Poultry Products and Processing in the International Market Place

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Poultry Production

Globally, production of poultry meat approached 70 million metric tons (MT) in 2000 (Figure 1), with an average annual growth rate of 5.3% during the last four decades. Currently, the U.S., China, European Union (EU), and Brazil are the primary poultry producers, with a combined output of 65% of total poultry meat production in 2000. Poultry meat production increased at an average rate of 10.2% in Brazil, 7.7% in China, 4.3% in US, and 4.0% in the European Union since 1960's (Figure 2). Poultry meat production in China exceeded that of EU for the first time in early 1990's. Expansion in world poultry meat supply has not been exclusively from industrialized countries. World poultry meat production in developing countries has exceeded that of developed countries during the last decade, with a per annum expansion rate of 7.4% during the last four decades (Figure 3).

Worldwide, chicken (primarily broilers, but also including spent breeder hens and males, and spent table egg layers) continues to be the most popular poultry meat, representing about 85% of the total poultry meat output (Figure 4). Broiler meat production in 2001 is estimated at 70% of total poultry meat production (or about 43 million metric tons). Whereas, turkey, duck, goose, and other species (guinea fowl, pheasants, quail, squab, and ratites) only account for 7.5%, 4.2%, 2.8%, and 0.5%, respectively, of the world total poultry meat production (FAO, 2001). Last year, (except for turkey meat) chicken, duck and goose meat production in developing countries exceeded that of developed countries (Figure 5). The U.S. leads the world in chicken (14 million MT) and turkey (2.4 million MT) meat production. China, on the other hand, is the world's largest producer of duck (1.9 million MT) and goose (1.8 million MT) meat (Figure 6).

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Trade in Poultry Meat Products

The poultry sector of the global meat supply has experienced a dynamic growth in production, consumption, and trade since the mid 1980's (Vink, 1999), primarily paralleling economic prosperity in developing countries. Most of the growth in production is attributed to intensification of production, vertical integration of the industry, relatively low feed prices, and further processing. Poultry meat and eggs continue to be the most efficient and economical way to convert feed grains to animal protein. International trade in poultry products now exceeds 6 million MT, with US exports reaching 18% of its total production (2.9 million MT) in 2001 (NCC, 2001). The major export markets for U.S. poultry are Russia, Hong Kong, and China. Broiler supply and demand is expected to grow more internationally, especially for frozen whole birds, parts, paws, bone-in-leg quarters, and boneless dark meat, driven primarily by large fast-food chains (Aylward, 2000).

The demand for animal protein tends to be income-elastic and follow the Gross Domestic Product (GDP). During the next decade, poultry meat consumption is expected to increase significantly in Asia with an estimated GDP of 6.6, as compared to the developed economies (2.8), the transitional economies (3.7), and the world (3.5). Demographically, this is very significant as well. Population is also expected increase in Asia, but shrink in developed economies such as Europe and Japan, both of which are currently net importing markets for poultry meat. Poultry products are in demand in all parts of the world. When there are no religious or cultural barriers, poultry meat usually takes consumer preference (Van der Sluis, 2001). Poultry meat also enjoys popularity in developed markets, due to its lower price and perceived safety and health advantages compared to other meat sources (FAS, 2001). However, per capita consumption of poultry meat varies substantially around the globe, ranging from 0.7 kg in India to 44 kg per annum in the U.S. (Figure 7).

Poultry Processing and Products

Development of new and efficient processing systems, adoption of advanced technologies, and introduction of novel products that meet the market chain requirements and end-

