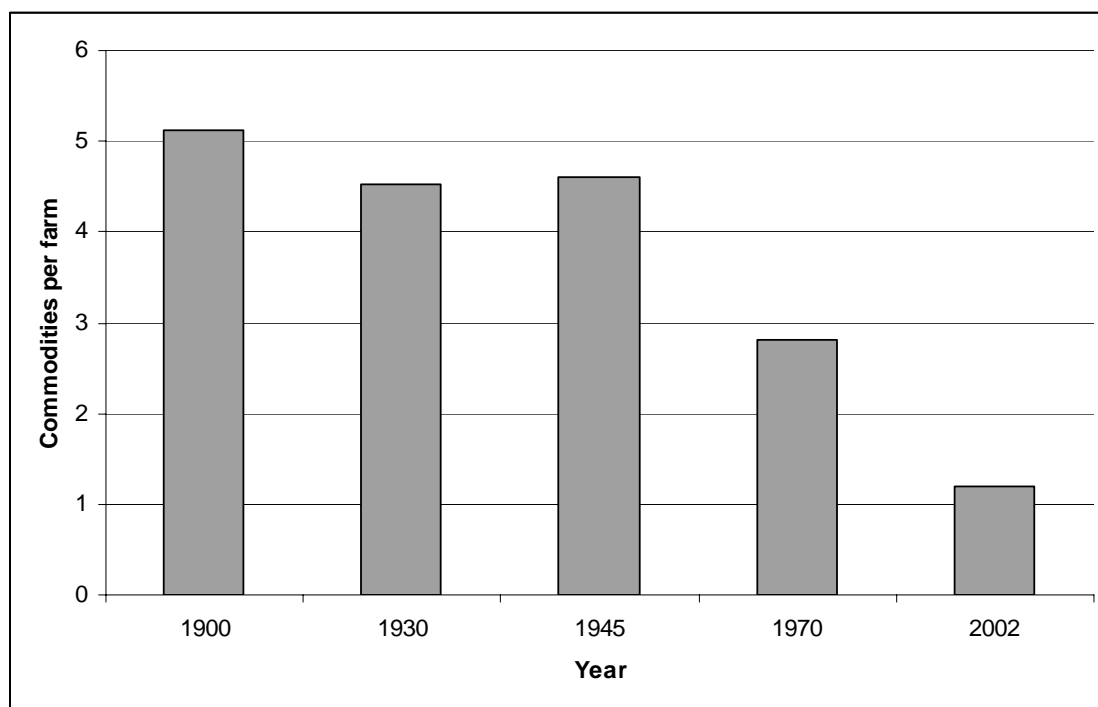


NAE Chapter 2A Figures, tables and boxes

Figure 2A.1: Number of commodities produced per US farms.



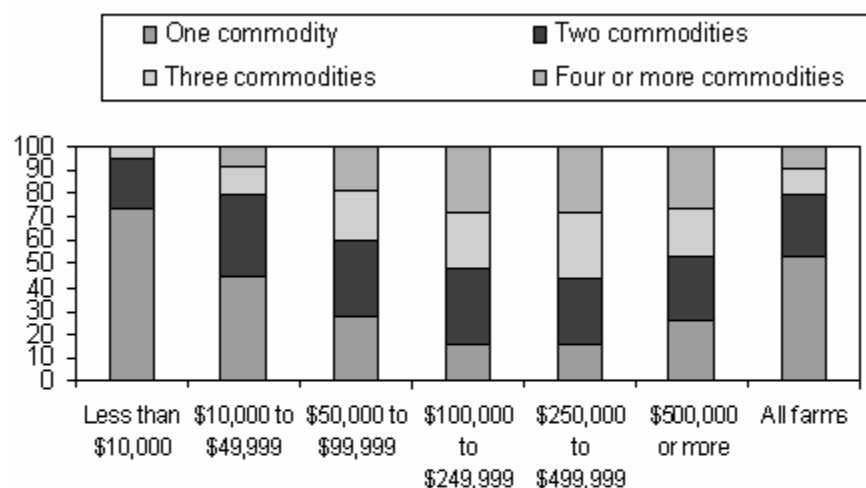
Note: The average number of commodities per farm is a simple average of the number of farms producing different commodities (corn, sorghum, wheat, oats, barley, rice, soybeans, peanuts, alfalfa, cotton, tobacco, sugar beets, potatoes, cattle, pigs, sheep, and chickens) divided by the total number of farms.

Source: Dimitri et al. 2005. (Compiled by Economic Research Service, USDA, using data from *Census of Agriculture*, *Census of the United States*, and Gardner (2002)).

Figure 2A.2: Distribution of commodities by sales class in U.S.

Distribution of by number of commodities produced and sales class, 1999

Few farms produce four or more commodities



Based on 26 commodities groups: barley, oats, wheat, corn for grain, corn silage, soybeans, sorghum for grain, sorghum for silage, canola, fruit, vegetables, peanuts, nursery products, sugar cane, sugar beets, rice, potatoes, cotton, tobacco, cattle, hogs, dairy, poultry, eggs, other livestock, and other crops.

1/ Includes the estimate for four or more commodities, when not shown separately.

Source: USDA, Economic Research Service, 1999 Agriculture Resource Management Survey.

Figure 2A.3: Agricultural Output by Categories of Produces in Russia

Structure of Agricultural Output by Categories of Producers in Russia 1991-2004 (in percent)

Type of Enterprise	1992	2000	2004
Large Enterprise	67.1	43.4	43.1
Private Farmer	1.1	3.0	5.9
Household	31.8	53.6	51.0
Total	100	100	100

Source: *Rossia v tsifrakh 2004* (Moscow: Goskomstat, 2004), 207; *Rossia v tsifrakh 2005* (Moscow: FSGS, 2005), 210. As quoted in O'Brien and Patsiorkovsky, 2006)

Figure 2A.4: Former USSR Agricultural Output Compared to Rest of World

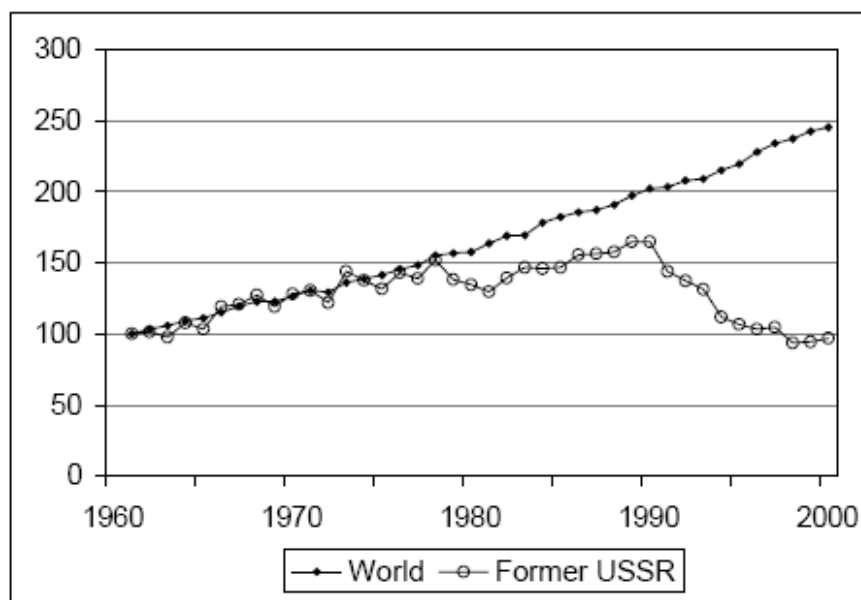


Figure 1. Agricultural Production Indices: former USSR and the world (1961=100)

Source: FAO on-line database, www.fao.org.

Figure 2A.5: Agricultural Output by Product and Enterprise in Russia

Structure of Agricultural Output by Type of Product and Type of Enterprise in Russia 1990-2004
(in percent)

Type of Agricultural Product	Type of Enterprise								
	Large Enterprise			Private Farmer			Household		
	1990	1995	2004	1990	1995	2004	1990	1995	2004
Grain	99.7	94.4	81.2	0.01	4.7	17.4	0.3	0.9	1.4
Sugar Beets	99.9	95.9	88.6	0.01	3.5	10.3	0.0	0.6	1.1
Sunflower	98.6	86.3	74.4	0.0	12.3	24.5	1.4	1.4	1.1
Potatoes	33.9	9.2	6.2	0.0	0.9	2.0	66.1	89.9	91.8
Vegetables	69.9	25.3	14.9	0.0	1.3	4.9	30.1	70.4	80.2
Meat	75.2	49.9	45.1	0.0	1.5	2.4	24.8	48.6	52.5
Milk	76.2	57.1	45.0	0.0	1.5	2.8	23.8	41.4	52.2
Eggs	78.4	69.4	72.8	0.0	0.4	0.5	21.6	30.2	26.7
Total	100	100	100	100	100	100	100		100

Source: *Rossiiia v tsifrakh 2004* (Moscow: Goskomstat, 2004), 207; *Rossiiia v tsifrakh 2005* (Moscow: FSGS, 2005), 210. As quoted in O'Brien and Patsiorkovsky, 2006)

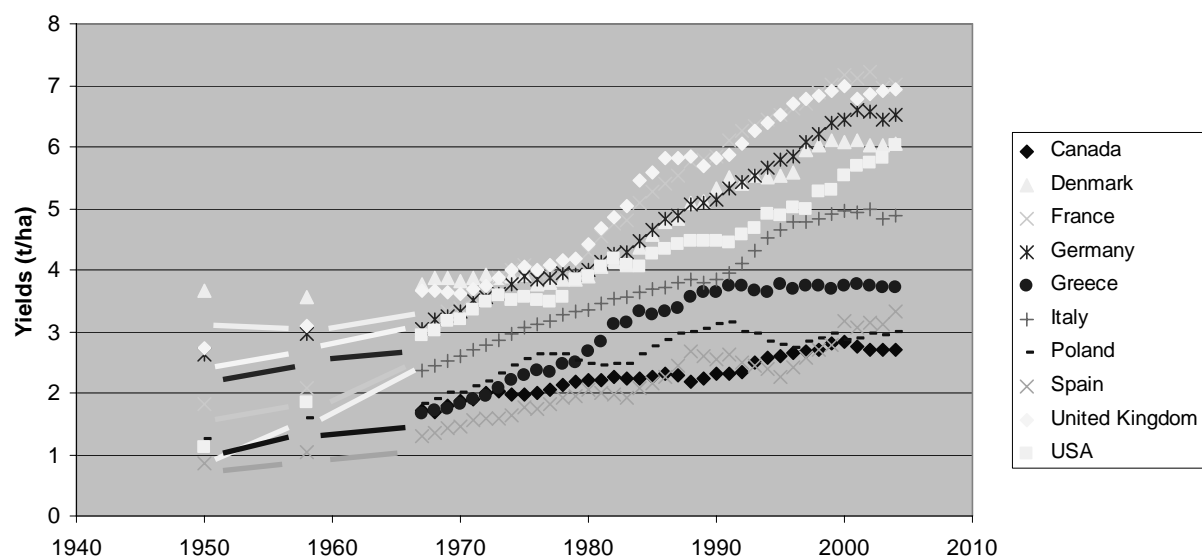
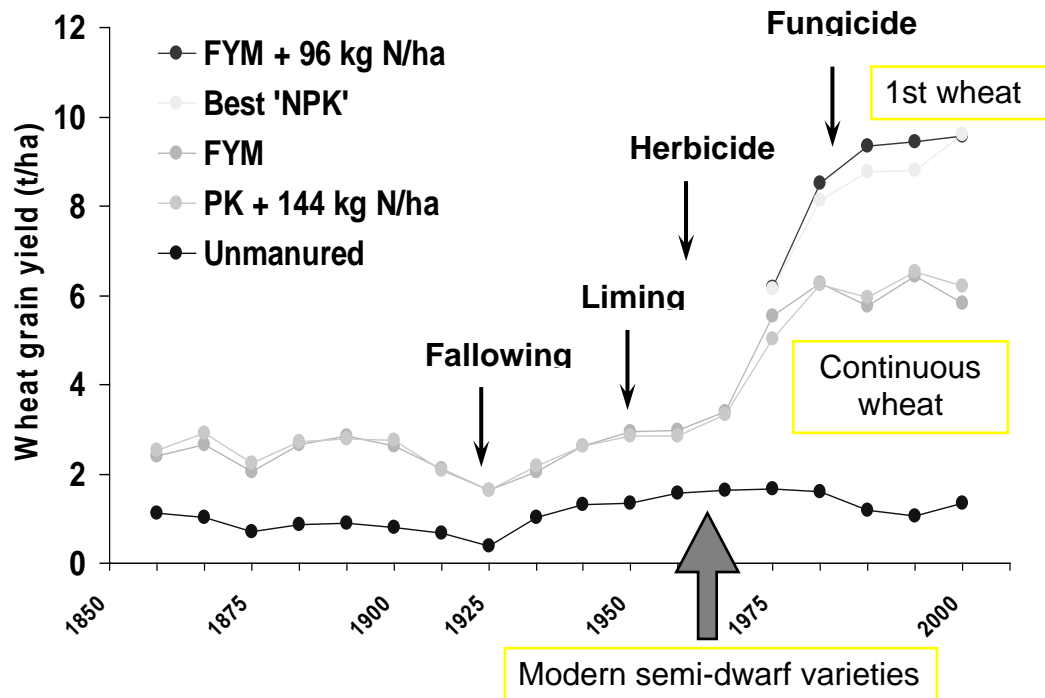


Figure 2A.6: Yields of wheat in a sample of ten countries in the NAE area since 1950.

