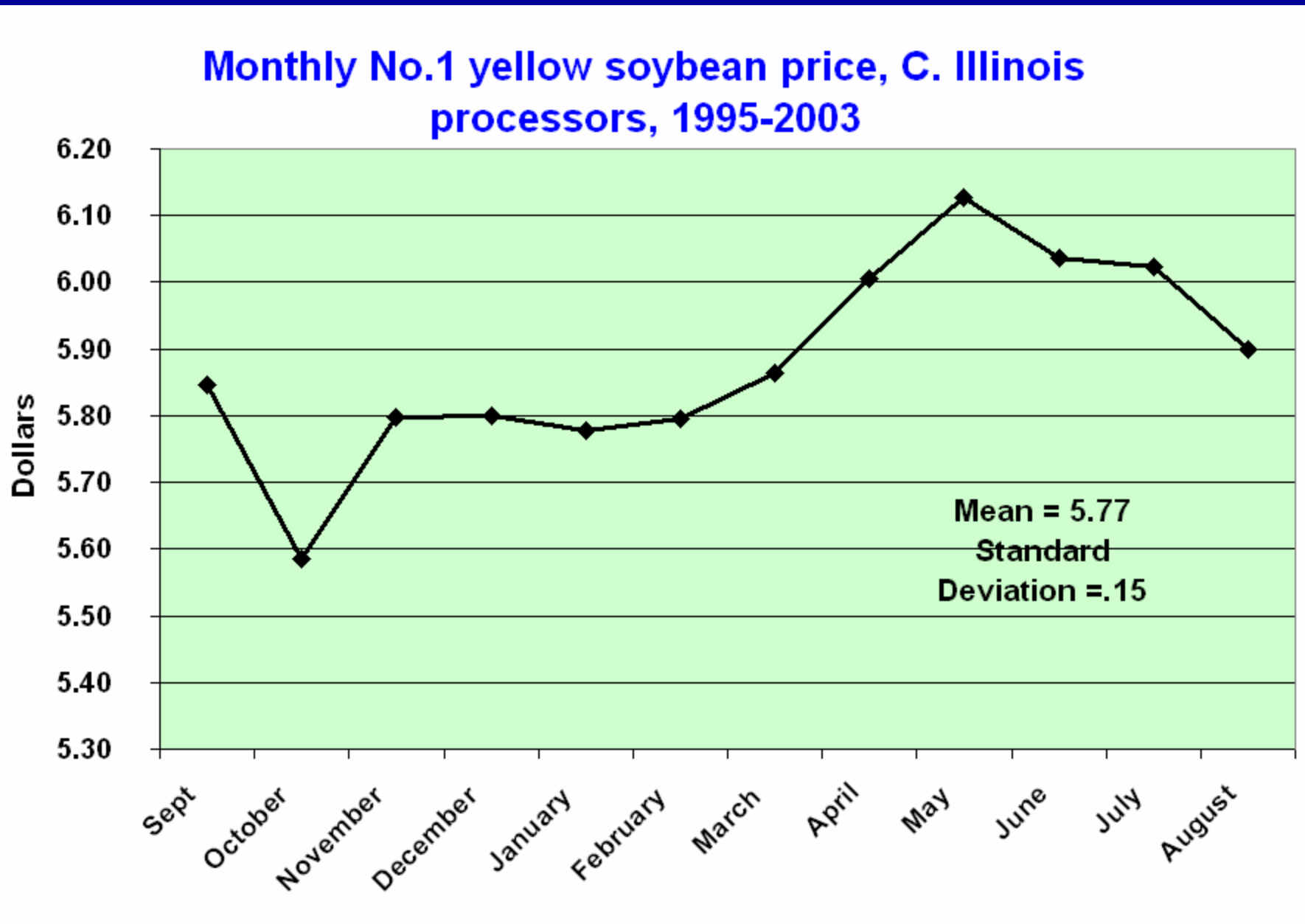
Soybean/Corn Price Ratio & Change in U.S. Soybean Planted Acres Selected Years



Seasonality of Soybean Product Prices, 1995-2007-08 Marketing Years




Yearly Price Spread between value of products and soybean price
Dollars
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1990/1991
1991/1992
1992/1993
1993/1994
1994/1995
1995/1996
1996/1997
1997/1998
1998/1999
1999/2000
2000/2001
2001/2002
2002/2003
Mean Price Spread=.66
Standard Deviation Price Spread=.14


Monthly No.1 yellow soybean price, C. Illinois processors, 1995-2003
Dollars
6.20
6.10
6.00
5.90
5.80
5.70
5.60
5.50
5.40
5.30
Mean = 5.77
Standard Deviation =.15
Sept
October
November
December
January
February
March
April
May
June
July
August

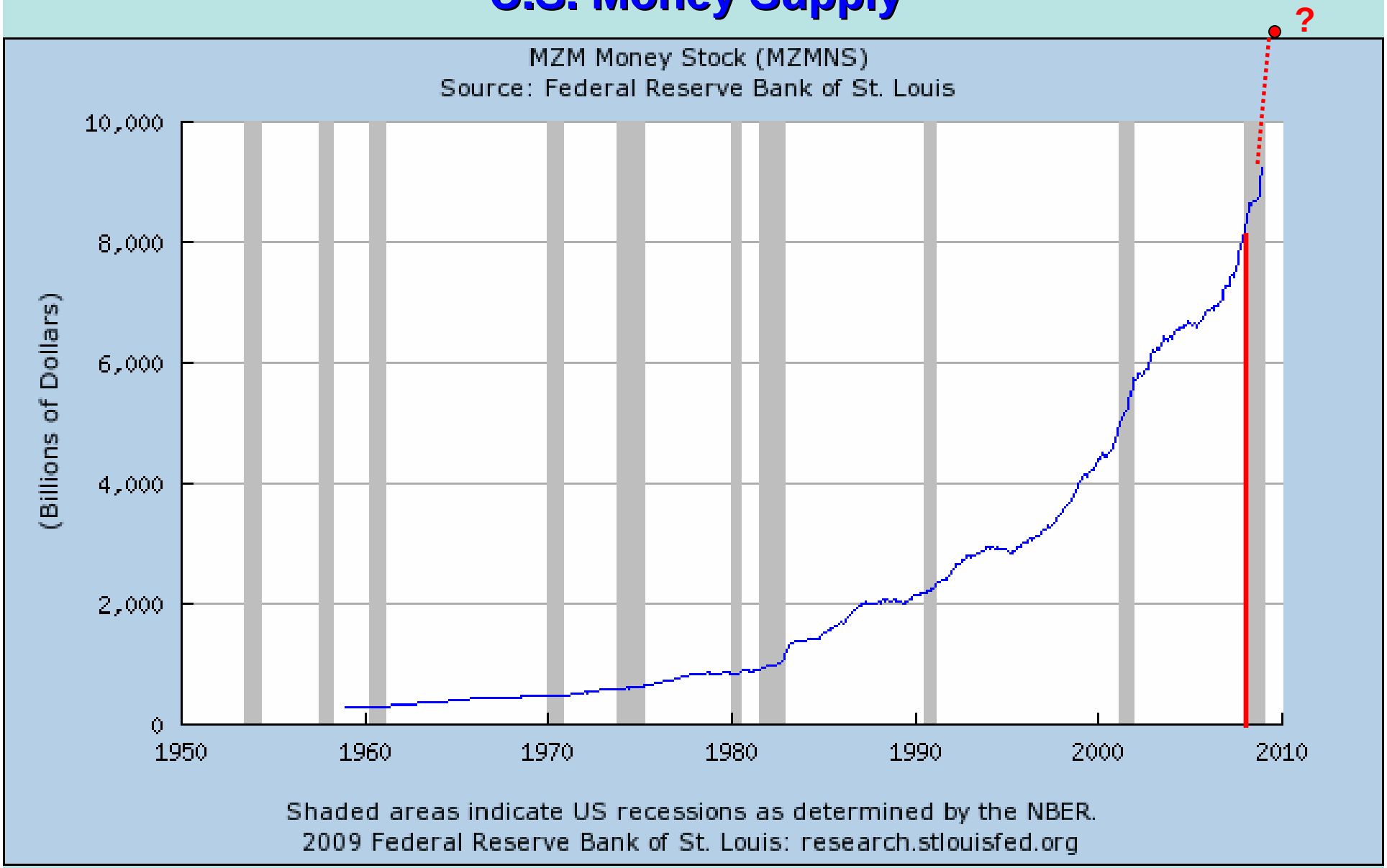
U.S. Grain Sorghum Balance Sheet

	2007/08	2008/09	Proj. 2009-10	R.W. Proj. 2010-11
Mil. A. planted	7.7	8.3	6.6	7.7
Mil. A. Harvested	6.8	7.3	5.5	6.8
Bu./A.	73.2	65	69.4	70
	Million Bushels			
Beginning stocks	32	53	55	58
Production	497	472	383	476
Imports	0	0	0	0
Total supply	530	525	438	534
Feed and residual	165	232	150	215
Food, seed & industrial	35	95	90	115
Total domestic	200	327	240	330
Exports	277	143	140	140
Use, total	477	471	380	470
Carryover	53	55	58	64
Carryover, weeks' supply	5.8	6.1	7.9	7.1
Avg. farm price/$/bu.	$4.08	$3.20	$3.30	3.4
Price, % of corn Price	97.1%	78.8%	88.0%	88.3%

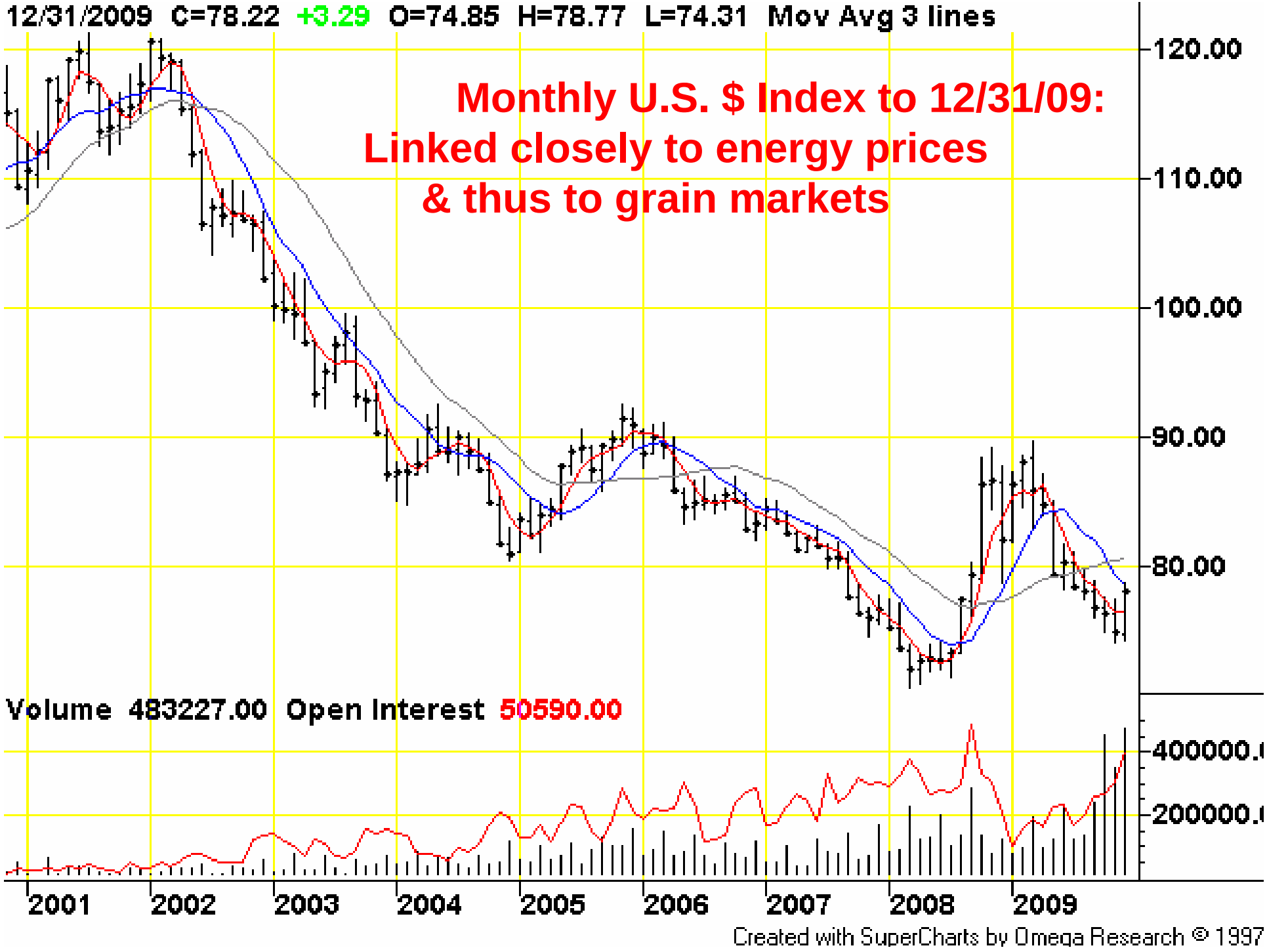
Take-home Points: Fundamental Analysis

- Look at the big picture
- Demand elasticity is changing & making prices more sensitive to supply changes
- Typical approach uses balance sheets
- Price forecasts: typically based on stocks/use, forecasting models, and/or elasticity of demand
- Know where to get information: weather & crops, USDA reports, ethanol, international crop conditions
- Other related information is in next slides

U.S. Money Supply



Expect Higher Inflation in 12 to 24 months + Weaker U.S. $


12/31/2009 C=78.22 +3.29 O=74.85 H=78.77 L=74.31 Mov Avg 3 lines
Monthly U.S. $ Index to 12/31/09:
Linked closely to energy prices
& thus to grain markets
120.00
110.00
100.00
90.00
80.00
Volume 483227.00 Open Interest 50590.00
400000.
200000.
2001
2002
2003
2004
2005
2006
2007
2008
2009
Created with SuperCharts by Omega Research © 1997

