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Meat Production Continues to Rise

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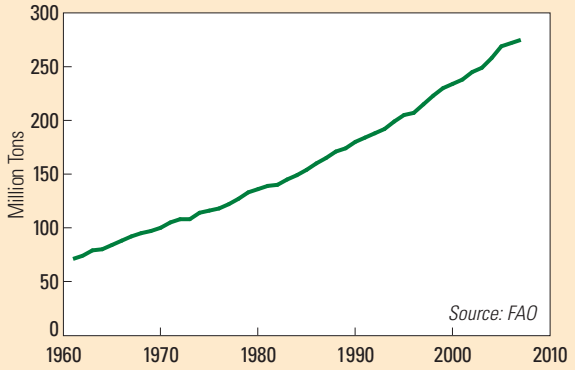
In 2007, meat production remained steady at an estimated 275 million tons; in 2008, output is expected to top 280 million tons.[1] (See Figure 1.) Experts predict that by 2050 nearly twice as much meat will be produced as today, for a projected total of more than 465 million tons.[2] For more than a decade, the strongest increases in production have been in the developing world—in 1995 more meat and dairy products were produced in developing than in industrial countries for the first time, and this trend has continued ever since.[3] In fact, in 2007 at least 60 percent of meat was produced in developing nations.[4]

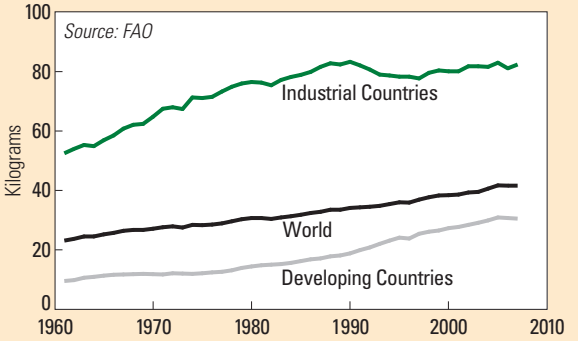
Figure 1. World Meat Production, 1961–2007



Consumption of meat and other animal products also continues to grow. Currently nearly 42 kilograms of meat is produced per person worldwide, but meat consumption varies greatly by region and socioeconomic status.[5] In the developing world, people eat about 30 kilograms of meat a year.[6] But consumers in the industrial world eat more than 80 kilograms per person each year.[7] (See Figure 2.)

Rising food prices are pushing consumers to choose cheaper cuts of meat, like chicken. (See Figure 3.) Global poultry output in 2007 was expected to reach 93 million tons, a 4-percent increase from the previous year.[8] The United States is the biggest poultry producer, but other major producers, including Argentina, Brazil, China, the Philippines, and Thailand, are all expecting increases in production. India, however, is likely to have lower poultry production because of the spread of the H5N1 avian flu virus and the culling of millions of chickens.[9]

Figure 2. Meat Production Per Person, World, Industrial, and Developing Countries, 1961–2007

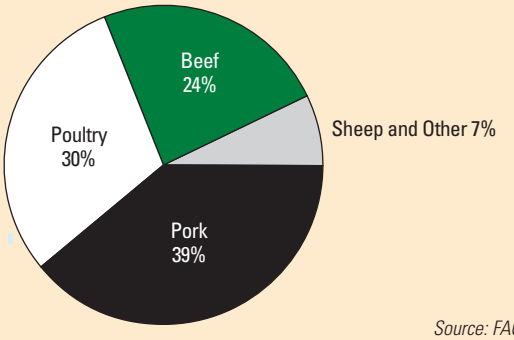


Pig meat production in 2007 was expected to rise nearly 2 percent, to 101 million tons.[10] It declined the previous year as a result of Porcine Reproductive and Respiratory Disease in China and the massive culling of at least 1 million pigs.[11] China, however, continues to be the world's largest producer of pig meat, although production is expanding in South America. Argentina, Brazil, and Chile are all increasing pig production, thanks to ample supplies of feed.[12]

