Chapter 2C: Figures, tables and text boxes

Figure 2C.1.1: Erosion on cropland by year in the U.S.

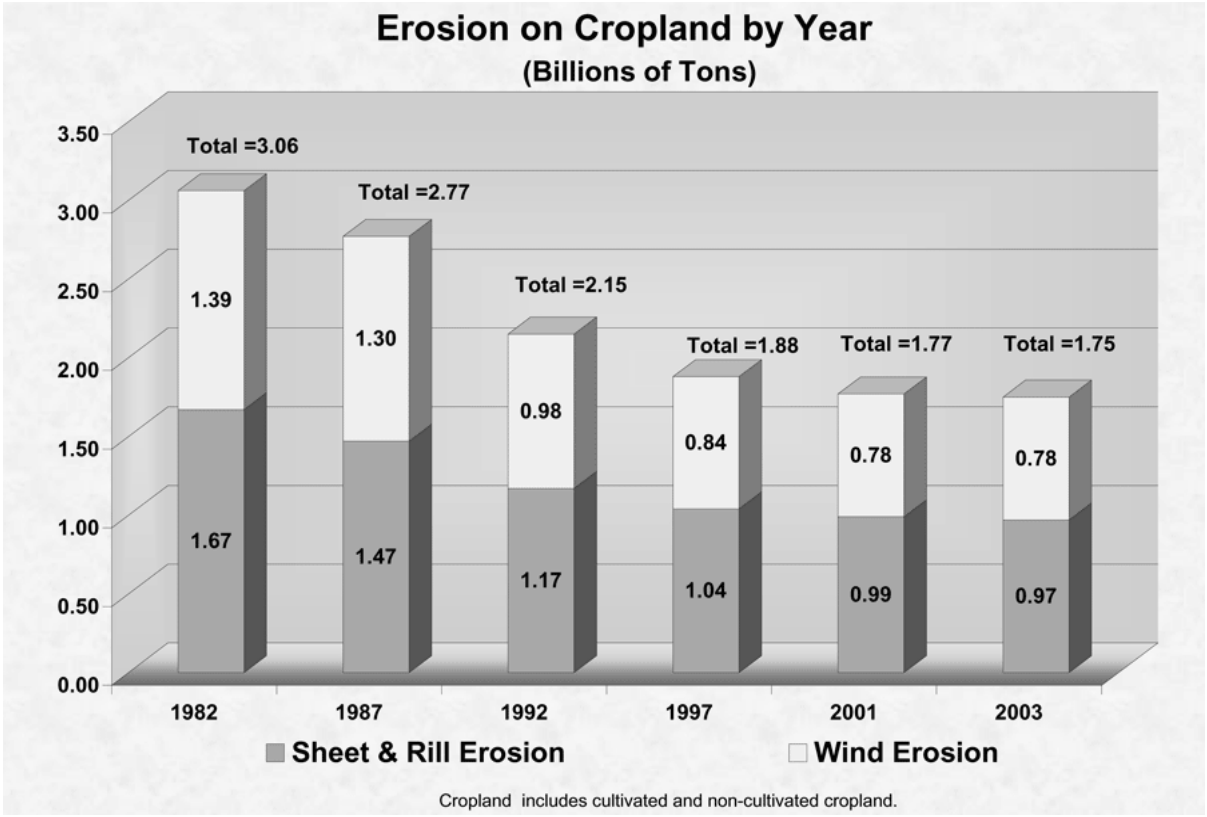

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Fig. 2C.1.2: Concentration of organic carbon in the topsoils of western and central Europe. A map compiled by European Soil Bureau (Jones et al., 2005)

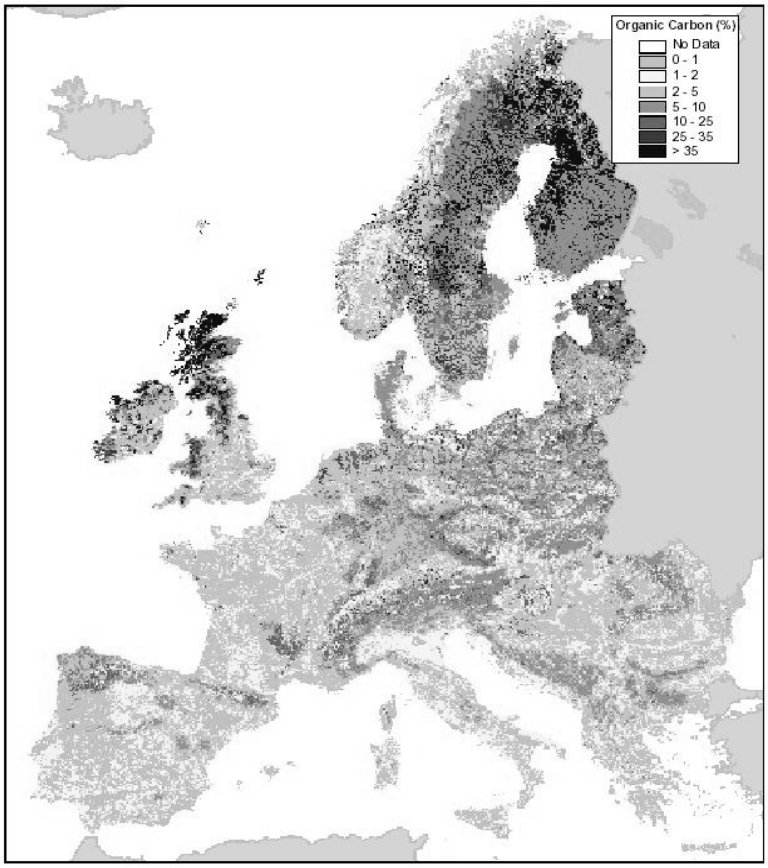


Table 2C.1.1: Summary of soil organic C decline with cultivation, soil organic C sequestration, in response to agricultural management among five regions in North America (Taken from Franzluebbers and Follett, 2005)

Management comparison	Region in North America				
	Northwest	**Northeast**	**Central**	**Southwest**	**Southeast**
Decline in soil organic C concentration from native condition (%)	34 ± 14	22 ± 10	NA	25 ± 33	36 ± 29
Soil organic C sequestration (Mg C ha^{-1} $year^{-1}$)					
No tillage versus conventional tillage	0.27 ± 0.19	−0.07 ± 0.27	0.48 ± 0.59	0.30 ± 0.21	0.42 ± 0.46
More complex cropping systems	0.12 ± 0.10	NA	0.18 ± 0.25	0.29 ± 0.17	0.22 ± 0.33
Addition of animal manure	0.15 ± 0.02	NA	NA	NA	0.72 ± 0.67
Addition of N fertilizer	0.09 ± 0.08	NA	NA	NA	0.18 ± 0.35
Conversion of cropped land to grass	0.94 ± 0.86	NA	0.56 ± 0.60	0.32 ± 0.50	1.03 ± 0.90
Grazed versus ungrazed grassland	0.16 ± 0.12	NA	NA	−0.03 ± 0.15	0.76 ± 0.60
Invasion of woody plants into grassland	NA	NA	NA	0.22 ± 0.50	NA

Table 2C.1.2: Methane emissions from enteric fermentation (Gg)

Source US Environmental Protection Agency

Inventory of US Greenhouse gas emissions and sinks 1990-2004. Chapter 6 Agriculture.

http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR6MBLNZ/$File/06Agriculture.pdf

Livestock Type	1990		1998	1999	2000	2001	2002	2003	2004
Beef Cattle	3,961		4,047	4,045	3,973	3,928	3,923	3,934	3,830
Dairy Cattle	1,375		1,251	1,265	1,283	1,280	1,288	1,299	1,285
Horses	91		94	93	94	95	95	95	95
Sheep	91		63	58	56	55	53	51	49
Swine	81		93	90	88	88	90	90	91
Goats	13		12	12	12	12	13	13	13
Total	**5,612**		**5,559**	**5,563**	**5,507**	**5,459**	**5,463**	**5,481**	**5,362**

Note: Totals may not sum due to independent rounding.