(Note: Data for 1950 and 1958 are single year values, whereas those for 1967 onwards are rolling 5 year means)

(Source: FAOSTAT Feb 2006 and from FAO Yearbooks 1950 and 1958)

Figure 2A.7: Yield responses on the Broadbalk winter wheat experiment at Rothamsted Research (UK) since 1843 in relation to the introduction of novel agronomic practices. Plots have contrasting levels of organic (FYM) and inorganic nutrients (NPK) (updated from Poulton, 1995)
 NB: FYM = farmyard manure from cattle, 1st wheat = wheat as the first crop in a 4-year rotation



Box 2A.1 Rothamsted Research (UK) (NOTE MUST ACCOMPANY FIGURE 2A.7)

Inorganic and organic fertilizers (NPK) made the earliest contribution to increasing wheat yields. The value of providing a suitable pH was recognized in the 1950s. The first herbicides were developed at this time and improved cultivars started to impact on production. The arrival of the semi-dwarf cultivars in the 1960s enabled farmers to increase fertilizer use still further. The combination of their short stature combined with disease resistance and availability of fungicides and insecticides, further increased yields. Over the period 1950 to 2000 yields had tripled. This example shows how agricultural science and technology had created an environment whereby farmers could continue to increase their crop yields.

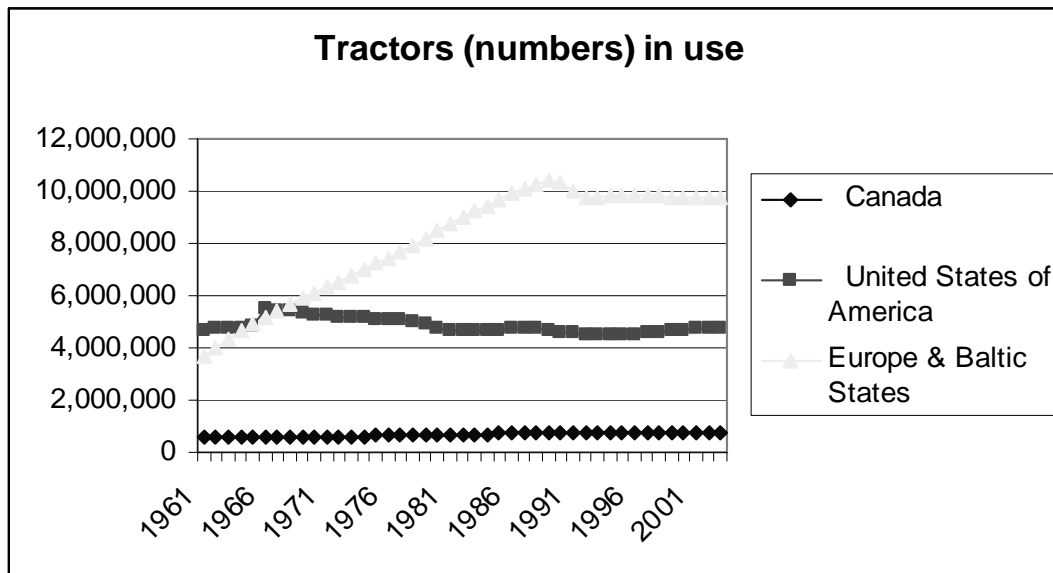


Figure 2A.8 Number of tractors in use for Canada, USA and Europe and Baltic States 1961 to 2003 (Based on FAO statistics)

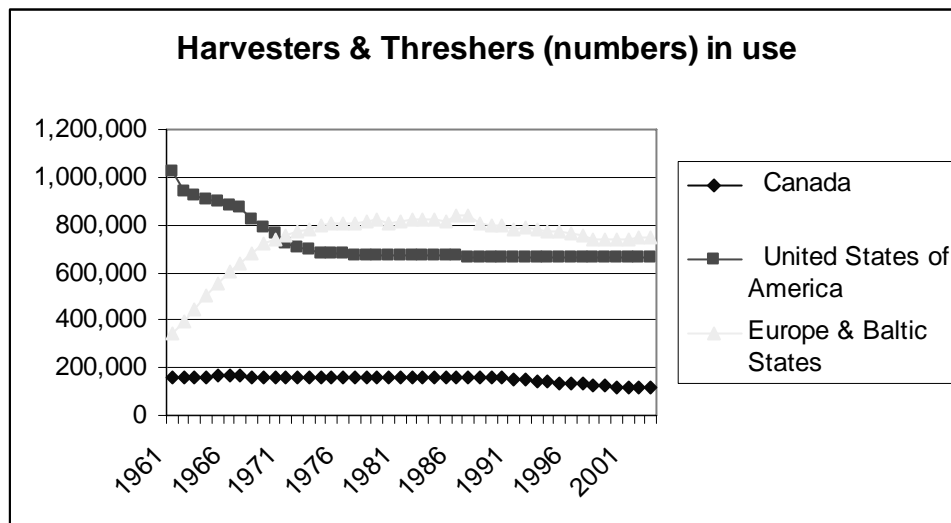


Figure 2A.9 Number of harvesters and threshers in use for Canada, USA and Europe and Baltic States 1961 to 2003 (Source: FAO statistics)

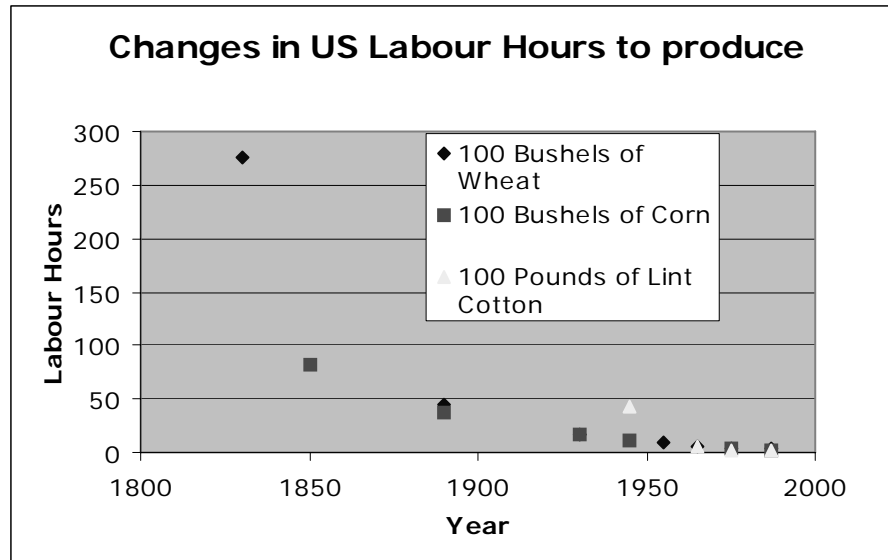
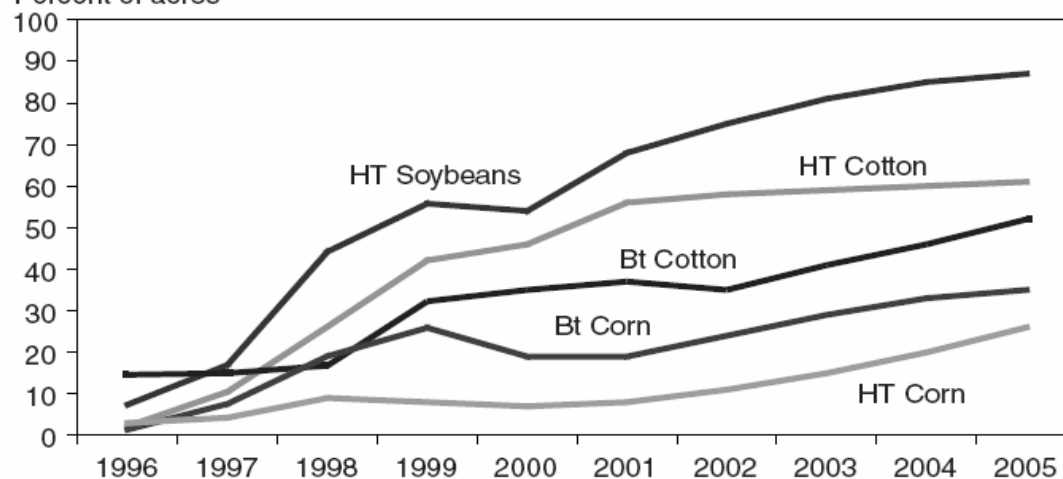


Figure 2A.10 Changes in labor hours resulting from in increased mechanization
(Source USDA data)

Figure 2A.11: Adoption of Genetically Engineered Crops in the U.S.

Adoption of genetically engineered crops grows steadily in the U.S.*

Percent of acres



*Data for each crop category include varieties with both HT and Bt (stacked) traits.
Source: Fernandez-Cornejo (2005).

Table 2A.1: Global Sales of Seeds by NAE Based Companies

Company	2004 Seed Sales (million US \$)	Market Share (in per cent)
DuPont/Pioneer	2,624	10
Monsanto	2,277	9
Syngenta	1,239	5
Limagrain	*1,239	5
Others (both NAE based and others)	17,821	71
World**	25,200	100

Source: UNCTAD, 2006

Figure 2A.12: Fertilizer use in North America. Nitrogen is reported as applied elemental nitrogen. Phosphate contains on an elemental basis 43.66% Phosphorus. Sources: U.S. data is from U.S. Department of Agriculture, Economic Research Service. Canada is from FAO statistics. (Note: there is a one year offset in data provided by ERS and that reported by FAO with the ERS data being one year earlier.)

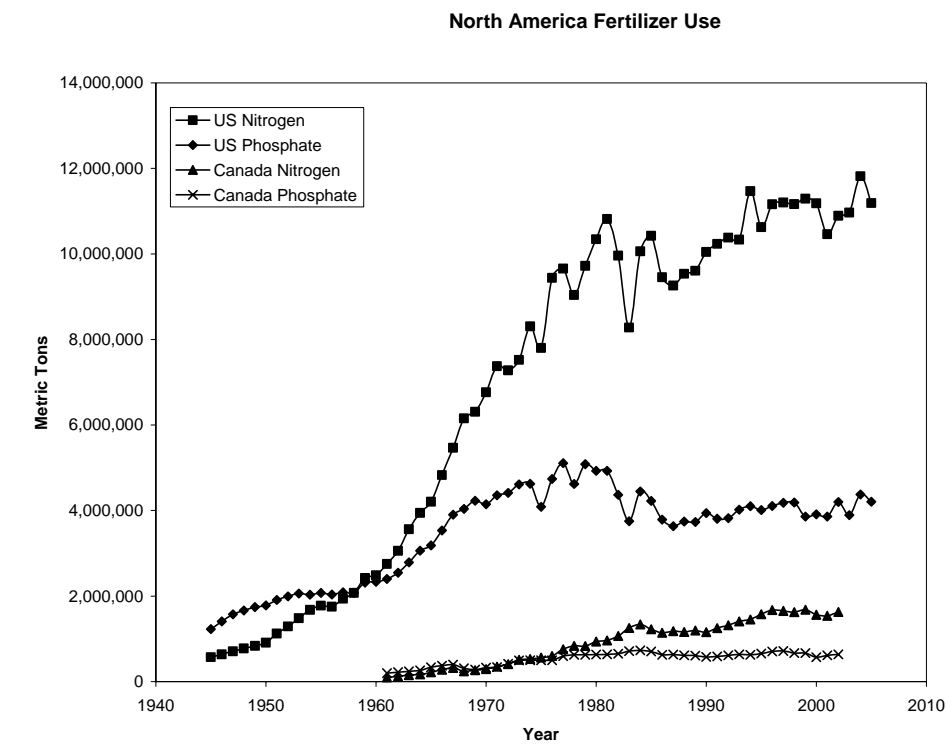
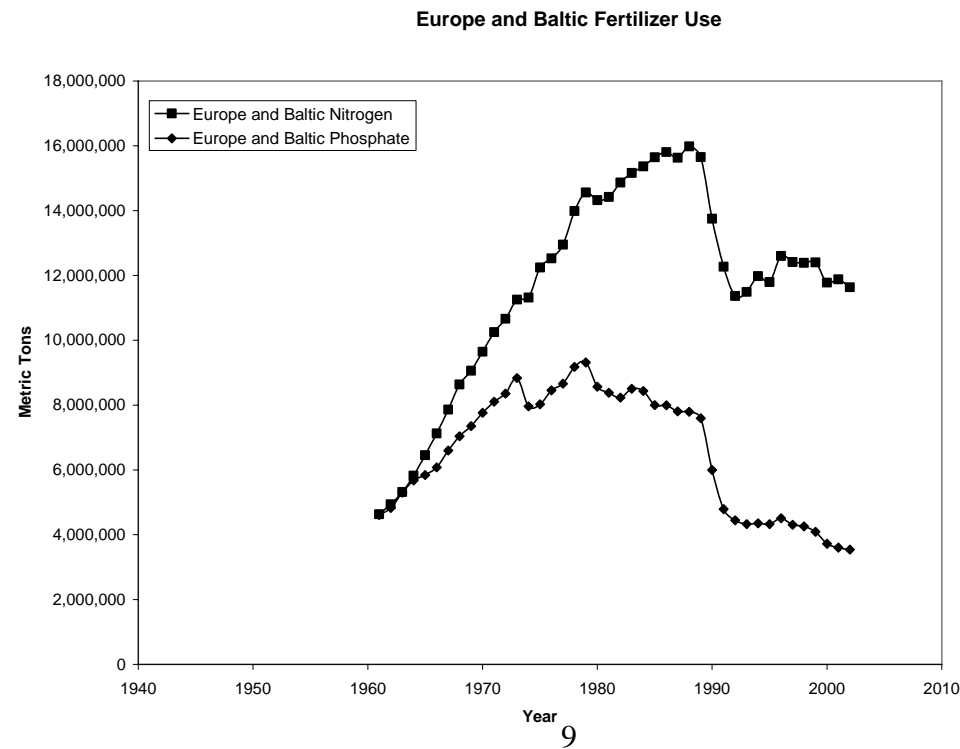


Figure 2A.13: Nitrogen and phosphorus fertilizer use in Europe and the Baltic States. Nitrogen is reported as applied elemental nitrogen. Phosphate contains on an elemental basis 43.66% Phosphorus. Source: FAO statistics.



