GLOBAL POULTRY OUTLOOK 2007

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Aviagen &

Global Poultry Strategies

JULY 2007

THE (MEAT) WORLD WE LIVE IN

"OR"

"BETWEEN A ROCK (ETHANOL PROGRAMS) AND A HARD PLACE (ANIMAL DISEASES)"

THE GLOOM

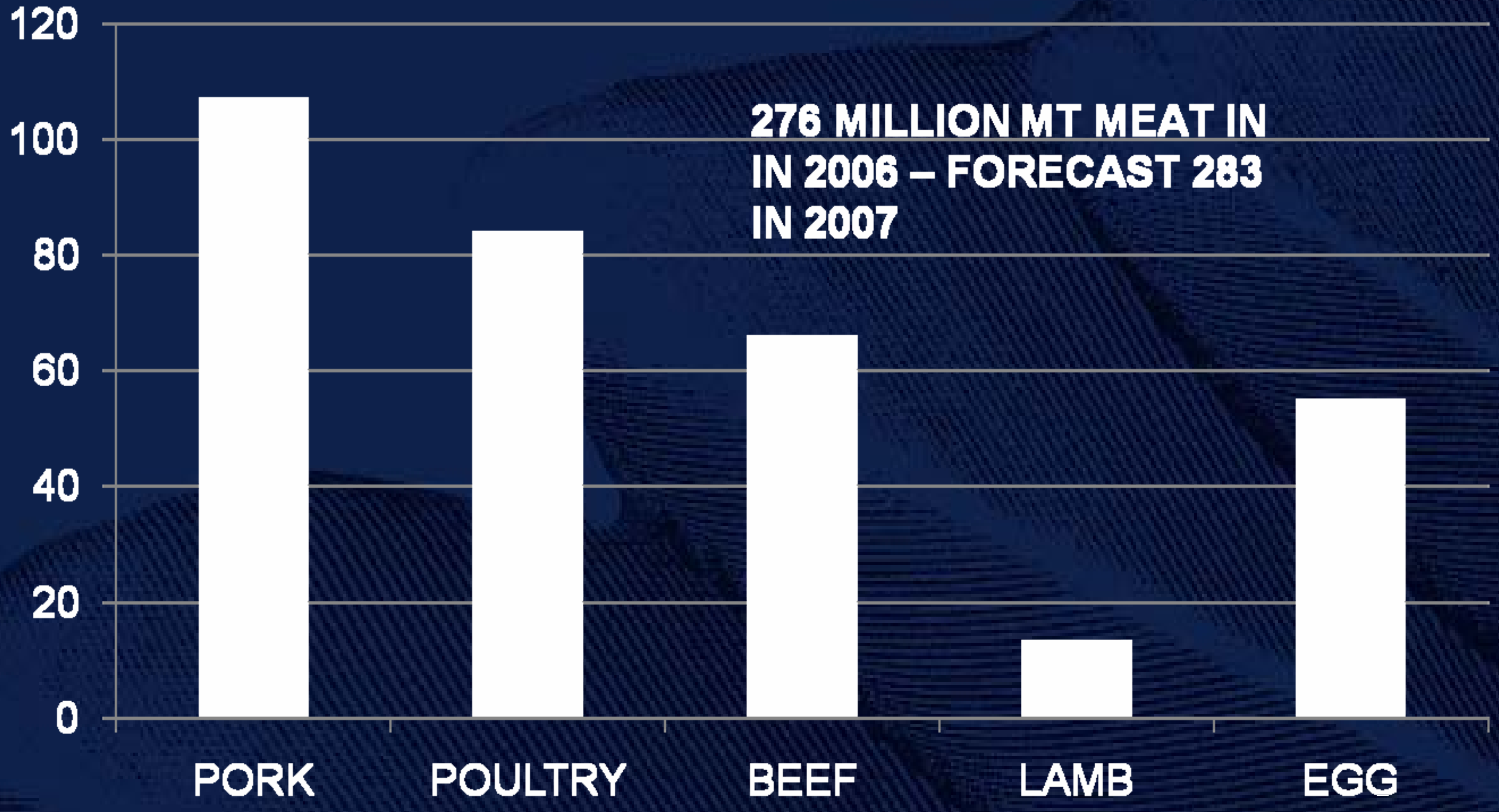
•Consumption and Trade dominated by AI, and in some places BSE, worries, both real and imaginary.

•Now the global broiler industry alone has over US$ 6 billion of extra costs because of corn/ethanol programs.

ANIMAL PROTEIN – "RISKY BUSINESS"?

- MID NINETIES – UK/EU - BSE
- 2000 – EU – FMD
- 2002 – BRAZIL/THAILAND EXPORTS- NITROFURAN
- 2004 – THAILAND – AI
- 2006 – BRAZIL – AI AFFECTING ITS MARKETS
- ONGOING – USA/CANADA – BSE ISSUES KOREA & JAPAN
- ONGOING – BRAZIL – FMD ISSUES