Fig. 2C.1.3: The relationship between mean farmland bird population trend and cereal yield across Europe (r_{30}=−0.66, P<0.001). Further details are described in Donald et al. (2002). In this figure, only the 39 species whose overall mean population trend and its upper 95% confidence limit were lower than zero are included. There was no significant relationship between the population trends of generally stable or increasing species and any measures of agricultural intensity. Open squares: Eastern Europe, filled squares: EU 15

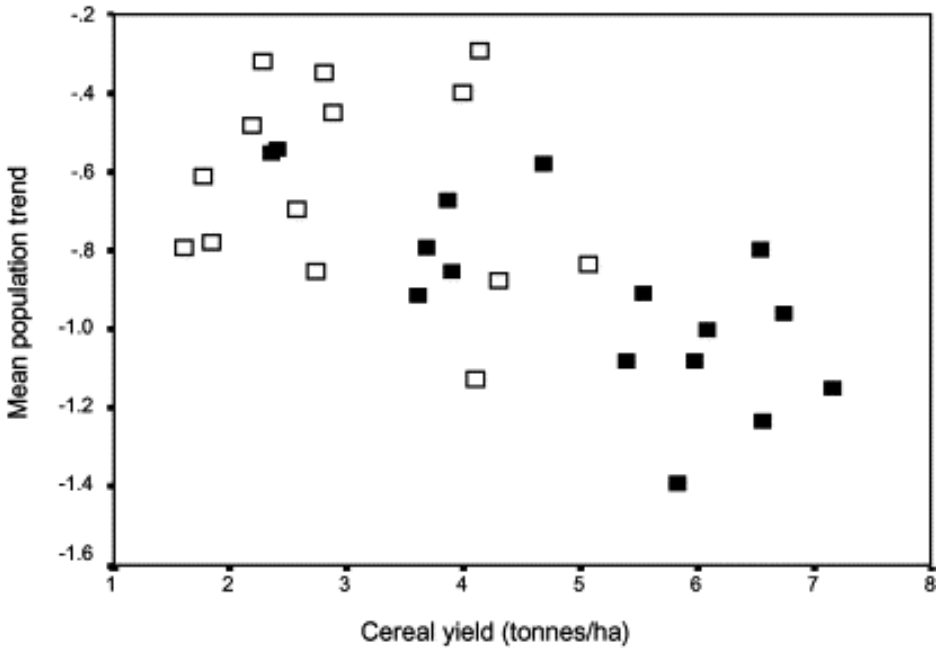


Table 2C.1.3: Examples of the magnitude of benefit of different on-field agricultural practices

Practice	Contaminant	Example	Reduction in runoff or inputs	Citation
In-season optimization of nitrogen application	nitrogen	North Carolina wheat fields. Nitrogen needs evaluated on fields or sub- fields based upon plant growth properties	Average 15% (range 0 to 51%)	Flowers et al., 2004
Polymer use in furrow irrigation systems	Sediments, phosphorus	Pacific Northwest wheat and bean fields. Added supplements to irrigation water to bind sediments & phosphorus	90% for sediments, 50% for phosphorus	Lentz and Sojka, 1994, Lentz et al., 1998
Changing chemical form of fertilizer	phosphorus	Fertilized New Zealand pasture, slow release fertilizer vs single superphosphate Arkansas pasture, organic vs inorganic fertilizer	90% 41%	Nguyen et al., 2002 Nichols et al., 1994, Hart et al., 2004
Optimization of applied irrigation water	nitrate	Lettuce irrigation, Salinas Valley	75% for nitrate	Tanji et al., 1994

Budgeting to reduce excess fertilizer application	nitrogen phosphorus	Netherlands	25% for nitrogen 15% for phosphorus	Oenema et al., 2005
Controlled drainage in tile-drained fields	nitrogen	Ohio Ontario, maze with ryegrass intercrop Ontario, maize	45% for nitrate 46% for nitrogen 49% when used with conservation tillage 36% for nitrate	Fausey, 2005 Drury et al., 1996 Ng et al., 2002
Hay Mulching	nitrogen, phosphorus,	New Brunswick potato field	72-82%	Rees et al., 2002

Table 2C.1.4: Examples of the magnitude of the benefit of different off-field management practices

Type of Control	Runoff reduction	Citation
Vegetated Buffer 7m grass buffer 7 meter grass buffer plus 9 meter wooded riparian zone Iowa	95% sediment 60% nitrogen and phosphorus 97% sediment 80% nitrogen and phosphorus	Schultz, 2004
Three-zone buffer grass to wooded riparian zone, Georgia	78% nitrate 52% ammonium 66% phosphorus	Vellidis et al., 2003
Constructed wetlands to receive water from tile- drained fields Illinois 3 to 6% of drained area	46% nitrogen, 2% phosphorus	Kovacic et al., 2000

Figure 2C.2.1: Agricultural and Rural Population in North America and Europe (Data from FAO)

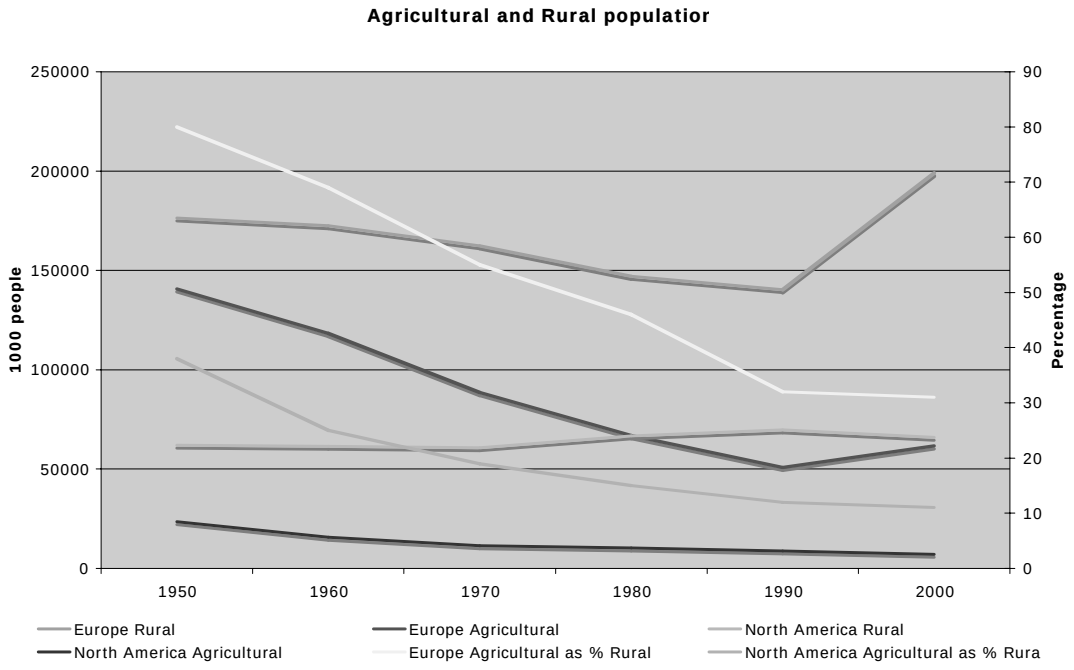


Figure 2C.2.2: Gross Domestic Product (GDP) per Capita ($) and agricultural GDP per economically active person in agriculture (2002)