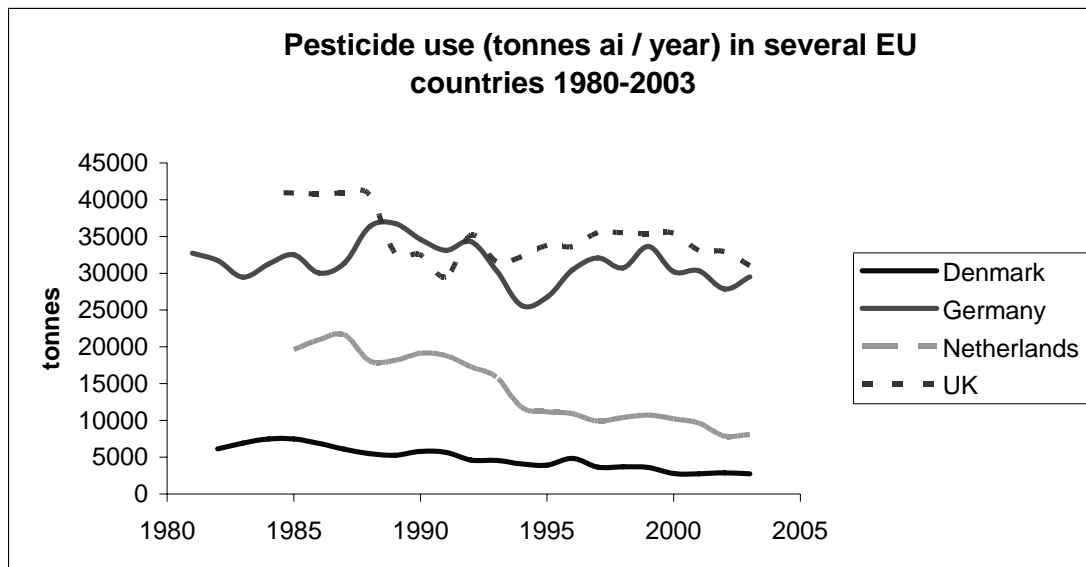


Figure 2A.14: Pesticide use in European Union

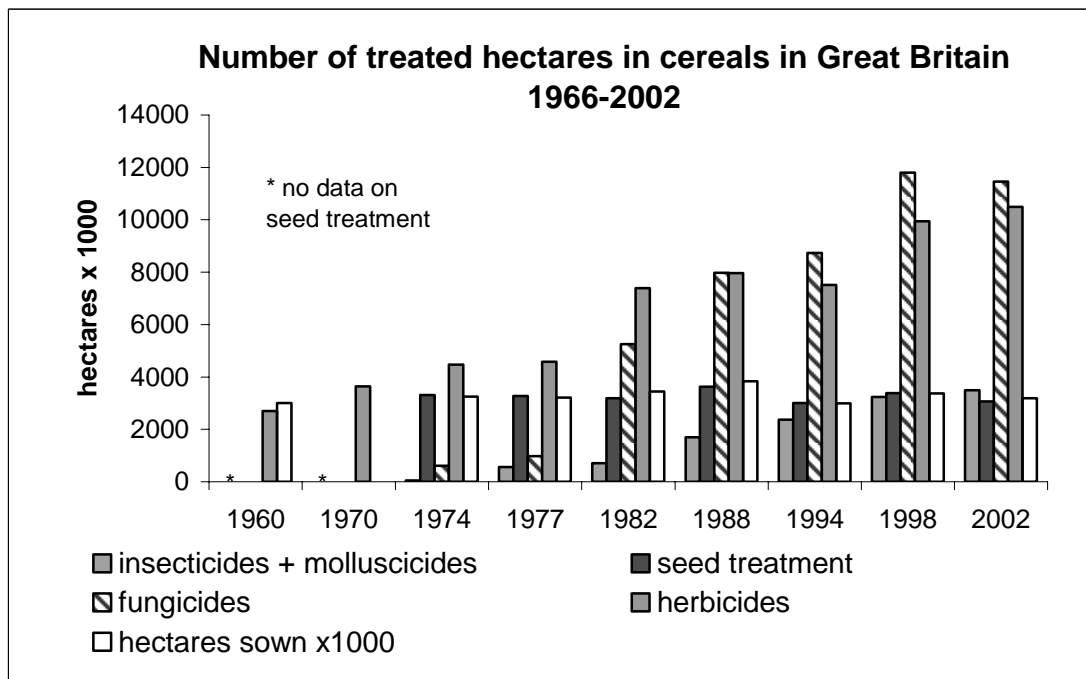


Figure 2A.15 Number of treated hectares in cereals

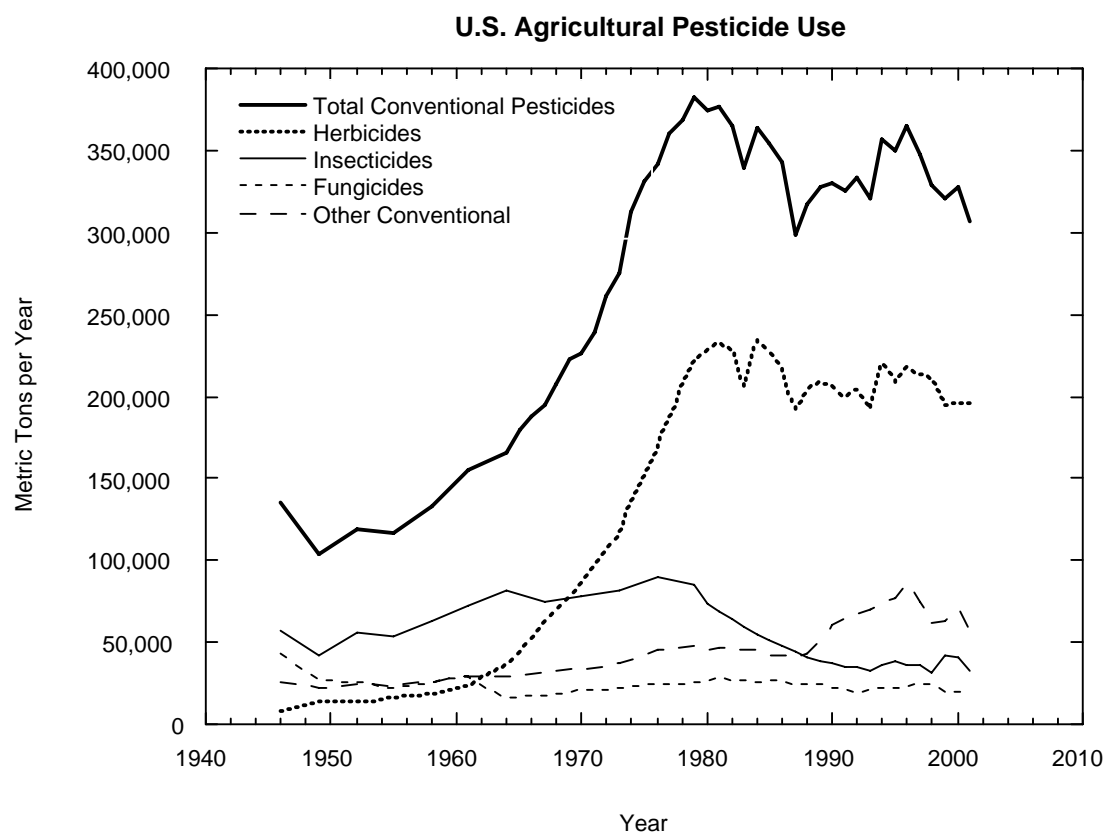


Fig. 2A.16 Trends in Pesticide use in the USA. Values are for tons of active ingredients('Other conventional' pesticides include nematicides and fumigants, (primarily) and also includes rodenticides, molluscicides, fish and bird pesticides. Source: (Kiely et al, 2004, Aspelin, 1997, and Aspelin, 2003)

4.14.3.1 Net balance of external trade ⁽¹⁾ in meat ⁽²⁾ and self-sufficiency

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.

Table 2A.2: Overproduction of pork, beef, poultry meats in EU-15, 2000-2003

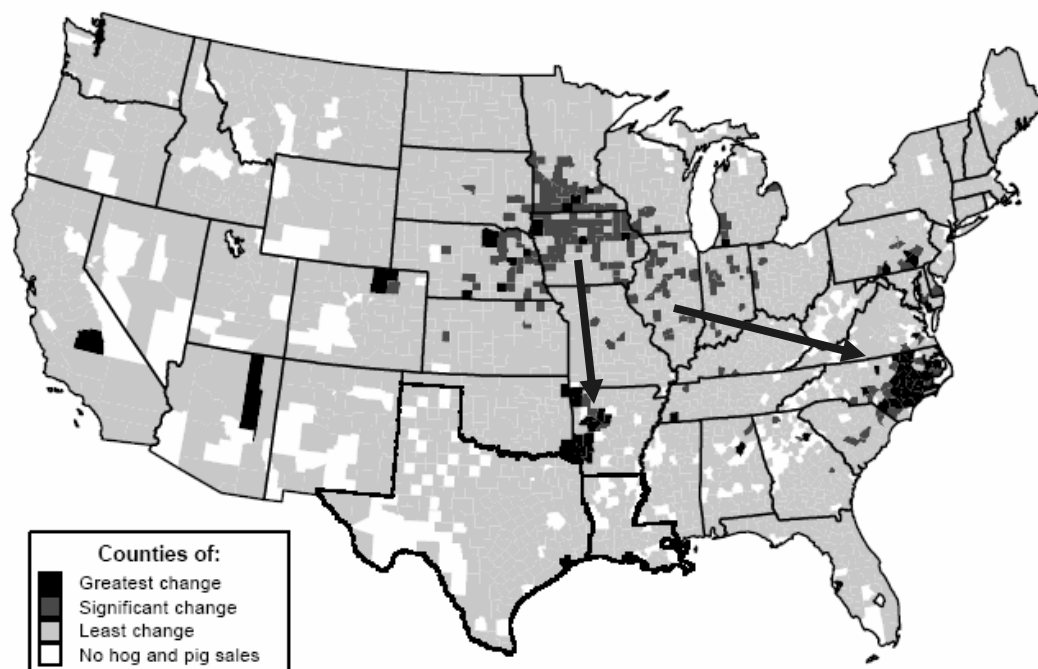
Animal Production on Farms, U.S. and Canada					
Year	Number of Farms	Percent of Farms Producing			
		Beef	Dairy	Swine	Chicken
United States					
2002	2,128,982	37.4%	4.3%	3.7%	1.5%
1974	2,314,013	44.3%	17.4%	20.3%	1.5%
1920	6,118,956	29.7%	74.60%	79.3%	
Canada					
2001	230,540	52.9%	9.5%	6.7%	11.5%
1971	258,716	96.1%	56.2%	47.3%	46.2%
1921	711,090	84.2%		63.4%	82.4%

Table 2A.3 Change in Livestock Farming Operations

Source: Farm Foundation, 2004. The Future of Animal Agriculture in North America. Table 1. Compiled from U.S. Census of Agriculture; Census of Agriculture, Statistics Canada, Recensement de l'agriculture, Statistique Canada.