U.S. General Econ. Outlook

3 Highly Likely Developments

- **Trend toward weaker $**
- **Increasing inflation, esp. in 2-3 years**
- **Higher interest rates– in 2-3 years, possibly sooner**

Driving forces: huge budget deficits and "cap & trade"

World Feed Trade Outlook

- **10 to 18 months of slow world growth**
  - **then inflation risk, weaker U.S. $**
  - **Increased price volatility**
  - **slower growth in S. American Grain production**
- **Adequate feed grain supplies through late '09, then gradual export supply tightening**

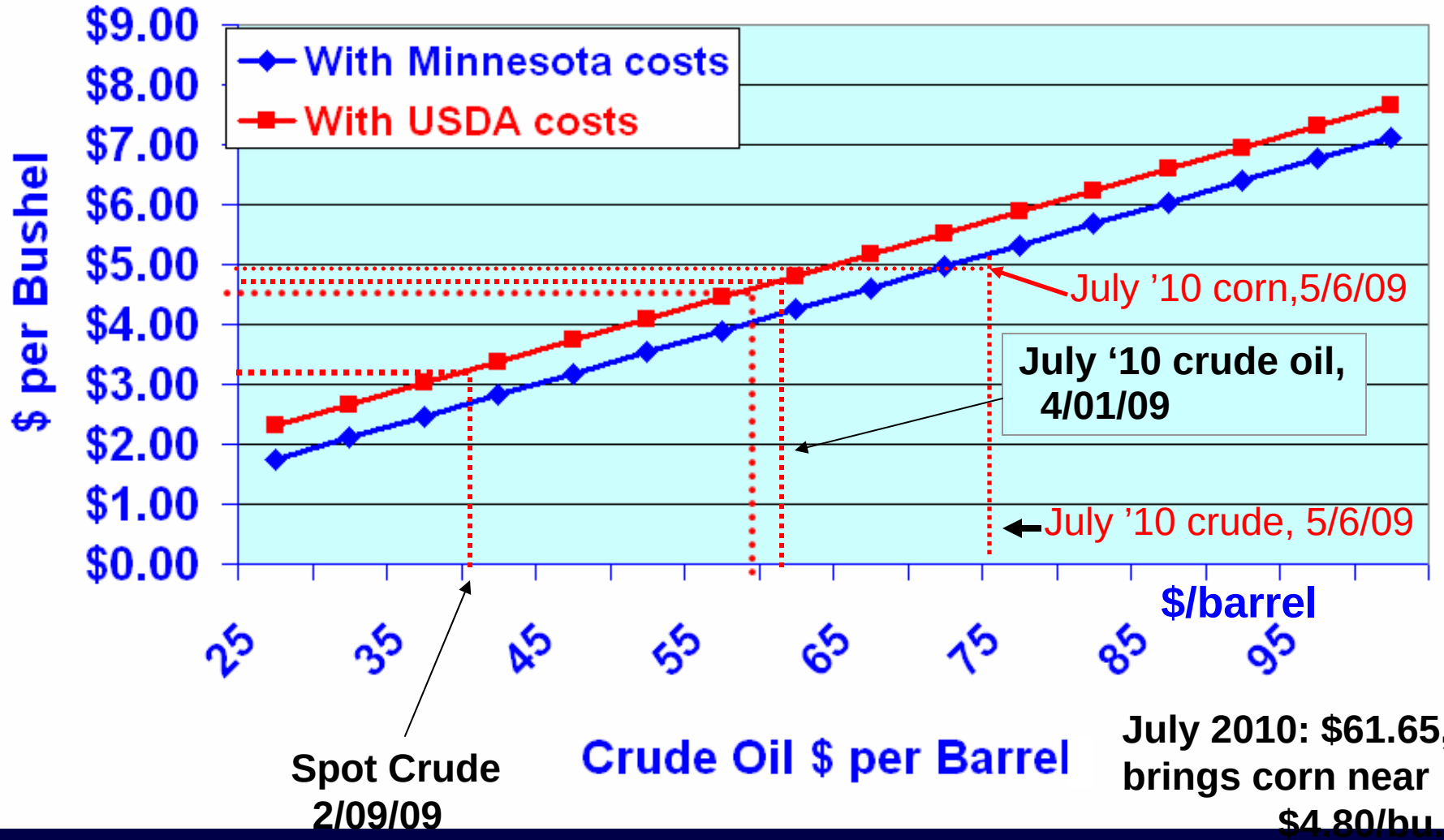
  Tight protein meal supplies through

  early 2010, then easing with good S.Am. SB crop
- **5 Keys to global feed trade: (1) *U.S. biofuels,***

  (2) U.S crop yields, (3) China,(4) FSU, (5) South America
- ***Global warming: is it real?***
- **Will reason prevail in policies?**
  - **impact of GHG emissions controls on economy, grain and animal production and trade?**

4/01/09 *updated 5/6/09*

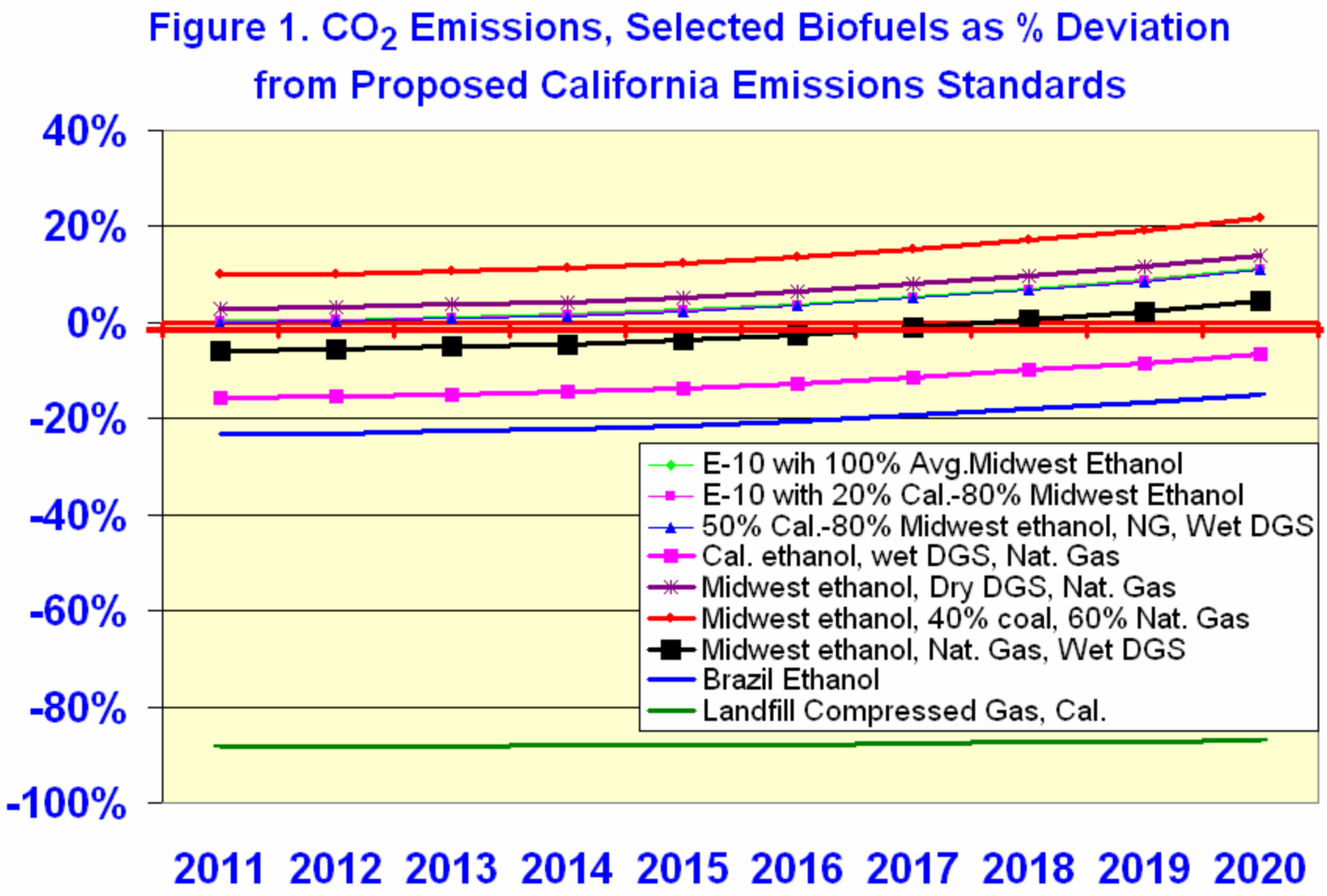
Approximate Maximum Price Ethanol Plants to Pay for Corn with Varying Crude Oil Prices



U.S. Ethanol Situation-Spring '09

- 2nd. Largest firm in bankruptcy
- 5-8 more in bankruptcy
- 24-28 formerly operating plants idled
- Several completed or nearly complete plants delay opening
- Returns: near break-even
- Severe loss in asset values
- Govt. Mandates support corn processing demand near current level -- "blending wall" issue
- Idle operating capacity: 13.5-15.0 mil. tons corn
- Idle plants =14%-18% of capacity

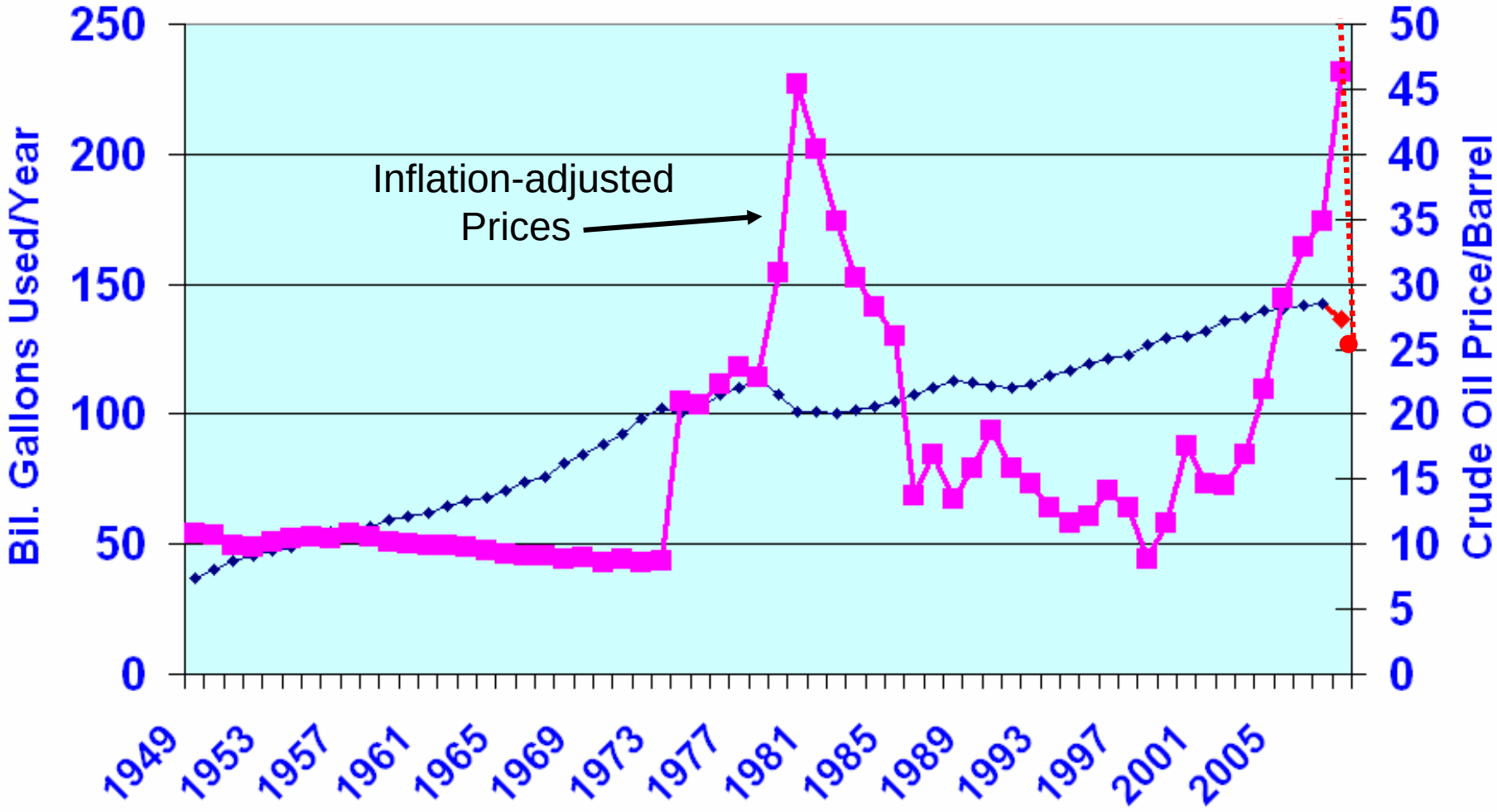
Biofuels: Problems with Greenhouse Gas Standards



How much recovery in oil price & how soon?