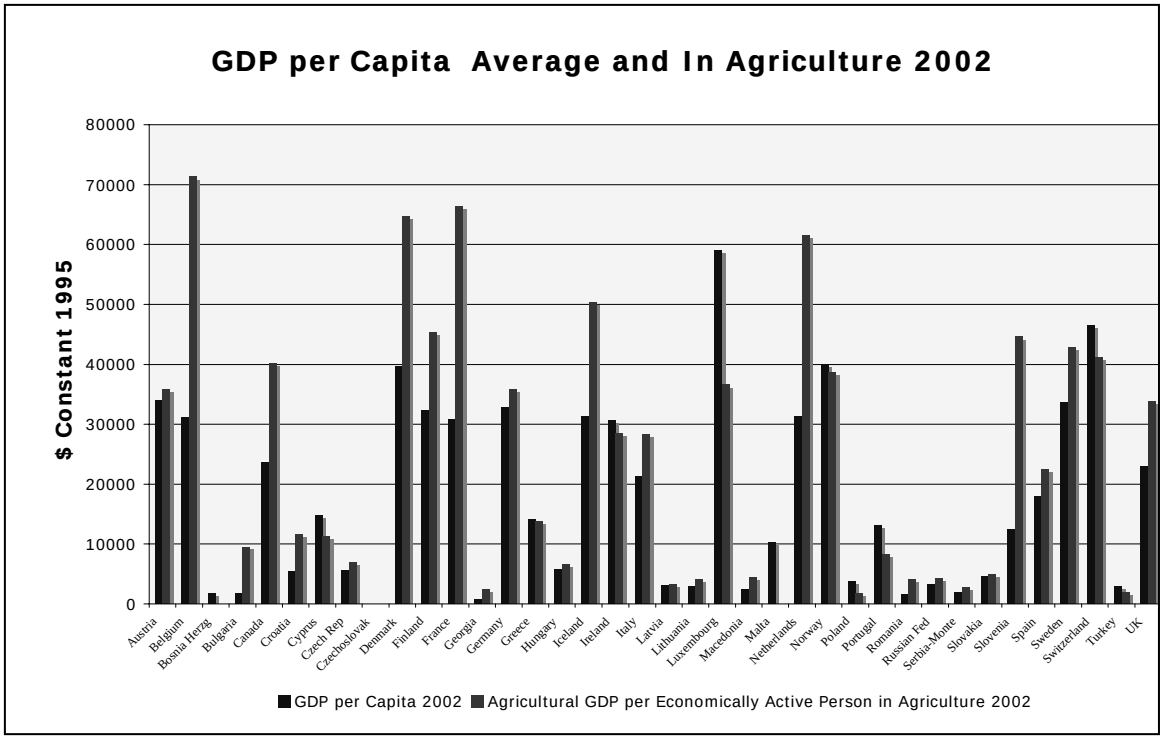


Fig 2C.2.3 Agricultural Imports and Exports in Europe and North America (from FAOSTAT 2004)

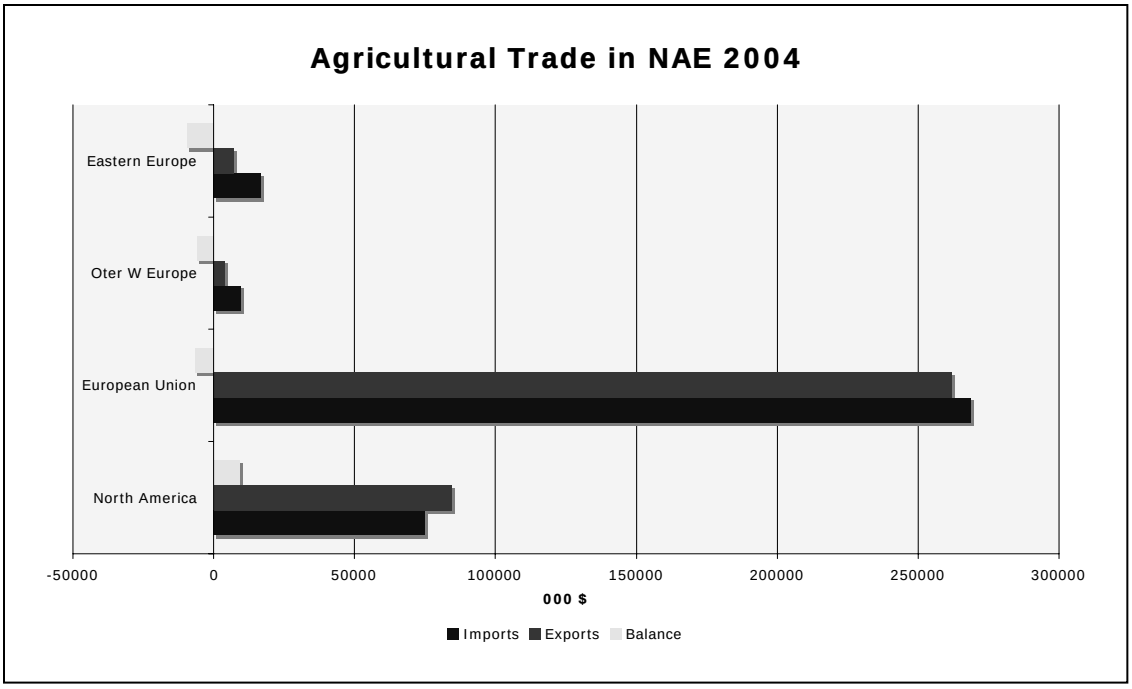


Table 2C.2.1: External Trade of EU 15 in 2002 in eight selected products

	% of world trade 2002	
	Imported by EU	Exported by EU
Total cereals (except rice)	8.6	8.3
Feed Grain (except rice)	4.5	4.9
Oil Seeds (by weight produced)	32.2	1.6
Wine	28.3	38.5
Sugar	5.8	11.0
Total Milk	13.5	20.3
Total Meat	8.0	13.9
Eggs	4.7	16.7

Figure 2C.2.4: Changes in Real Commodity Prices - prices are deflated by the United States Consumer Price Index 1995 =100 (FAO, 2004)