Figure 11

Structural change in hog and pig sales, 1969-92



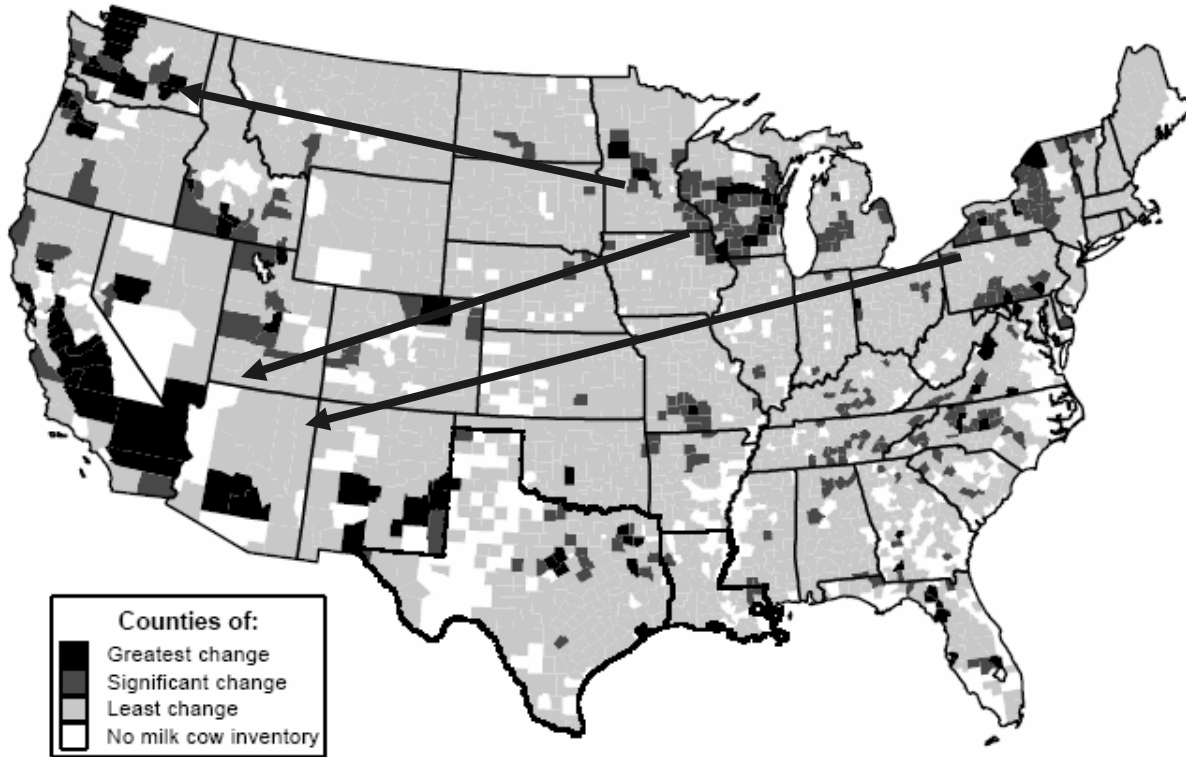
Source: Compiled by ERS using census of agriculture data.

Figure 2A.17 Geographic Changes in Production of Hogs and Pigs in the U.S. (Source: McBride, 1997 – arrows added)

Figure 2A.18: Geographic changes in dairy production (Source McBride, 1997 – arrows added)

Figure 12

Structural change in the milk cow inventory, 1969-92



Source: Compiled by ERS using census of agriculture data.

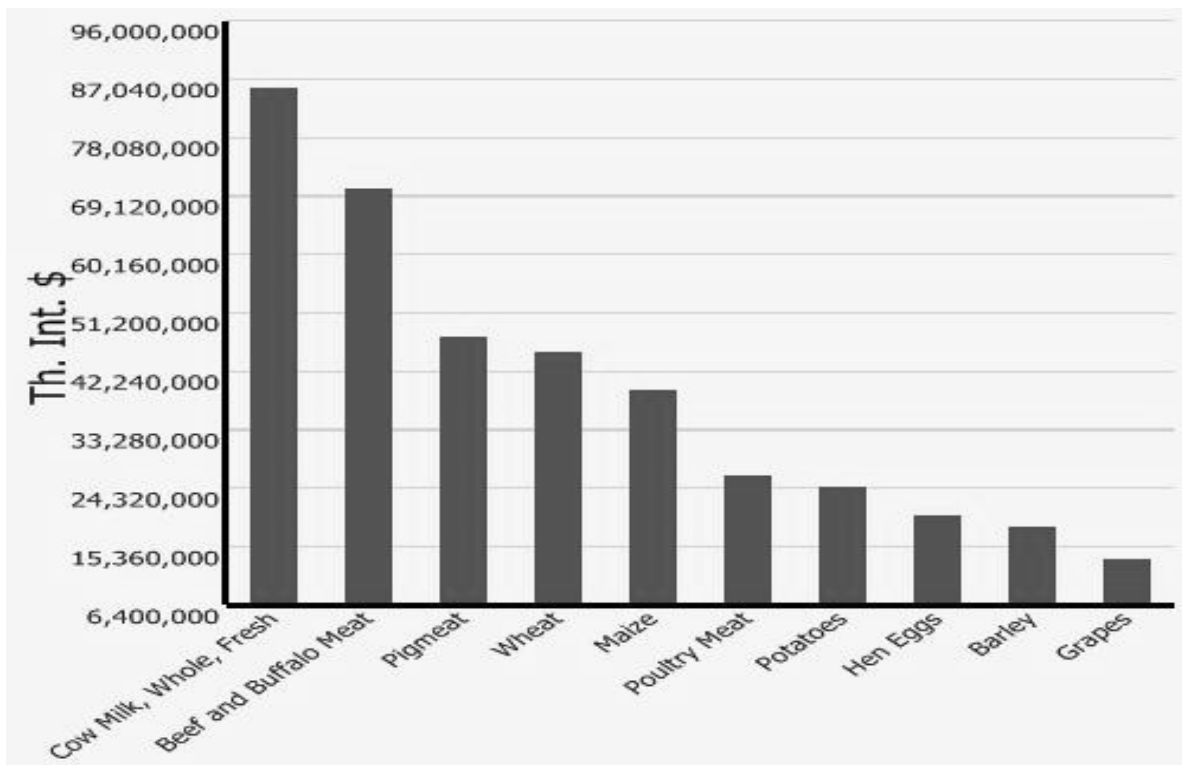


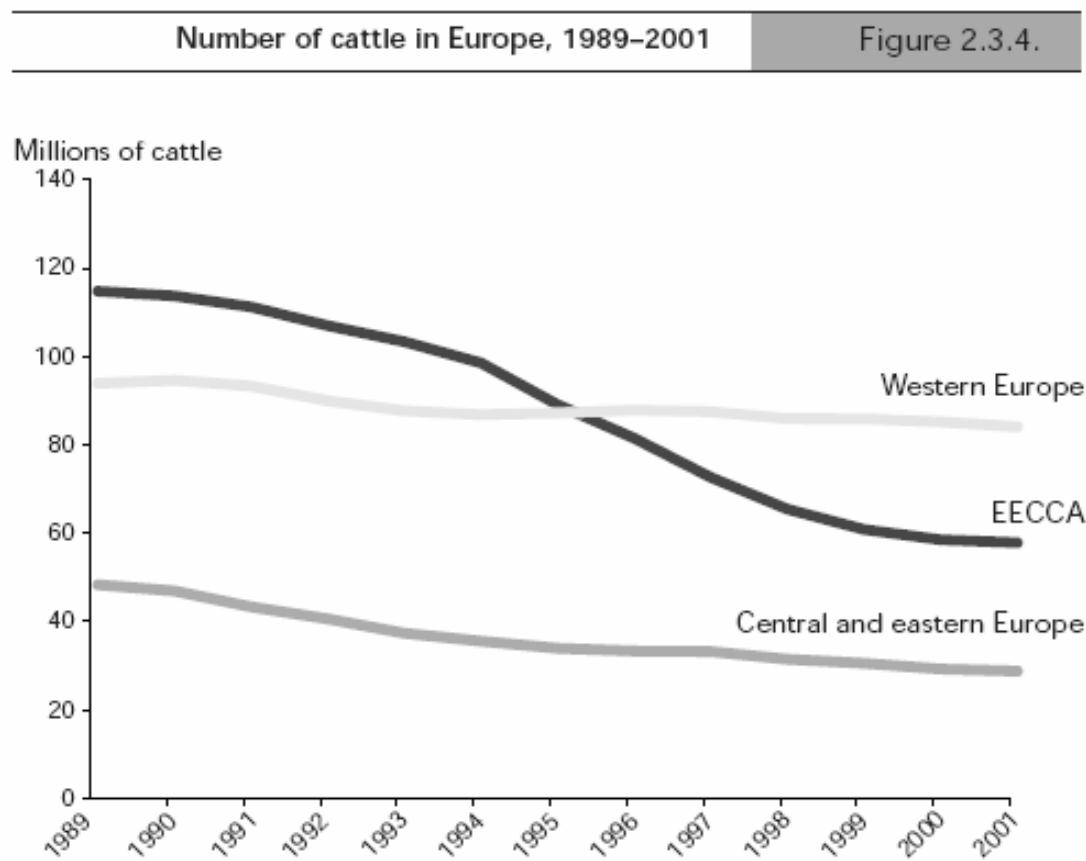
Figure 2A.19: The most valuable agricultural commodities produced by the developed countries in 1985 (FAO <http://www.fao.org/es/ess/historical/Default.aspx>)

Figure 2A.20 Changes in Cattle Numbers in Europe

Source European Environment Agency Environmental Assessment Report 2003 (Available at:

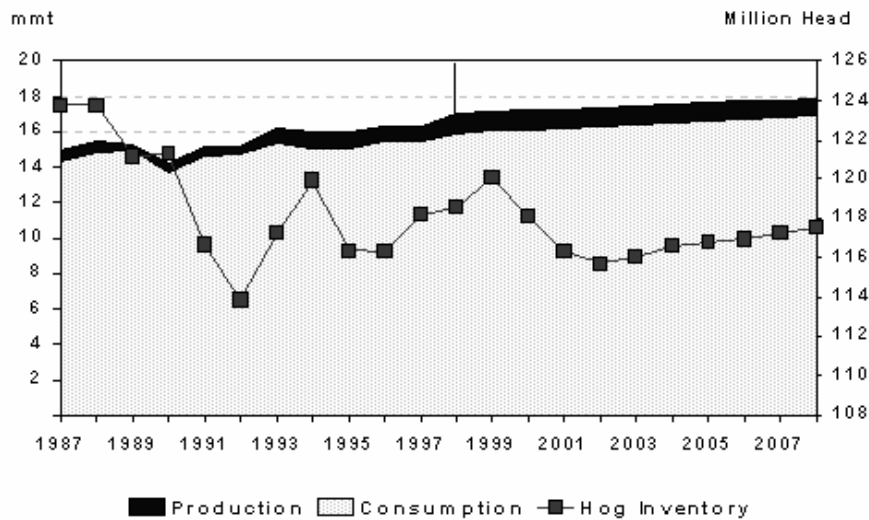
http://reports.eea.europa.eu/environmental_assessment_report_2003_10/en/kyev_chapt_02_3.pdf)

EECCA = Central and Eastern Europe, Caucasus and Central Asia



Note: Similar declining trends are reported for pigs, sheep and goats in CEE and EECCA, while in the EU there was little net change in pig, sheep or goat numbers.

European Union Pork Production, Consumption and Swine Inventory

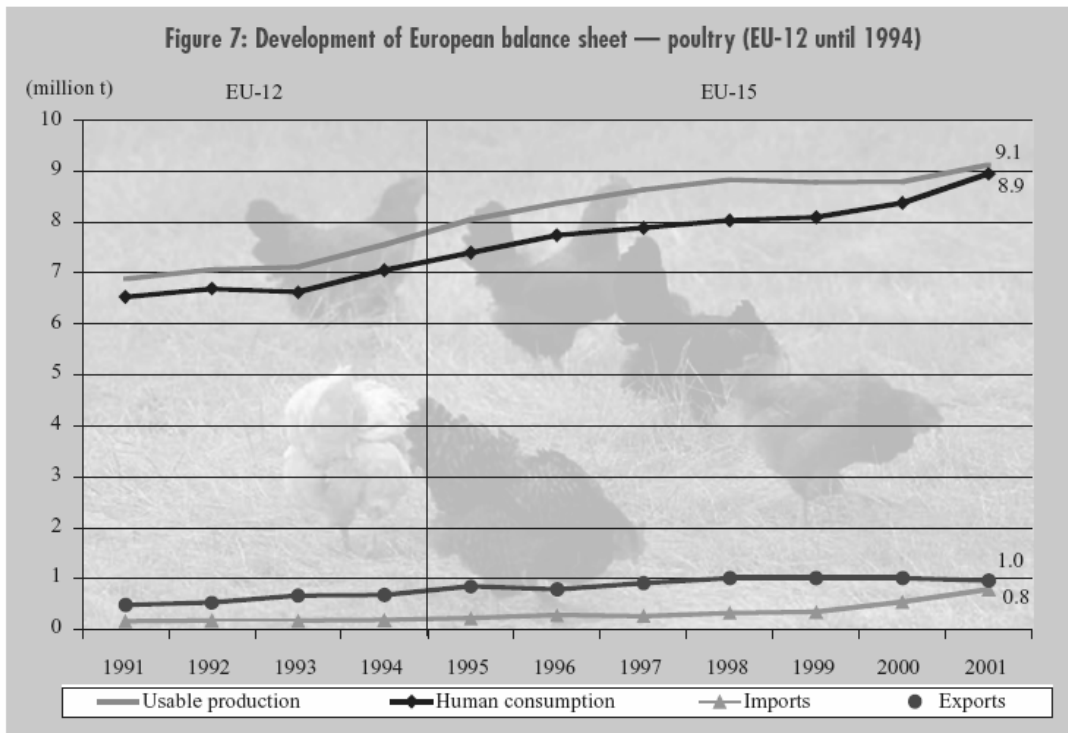


Iowa State University

FAPRI

Figure 2A.21 Swine consumption in the European Union.