Figure 6. Annual U.S. Gasoline Consumption Since 1945 & Inflation-Adjusted Crude Oil Prices

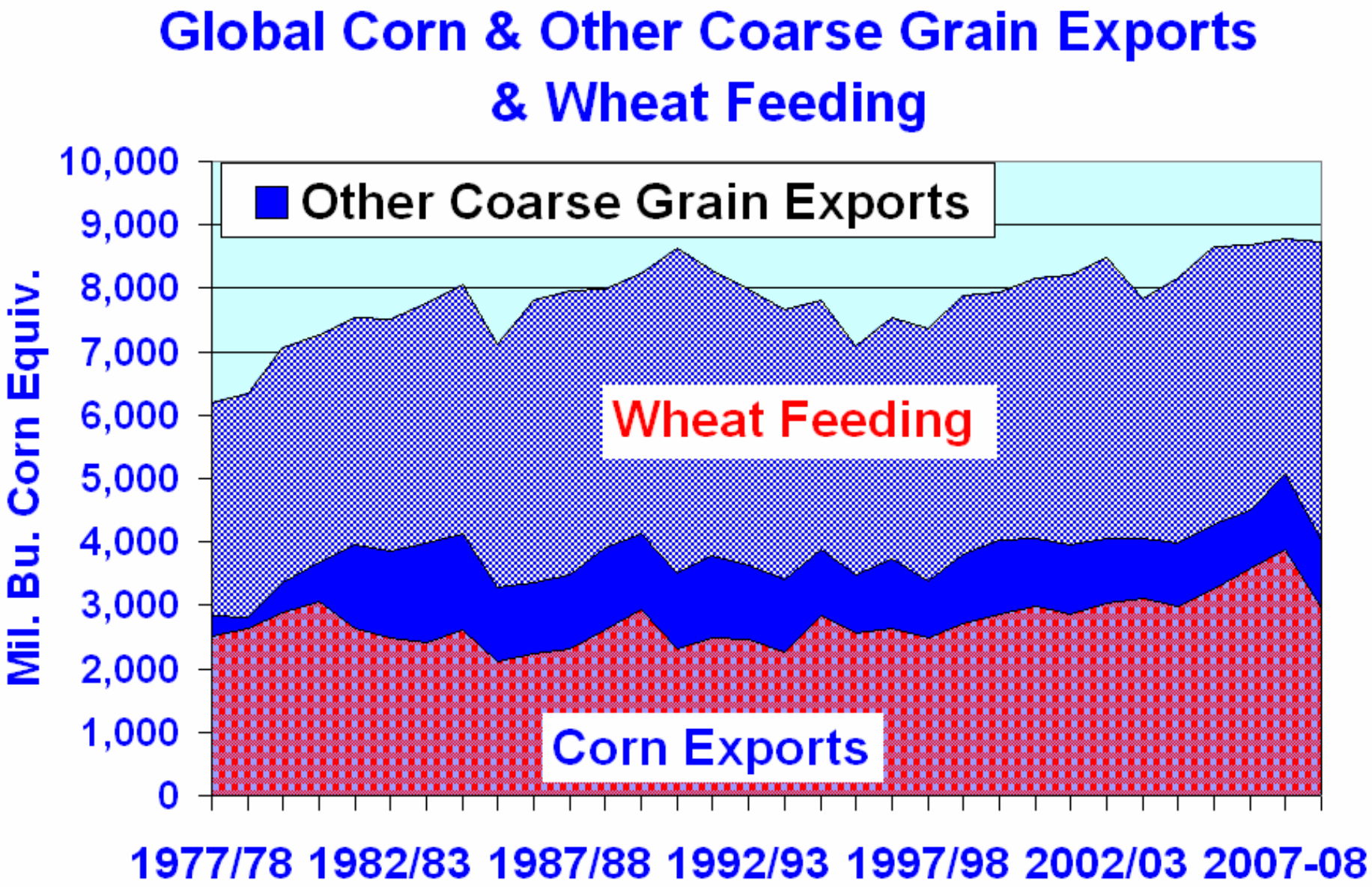
(Crude oil prices are in 1982-1984 dollars)



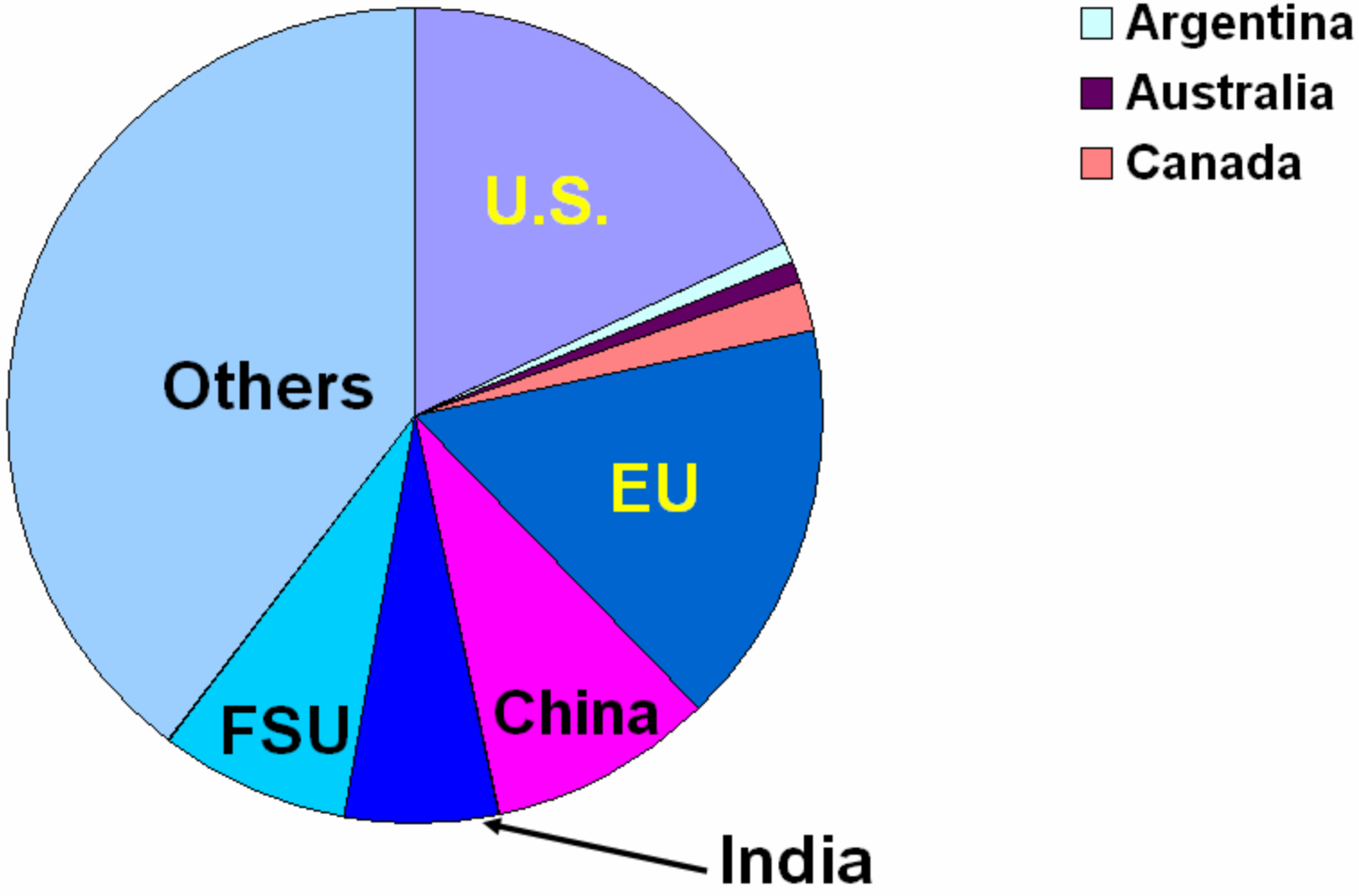
41 Countries Encourage Biofuels

Ethanol, demand growth & food inflation shifting China from to corn exporter to importer?

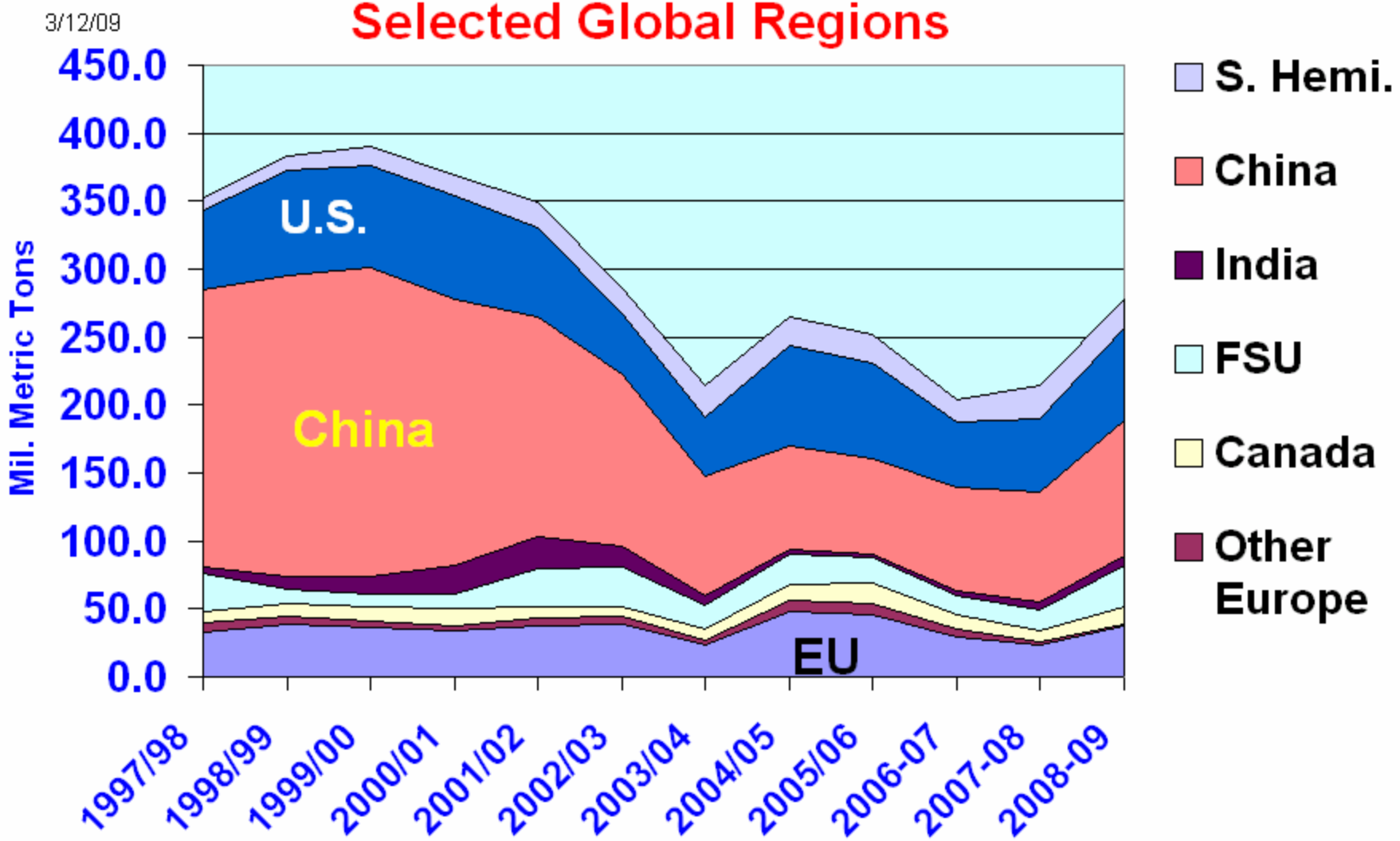
Temporary larger wheat feeding reduces coarse grain demand