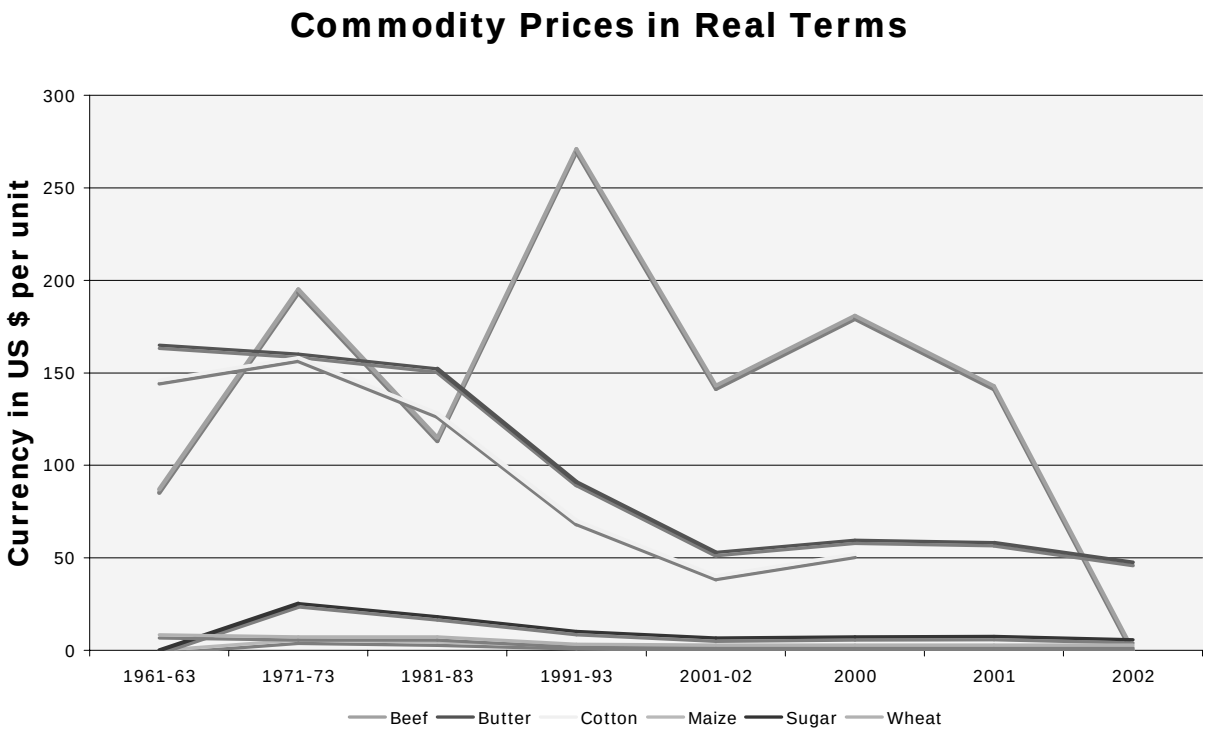


Figure 2C.2.5: Semi-subsistence farming among New Member States. Eurostat 2003

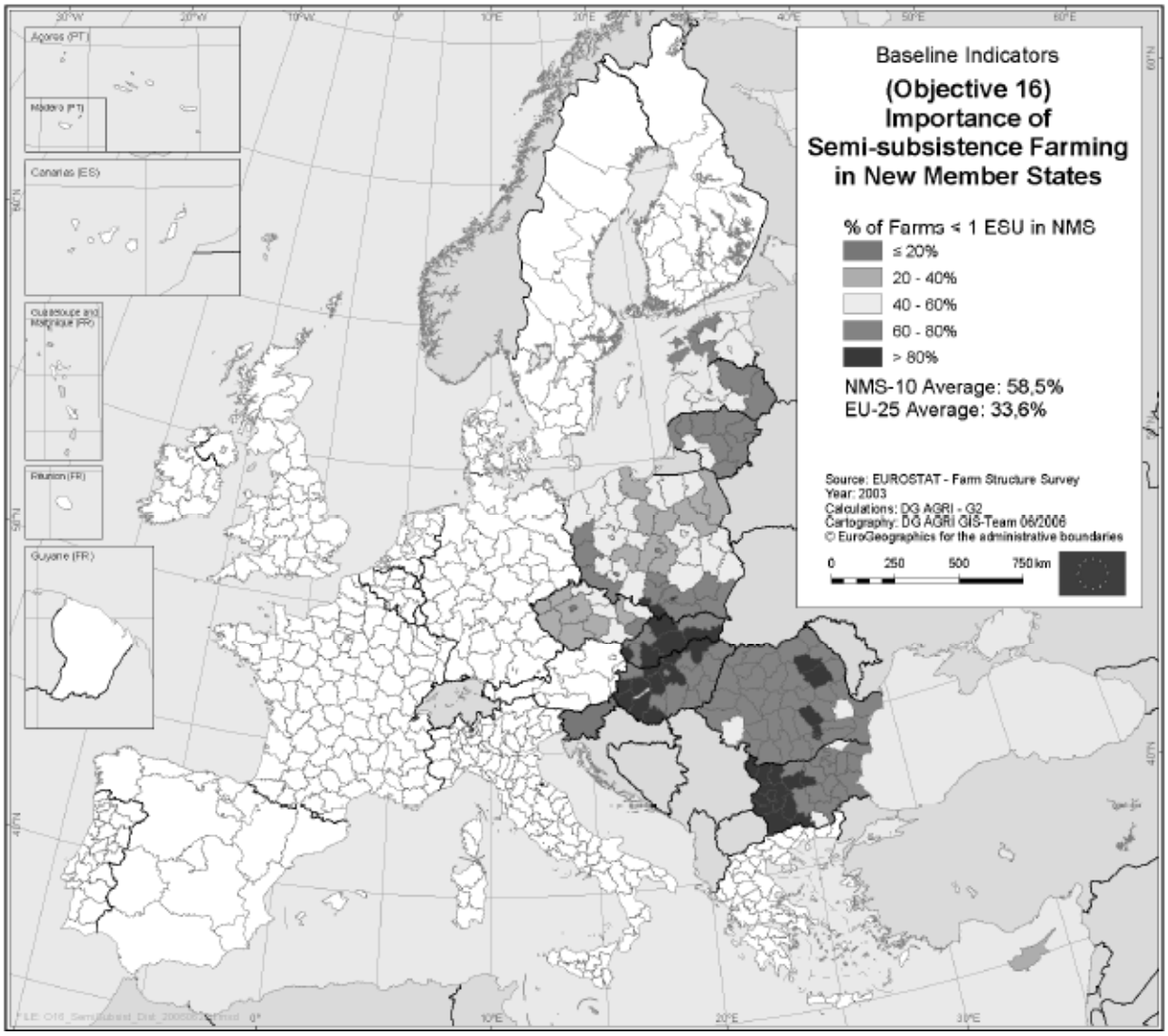


Fig 2C.26: Share of economically active workforce in the NAE in agriculture

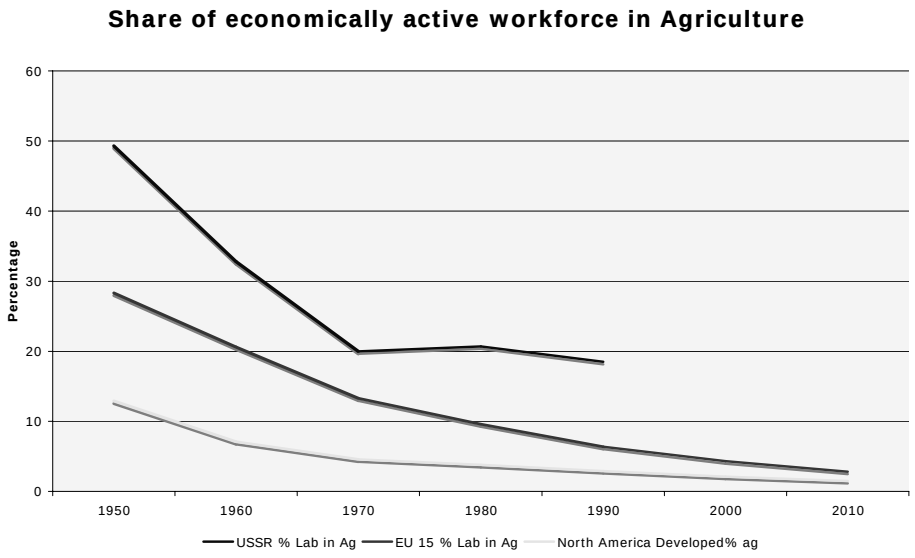


Fig. 2C.2.7: Producer and Consumer Support Estimates as measures of support for agriculture – OECD 2004

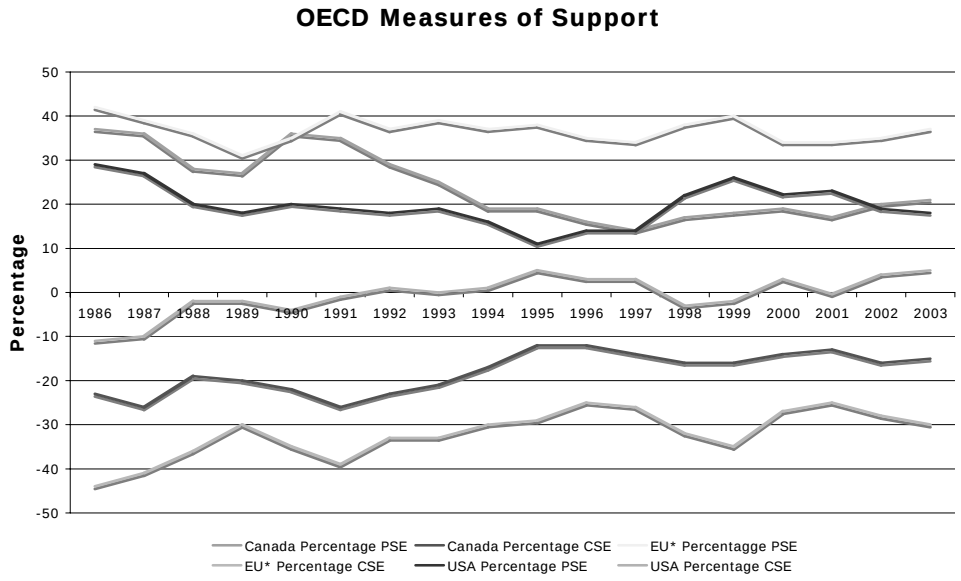


Fig 2C.2.8: Support for farming in the Soviet Union and Russia - OECD

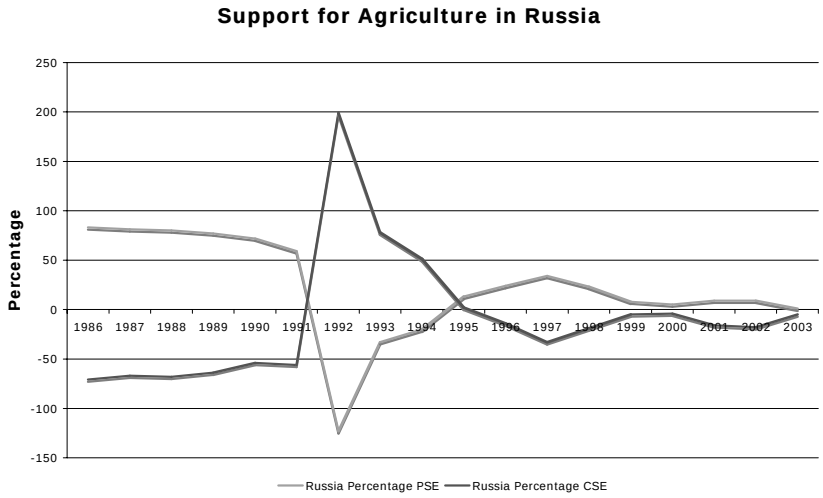


Table 2C.2.2 Net UK costs of managing the outbreak of BSE 1996-2005

£ million									
1996/7	1997/8	1998/9	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
1496	963	568	425	495	492	-	335.9	340.1	265.7