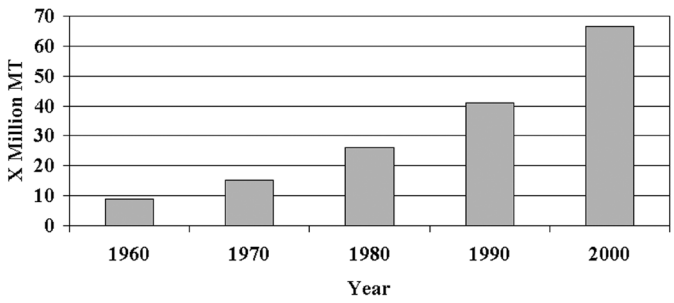

FIGURE 1. *World total poultry meat production.*

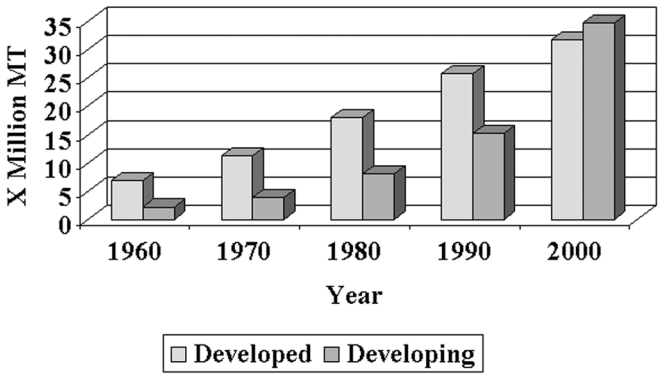

FIGURE 3*. Poultry meat production in developed and developing nations.*

consumer needs have contributed significantly to the increases in global poultry meat consumption (Roenigk, 1998). Poultry production and processing technologies have become readily accessible, and implemented on a worldwide basis, and hence, will allow continued expansion and competitiveness in this meat sector (Aho, 2001). Processing and marketing of poultry ranges from live bird markets or a very primitive on-site slaughter and sale, to a highly sophisticated, fully automated and International Standards Organization (ISO) certified facilities and ready-to-eat convenience products in many parts of the world. Ironically, sometimes these extremes in processing and marketing methods are observed within the same country. Lack of or inadequate refrigeration is probably the single largest obstacle to the marketing of many perishable foods, including meat and poultry. In many developing countries, even the subtle improvements in the cold storage capabilities have significantly increased the trade, storage, distribution, and consumption of poultry products, whether domestic or imported (Babji, 2001). On the other hand, the adoption of modern freezing, packaging, and transportation technologies has provided large poultry companies the flexibility to export their high quality, mostly value-added premium cuts to all corners of the world, especially at times of domestic surpluses and low market demands. However, as the global poultry market expands, differences in labor and freight costs, and tariffs may alter the competitive advantages of traditional poultry exporters (Table 1).

Although whole birds, with or without giblets, and cut-up parts dominate the market forms of poultry in many parts of the world (Table 2), there has been a global shift to "well-differentiated, name-branded" poultry products in the marketplace (Keeton, 1997). Whole bird and tray-pack markets, domestic or international, usually demand high quality (A Grade) product. High market share of whole birds in Middle East, South America and Eastern Europe directly relates to consumer preference for traditional meat preparation methods and chicken broth, and expanding roasting or rotisserie markets. Religious and cultural practices have always been important considerations for poultry products, especially in export markets, as many countries have strict requirements (laws) for Kosher and Halal slaughter and processing of poultry (Regenstein and Chaudry, 2001).

Historically, introduction of many novel poultry products into the market was an attempt to find outlets for trimmings, low-value cuts, and parts from fabrication of whole birds. Later, expansion of food service and fast-food chains, increasing demand for finger-foods, availability of mechanically deboned poultry meat (MDPM) for frankfurters and luncheon meats,