Figure 2A.22 Development of European balance sheet in poultry



Source: Eurostat; Agriculture DG.

Figure 2A.23 Change in the Value of Meat Production in US from 1948-2005 (Source: USDA-NASS)

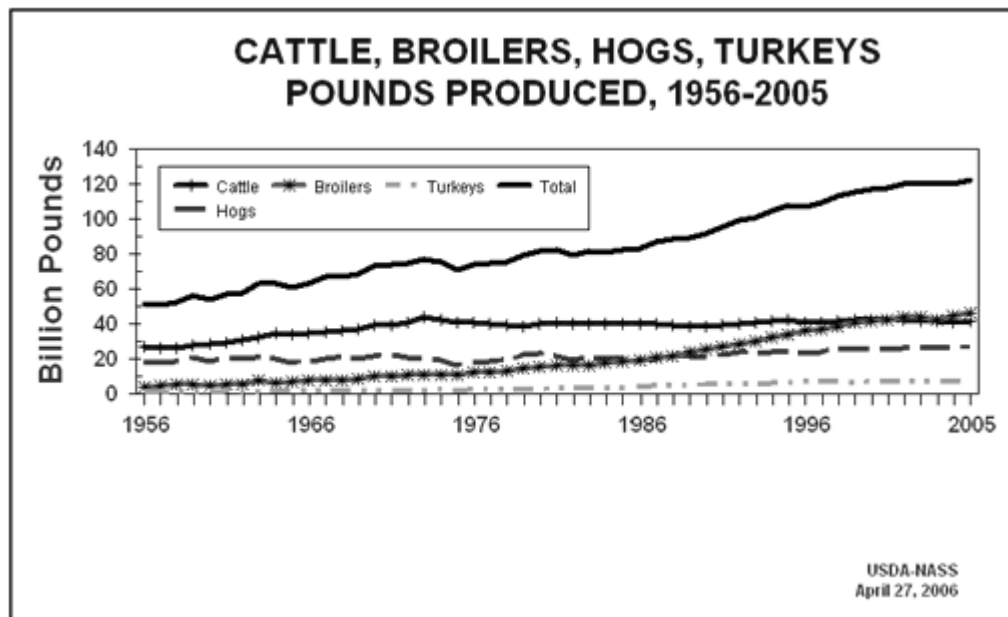
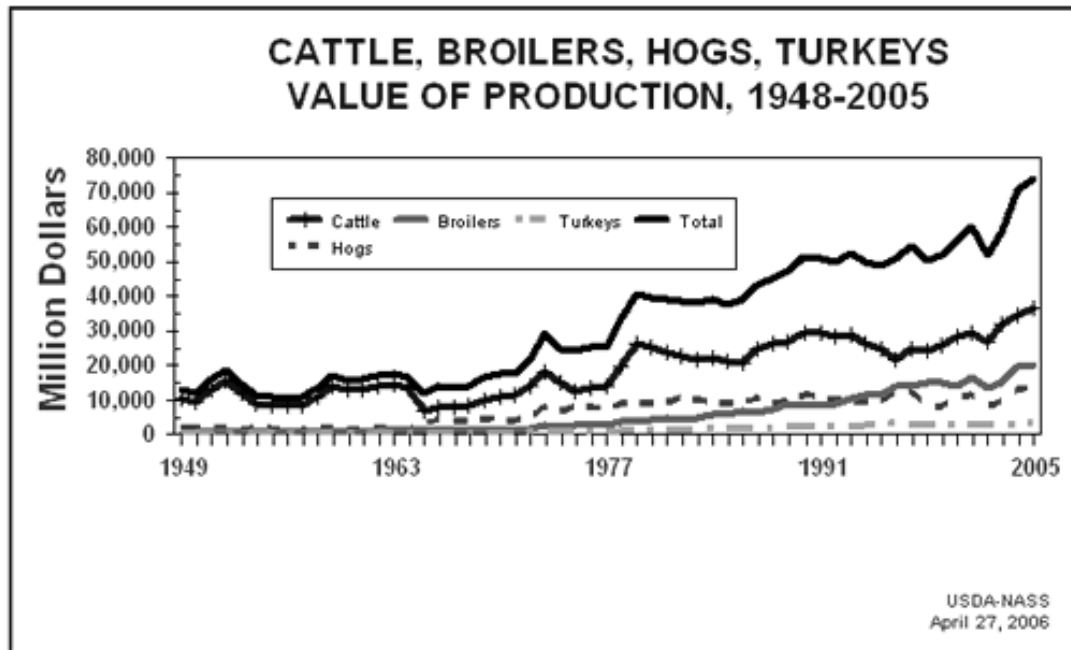


Figure 2A.24 Pounds of meat produced in the U.S. from 1956-2005 (Source: USDA-NASS)

Table 2A.4: U.S. Red Meat Production

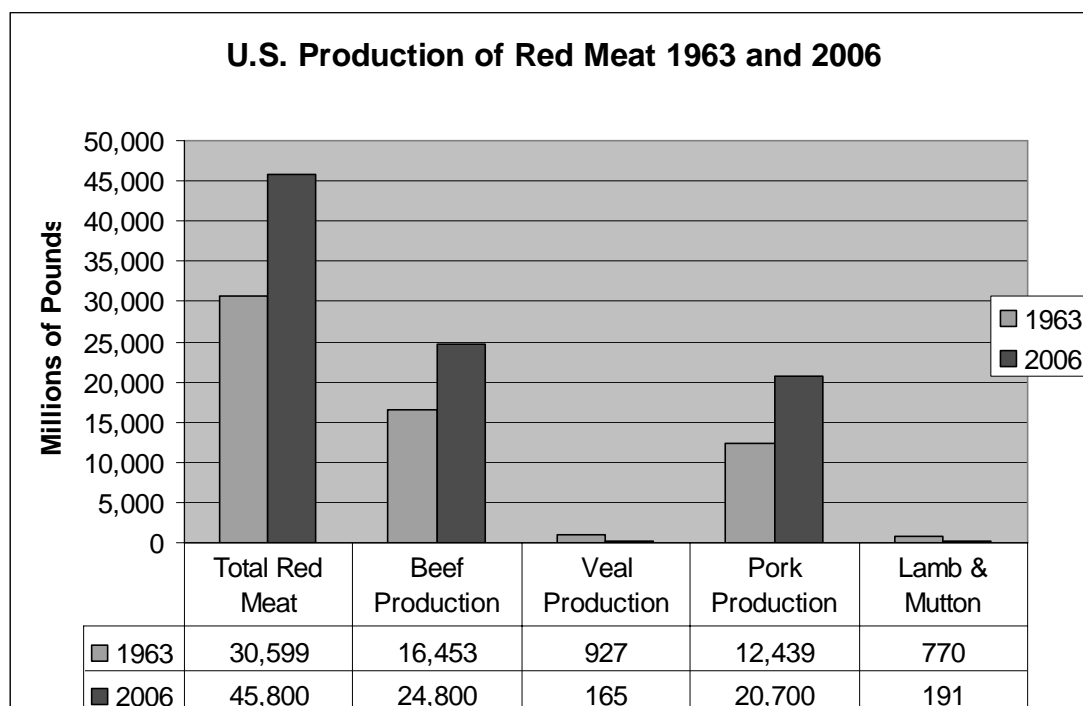
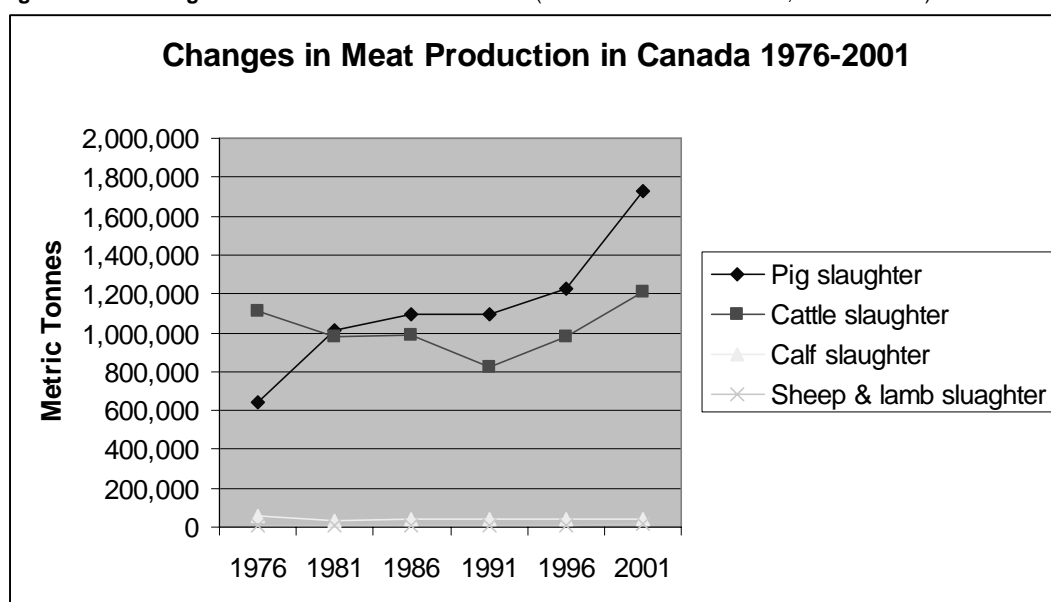


Figure 2A.25 Changes in Meat Production in Canada (Source: Statistics Canada, 2001 Census)



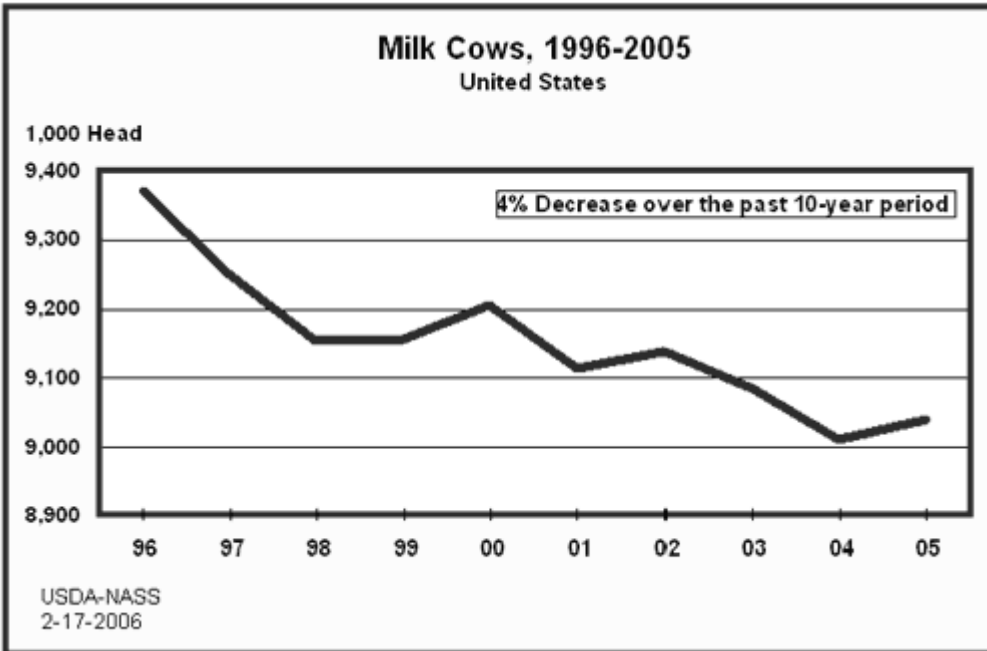


Figure 2A.26: Number of milk cows in U.S. from 1996-2005 (Source: USDA-NASS, 2006 Accessed at http://www.nass.usda.gov/Charts_and_Maps/Milk_Production_and_Milk_Cows/ on 7/23/06)