Table 2C.2.3 Net UK costs of managing Avian flu 1998-2002

£ million				
1998	1999	2000	2001	2002
24.9	33.1	35.2	30.5	73.9

Figure 2C.3.1: Accident frequency rate, i.e. number of accidents per one million man hours worked in Swedish forestry (1967 to 1995)

Table 2C.3.1: Employment by major economic sectors in a selection of countries in the NAE

	Year	Agriculture	Industry	Services
Austria	2003	13,1	23,6	63,2
Canada	2002	3,0	21,7	75,3
Czech Republic	2003	4,5	39,4	56,1
Denmark	2003	3,7	21,9	74,3
Estonia	2003	6,1	32,3	61,5
Finland	2003	5,1	26,0	68,9
France	2003	4,1	21,7	74,3
Georgia	2002	53,8	8,2	38,0
Germany	2003	2,4	27,2	70,3
Greece	2003	14,7	24,3	61,7
Hungary	2003	5,8	31,9	62,3
Italy	2003	4,4	29,0	66,5
Netherlands	2003	3,3	19,0	77,7
Poland	2003	18,4	28,6	53,0
Romania	2003	34,1	31,0	34,9
Russian Federation	2002	12,1	30,1	57,8
Spain	2003	5,7	29,1	65,3
Sweden	2003	2,3	22,8	74,9
Turkey	2002	32,8	23,9	43,3
Ukraine	2003	23,1	25,6	51,2
United Kingdom	2003	0,9	18,7	80,6
United States	2001	2,5	18,8	78,7

Source: UNECE, 2005

Table 2C.3.2: Urban and rural populations in NAE

	Population distribution (%), 2004		Average annual rate of change in population (%), 2000-2005	
Country	**Urban**	**Rural**	**Urban**	**Rural**
Austria	66	34	0.05	0.05
Czech Republic	74	26	0.02	0.45
Denmark	85	15	0.34	-0.37
Estonia	70	30	-1.04	-1.23
Finland	61	39	0.10	0.31
France	76	24	0.72	-0.34
Georgia	52	48	-1.38	-0.42
Germany	88	12	0.28	-1.48
Greece	61	39	0.56	-0.52
Hungary	66	34	0.14	-1.57
Italy	67	33	-0.01	-0.28
Netherlands	66	34	1.25	-0.94
Poland	62	38	0.04	-0.27
Romania	55	45	-0.20	-0.26
Spain	77	23	0.32	-0.13
Sweden	83	17	0.12	-0.07
Turkey	67	33	2.19	-0.07
UK	89	11	0.38	-0.26
USA	80	20	1.44	-0.63

Source: Population of the United Nations Secretariat (2005)

Table 2C.3.3 Obesity and overweight among adults in a sample of countries within European Union

Country	Year of Data Collection	Males			Females		
		% BMI 25-29.9	%BMI ≥30	Combined BMI≥25	% BMI 25-29.9	%BMI ≥30	Combined BMI>25
Czech Republic	1997/8	48.5	24.7	73.2	31.4	26.2	57.6
Denmark	1992	39.7	12.5	52.2	26	11.3	37.3
England	2003	43.2	22.2	65.4	32.6	23	55.6
Finland	1997	48	19.8	67.8	33	19.4	52.4
France (self report)	*2003*	*37.4*	*11.4*	48.8	23.7	11.3	35
Germany	2002	52.9	22.5	75.4	35.6	23.3	58.9
Greece	1994-8	51.1	27.5	78.6	36.6	38.1	74.7
Hungary	1992-4	41.9	21	62.9	27.9	21.2	49.1
Italy (self report)	*1999*	*41*	*9.5*	50.5	25.7	9.9	35.6

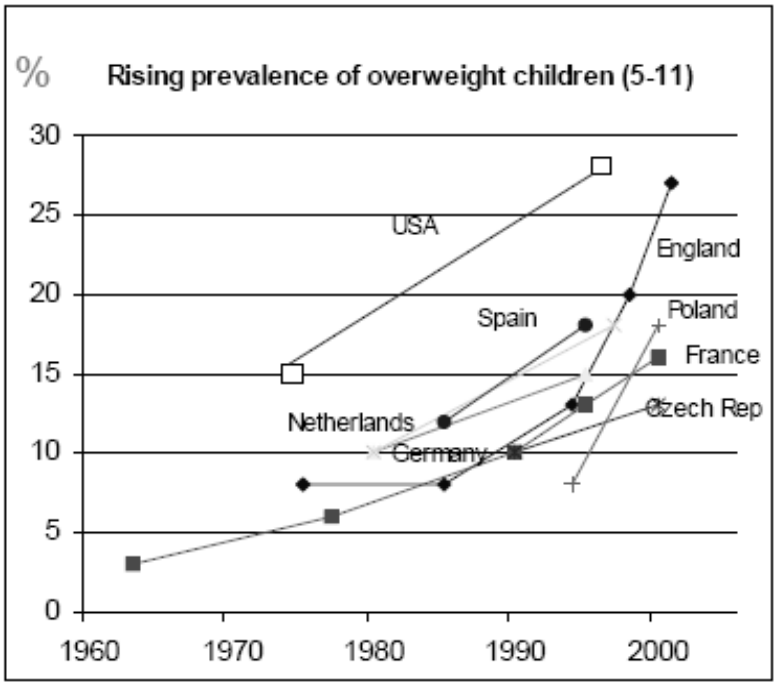
Latvia	1997	41	9.5	50.5	33	17.4	50.4
Netherlands	1998-2002	43.5	10.4	53.9	28.5	10.1	38.6
Poland (self report)	*1996*	*n/a*	*10.3*	n/a	n/a	12.4	n/a
Spain	1990-4	47.4	11.5	58.9	31.6	15.3	46.9
Sweden (adjusted)	1996-7	41.2	10	51.2	29.8	11.9	41.7
Age range and year of data in surveys may differ. With the limited data available, prevalences are not standardised. Self reported surveys may underestimate true prevalence. Sources and references are from the IOTF database (© International Obesity Task Force, London – March 2005)							

Table 2C.3.4 Change in obesity (percentage of adult population with a BMI>30 kg/m2) from 1980-2003 in the NAE

	1980	1990	2000	2001	2002	2003
Canada	..	..	14.1	13.9	13.9	14.3
Czech Republic	..	11.2	14.2	14.8	14.8	14.8
Denmark	..	5.5	9.5	9.5	9.5	9.5
France	..	5.8	9	9.0	9.4	9.4
Germany	..	..	11.5	11.5	12.9	12.9
Greece	..	..	21.9	21.9	21.9	21.9
Hungary	..	..	18.2	18.2	18.8	18.8
Italy	..	..	8.6	8.5	8.5	8.5
Netherlands	5.1	6.1	9.4	9.3	10	10.0
New Zealand	..	11.1	17.0	20.9	8.3	20.9
Norway	..	..	6.4	8.3	8.3	8.3
Poland	..	..	..	..	..	..
Spain	..	6.8	12.6	12.6	12.6	13.1
Sweden	..	5.5	9.2	9.2	10.2	9.7
United Kingdom	7.0	14.0	21.0	22.0	22.0	23.0
United States	15.0	23.3	30.5	30.5	30.6	30.6