BUT LOTS OF POSITIVE

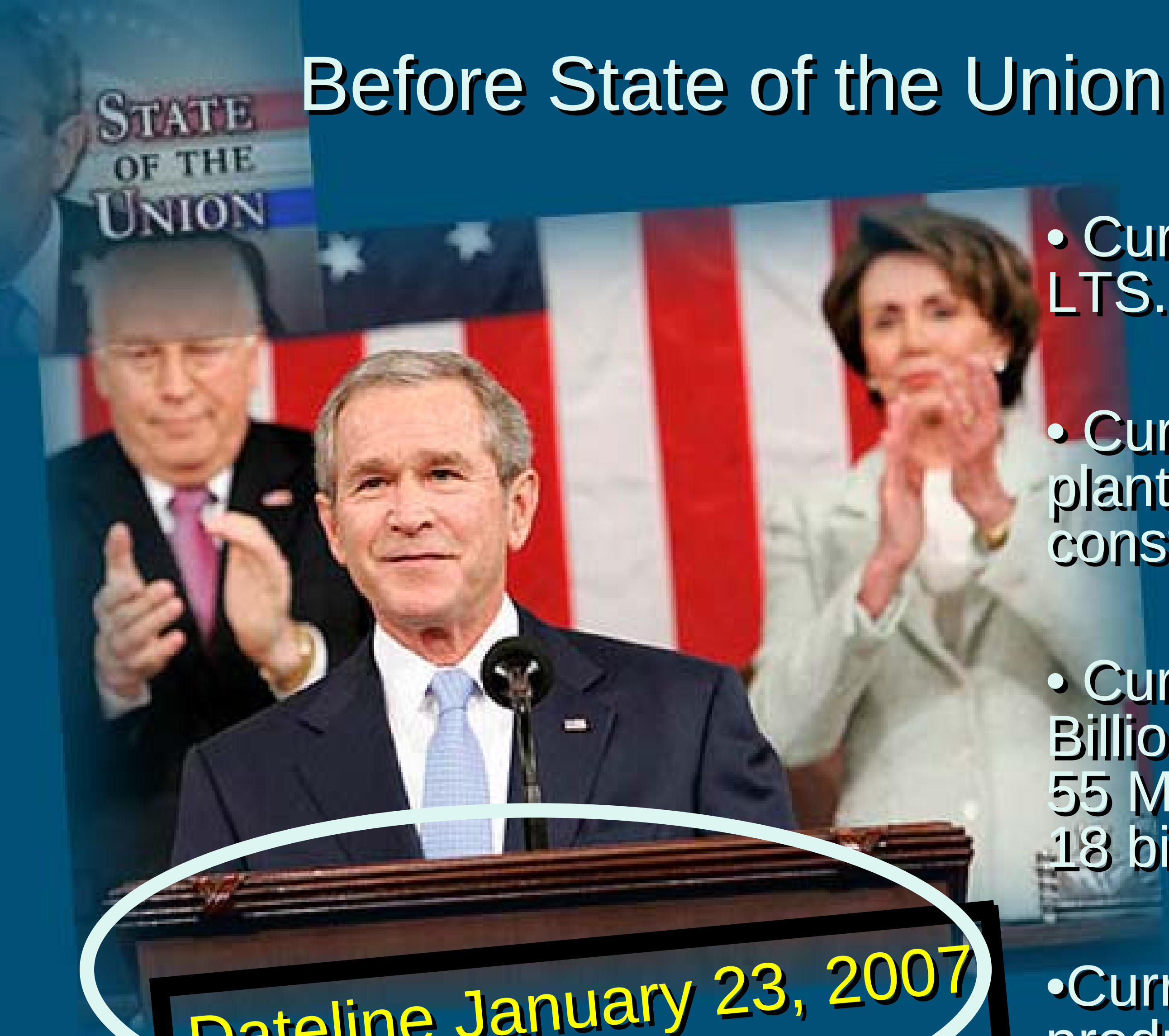


THE ROCK

- **USA ETHANOL PROGRAM**

1 MT of corn yields 110 gallons (420 LITRES) of ethanol

Before State of the Union Address

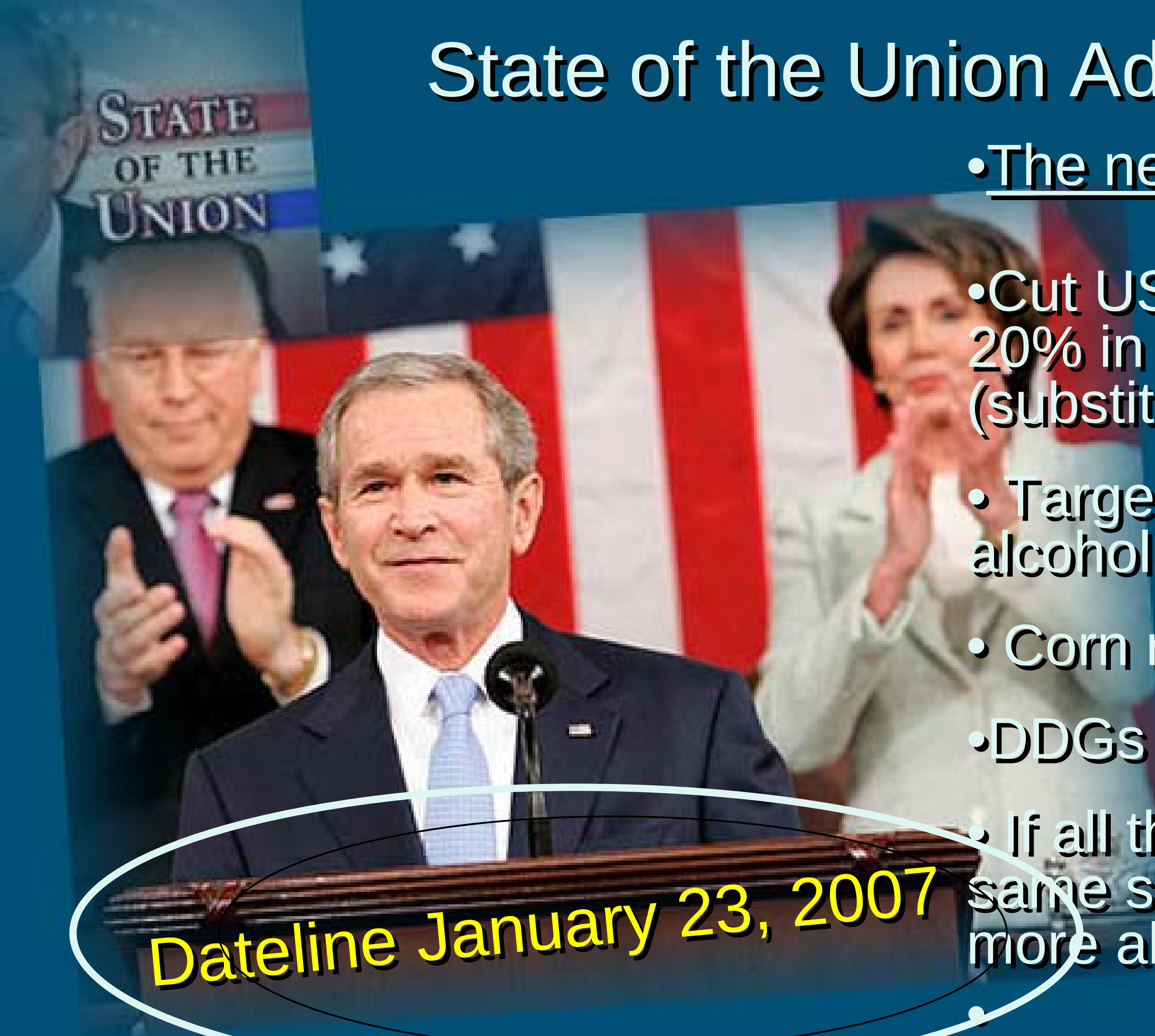


Dateline January 23, 2007

- Current mandate: 29 B LTS.. by 2012
- Current: 111 ethanol plants, another 78 under construction
- Current production: 23 Billion Lts. ethanol using 55 MMT tons (Brazil = 18 billion Lts.)
