Meat Production and Consumption Grow

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The world's appetite for meat continues to grow, with 242 million tons produced in 2002—an increase of 2.5 percent from 2001.[1] (See Figure 1.) Meat production has doubled since 1977, and over the last half-century it has increased fivefold.[2] Production of beef, poultry, pork, and other meats has risen to nearly 40 kilograms per person, more than twice as much as was available in 1950.[3] (See Figure 2.)

Consumers in industrial nations eat more than 80 kilograms of meat per person, most of it from pork and poultry, compared with just 28 kilograms for people in developing countries.[4] In fact, people in industrial nations eat three to four times as much meat as people living in developing countries.[5]

Yet two thirds of the gains in meat consumption in 2002 occurred in developing countries, where urbanization, rising incomes, and the globalization of trade are changing diets and increasing per capita consumption of meat.[6] And as developing countries climb up the "protein ladder," they have overtaken industrial nations as meat producers by accounting for 56 percent of production—an increase of 5 percent since 1995.[7]

LINKS pp. 28, 96

Pork production reached over 93 million tons in 2002, followed by poultry production (72 million tons), and beef (60 million tons).[8] Other types of meat, including sheep and goat meat, accounted for 16 million tons of the total output.[9] (See Figure 3.)

Pigs dominate meat production and consumption in China—half of the world's pigs are raised and eaten there.[10] The United States produces and consumes the most poultry in the world, and Brazil is the world's largest producer of beef and its second-largest consumer, behind only the United States.[11]

Since the early 1960s, the number of livestock has increased 60 percent, from 3 billion to more than 5 billion, and the number of fowl has quadrupled from 4 billion to 16 billion.[12] Industrial feedlots are the most rapidly growing production system for these animals, producing 43 percent of the world's beef and more than half of the world's pork and poultry.[13] These "factory farms" are also responsible for huge amounts of manure and air pollution and for the overuse of antibiotics as crowded conditions encourage the rapid spread of disease.

Producing meat requires large amounts of grain—most of the corn and soybeans harvested in the world are used to fatten livestock.[14] Producing 1 calorie of flesh (beef, pork, or chicken) requires 11–17 calories of feed. So a meat eater's diet requires two to four times more land than a vegetarian's diet.[15] Soybeans, wheat, rice, and corn also produce three to eight times as much protein as meat.[16]

The U.N. Food and Agriculture Organization predicts that meat production will grow to more than 300 million tons by 2020.[17] Environmental and health concerns could be a constraint on that, however. Manure from hog factories, chicken houses, and feedlots for cattle can contaminate groundwater and rivers and can pollute the air.[18] Cattle also contribute to climate change by emitting methane gas, and overgrazing has decimated once fertile and productive grasslands from Africa to Latin America.[19]

Meat recalls, foot-and-mouth disease, and mad cow disease (BSE—bovine spongiform encephalopathy) have increased concerns about the safety of eating meat. During the summer of 2002, millions of pounds of contaminated beef and other meat products were recalled by the U.S. government.[20] In Japan, beef consumption has been declining since the first case of BSE was reported there in 2001.[21] Concerns over drug residues in poultry led to market closures for U.S.-produced chicken in the Russian Federation.[22]

In the United States, high rates of obesity, heart disease, cancer, and other diseases associated with high-fat, high-cholesterol diets have led some people to shun red meat in favor of chicken and others to give up meat entirely. The popularity of grass-fed and organic meats is also rising as consumers realize the high health and environmental costs of meat raised in factory farms.[23]