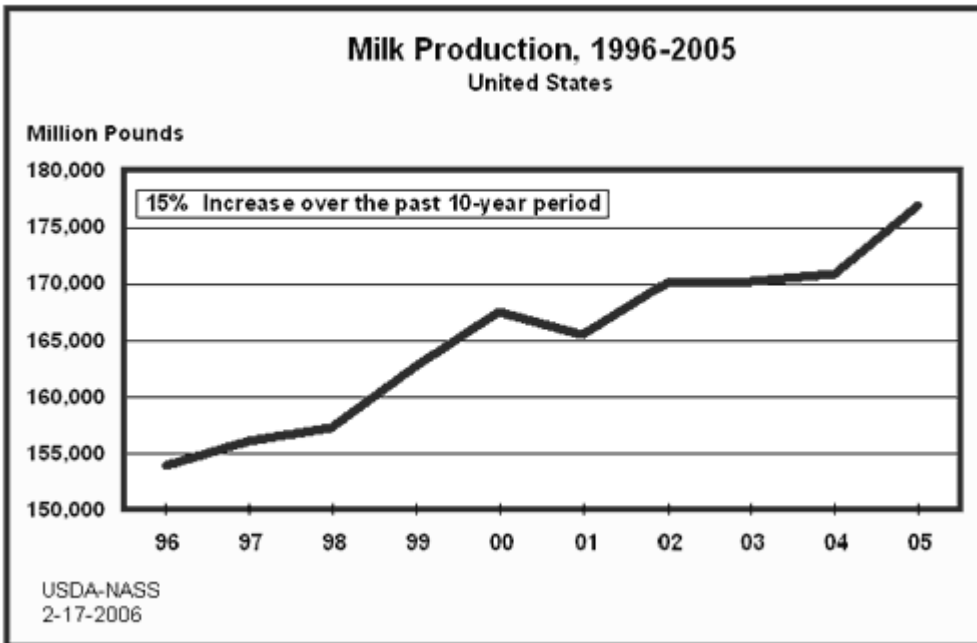


Figure 2A.27: Trends in milk production in U.S. from 1996-2005 (Source: USDA-NASS, 2006 Accessed at http://www.nass.usda.gov/Charts_and_Maps/Milk_Production_and_Milk_Cows/ on 7/23/06)

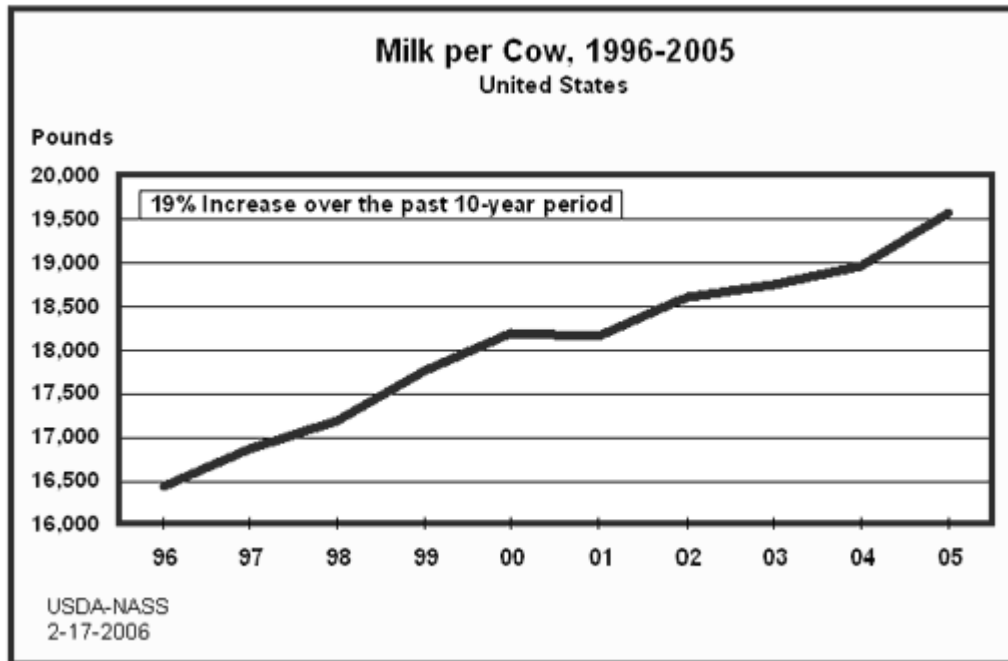


Figure 2A.28 Trends in productivity per cow in U.S. from 1996-2005 (Source: USDA-NASS, 2006 Accessed at http://www.nass.usda.gov/Charts_and_Maps/Milk_Production_and_Milk_Cows/ on 7/23/06)

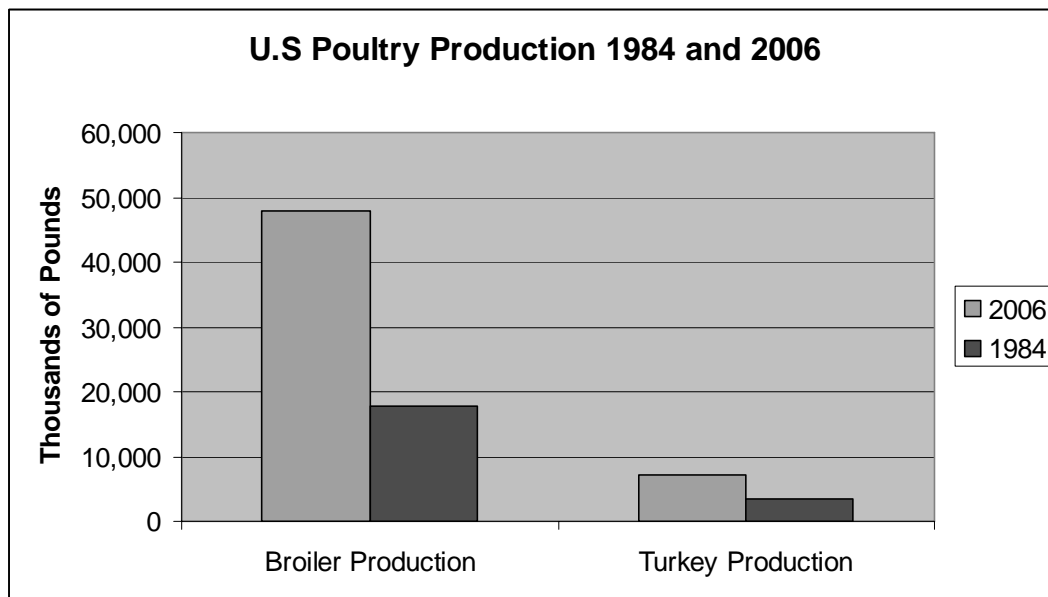


Figure 2A.29: Poultry production trends in terms of pounds of meat produced in the U.S. (Source: USDA Statistics)

Table 2A.5: Change in forest cover Europe 1990 to 2005

Forest Cover (millions of hectares)	
1990	989
2000	998
2005	1,001
Annual change Millions of hectares	
1990-2000	+ 0.9
2000-2005	+ 0.7
1990-2005	+ 0.8
Source: U.N. Food and Agriculture Organization, Global Forest Resources Assessment 2005 (Rome: 2006), www.fao.org/forestry/site/32038/en .	

Table 2A.6: Changes in forested land by region

Change in forested land 1990-2000 by region

	<i>total land area (million ha)</i>	<i>total forest 1990 (million ha)</i>	<i>total forest 2000 (million ha)</i>	<i>% of land forested in 2000</i>	<i>change 1990- 2000 (million ha)</i>	<i>% change per year</i>
Africa	2 963.3	702.5	649.9	21.9	-52.6	-0.7
Asia and the Pacific	3 463.2	734.0	726.3	21.0	-7.7	-0.1
Europe	2 359.4	1 042.0	1 051.3	44.6	9.3	0.1
Latin America and the Caribbean	2 017.8	1 011.0	964.4	47.8	-46.7	-0.5
North America	1 838.0	466.7	470.1	25.6	3.9	0.1
West Asia	372.4	3.6	3.7	1.0	0.0	0.0
World	13 014.1	3 960.0	3 866.1	29.7	-93.9	-0.24

Source: compiled from FAO 2000

Note: numbers may not add due to rounding

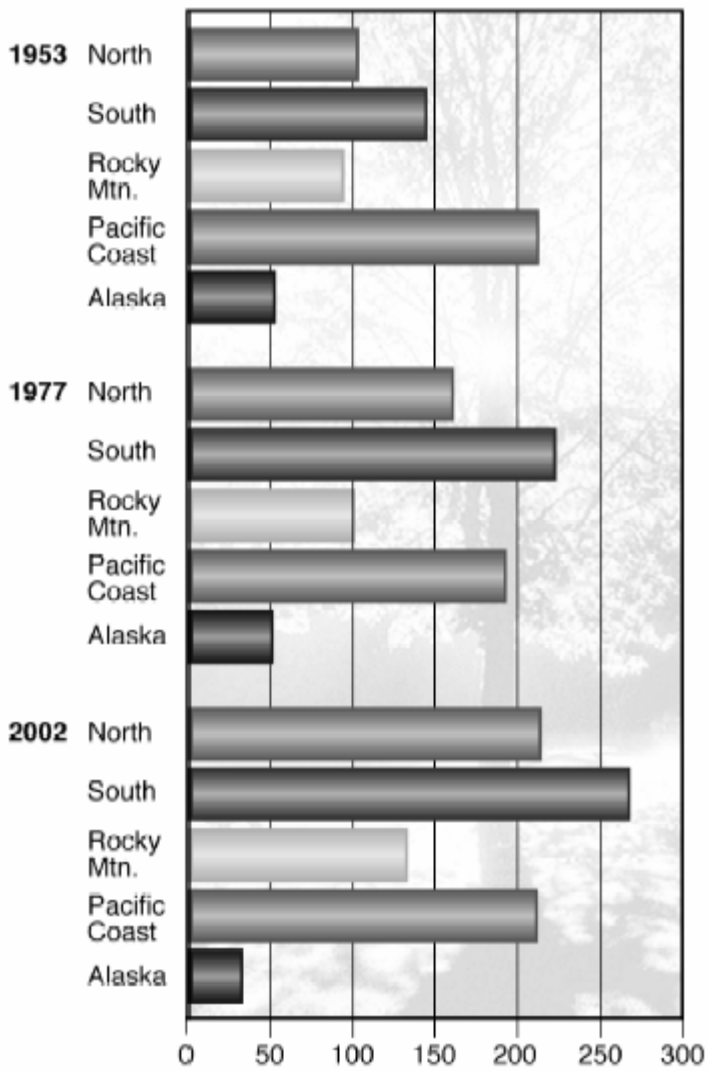


Figure 2A.30: Trends in growing-stock volume on timberland by region, 1953-2002 (Smith et al., 2002).

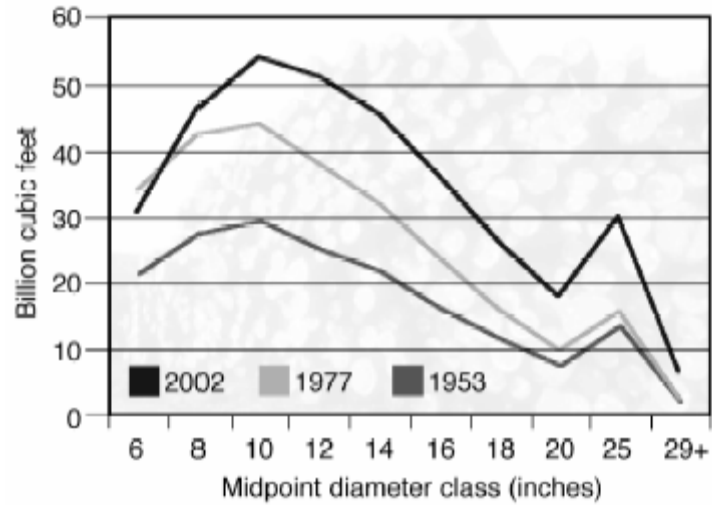


Figure 2A.31: Distribution of hardwood growing stock on timberland by diameter class, 1953, 1977, 2002 (Smith et al., 2002).

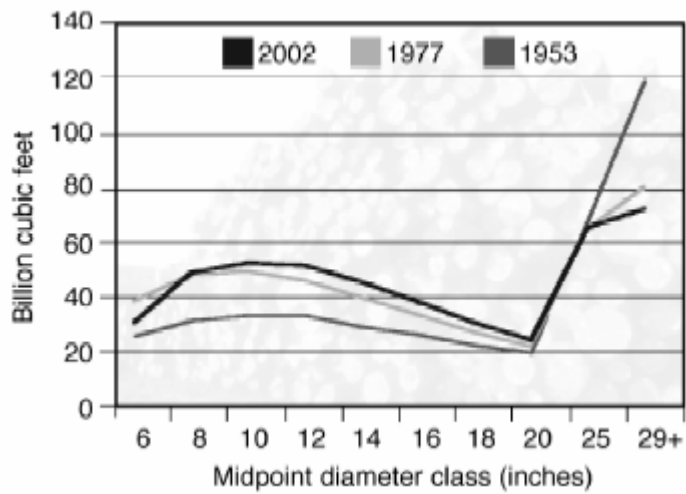


Figure 2A.32: Distribution of softwood growing stock on timberland by diameter class, 1953, 1977, 2002 (Smith et al., 2002).