- Current DDGs production 18 MMT Tons
- This represents 1/5 of the US corn crop

Sources: Alltech

State of the Union Address



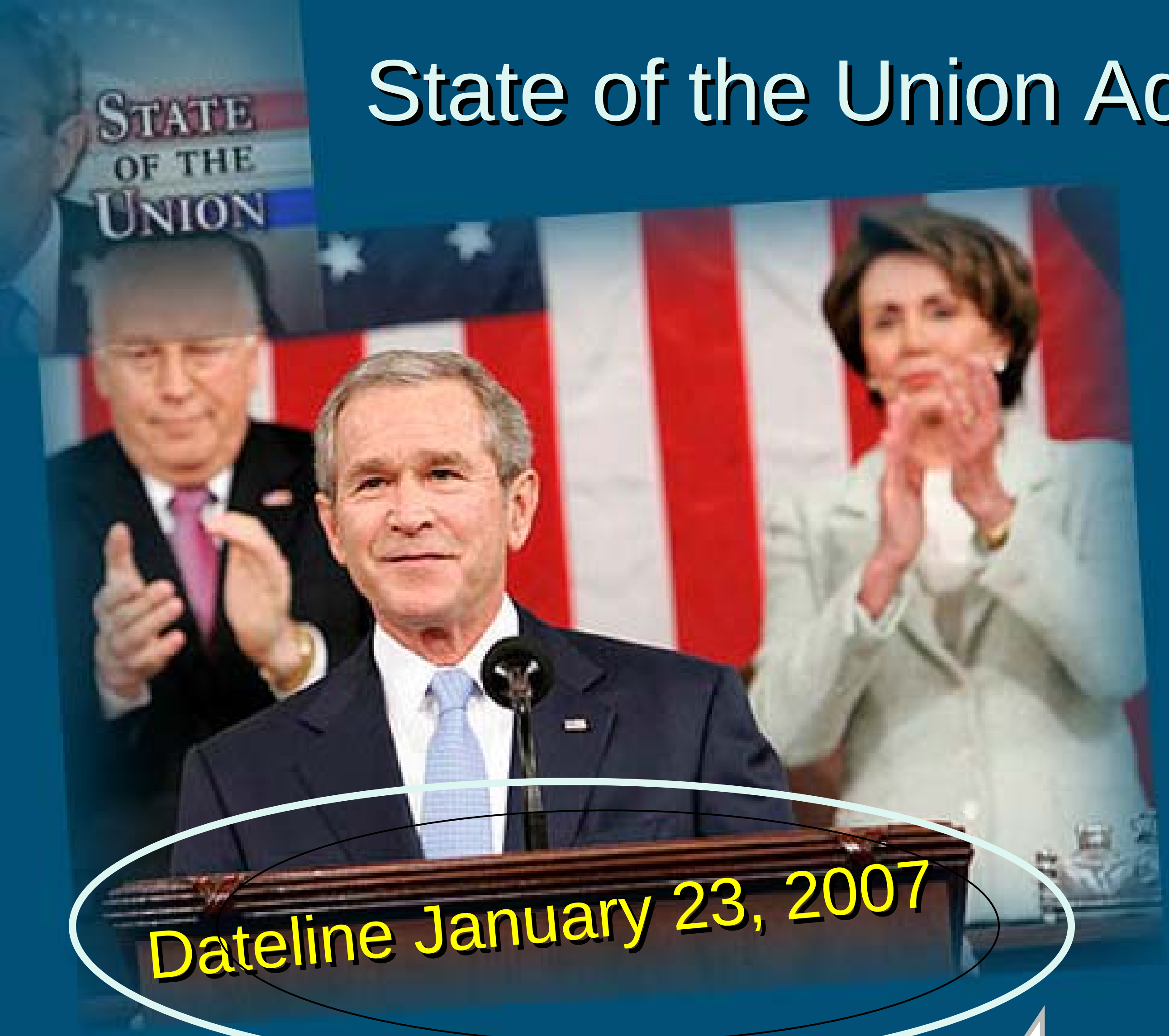
- <u>The new mandate:</u>
- Cut US gasoline usage by 20% in next 10 years (substitute with ethanol)
- Target: 136 B Lts. of alcohol by 2017
- Corn required 320 MMT
- DDGs produced 105 MMTs
- If all the plants have the same size, this means 400 more alcohol plants