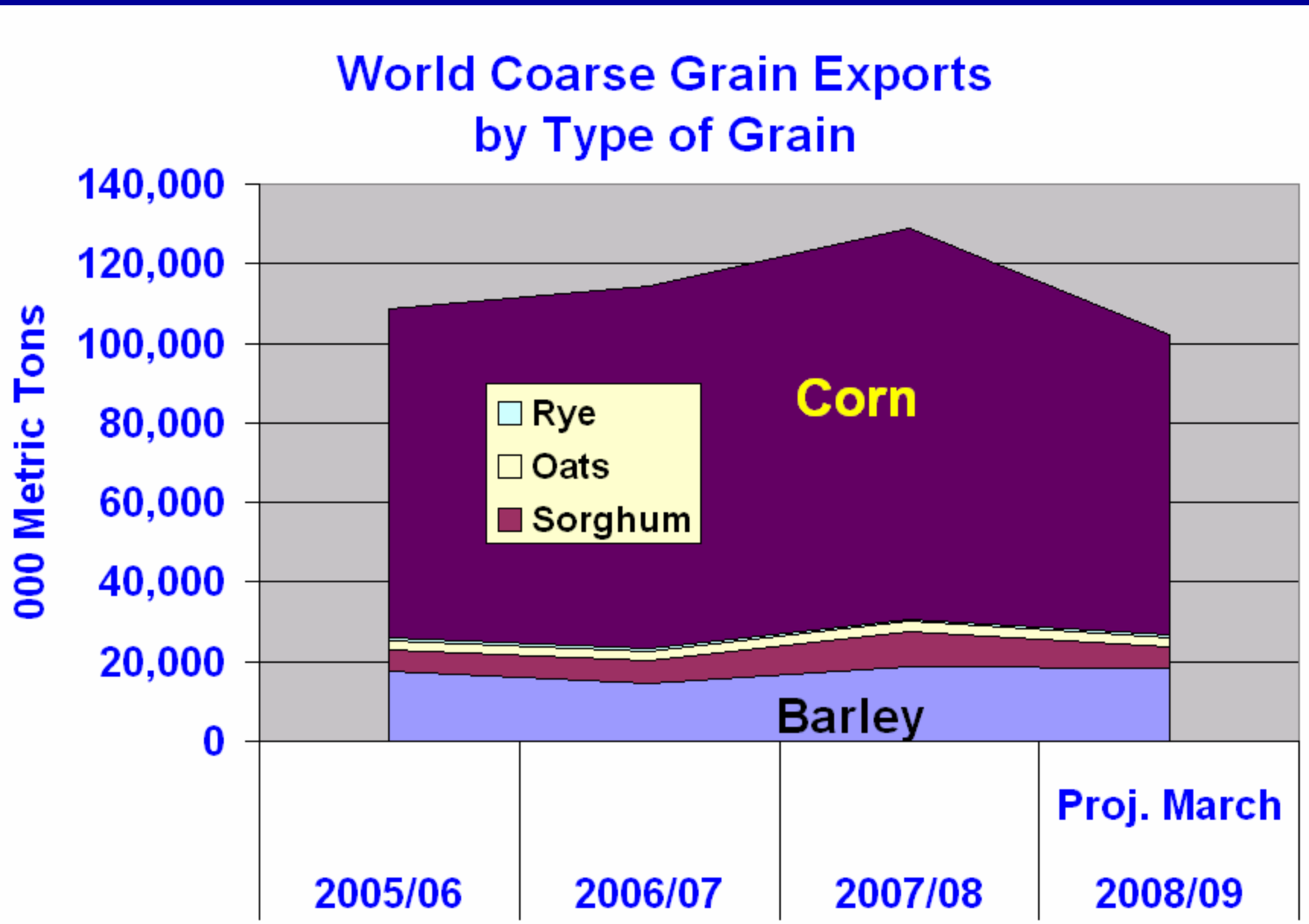


Wheat & Coarse Grain Use, 2007-08

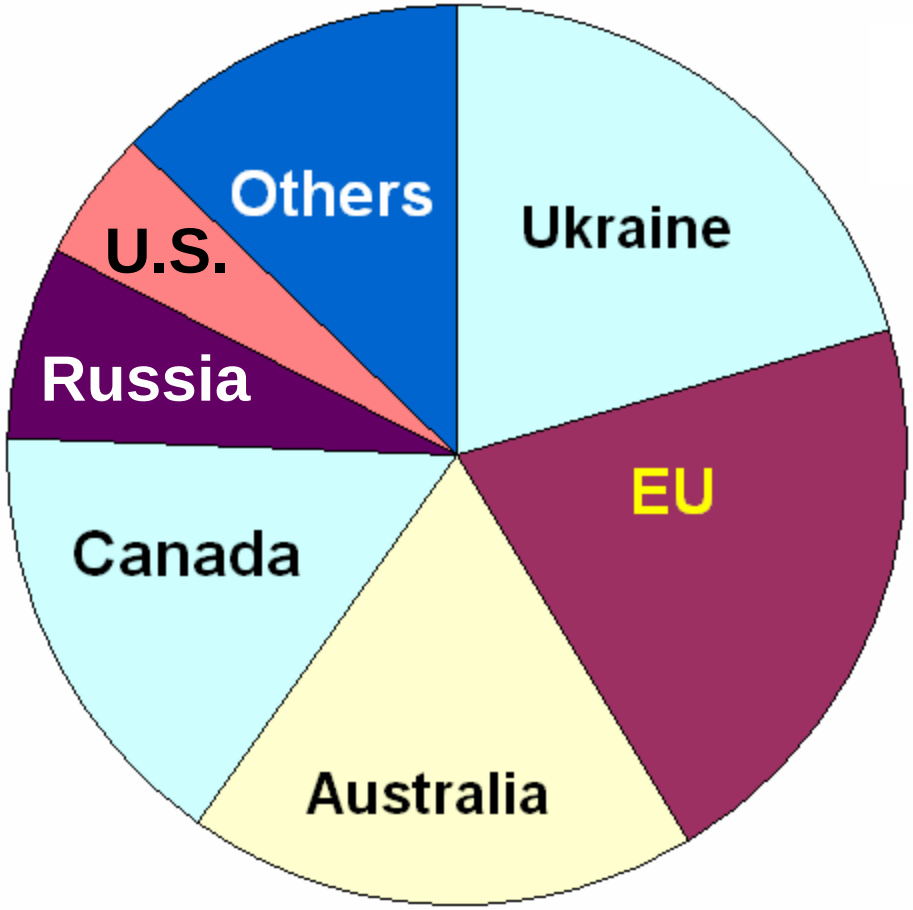


Wheat & Coarse Grain Carryover Stocks in Selected Global Regions

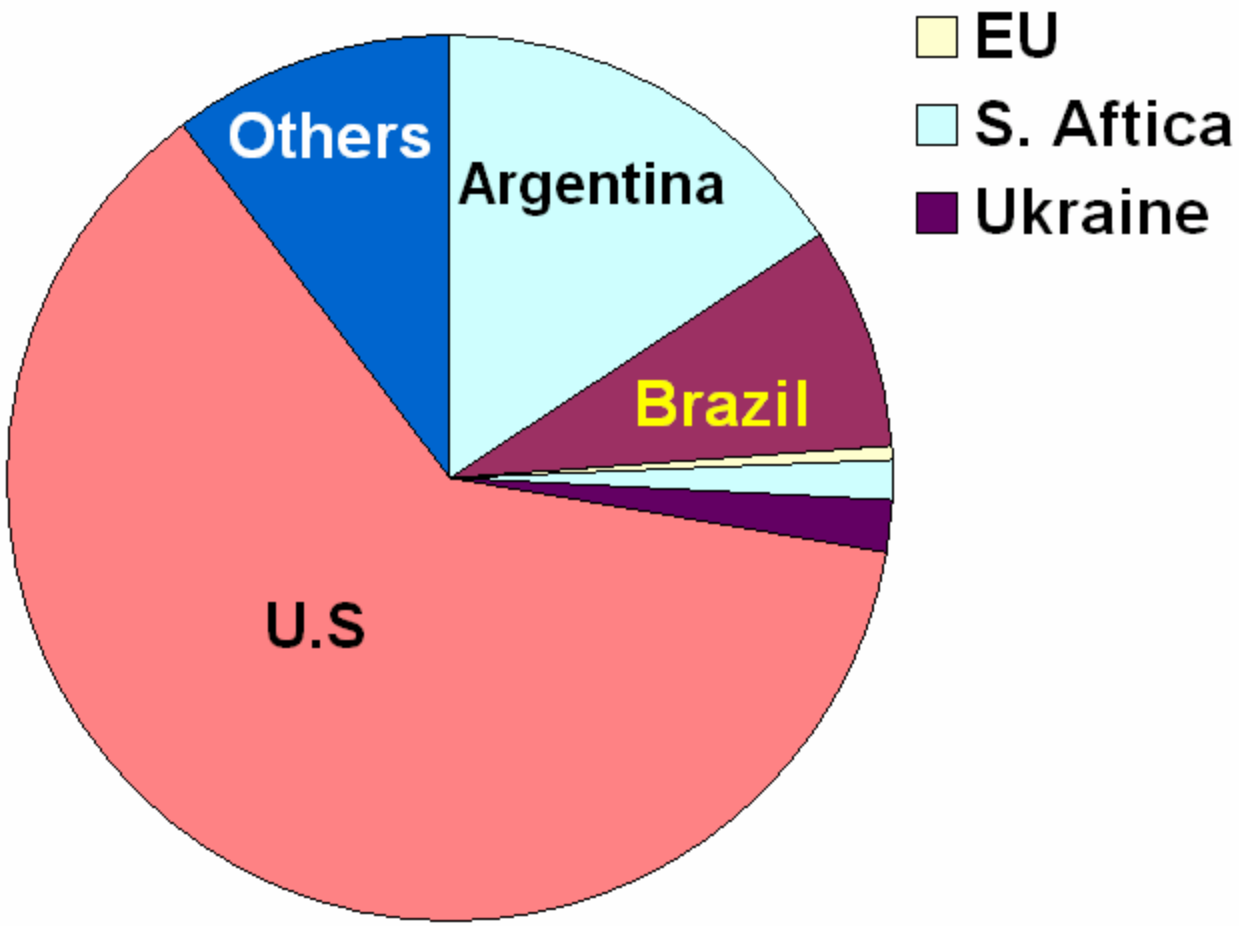



World Coarse Grain Exports
by Type of Grain
000 Metric Tons
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Rye
Oats
Sorghum
Corn
Barley
2005/06
2006/07
2007/08
Proj. March
2008/09

World Barley Exports by Source, 2007-08

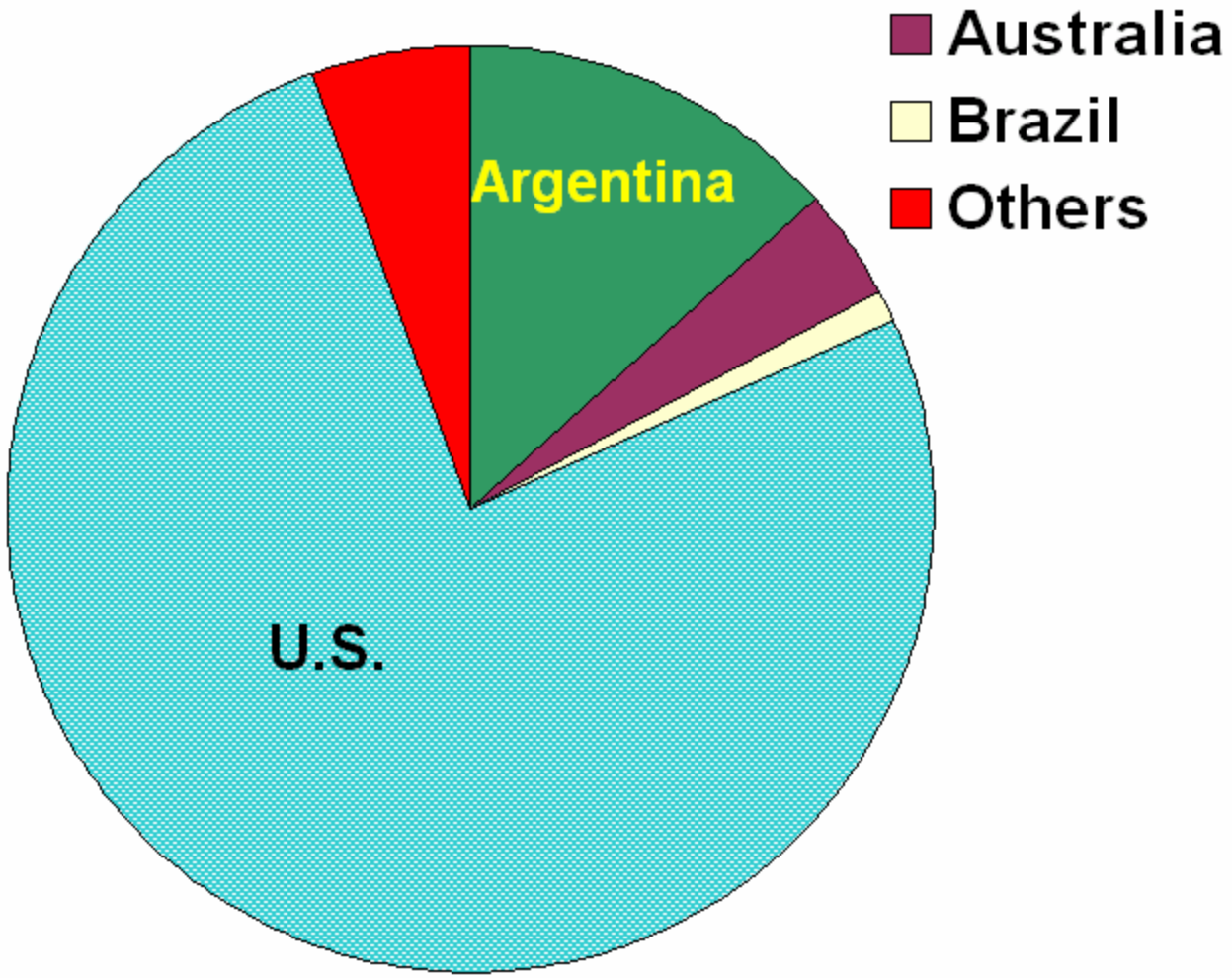


World Corn Exports by Source, 2007-08



U.S. Ethanol & Yield Trend Have Big Implications for Corn Exports

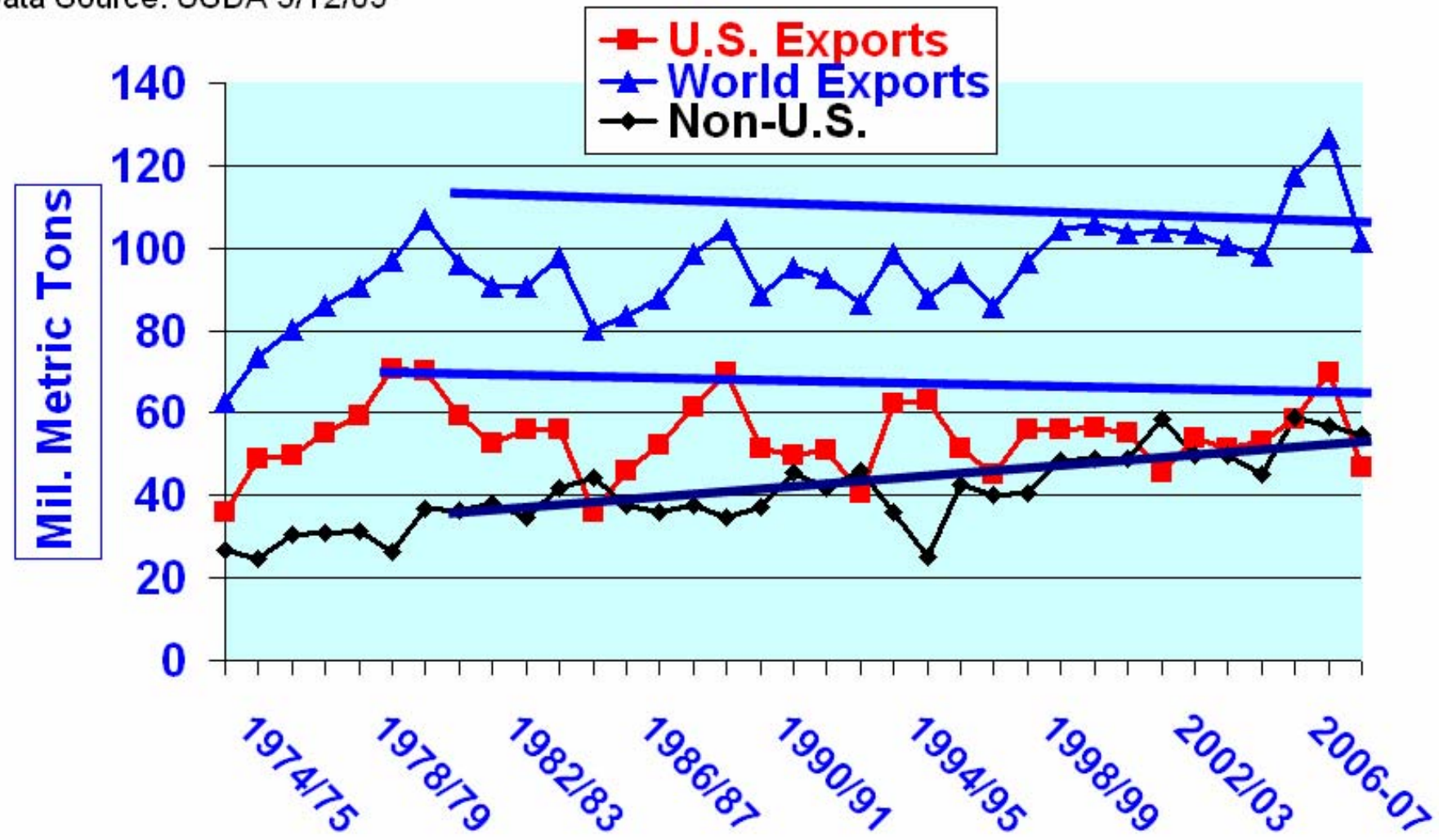
World Sorghum Exports by Source, 2007-08