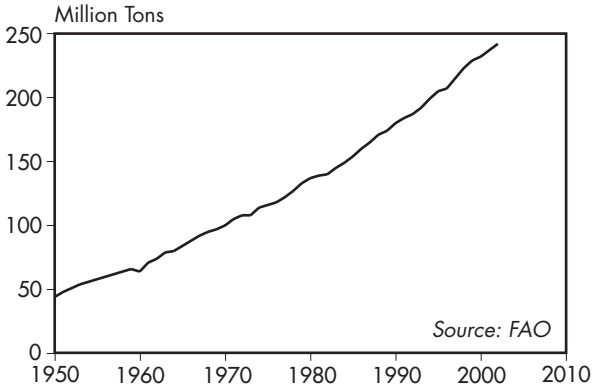

Figure 1: World Meat Production, 1950–2002

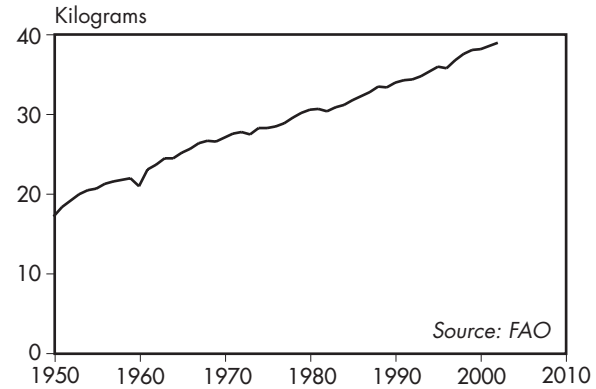

Figure 2: World Meat Production Per Person, 1950–2002

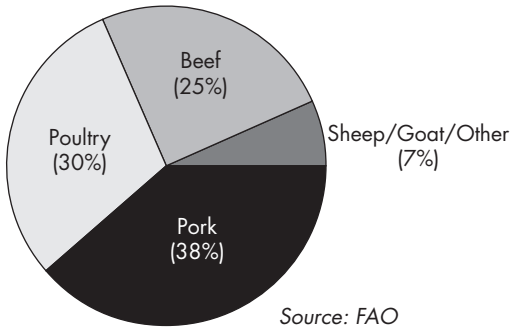

Figure 3: World Meat Production by Source, 2002

World Meat Production, 1950–2002

Year	Total (million tons)	Per Person (kilograms)
1950	44	17.2
1955	58	20.7
1960	64	21.0
1965	84	25.2
1970	100	27.1
1971	105	27.6
1972	108	27.8
1973	108	27.5
1974	114	28.3
1975	116	28.3
1976	118	28.5
1977	122	28.9
1978	127	29.6
1979	133	30.2
1980	137	30.6
1981	139	30.7
1982	140	30.4
1983	145	30.9
1984	149	31.2
1985	154	31.8
1986	160	32.3
1987	165	32.8
1988	171	33.5
1989	174	33.4
1990	180	34.0
1991	184	34.3
1992	187	34.4
1993	192	34.8
1994	199	35.4
1995	205	36.0
1996	207	35.8
1997	215	36.8
1998	223	37.6
1999	229	38.1
2000	232	38.2
2001	237	38.6
2002 (prel)	242	39.0

Source: U.N. Food and Agriculture Organization.

MEAT PRODUCTION AND CONSUMPTION GROW (pages 30–31)

1. U.N. Food and Agriculture Organization (FAO), *FAOSTAT Statistical Database*, at <apps.fao.org>, updated 9 January 2003; idem, "Meat and Meat Products," *Food Outlook No. 4*, October 2002, p. 11.
2. FAO, *FAOSTAT Statistical Database*, op. cit. note 1.
3. Ibid.
4. Ibid.
5. Christopher Delgado et al., *Livestock to 2020: The Next Food Revolution* (Washington, DC: International Food Policy Research Institute, 1999), p. 1.
6. FAO, *FAOSTAT Statistical Database*, op. cit. note 1.
7. Ibid.
8. Ibid.
9. Ibid.
10. Ibid.
11. Ibid.
12. Ibid.
13. Cees de Haan et al., "Livestock & the Environment: Finding a Balance," Report of a Study Coordinated by FAO, U.S. Agency for International Development, and World Bank (Brussels: 1997), p. 53.
14. U.S. Department of Agriculture (USDA), *Production, Supply, and Distribution*, electronic database, Washington, DC, updated 27 November 2002.
15. Vaclav Smil, Department of Geography, University of Manitoba, Canada, discussion with Brian Halweil, October 2002.
16. FAO, *FAOSTAT Statistical Database*, op. cit. note 1.
17. Ibid.
18. De Haan et al., op. cit. note 13, pp. 54–55.
19. Ibid., pp. 17–18.
20. USDA Food Safety and Inspection Service, at <www.fsis.usda.gov/index.htm>, viewed 2 August 2002; Greg Winter, "Beef Processor No Stranger to Troubles," *New York Times*, 20 July 2002.
21. FAO, *FAOSTAT Statistical Database*, op. cit. note 1.
22. Ibid.
23. Kim Severson, "Grassroots Revolution—Will the New Beef Put Corn-raised Cattle Out to Pasture?" *San Francisco Chronicle*, 19 June 2002.