Dateline January 23, 2007

"This is 5 times the current target."

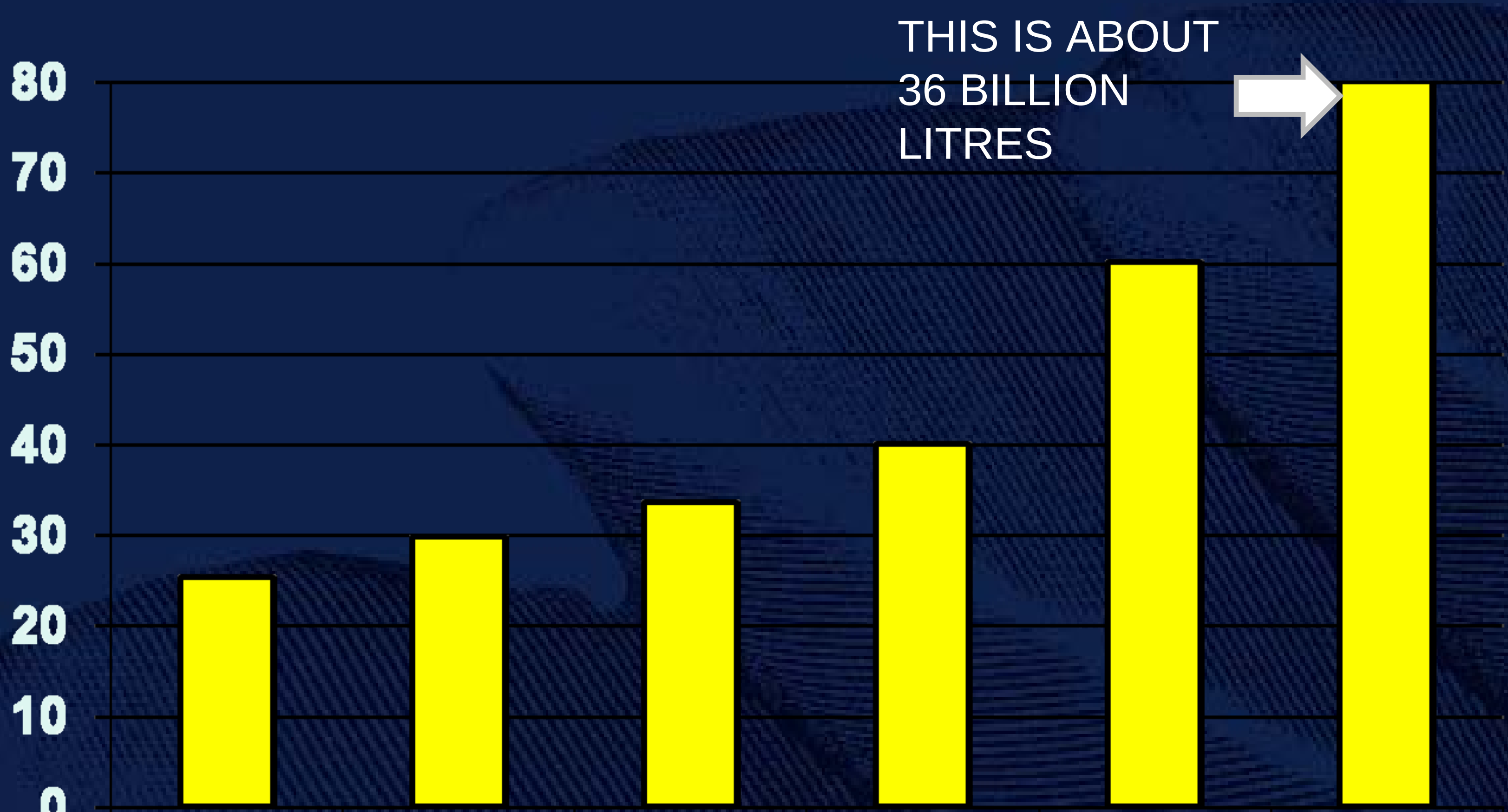
George W. Bush, 2007

State of the Union Address



SAME DATE THAT BIRD FLU DECLARED IN THAILAND IN 2004

US Corn Use for Ethanol in MMT

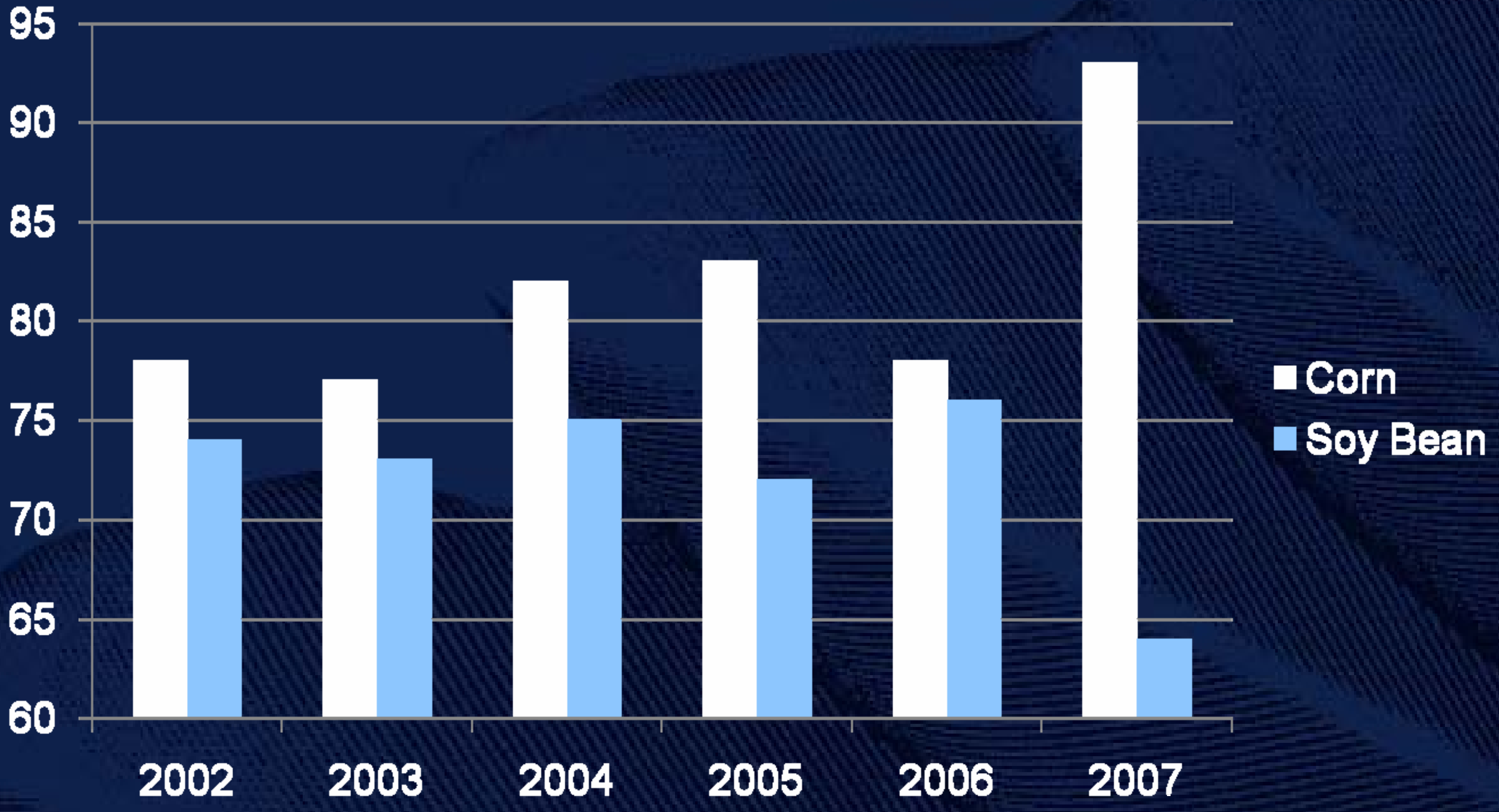


	2003	2004	2005	2006	2007	2008
Ethanol	25.3	29.7	33.6	40	60	80

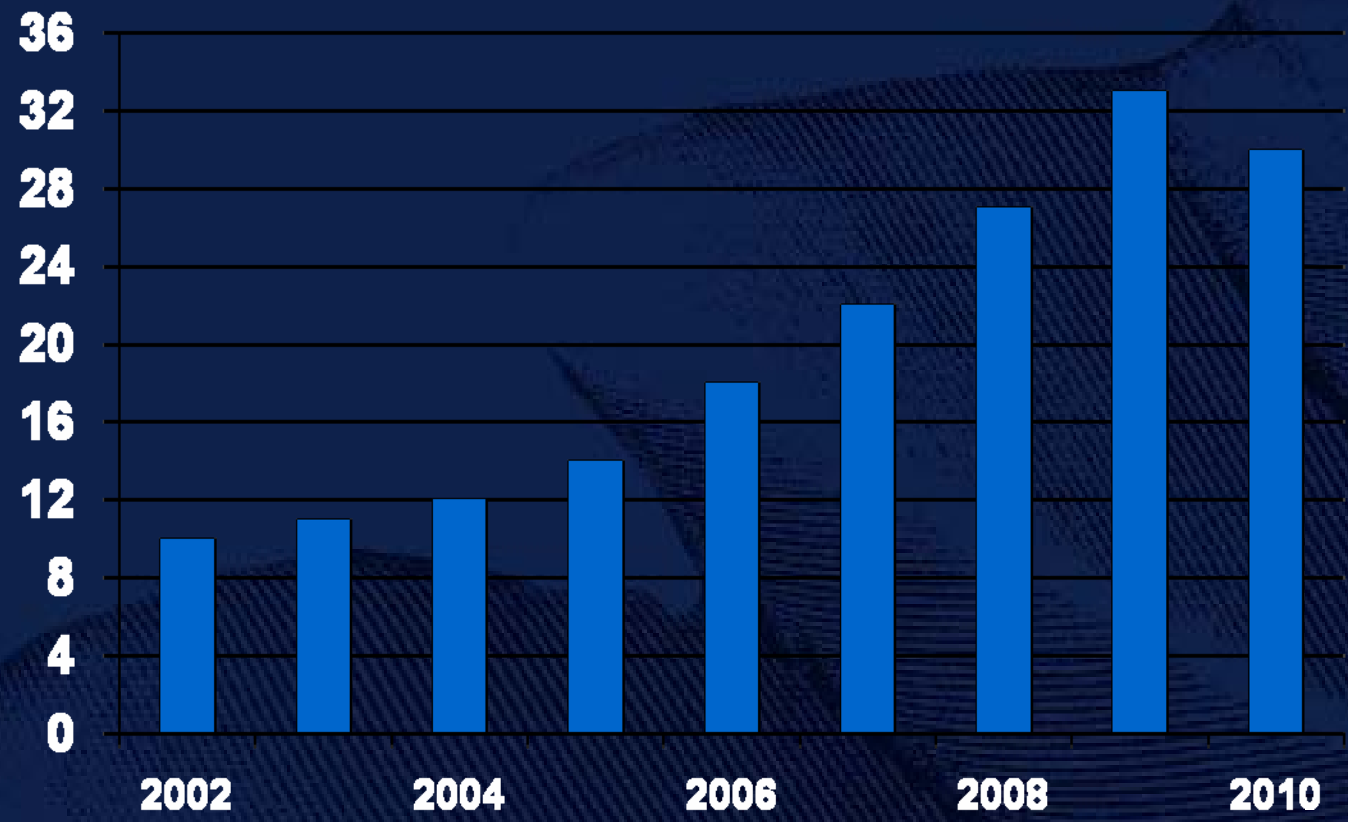
20 MMT Increase This Year in Perspective

- Argentina produces 20 MMT in a good year. Brazil produced 52 MMT in 2006/7 crop.
- Argentina is the second largest exporter of corn