Source: OECD HEALTH DATA 2006

Figure 2C.3.2: Rising prevalence of overweight children in NAE



Source: International Obesity Task Force, London – March 2005

Table 2C.4.1: Changes in research institute structures in the UK 1894-1996

Period	Name	overseeing agency	Mandate
1894	Scientific and Technical Dept.	Imperial Institute	use of tropical products from British Empire
1958	Tropical Products Institute		a/a
1940s	Land Resources Development Centre		land management
1920s	Anti-Locust Research Centre	Imperial Bureau of Entomology,	locusts & migratory pests
1964	ALRC+TPI+LRDC	Ministry of Overseas Development	
1970s	ALRC -- COPR		plant and animal protection
1980s	TPI+ALRC --TDRI	ODA	"
1988	TDRI+LRDC --ODNRI		"
1990	Natural Resources Institute (NRI)	ODA	"
1996	NRI within Univ. Greenwich	DFID (from 1997)	"
1996	NR International [separate from NRI]	university consortium	project management

Source: NRI (2002).

Table 2C.4.2: Trade in Agricultural Products – 2003 (1000$ US)

	Imports	% World	Exports	% World
World	550,134,581	100	523,884,525	100
Russian Federation	10,993,983	2.0	2,339,450	0.4
North America Developed	67,686,614	12.2	79,902,492	15.3
EU (15) Excluding Intra-Trade	68,197,006	12.4	62,648,810	12.0

Figure 2C.4.1: Trade (imports and exports) in NAE from 1986-2004.

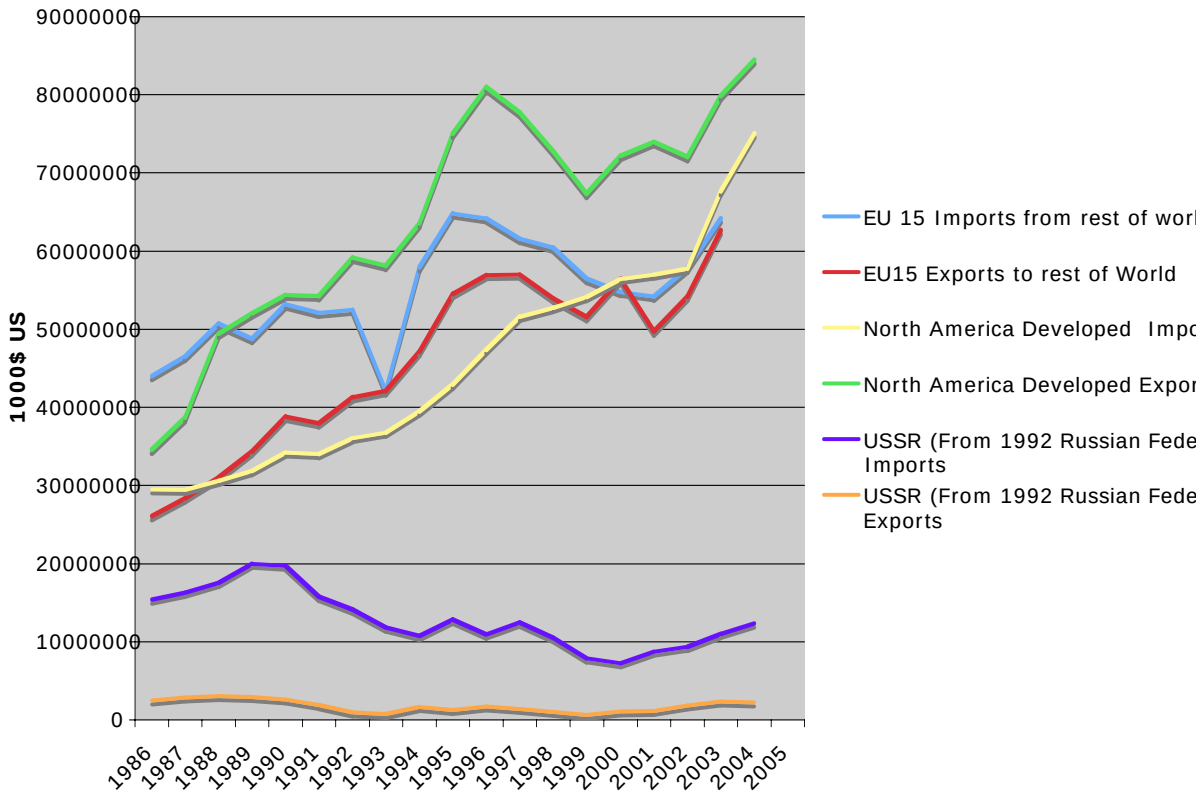


Figure 2C.4.2: EU Agricultural imports and exports (Source: European Commission: Eurostat and Directorate-General for Agriculture)

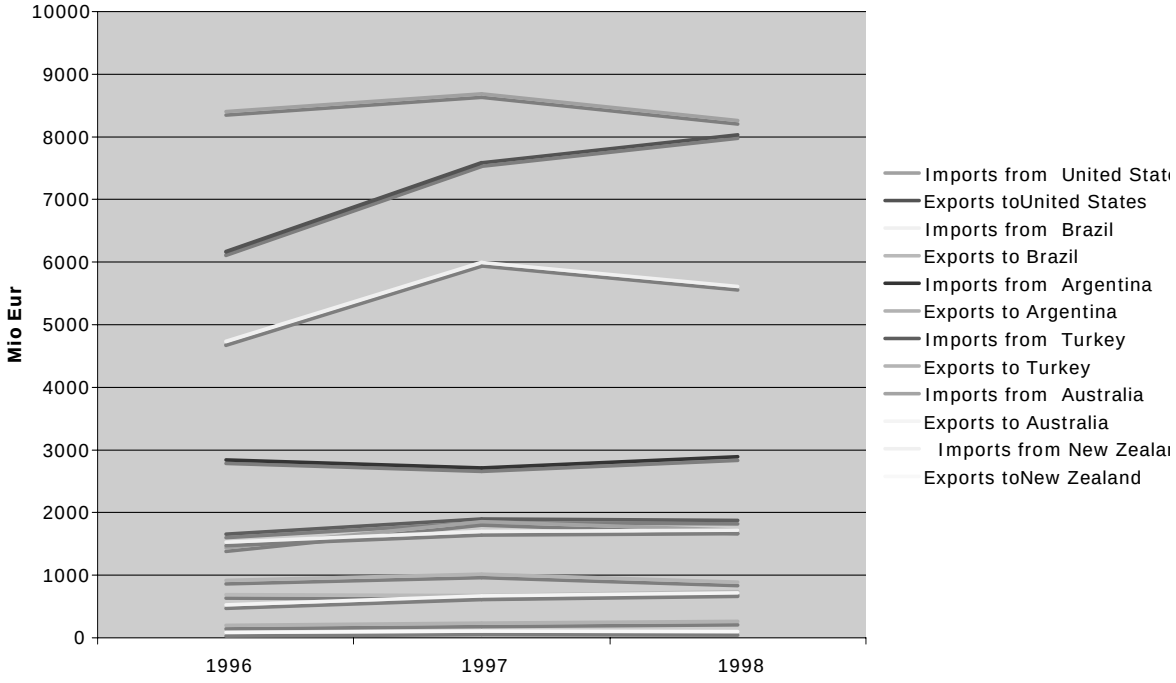


Figure 2C.4.3 U.S. Exports Destinations from 1989-2005 (Source ERS/USDA)