Figure 2A.33 Changes in European forest areas (natural and plantation) 1993 to 2004
Estimated average annual changes in area of forest and other wooded land (FOWL) in TBFRA area

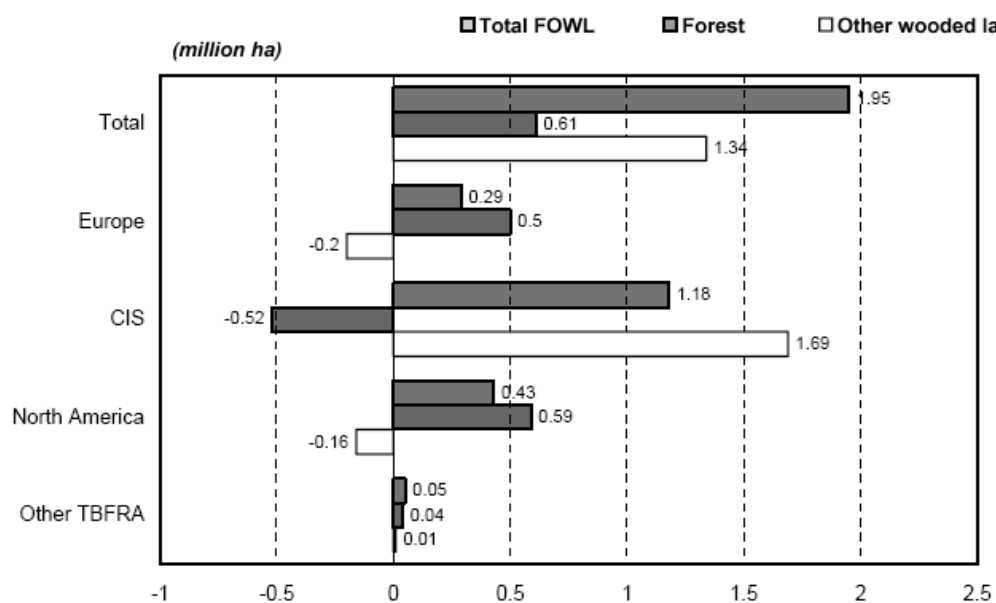


Chart from TBFRA-2000: Executive Summary, p5 <http://www.unece.org/trade/timber/fra/screen/summary.pdf>

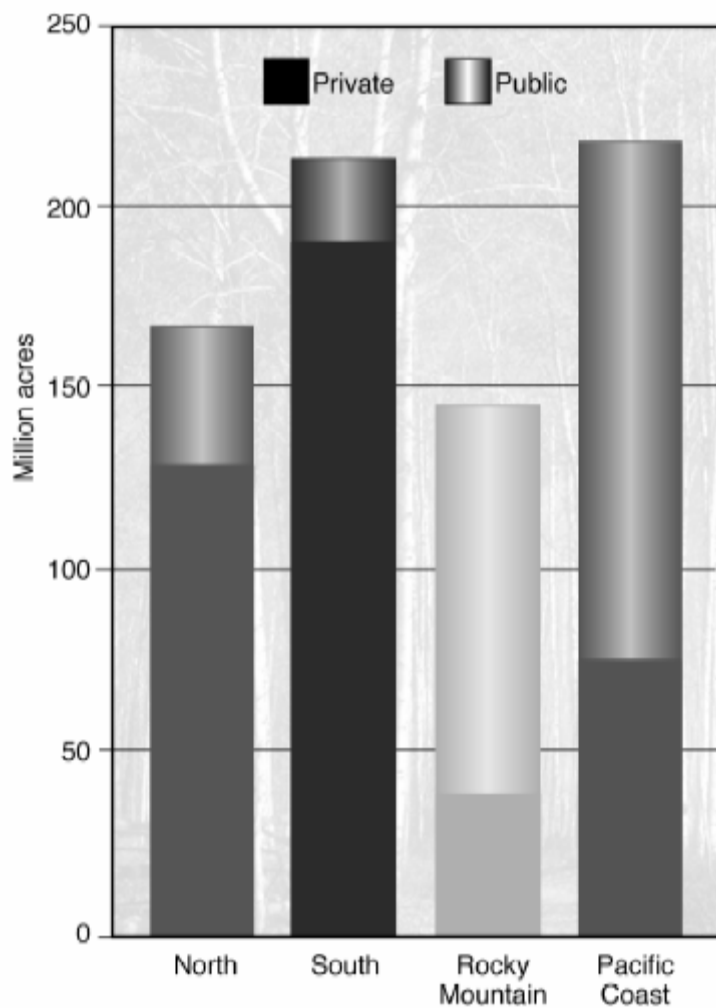


Figure 2A.34: Distribution of forest land by major region and ownership group (Smith et al., 2002).

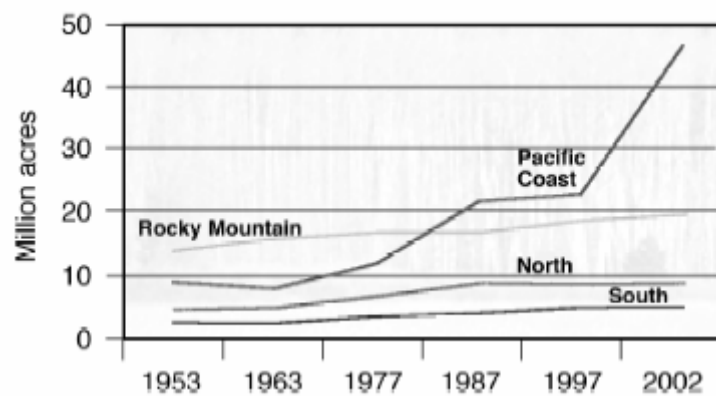


Figure 2A.35: Trends in reserved forest land by major region, 1953-2002 (Smith et al., 2002).

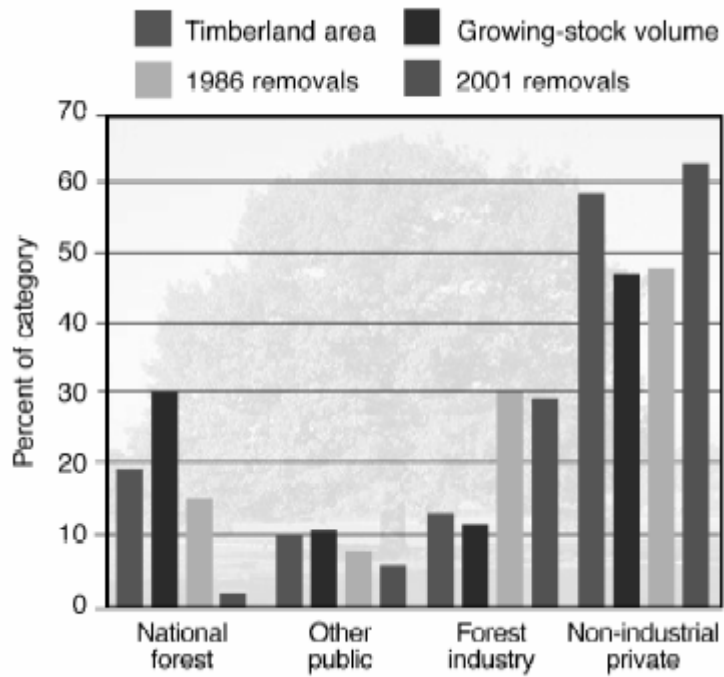


Figure 2A.36: Proportion of timberland area, growing-stock volume, and harvested volume by ownership group, 2001 (Smith et al., 2002).

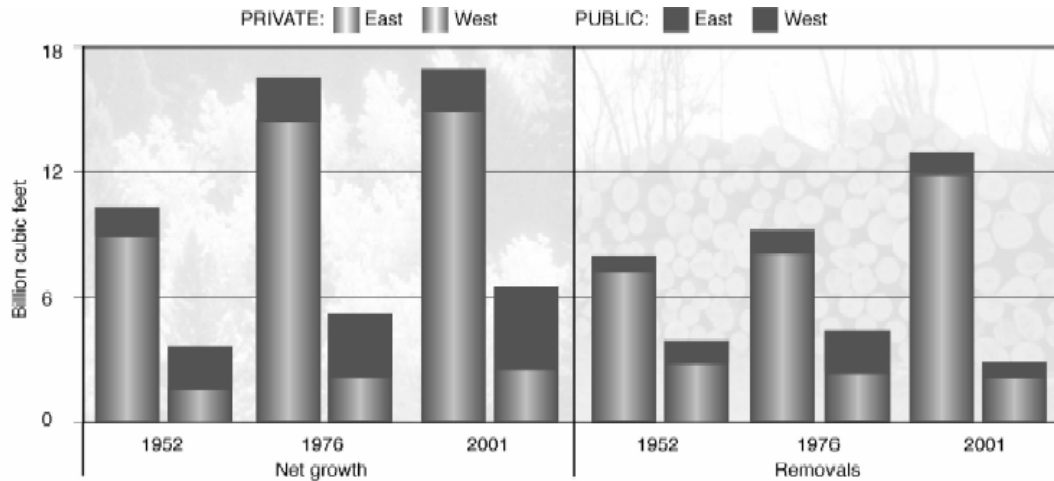


Figure 2A.37: Growing-stock growth and removals by major region, 1952-2001 (Smith et al., 2002).

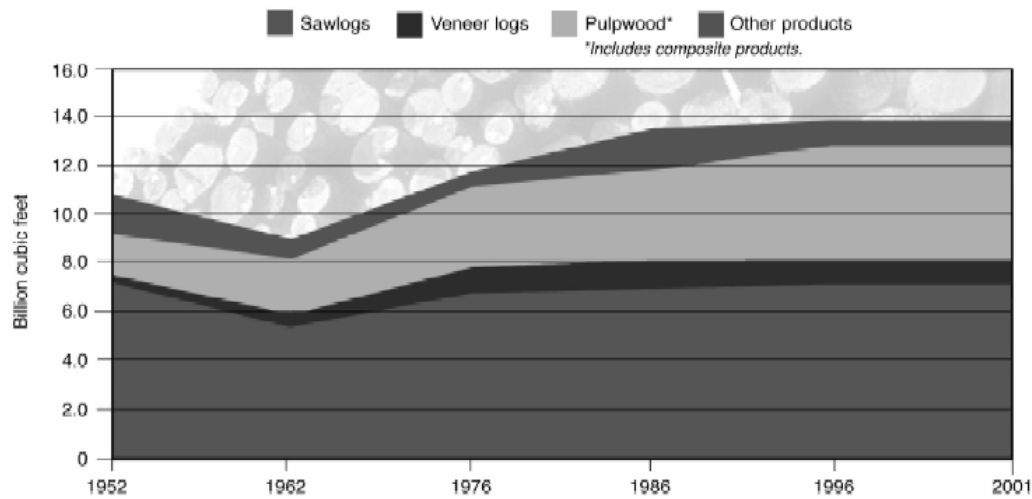


Figure 2A.38: Trends in growing-stock harvested for timber products output, 1952-2002 (Smith et al. 2002).

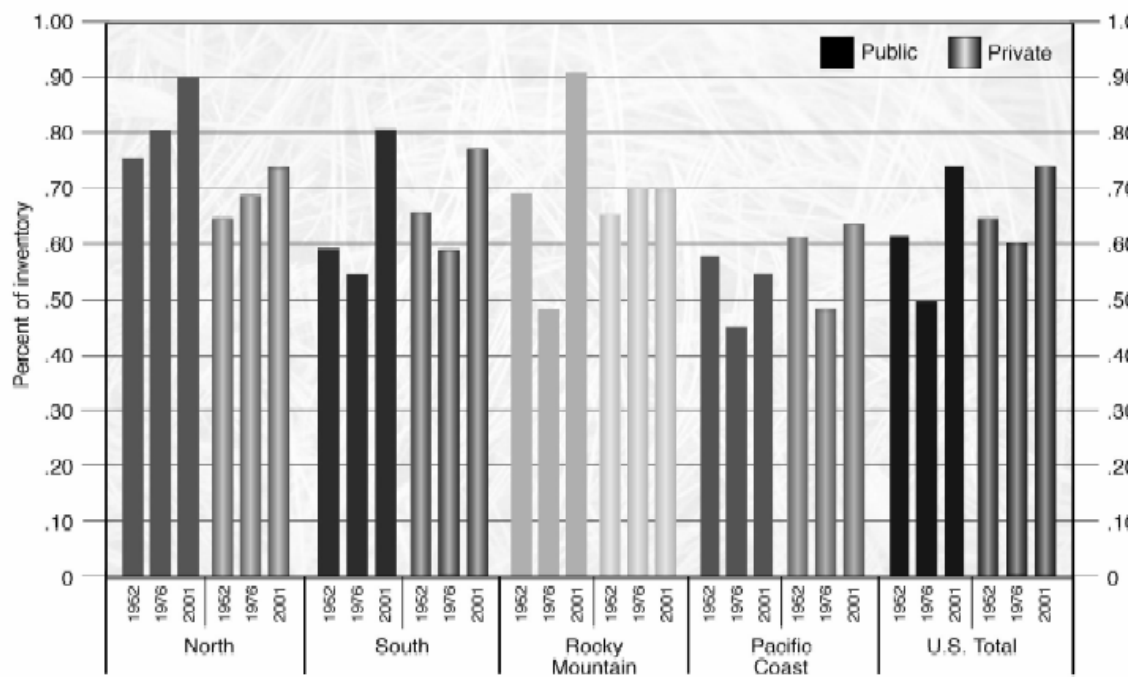


Figure 2A.39: Mortality as a percent of growing-stock volume on timberland by major group owner, 1952-2001 (Smith et al., 2002).