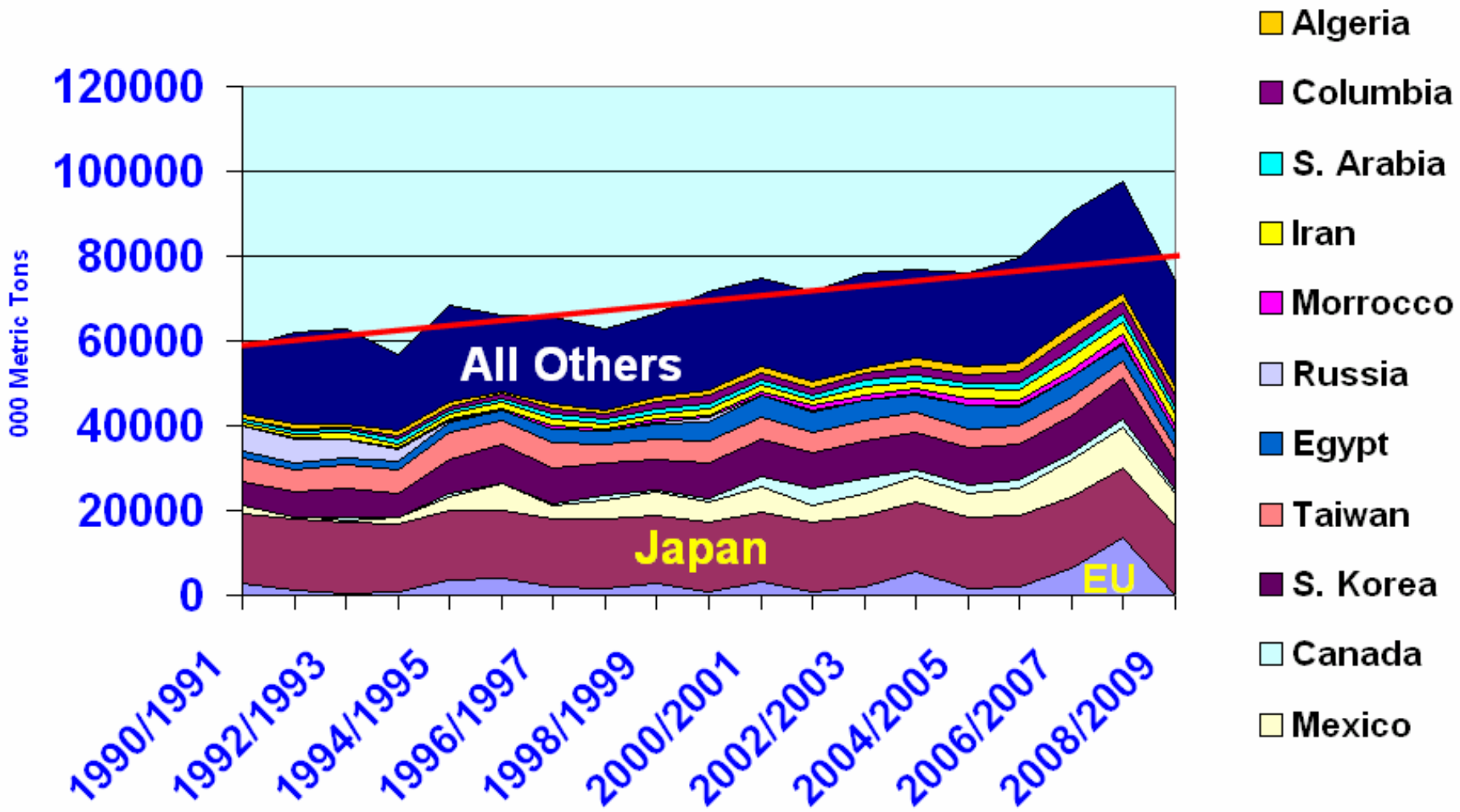
Sorghum Also is an Ethanol Feedstock

U.S., Foreign, and World Coarse Grain Exports

Data Source: USDA 3/12/09

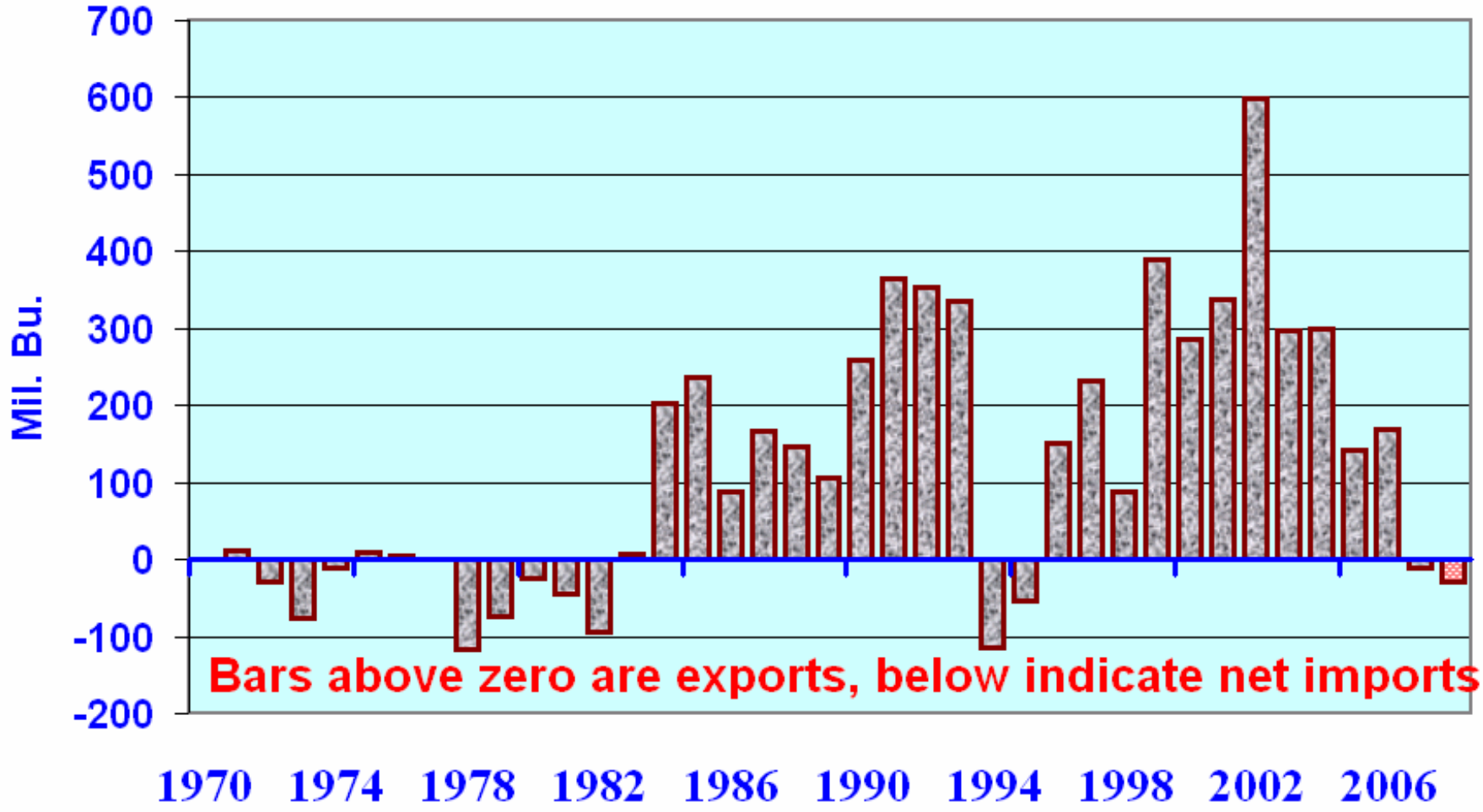


World Corn Imports, Selected Countries & Regions



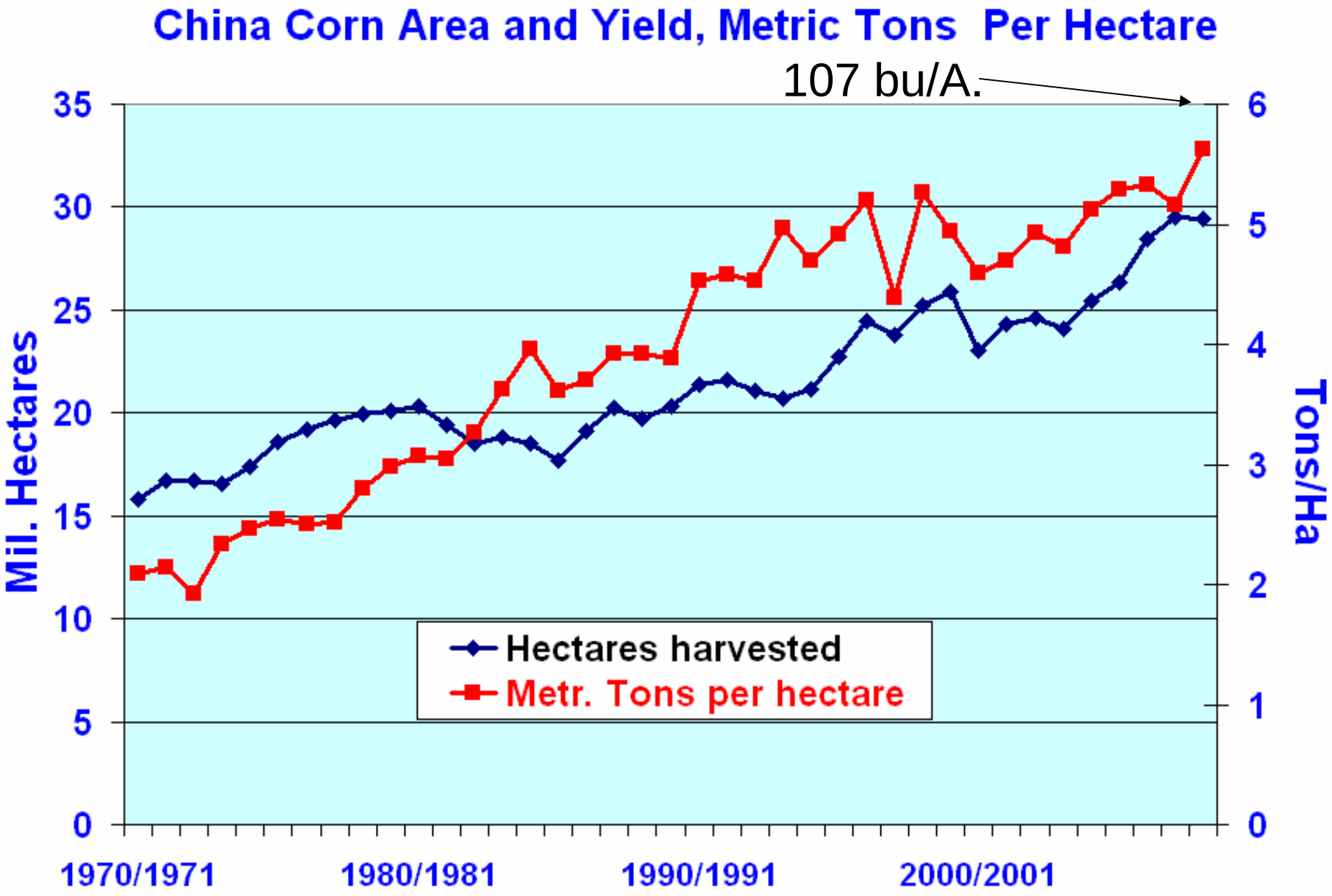
China's Net Corn Exports, Marketing Years & USDA Projection for 2008-09