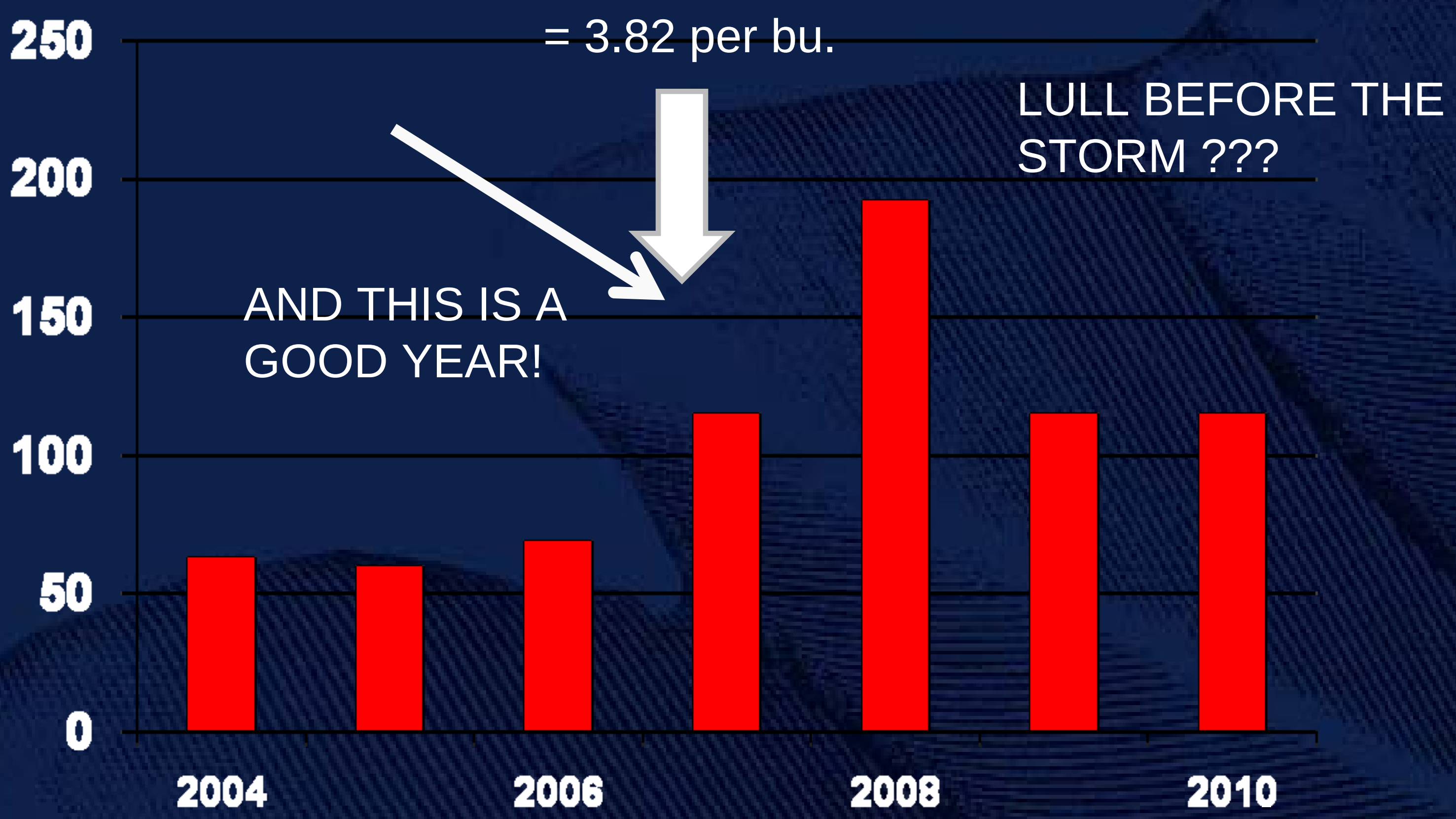
Lots of new acreage for corn



Ethanol Percentage of the US Corn Crop



Corn Price - Euro/MT



Hypothetical Drought year in 2008

BUT …lots of volatility

- December futures down from US$ 171 (Euro 126) per MT TO US$ 135 (100).
- Some predictions going as low as US$ 102 (75)
- Soy goes in opposite direction

- Purchasing managers will be heroes (or villains!)

Lender's Perspective on Ethanol

- Ag Lenders' appetite for "additional" ethanol volume is relatively small…being very cautious
  - Currently on "pause"…could impact pace of growth
- Ethanol production from corn above 7.5 billion gallons (30 billions de litres) mandate is questionable for long term
  - Commercially viable cellulosic-based ethanol
  - Unless long term mandate authorized by Congress,
    - E-85 not a viable product based on projected crude prices
    - Ethanol infrastructure remains "iffy"

Lender's Perspective on Ethanol

- Ethanol industry will overproduce
  - Industry correction is predictable
- Build-out of ethanol plants stretching available management & engineering personnel
- Consolidation will occur after shake-out
- Public Policy support likely to become more balanced
  - Currently ethanol is a "political darling"
- Industry dependent on "Corn, Crude & Congress"
  - Drivers will be Public Policy & Technology

Price Relationships

Crude Oil, Gasoline, Ethanol and Break-even Corn Prices

Crude Oil Price	Wholesale Unleaded Gasoline Price[1]	Wholesale Ethanol Price[2]	Break-even Corn Price After Variable Costs[3]	Break-even Corn Price After All Costs[4]
$/barrel	$/gallon	$/gallon	$/bu.	$/bu.
20	0.73	1.20	2.64	2.09
30	1.05	1.41	3.30	2.75
40	1.36	1.62	3.97	3.42
65	2.14	2.14	5.62	5.07
80	2.61	2.46	6.61	6.06
100	3.23	2.88	7.93	7.38

165 Euro/MT

[1]Equals .1076 +.03127 x crude oil price. The relationship is taken from Tyner, W.E. and F. Thaeripour, "Farm Biofuel Policy Alternatives", Paper presented at a conference on Biofuels, Food, and Feed Tradeoffs, St. Louis, MO., April 12-13, 2007.

[2]Equals .67 x wholesale gasoline price + $.51 subsidy plus $.20 additive value. The .67 results because ethanol has 67% of the BTUs of unleaded gasoline.

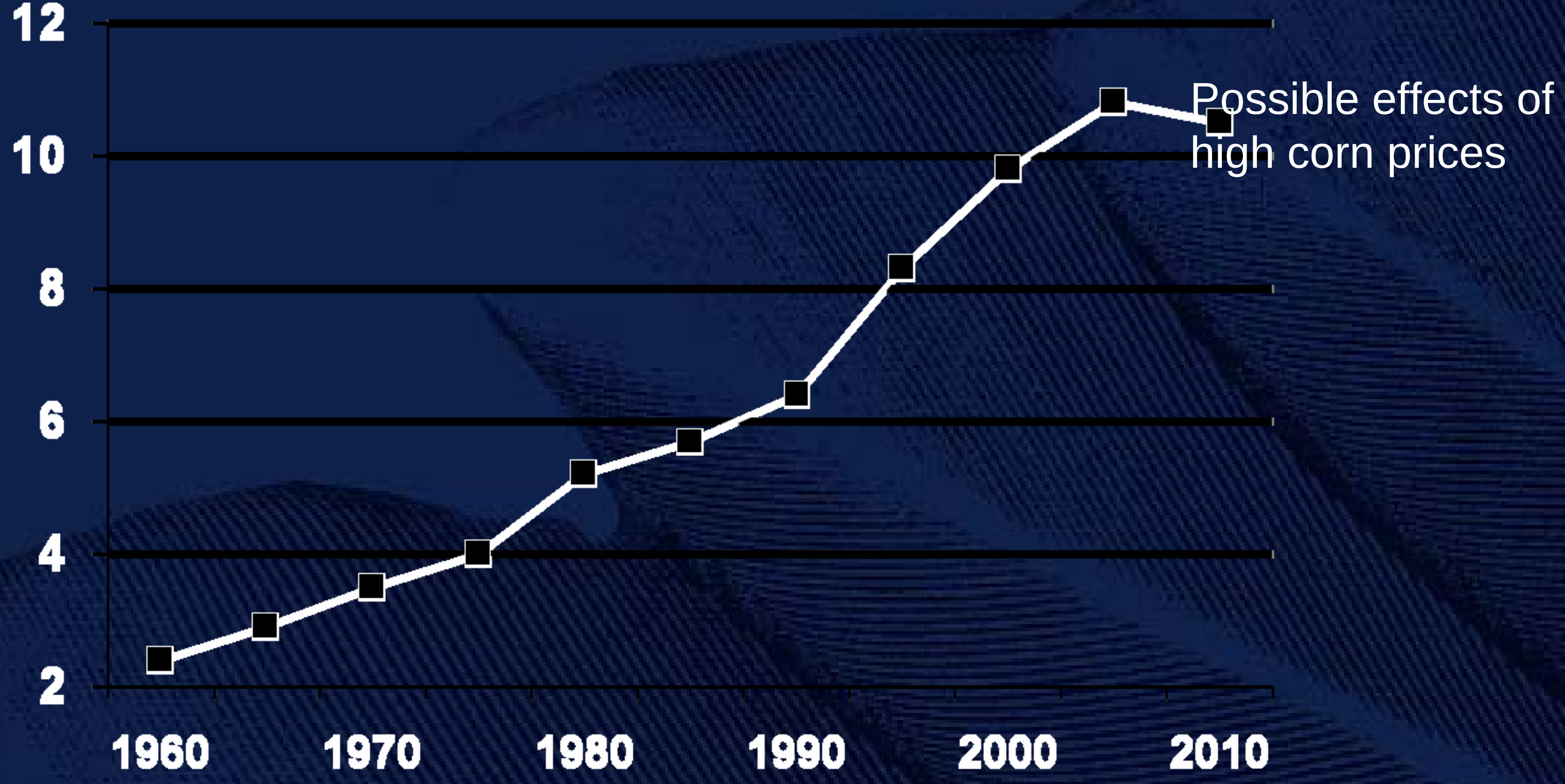
[3]Equals 2.8 x ethanol price plus 18 x distillers grain price of $.0575 per pound - $1.65 variable costs.

[4]Equals break-even corn price after variable costs minus .55 fixed costs.