Beef output rose by 2.3 percent, with nearly 67 million tons produced in 2007.[13] The United States is still the world's largest beef producer,

but 56 percent of production now takes place in the developing world.[14] China's beef production is expected to grow by 3 percent in 2008, and despite traditional religious beliefs about the sacredness of cows, India, along with Pakistan, is responding to growing consumer demand for more-western diets by increasing beef production and slaughter.[15]

Figure 3. World Meat Production by Source, 2007



Source: FAO

Much of the growing demand for animal products worldwide is being met by concentrated animal feeding operations, or factory farms.[16] Worldwide, some 56 billion animals are raised and slaughtered for food each year.[17] Factory farms account for 67 percent of poultry meat production, 50 percent of egg production, and 42 percent of pork production.[18] These facilities rely on commercial breeds of livestock, usually pigs and chickens, that have been bred to gain weight quickly on high-protein feeds. Factory farms are also very crowded, confining animals closely together—many of the world's 17 billion hens and meat chickens each live in an area that is less than the size of a sheet of paper.[19] Cattle in feedlots often stand knee-high in manure and arrive at slaughterhouses covered in feces.[20]

In addition, such operations are increasingly located in or near cities in the developing world, making urban areas the center of industrial meat production in some countries. And while city dwellers have kept livestock privately for centuries to help dispose of some urban waste, as well as a source of income and food, large industrial operations can create a host of environmental and public health problems. According to the World Bank, the "extraordinary proximate concentration of people and livestock poses probably one of the most serious environmental and public health challenges for the coming decades."[21] Diseases such as avian flu, pig fever, and Nipah virus can all spread very quickly among animals living in confined animal feeding operations because of the crowded and filthy conditions. BSE, or mad cow disease, was likely the result of feeding cattle the ground-up bits of other ruminants.[22] And the use of antibiotics in factory farming is leading to antibiotic resistance.[23] In the United States, livestock now consume 70 percent of all antimicrobial drugs.[24]

Livestock are also responsible for 18 percent of greenhouse gas (GHG) emissions, as measured in carbon dioxide equivalent, which is higher than the share of GHG emissions from transportation.[25] They produce 37 percent of methane, which has more than 20 times the global warming potential of carbon dioxide, and they emit 65 percent of nitrous oxide, another powerful GHG, most of which comes from manure.[26]

Another environmental problem is water use: livestock operations are major water users and polluters. The irrigation of feed crops for cattle accounts for nearly 8 percent of global human water use.[27] The large amount of waste produced on factory farms exceeds the capacity of nearby cropland to absorb it. As a result, manure goes from being a valuable agricultural resource to what is essentially toxic waste. Nitrates, heavy metals, and antibiotics present in manure can seep into groundwater and pollute surface water, threatening public health.[28]

One way to prevent some of these problems is to discourage large producers from keeping animals in or near cities. A combination of zoning and land use regulations, taxes, incentives, and infrastructure development can encourage them to raise animals closer to croplands, where manure can be used as fertilizer and where there is less risk of disease transmission to people.

Controlling land and livestock nutrient imbalances means raising livestock in areas that have enough land to handle the waste from large operations. Thailand, for example, has levied high taxes on poultry production within a 100-kilometer radius of Bangkok.[29] As a result, over the last decade poultry production near Bangkok has dropped significantly.[30]

Consumers will need to rethink the place of meat and other animal products in their diets to promote better human and environmental health. A recent article, for example, in the *European Journal of Clinical Nutrition* notes that "vegetarian and vegan diets could play an important role in preserving environmental resources and in reducing hunger and malnutrition in poorer nations."[31] And the authors of a September 2007 article in the highly respected medical journal *The Lancet* recommended that people in the industrial world eat 10 percent less meat as a way to reduce greenhouse gas emissions as well as improve human health: "The unprecedented serious challenge posed by climate change necessitates radical responses.… For the world's higher-income populations, greenhouse-gas emissions from meat-eating warrant the same scrutiny as do those from driving and flying."[32]

NOTES

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