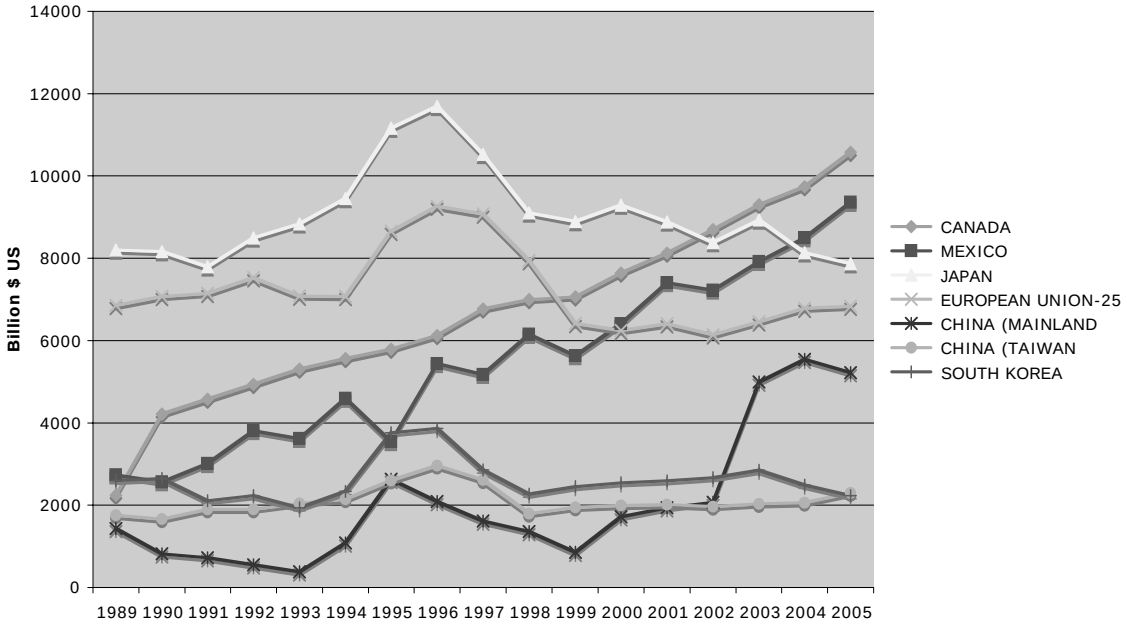


Figure 2C.4.4: U.S. Imports of Agricultural Products 1989-2005 (Source ERS/USDA)

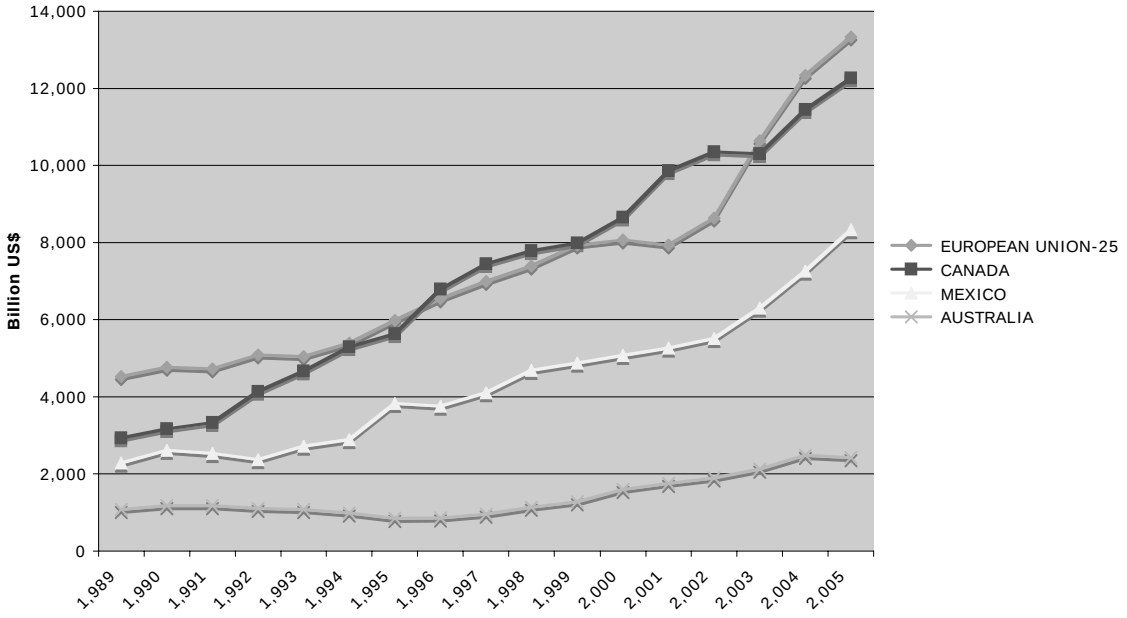
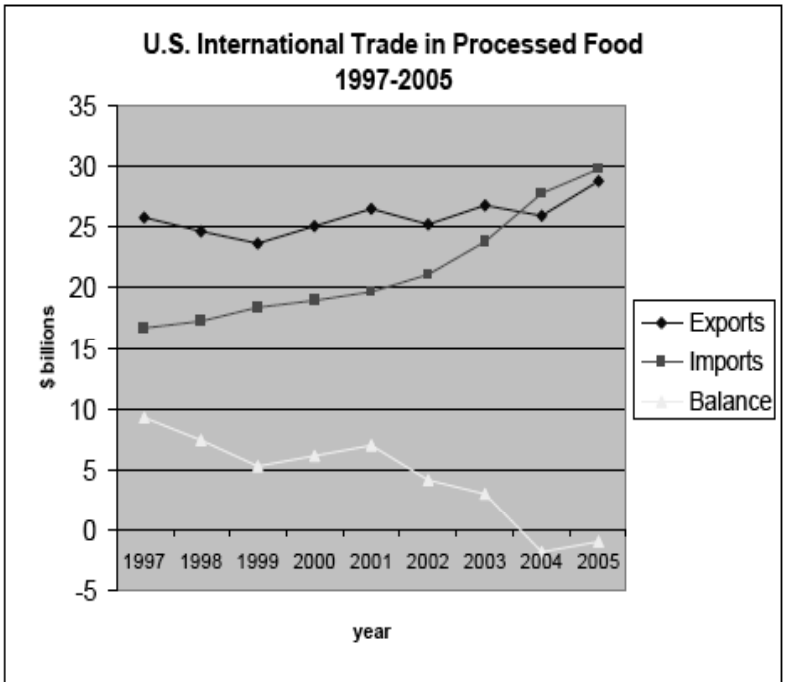


Figure 2C.4.5: US Trade in Processed Food 1997-2005 (Source US Department of Commerce)[1]



[1] http://www.trade.gov/td/ocg/outlook06_processedfoods.pdf

Figure 2C.4.6 Livestock and meat: total world trade and WEU market share 1991-2000 (from Europa website http://ec.europa.eu/comm/agriculture/publi/fact/meat/2004_en.pdf)