CURRENT COSTS – JUNE 2007

	Euros PER MT CORN	Euro CENTS/KG LIVE BIRD
USA	113	47-50
BRAZIL	102	40-44
CHINA/THAILAND/ M'YSIA	175	>60
SOUTH AFRICA	203	>68
SAUDI ARABIA		120
IRAN		84
INDIA	143	56
TURKEY	240	75

World Chicken - Per Capita Consumption in KG



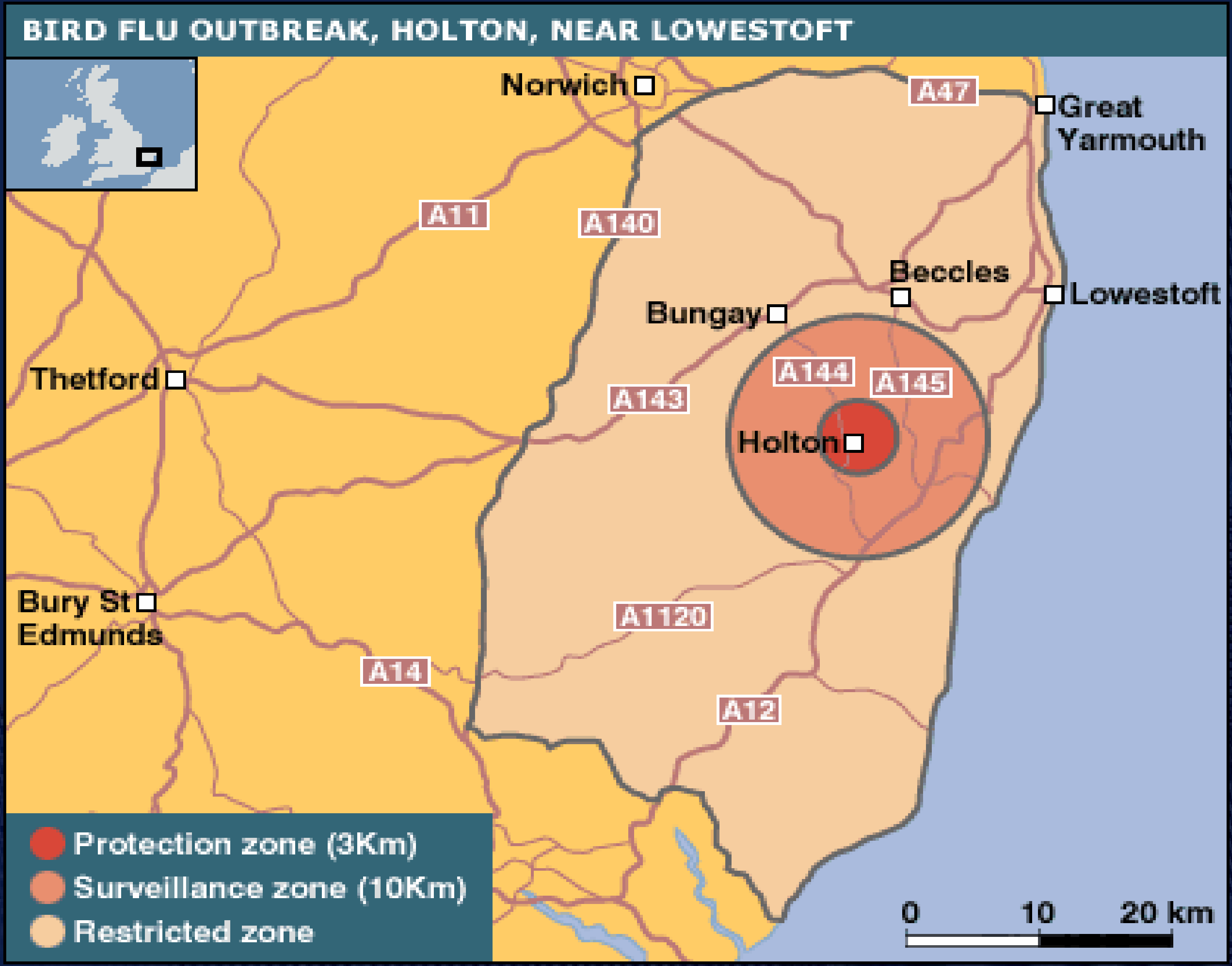
Estimate – Dr. Paul Aho

THE HARD PLACE

- **BIRD FLU**
- **BSE**
- **FMD**
- **CONTAMINATED INGREDIENTS**

PREDICTABLE CONSEQUENCES

- Consumption falls
- Exports banned
- Product recalls
- Cold stores fill up
- Cut in production
- Prices drop
- Slow recuperation
- Financial Losses



160,000 turkeys destroyed in 48 hours

REDUCTION IN CONSUMPTION =

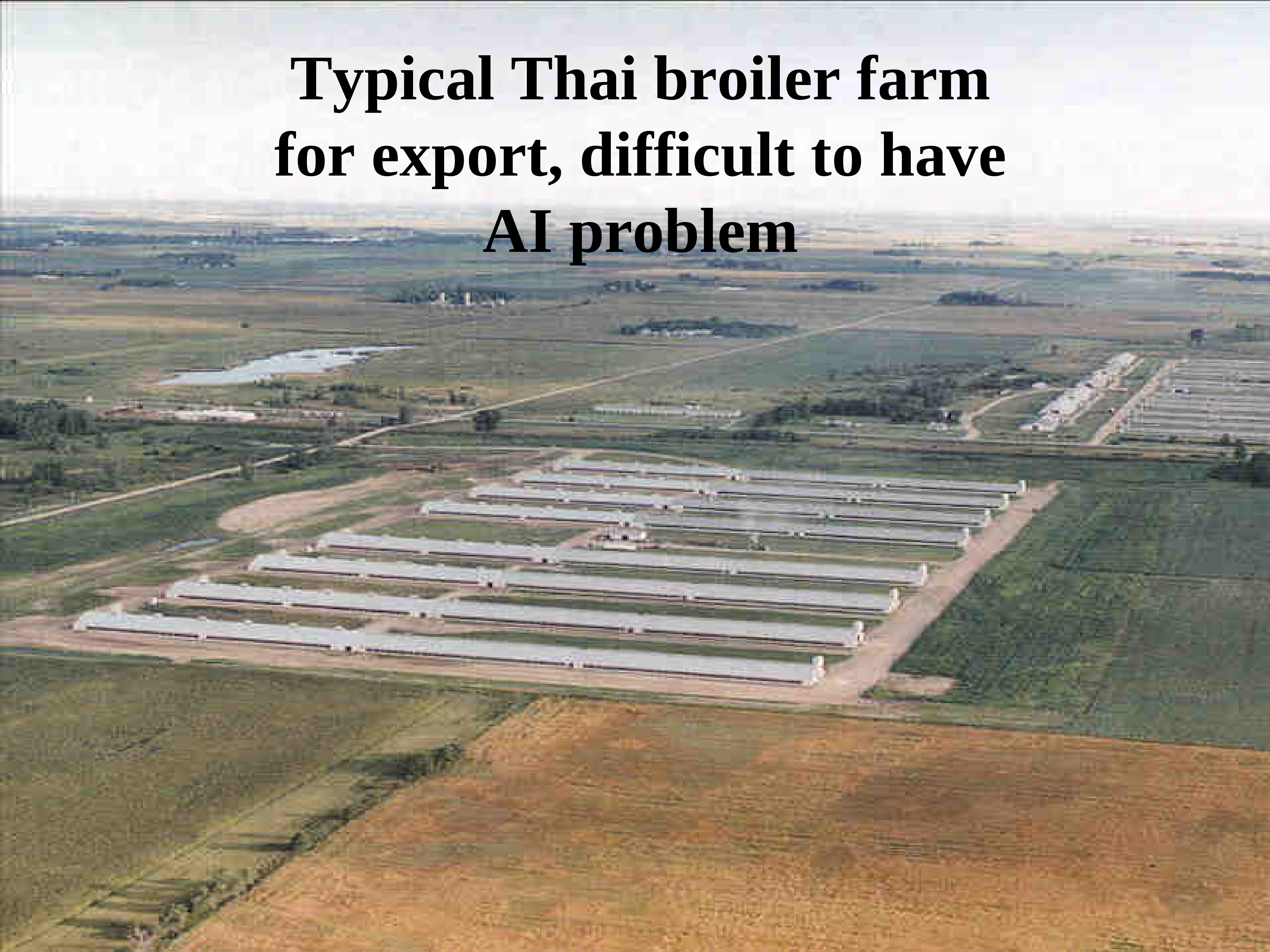
FUNCTION OF [INTENSITY AND DURATION OF NEGATIVE COVERAGE OF MEDIA]