2/10/09



Corn Yield to Affect China Export Availability

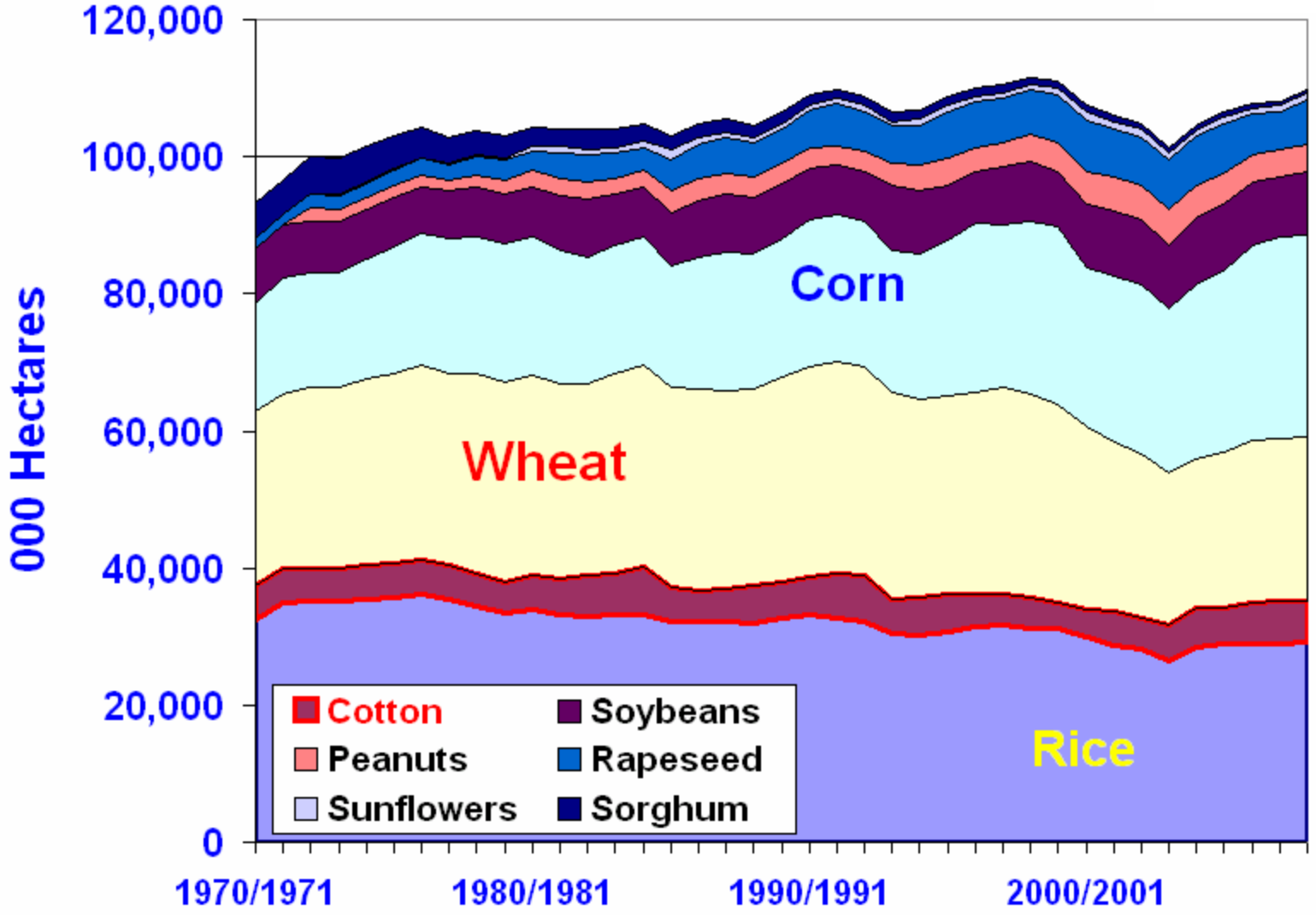
Normal Yield: about 68-70% of U.S.



2/6/ 09

China Major Crop Area Harvested

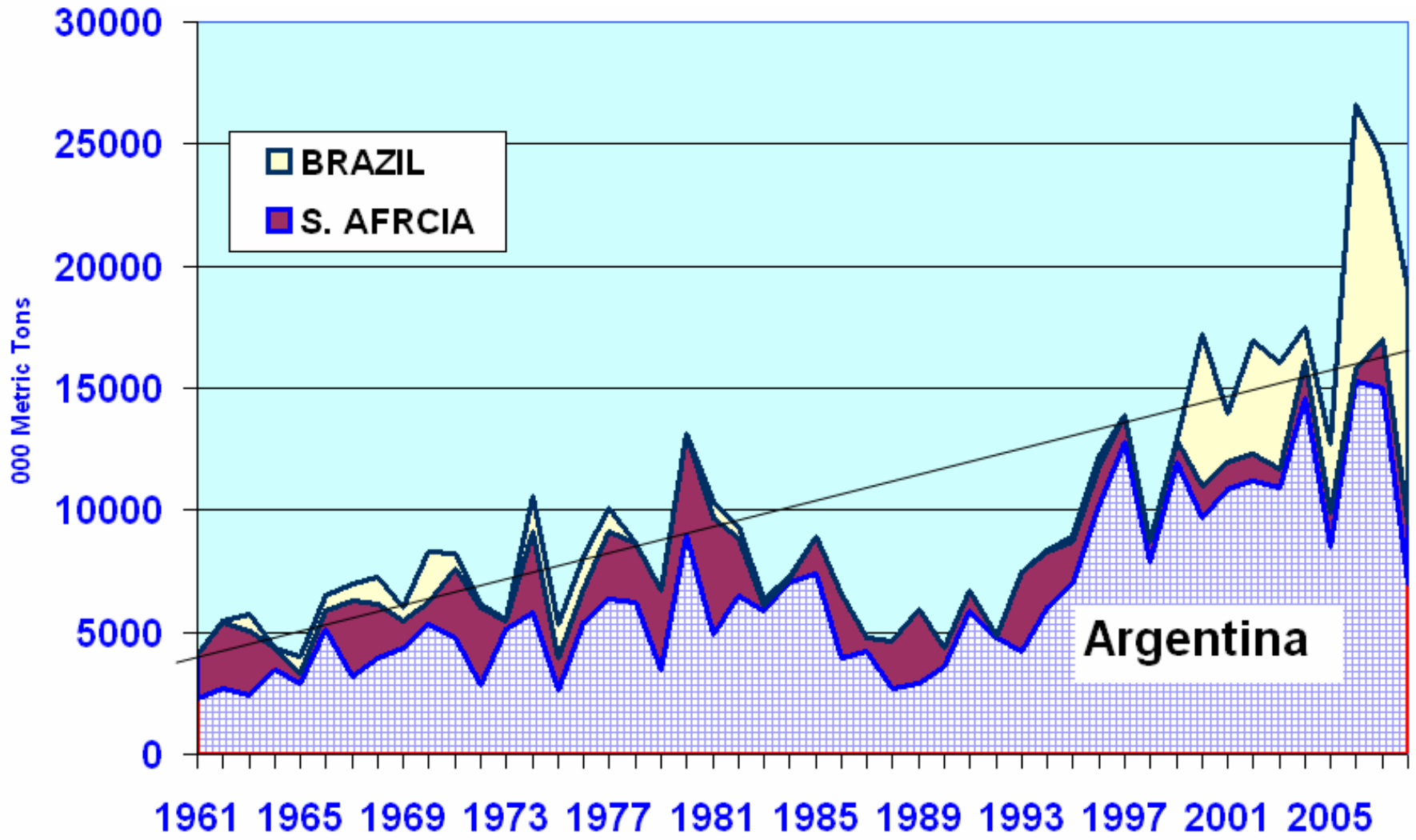
Data Source: USDA, FAS



3/12/09

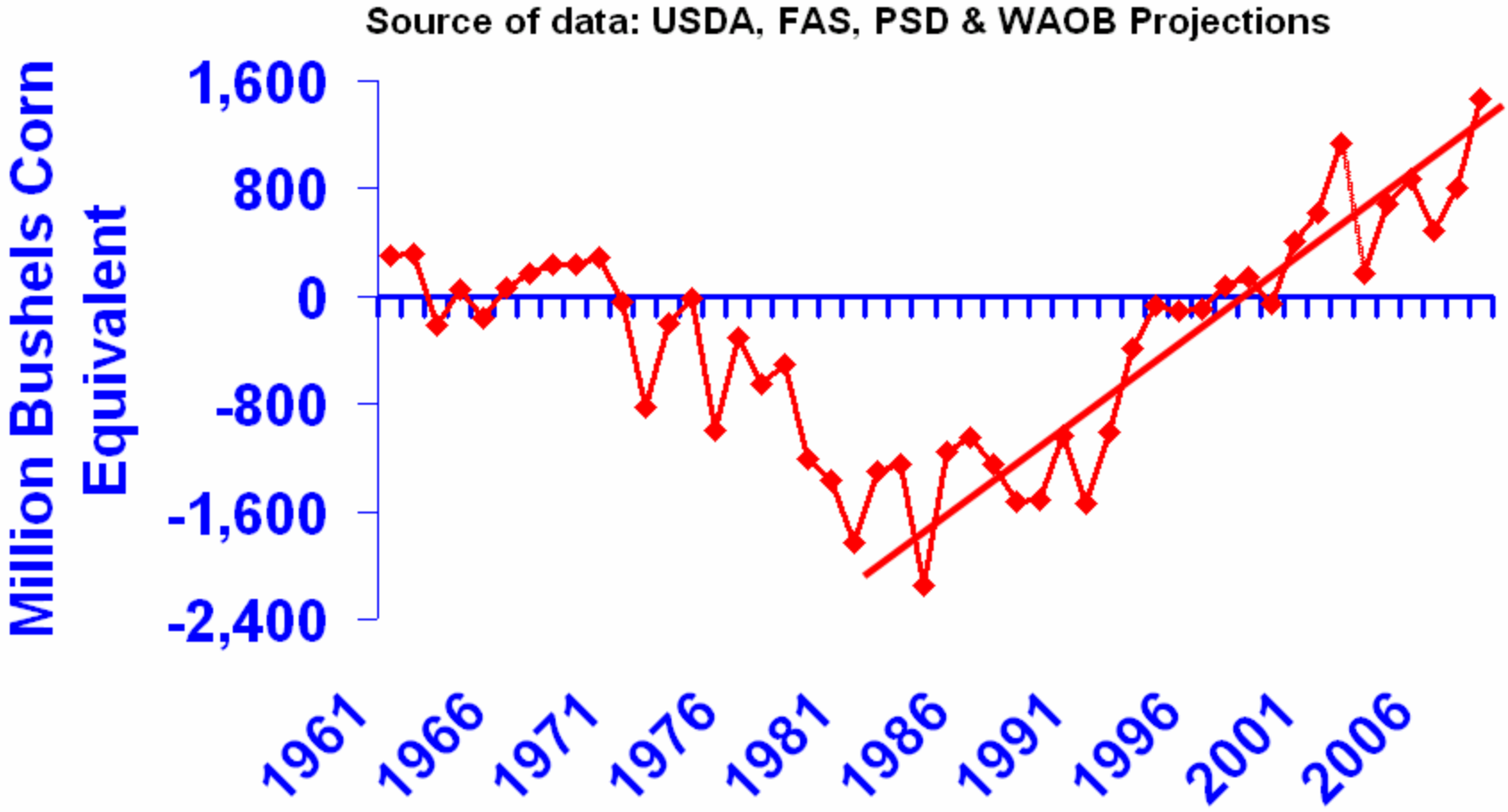
Southern Hemisphere Corn Exports

2008 crop down 17 mil. Tons or 670 mil.bu.