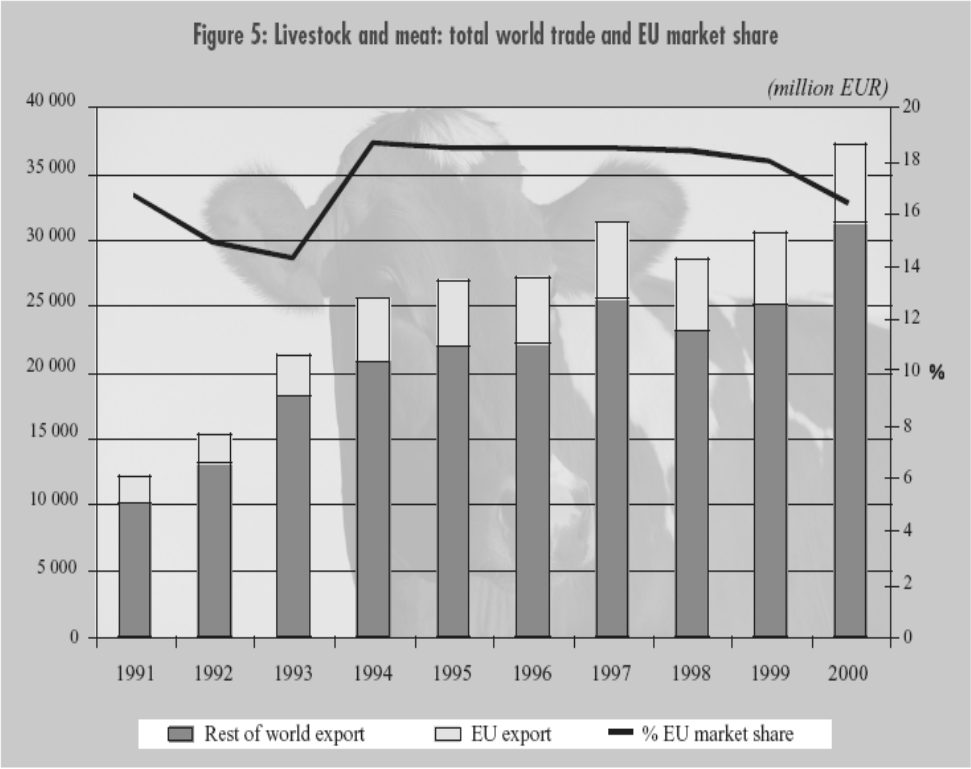


Table 2C.4.3 Net balance of external trade (EU) in meat products

EU-15	Net balance				Self-sufficiency			
	1 000 t				%			
	2000	2001	2002	2003	2000	2001	2002	2003
1	2	3	4	5	6	7	8	9
Meat (2):								
- pigmeat	1 211	980	1 113	1 130	108.5	107.4	108.6	106.7
- beef/veal	252	157	52	– 89	102.4	112.4	99.9	96.2
- poultrymeat	612	331	555	192	106.8	104.5	106.0	102.2
- sheepmeat and goatmeat	– 271	– 278	– 280	– 289	80.8	78.4	78.9	78.1
- equine meat	– 43	– 107	– 83	– 79	54.9	33.4	38.0	38.4
- other	– 51	– 79	– 17	– 8	95.0	92.1	98.2	99.1
Total	1 710	1 003	1 340	857	105.1	104.5	104.3	102.1
Edible offals	349	331	413	420	118.5	117.3	122.2	122.5
Total	2 059	1 335	1 753	1 277	105.8	105.2	105.2	103.1

(1) Exports minus imports.

(2) Including live animals, carcass weight equivalent.

Source: European Commission, Directorate-General for Agriculture.

Figure 2C.4.7: Consumption of inorganic phosphatic fertilizers 1900-2000

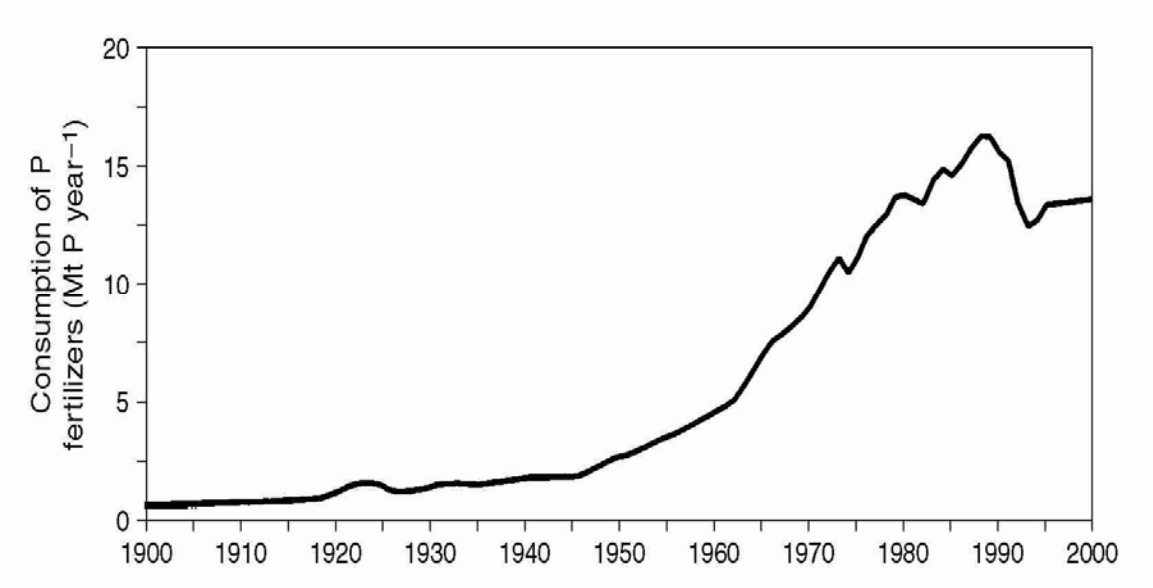
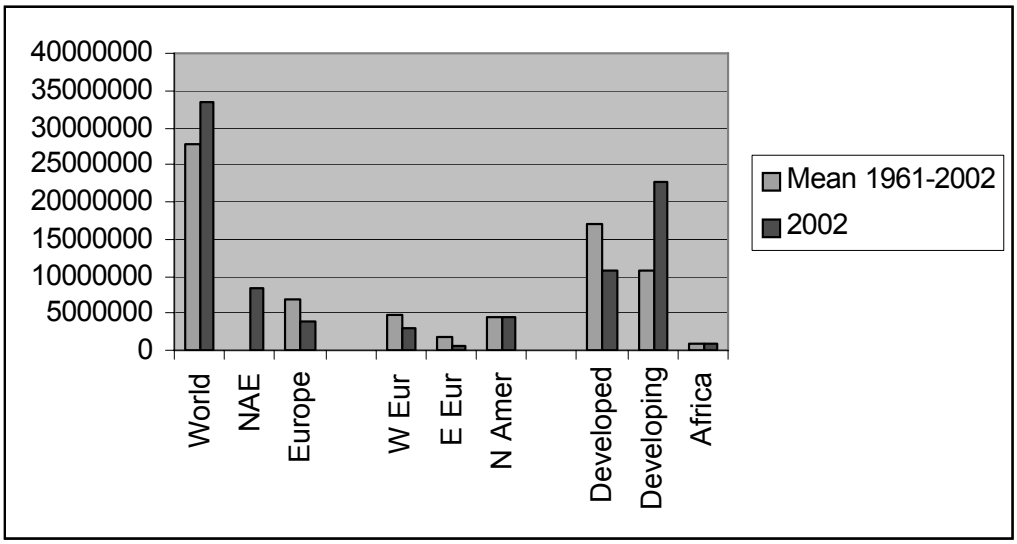
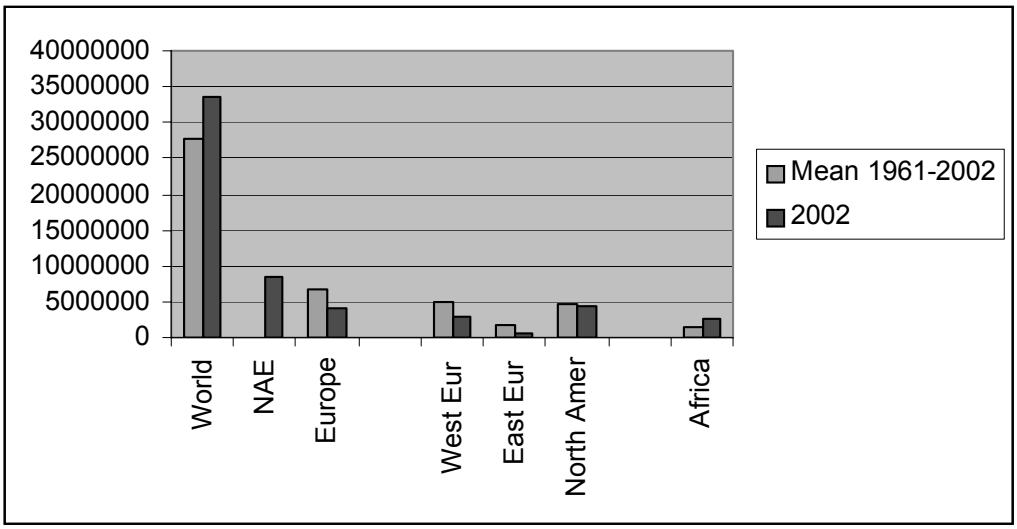


Figure 2C.4.8: Consumption and production of phosphate fertilizers in 1961-2002

Consumption



Production



Source: FAOSTAT data, 2005