INDUSTRY/COMPANIES NEED TO HAVE CRISIS MANAGEMENT PROGRAMME IN PLACE

OTHER ISSUES

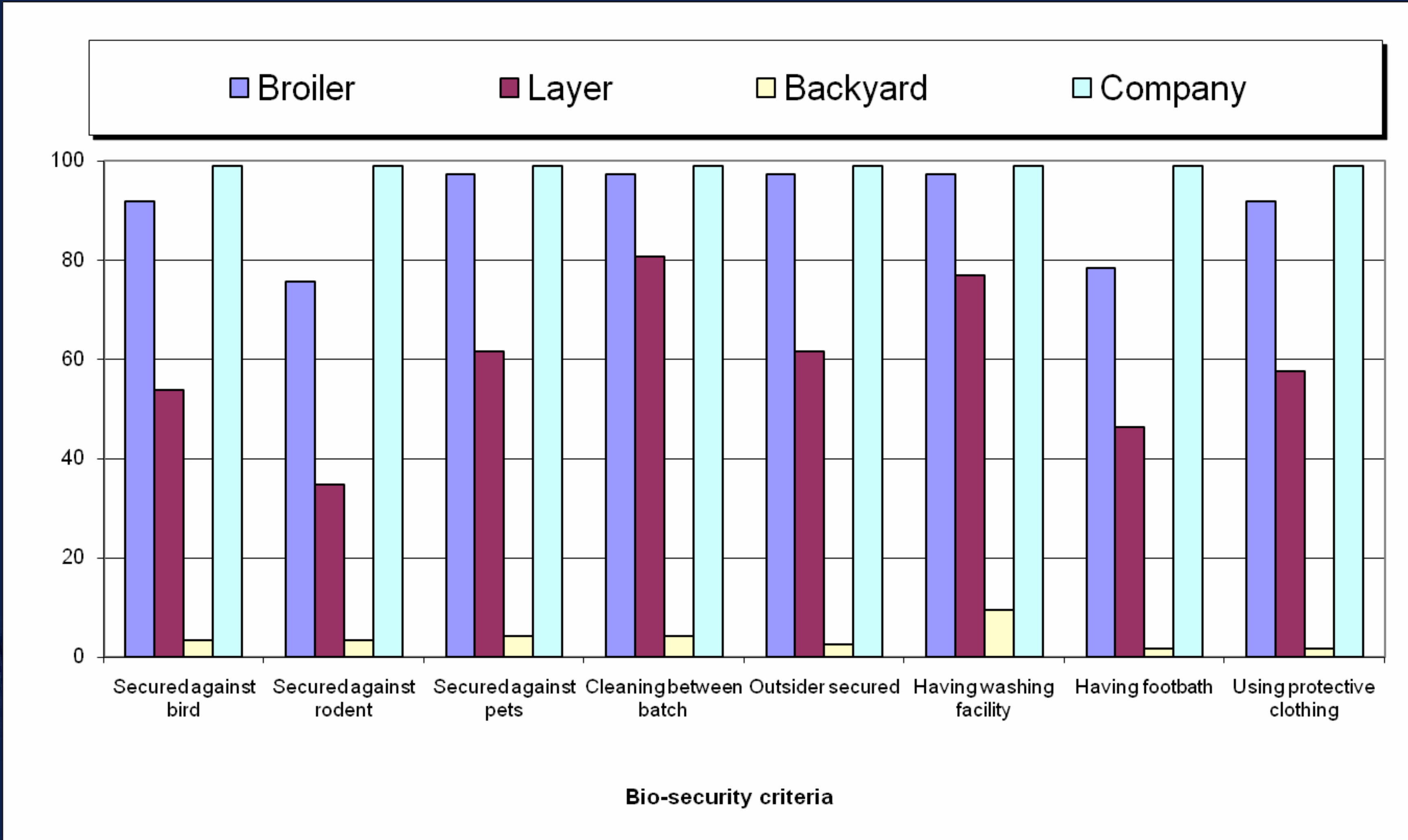
- **Logistical issues for genetic companies**
- **Knock on effect for industry suppliers of feed, equipment, animal health products**
- **Labor scarcity**

Typical Thai broiler farm for export, difficult to have AI problem



But the problems come from this type of operation – backyard production is not only in Asia.

Bio-security practices – Thailand



SOURCE: DR. SOMPISS JULLABUTRADEE

CONSEQUENCES of AI on GLOBAL TRADE

- Drop in consumption reduces imports – Case of Saudi Arabia in 2006

- BUT

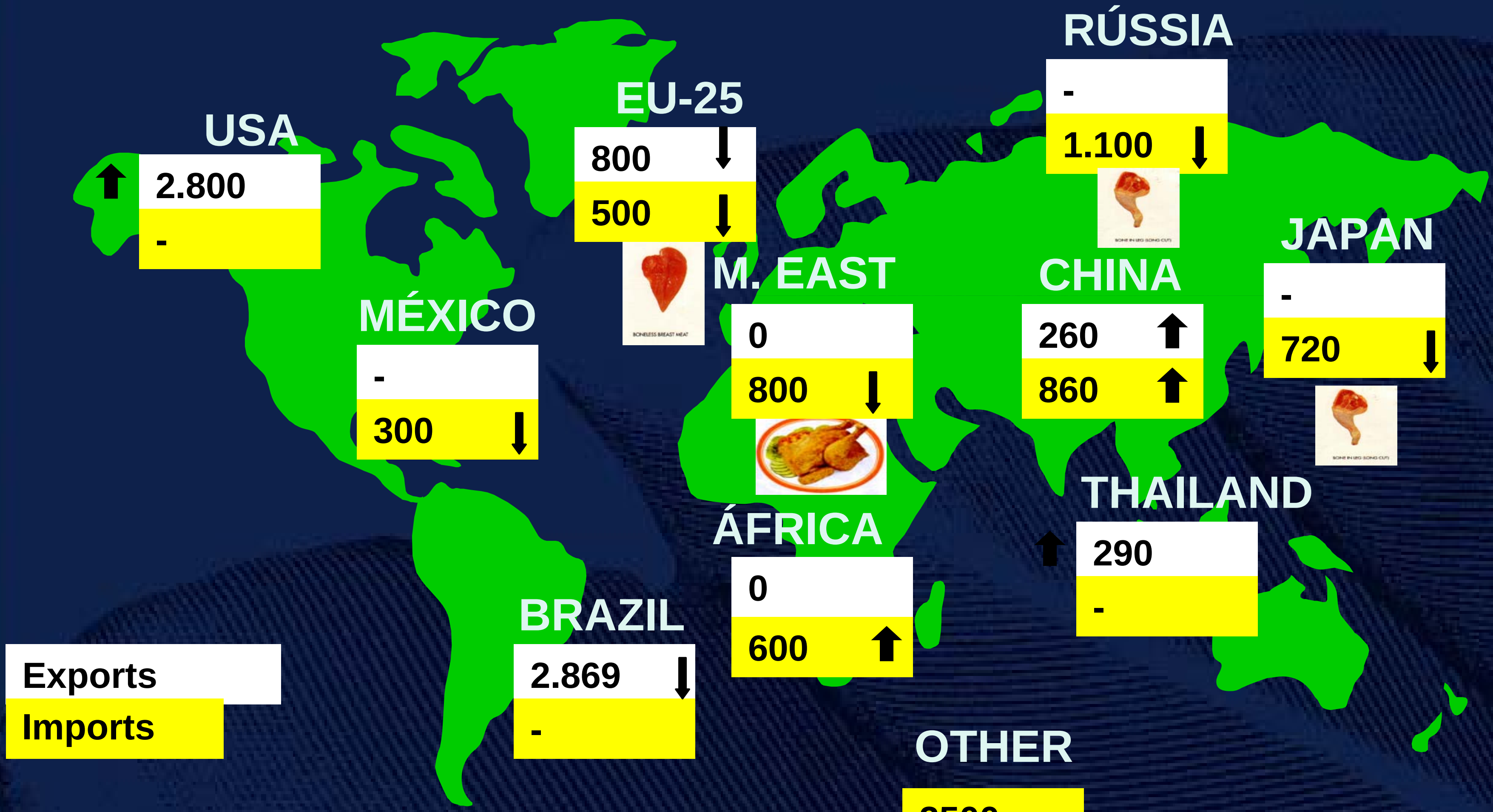
- Also results in a reduction in production and increase imports (From Brazil, USA)? – Was the case in Egypt and maybe China.