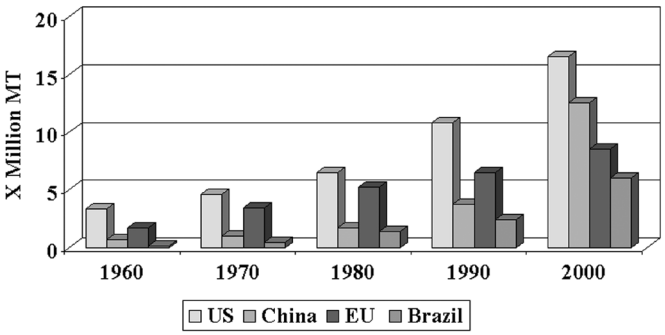

FIGURE 2*. Major poultry meat producers.*

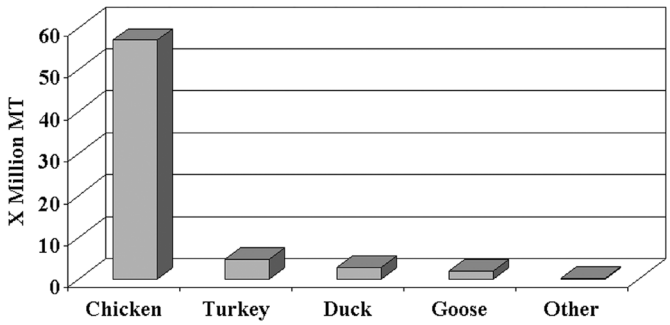

FIGURE 4*. World poultry meat production (2000).*

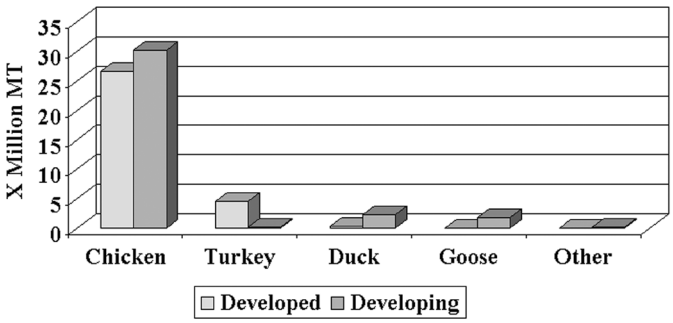

FIGURE 5. *Poultry meat production in developed and developing nations (2000).*

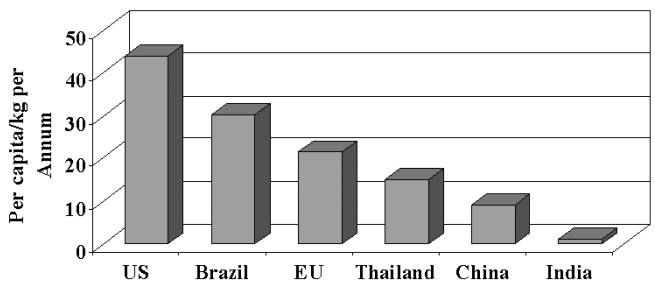

FIGURE 7. *Poultry meat consumption in select countries.*

and development of marination/injection technologies have all contributed to the product diversification at the retail level. Most of these value-added products, formulated primarily to suit the local palate, not only target the changing needs of consumers (i.e., convenience, nutrition, health, quality, variety, shelf-life), but also allows a marketing edge over imports. Many exotic recipes and ready-to-cook marinated stick products from Asia, developed primarily for domestic markets, are now in demand by the poultry importing countries elsewhere (Europe, Japan, Australia, New Zealand).

Consumers worldwide demand a protein supply that is safe, wholesome, nutritious, abundant, and affordable. However, food safety standards are currently not uniform, or equally enforced, around the world. Differences, for example, in hygiene or inspection regulations often lead to trade disputes and stagnation between the countries. Several international bodies, such as the Codex Alimentarius Commission of World Health Organization (WHO) and Food and Agricultural Organization (FAO), International Commission on Microbiological Specifications for Foods (ICMSF) and the World Trade Organization (WTO) Agreements on Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT) develop and provide guidelines for the equivalency in international standards to protect the health of consumers and to ensure fair practices in food trade (Bilgili, 1999).

As we move into a global market economy, poultry production will continue to increase in those countries that have the natural resources, economically competitive and politically open to business investments (Aho, 2001). Many countries or regions, on the other hand, will continue to struggle to compete in this market, either because of limited infrastructure (raw materials, land, utilities, labor, transportation) or political constraints (environmental and welfare concerns, tax structure, trade policies).

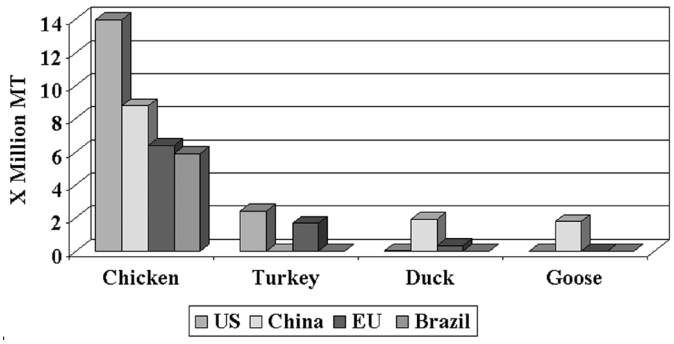

FIGURE 6. *Major poultry meat producers (2000).*

Table 1. Comparative costs for poultry meat in the global market

Country	Grains ($/MT)	Soybean Meal ($/MT)	Live bird Cost ($/kg)	Labor Cost ($/month)	Freight to EU ($/MT)	Tariffs to EU (%)
USA	<90	190	0.46	1,500	NA	NA
Brazil	<75	190	0.36	350	170	11
Thailand	100	>250	0.53	120	180	15
Hungary	114	>250	0.66	242	58	0
UK	105	>250	0.66	1,700	NA	0

Van der Sluis, 2001

Table 2. Market forms of poultry products

Region	Whole (%)	Cut-up (%)	F. Processed
N. America	20	50	30
Asia	48	34	18
EU	55	25	20
S. America	76	19	5
Middle East	90	8	2
E. Europe	61	25	14
Oceania	38	40	22
Total	58	29	13

Keeton, 1997

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