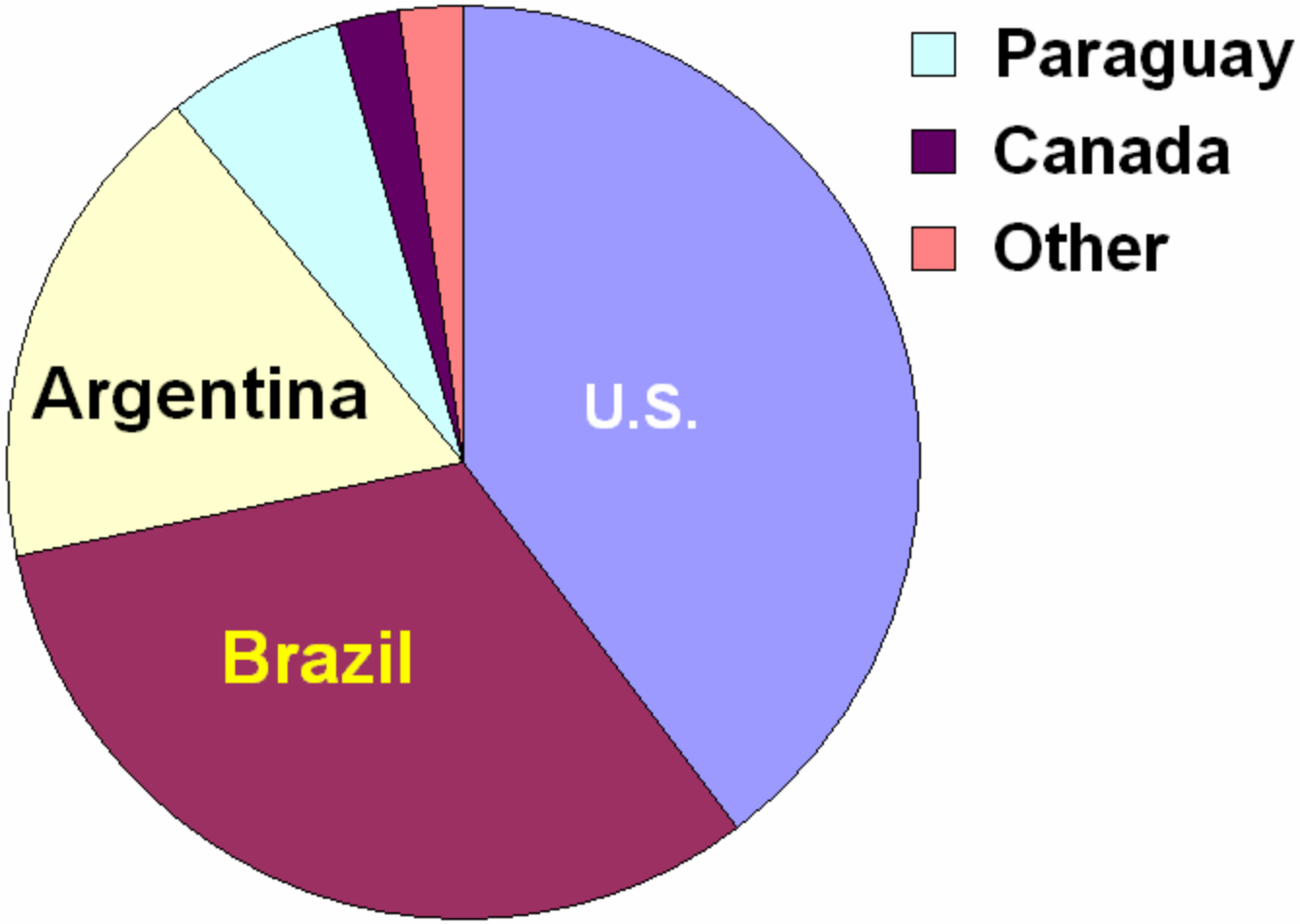


Net Grain Exports, Former Soviet Union, 1961-2008

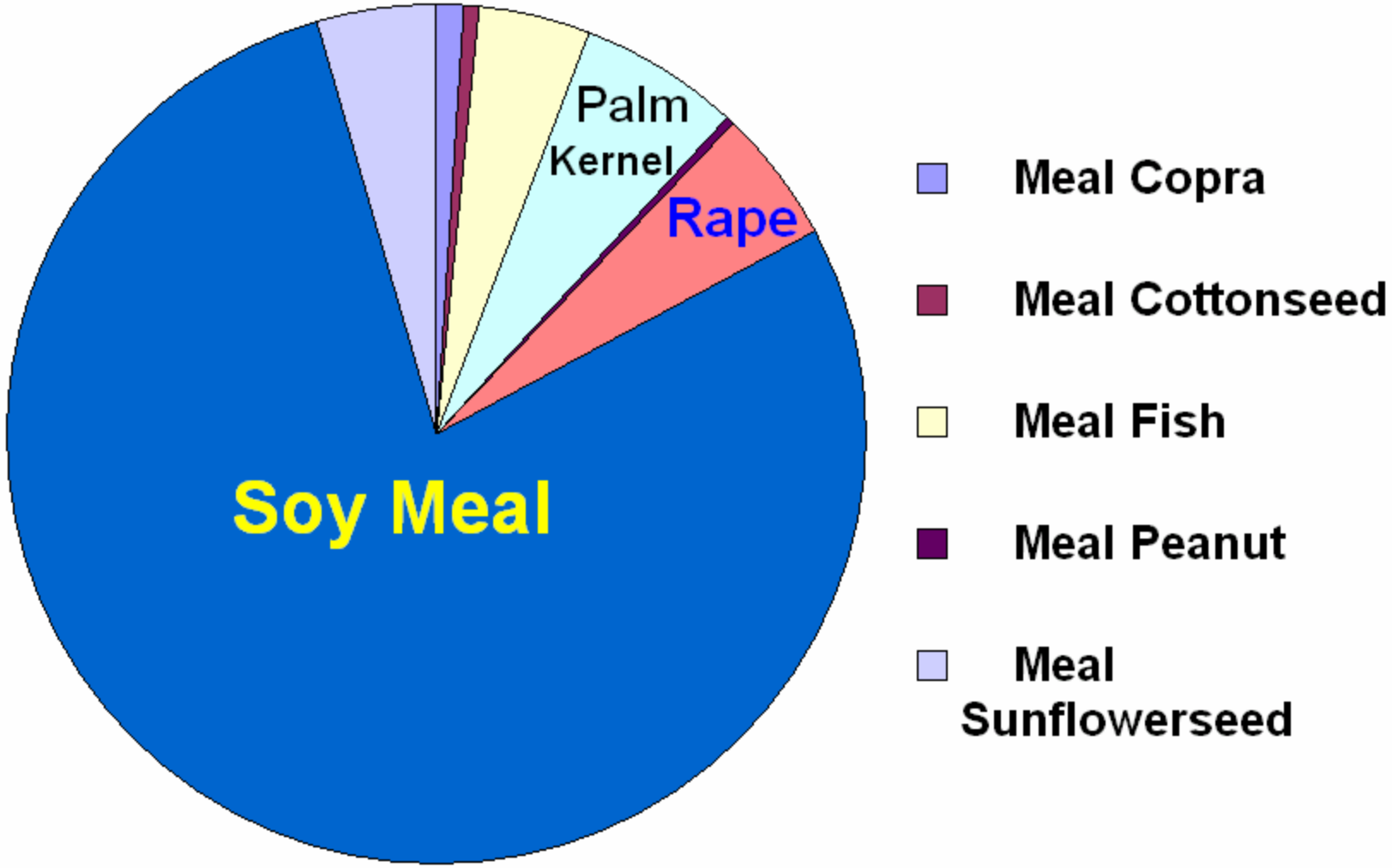
3/12/09



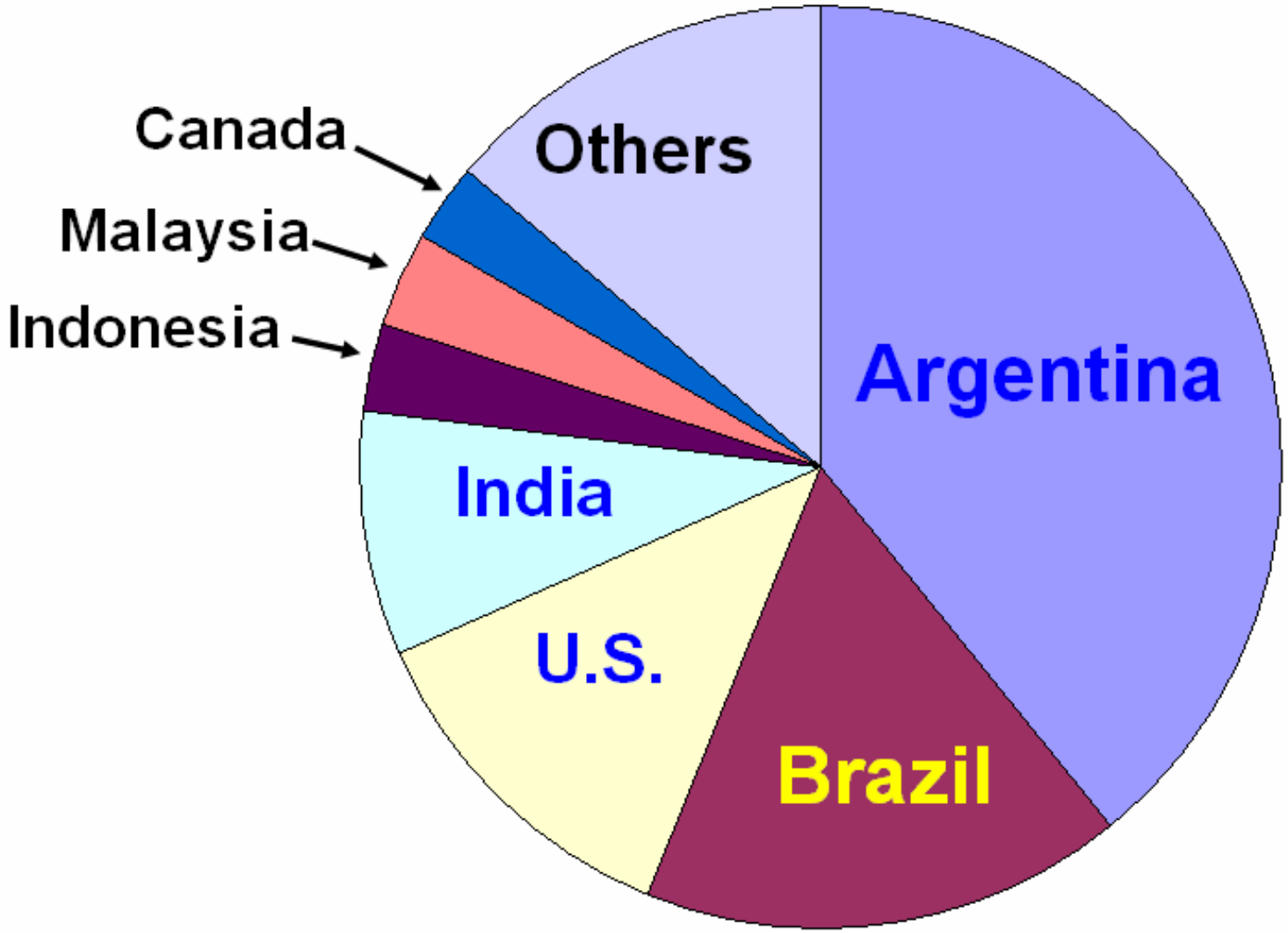
World Soybean Exports-2007-08



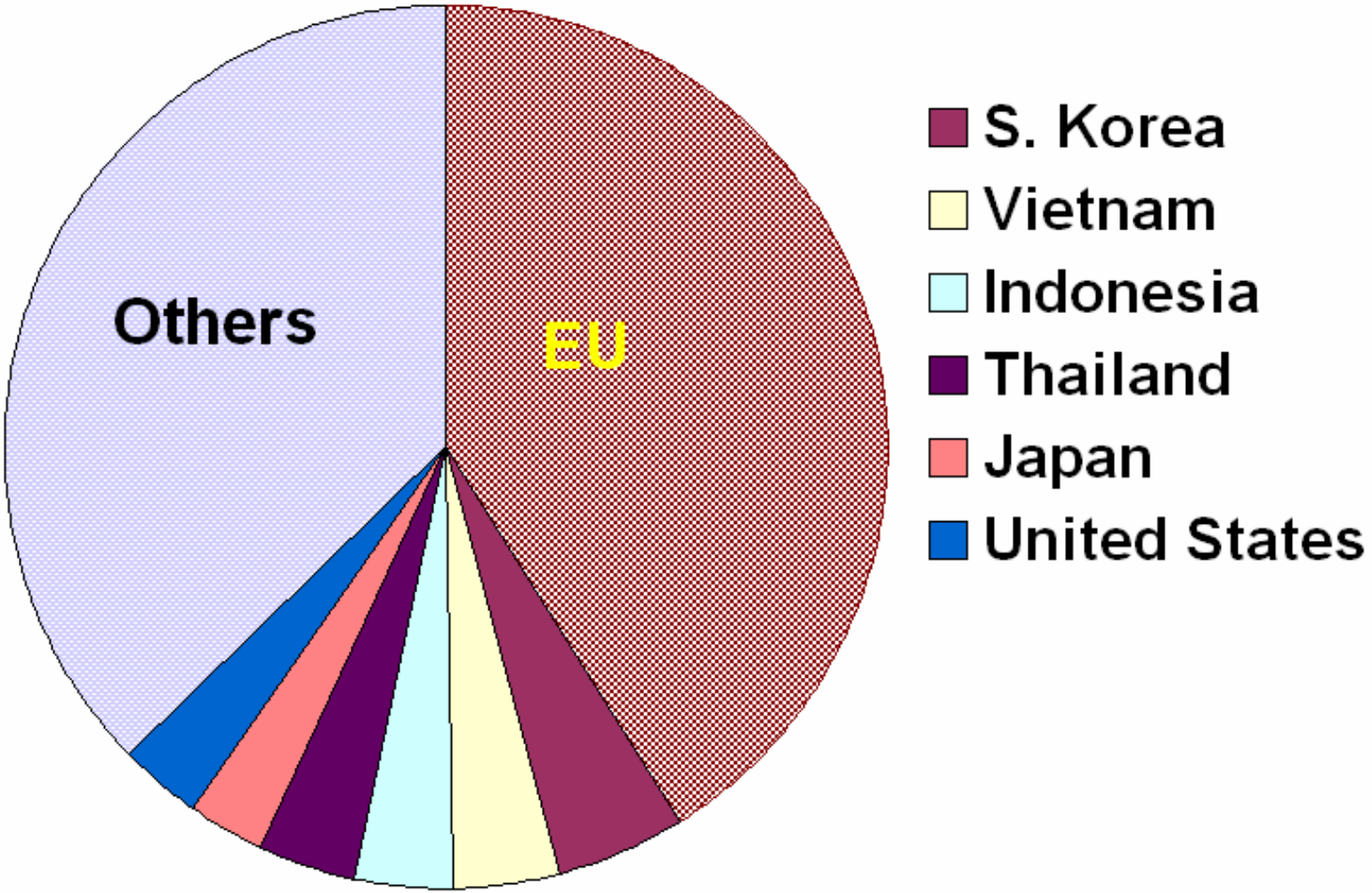
Major World Protein Exports, 2007-08



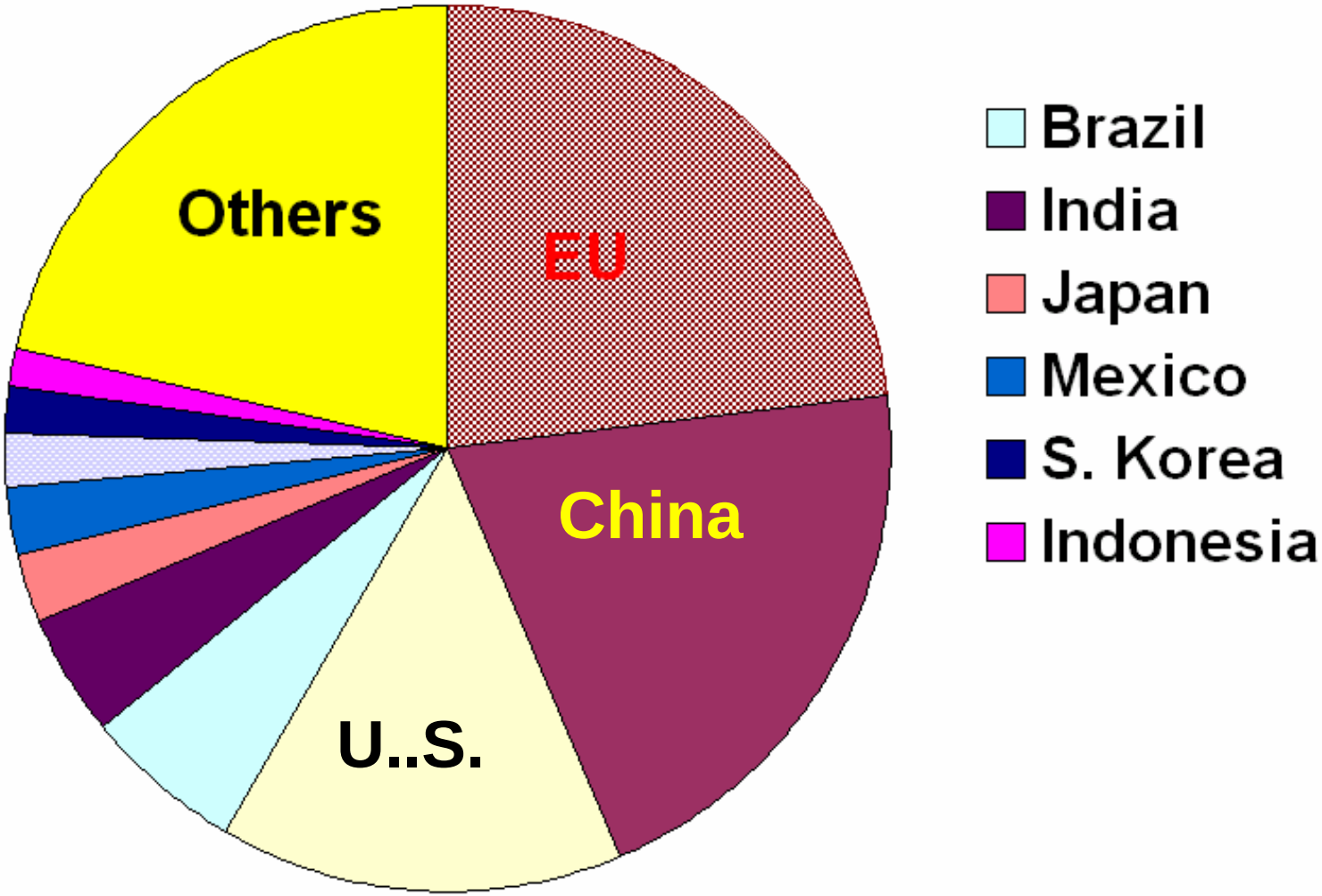
World Protein Meal Exporters, 2007-08



Major Protein Meal Importers, 2007-08

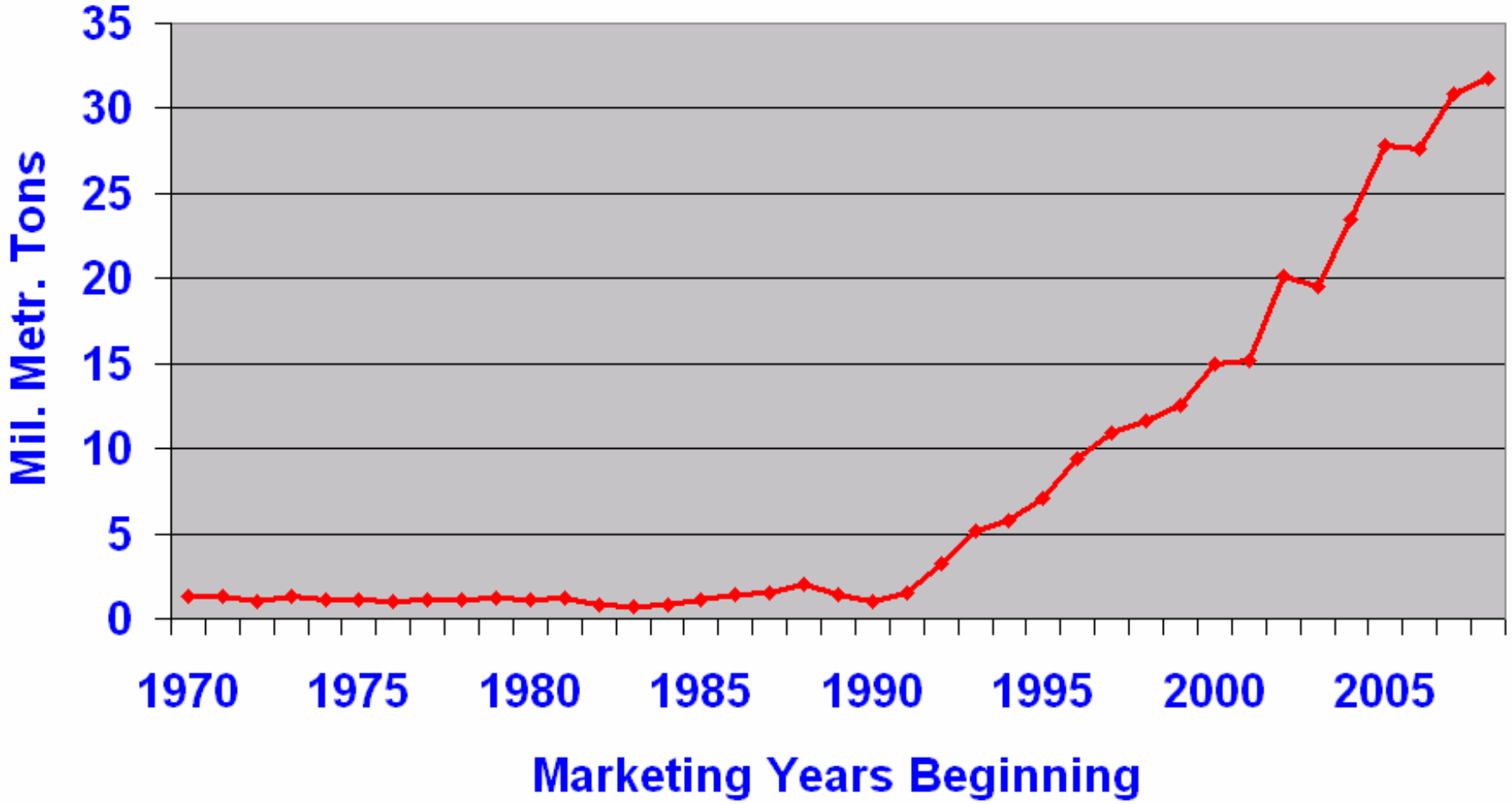


Major Protein Meal Consumers, 2007-08

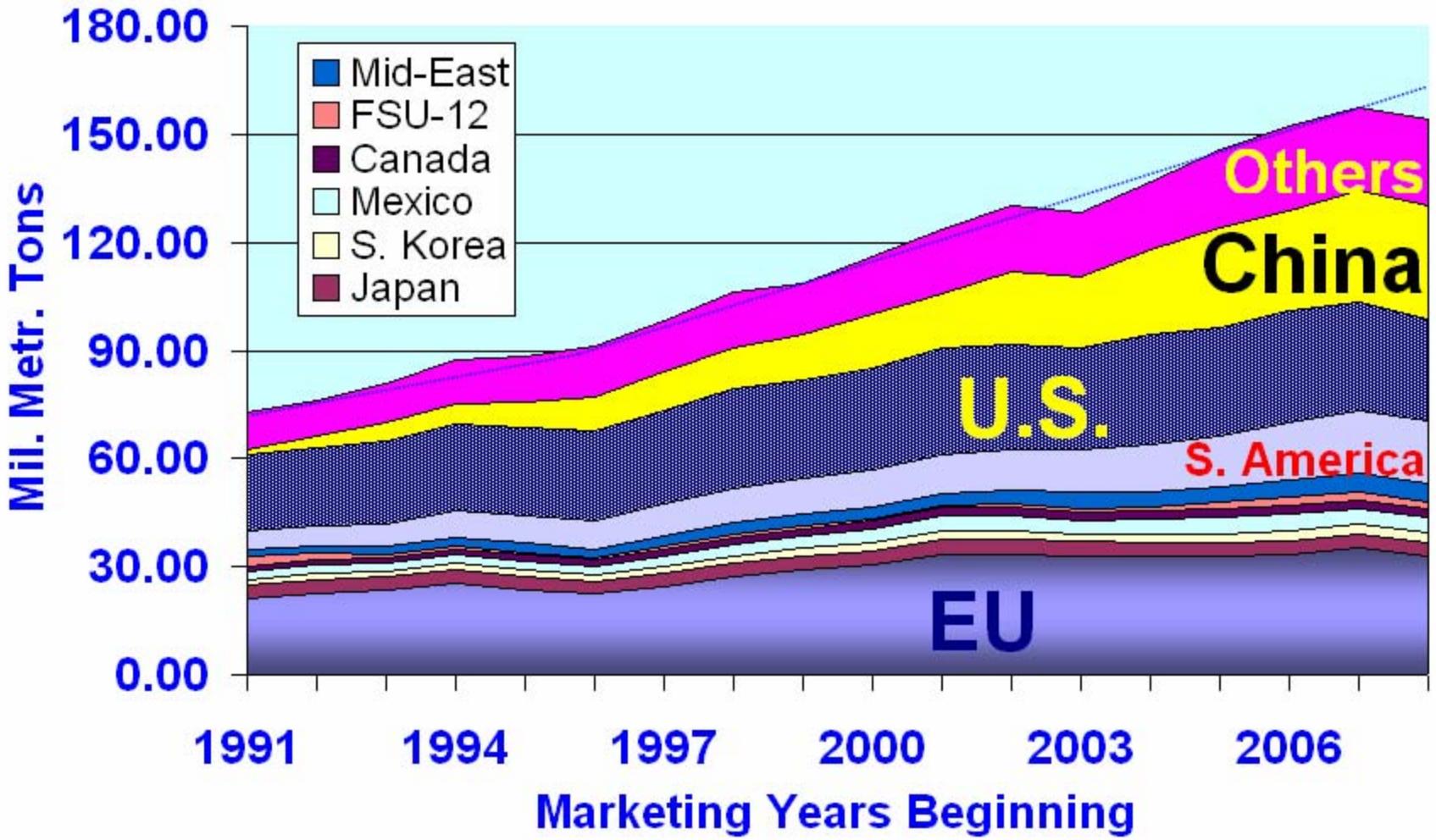


China Soybean Meal Use

Slower growth in the Future?



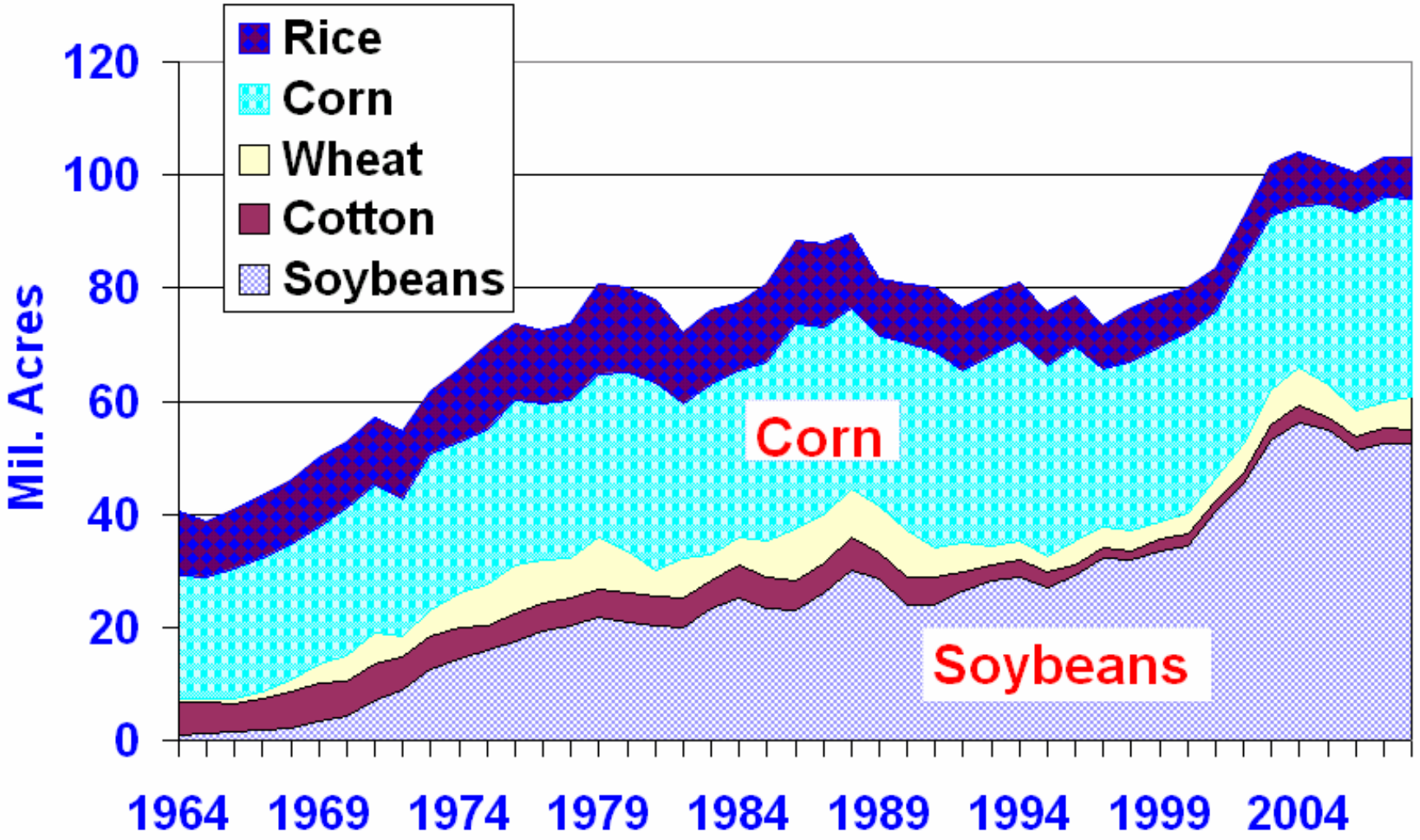
World Soybean Meal Use



Excluded Crops: Sugar, Coffee, Citrus & Other

2/09

Brazil Major Crop Acres



Newly Cleared Land In Brazil

Planted to Upland Rice

Potential area to be cleared for crops

West Central Argentina, 2007

Four Key Areas to Influence Future Feed Exports

- U.S. -- Biofuels Policies & Crop Yields
  - Less restrictive GHG regulations?
- China
  - Will its SBM growth slow?
  - Will it be a corn importer?
- South America – can it continue to expand?
- Former Soviet Republics – political stability?

The Future

- *Grain & oilseeds will be energy crops*
- Cellulose crops will compete with other ag production
- Global supplies will tighten some, next 2 to 3 years as economy recovers
- China may be modest corn importer
- Non-U.S. feedstuff sources will gradually expand supplies
- U.S. will see significant crop yield increases, helping to supply biofuels growth
- Prices will be volatile

Thanks!

Questions?

Web Sites

http://www.econ.iastate.edu/faculty/wisner/

http://www.agmrc.org/renewable_energy/agmrc_renewable_energy_newsletter.cfm