CURRENT POULTRY TRADE

CHICKEN – WHERE IS IT CONSUMED

COUNTRIES	TM MILHOES
OTHERS	27.0
USA (2.6 EXPORT)	12.0
CHINA	10.0
EU	7.0
BRAZIL (2.8 EXPORT)	6.0
MEXICO (0.3 IMPORT)	2.5
RUSSIA (1.1 IMPORT)	2.1
JAPAN (0.75 IMPORT)	1.8
INDIA	1.6
TOTAL	70.0

POULTRY TRADE IN 2006 IN 000 MT



EXPORTERS

WHO COMPETES WITH WHO AND WHERE?

- GLOBAL EXPORTS - RAW
  - Brazil vs USA but do not compete head to head in many places
- EXPORTS TO JAPAN and EU – RAW
  - Brazil vs. Brazil vs. Local production
- EXPORTS TO JAPAN – COOKED
  - Thailand vs. China
- EXPORTS TO EU – COOKED
  - Brazil vs. Thailand

BRAZILIAN EXPORTS - RAW

000 MT	2006	2005	2004	2003
Japan	322	402	323	182
EU	243	321	280	311
M. East	738	830	732	597
Rússia	180	251	231	242
Venezuela	122	103	69	17
S. Africa	193	138	130	76
China/HK	322	273	238	210
Africa	85	114	102	69
Egypt	49	2	2	2
Other	232	297	317	211
TOTAL	2586	2731	2424	1915

BRAZILIAN EXPORTS – 2007 (MAY)

000 MT	2006	2007(5)	2006(5)	
Japan	322	129	152	
EU	243	157	105	+52
M. East	738	388	248	
Rússia	180	68	79	But +29 to CIS
Venezuela	122	56	71	
S. Africa	193	73	87	
China/HK	322	145	133	
Africa	85	36	33	
Egypt	49	2	0	
Other	232	126	79	VN/
TOTAL	2586	1204	1000	Korea/Sing.

USA EXPORT - RAW

000 MT Raw	2006	2005	2004	2003
Russia	734	755	719	604
Mexico	234	258	237	193
China/HK	470	279	221	458
Canada	93	89	92	85
Turkey	86	98	96	71
Cuba	78	79	64	68
Romenia	52	90	66	44
Korea	62	40	31	77
Other	768	783	820	832
TOTAL	2577	2473	2598	2688

SOURCE- USDA

USA – 2007 (APR)

000 MT	2006	2007(5)	2006(5)	
Russia	734	205	239	
Mexico	234	68	95	
China/HK	470	202	150	
Canada	93	37	32	
Turkey	86	35	9	
Cuba	78	28	25	
Romenia	52	0	37	
Korea	62	8	28	
Other	768	298	233	
TOTAL	2577	881	848	

EU EXPORTS

000 MT Raw	2006	2005	2004	
Russia	146	139	103	
Africa	148	138	164	
China/HK	53	32	24	
M. East	130	174	181	
Europe	47	52	53	
E. Europe	116	96	125	
Other	42	59	77	
TOTAL	682	690	727	

SOURCE- USDA

IMPORTERS

JAPANESE IMPORTS

MT 000	RAW	COOKED	TOTAL
2002	**535**	**219**	**754**
2003	**466**	**228**	**694**
2004	**353**	**228**	**581**
2005	**419**	**329**	**748**
2006	**375**	**345**	**720**

CHINA/H. KONG IMPORTS

MT 000	USA	BRAZIL	TOTAL
2003	**458**	**211**	
2004	**221**	**238**	**642**
2005	**279**	**272**	**765**
2006	**462**	**322**	**>900**
2007 (3)	**155**	**85**	

EU IMPORTS - 2006

000 MT	**RAW**	**COOKED**		
NON EU				
Brazil	**189***	**98**	*** 243 BRAZIL DATA**	
Thailand	**-**	**127**		
USA	**60**	**-**		
ARGENT./ CHILE	**18**	**4**		
INTRA EU	**1589**	**265**		

FAO TRADE PROJECTIONS TO 2015

COUNTRY	EXPORT MT 000	COUNTRY	IMPORT MT 000	
BRAZIL	2200	CHINA	650	
USA	600	MEXICO	200	
EU	-130	EU	170	
INDIA	350	KOREA	120	
THAILAND	200	S.ARABIA	160	
ASIA	140	AFRICA	400	
ARGENTINA	135	JAPAN	230	
		CIS	80	
		E.EUROPE	200	

GROWTH
PAST AND FUTURE

GLOBAL GROWTH - HISTORY

IN %	1990 TO 2000	2000 TO 2006
BEEF	8.7	8.0
PORK	28.9	14.8
CHICKEN	66.4	19.5
EGGS	46.6	15.7

CHINA INFLUENCE 1990'S

GROWTH	MMT WORLD	MMT CHINA	% PART. CHINA
BEEF	3.6	3.8	106
PORK	20.3	17.4	86
CHICKEN	24.6	6.3	26
EGGS	16.3	12.9	79

CHINA INFLUENCE – 2000 -2005

GROWTH	MMT WORLD	MMT CHINA	% PART. CHINA
BEEF	3.5	2.0	57
PORK	12.5	8.6	69
CHICKEN	11.0	1.1	10
EGGS	7.6	4.9	64

CHINESE POSITION IN GLOBAL LIVESTOCK

	%
POPULATION	20
HOGS	49
BEEF	17
EGG LAYERS	40
DUCKS	75
CHICKEN	15

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GLOBAL GROWTH CHICKEN - 1

Millions of MT	Actual
Initial Volume 1990	35.5
Increase from Population Growth	8.1
Inc. from Per Capita	27.5
Final Volume 2005	71.1
Ave. Total Growth P.A.	4.80%
Ave Per Cap. Growth	3.80%

HISTORICAL GROWTH HIGHLY CONCENTRATED

- 70% of growth has come from
  - USA
  - CHINA
  - BRAZIL
  - MEXICO
  - INDIA

GLOBAL GROWTH – 2006 - 2016

Millions of MT	Actual
Initial Volume 2006	71.1
Increase from Population Growth	8.0
Inc. from Per Capita	10.0
Final Volume 2016	89.1??
Ave. Total Growth P.A.	2.5%
Ave Per Cap. Growth	1.8%

GLOBAL GROWTH WILL DEPEND ON SAME PLAYERS

- USA
- CHINA – RECUPERATION OF GROWTH – GDP BEEN GROWING > 6% P.A. BUT POULTRY ONLY 2%
- BRAZIL
- MEXICO
- INDIA – DOUBLE DIGIT BUT NO IMPORTS & FEW EXPORTS

THANK YOU