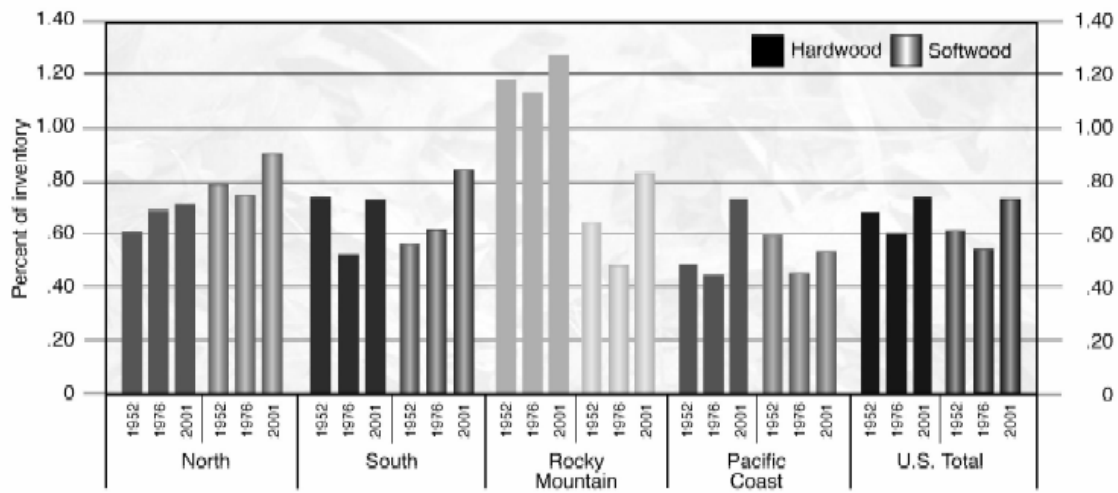


Figure 2A.40: Mortality as a percent of growing-stock volume on timberland by species and Region, 1952-2001 (Smith et al., 2002).

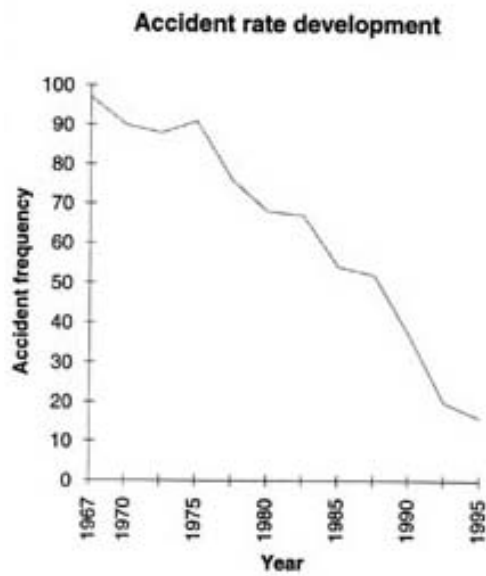


Figure 2A.41: Accident frequency rate, i.e. number of accidents per one million man hours worked in Swedish forestry (1967 to 1995)

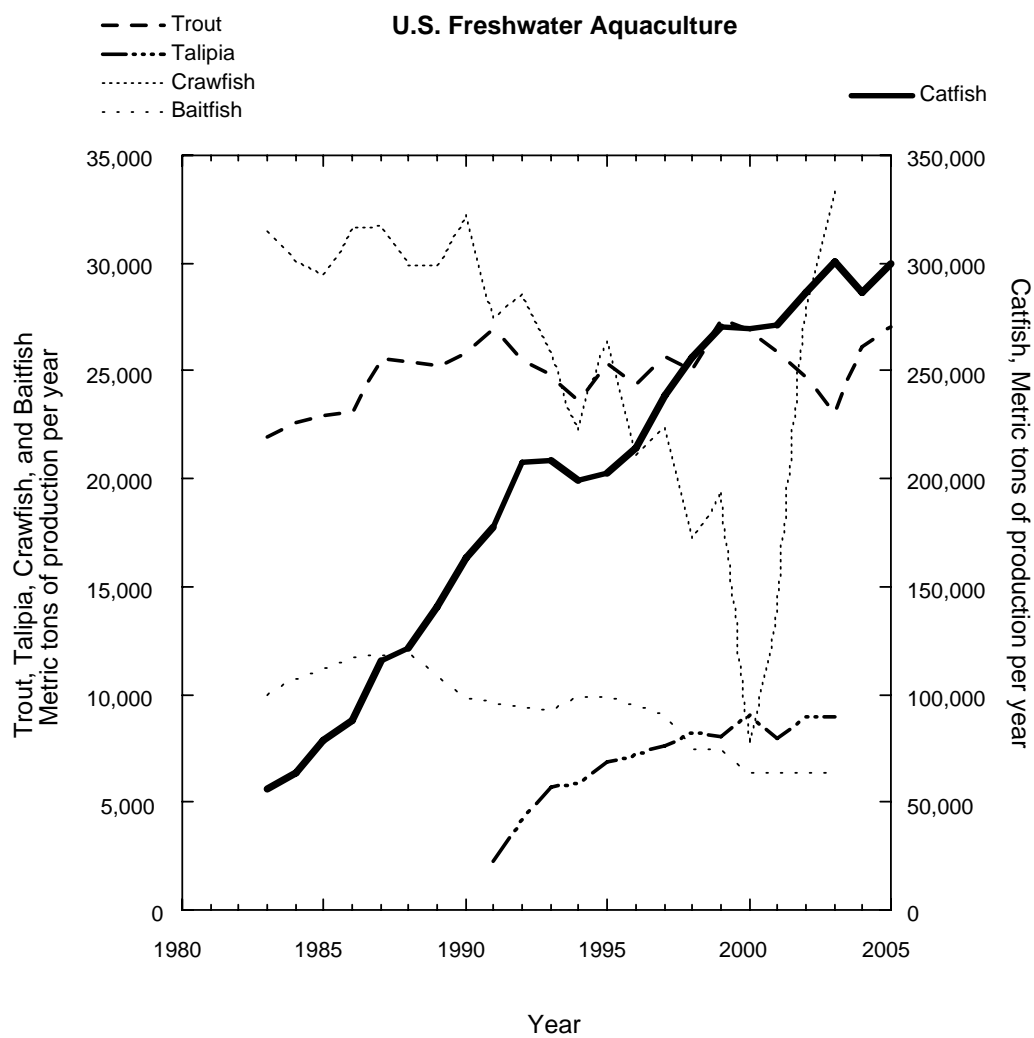


Figure 2A.42: Production of major aquaculture species in the U.S. Note different scale for catfish.

Figure 2A.43: Production of major salt water aquaculture species in the U.S.

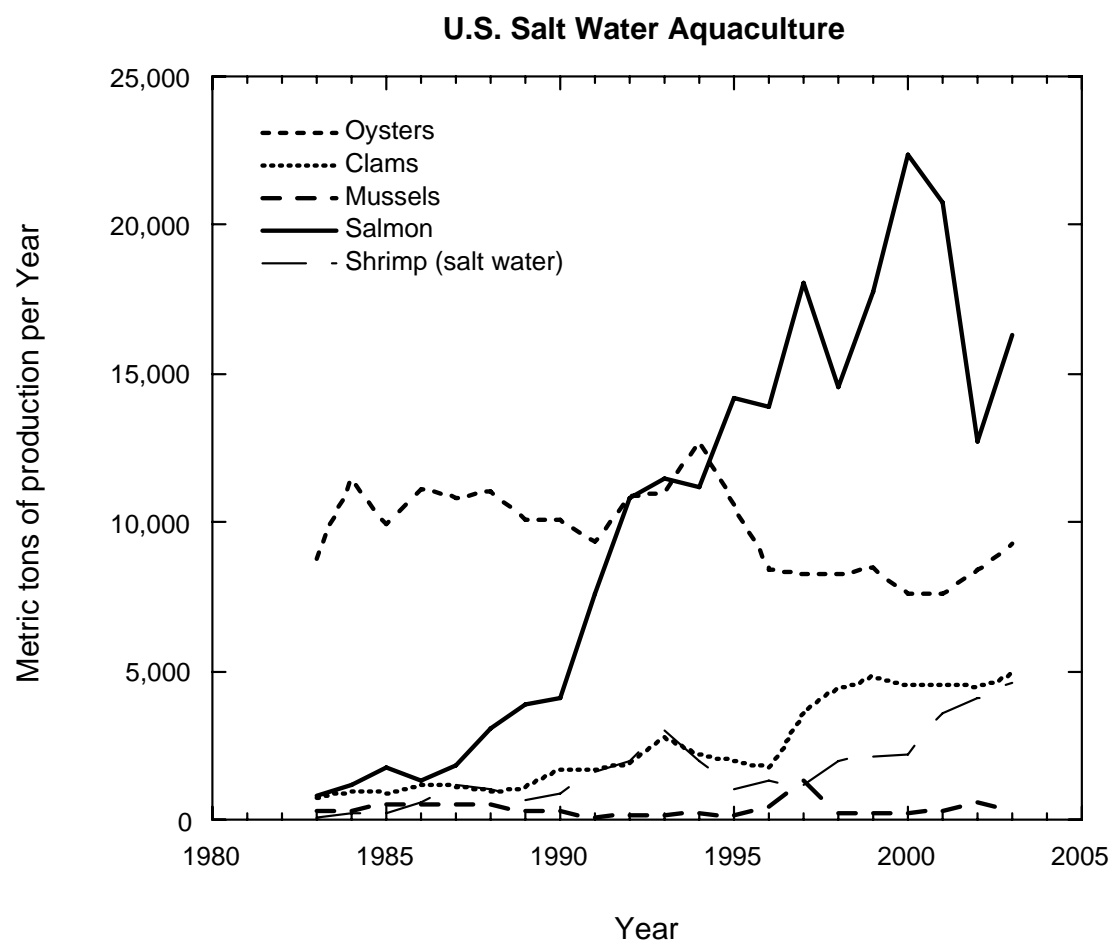


Figure 2A.44: Canadian saltwater finfish aquaculture production. (Also see note in Figure [Hinga3]). Source Fisheries and Oceans Canada, Statistical Services 1986 to 2004 (http://www.dfo-mpo.gc.ca/communic/statistics/aqua/index_e.htm)

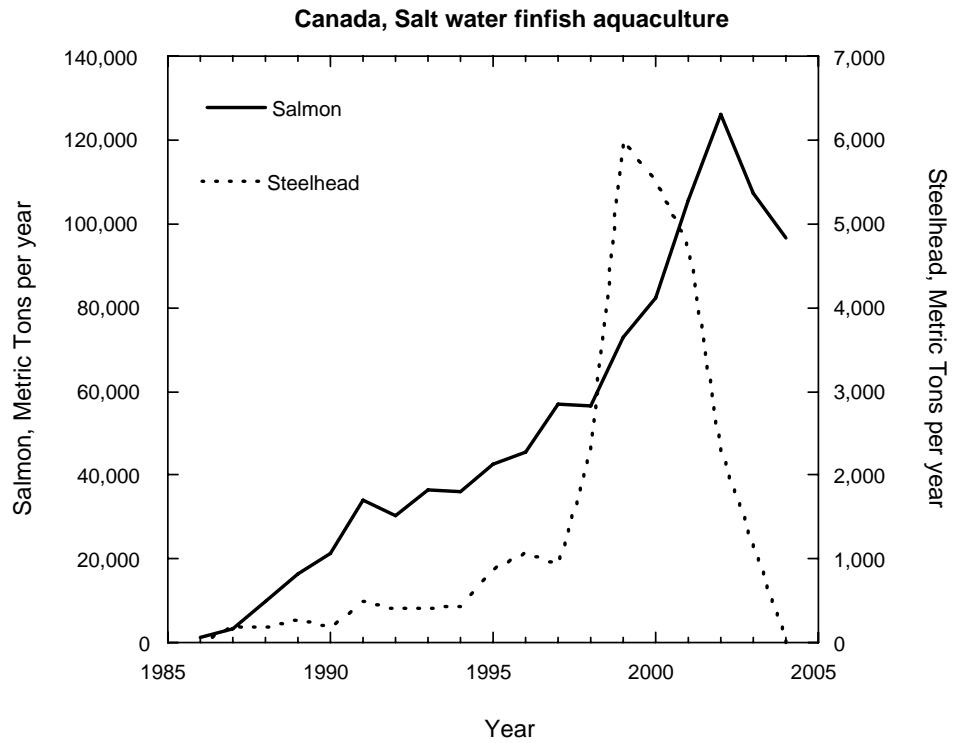


Figure 2A.45: Canadian shellfish aquaculture. Source Fisheries and Oceans Canada, Statistical Services 1986 to 2004 (http://www.dfo-mpo.gc.ca/communic/statistics/aqua/index_e.htm)

