

# Medium-term Outlook to 2005: The Meat Sector<sup>1</sup>

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## HISTORICAL BACKDROP

The global meat economy has seen a dynamic growth in production, consumption and trade since the mid-1980s, mainly driven by a fast expansion of the poultry and pig meat sector. Most of the rise in meat intake has been met by these two meat categories, while per caput beef consumption has shown a tendency to stagnate. Among the major factors that have influenced the world meat sectors in the 1984-94 period, the following have played a major role:

- World feed prices were relatively low over the period, which has contributed to a sustained expansion in production, while rises in incomes and urbanisation have favoured growth in meat demand.
- The process of vertical integration between the feed and meat producers and processors as well as the concentration of production units has progressed, especially in the poultry and the pig sectors. These structural changes have given rise to an intensification of production, facilitating a more efficient conversion of feed into meat and contributing to an increase in the competitiveness of the poultry and pig meat compared with bovine and sheep meat.
- The recent outbreaks of Bovine Spongiform Encephalopathy (BSE) in Europe, avian flue in the Hong Kong SAR, foot-and-mouth disease in the Chinese Province of Taiwan and swine fever in the EC have been accompanied by a massive elimination of animals in the affected countries and have raised considerable concerns among consumers. They have also had distorting effects on the patterns of livestock and meat trade. In addition, bovine pleuropneumonia and rinder pest outbreaks have affected food security in a number of developing countries in the Near East and Africa.
- The share of the EC in world exports has fallen since 1994, constrained by the URA limits on subsidised exports, while imports by Japan have been stimulated

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<sup>1</sup> The projection results reported in this paper rest on the latest study on medium-term prospects to the year 2005 undertaken by the Commodities and Trade Division of FAO, which was recently discussed at the FAO Committee on Commodity Problems (*Medium-term prospects for agricultural commodities: agricultural commodity projections to 2005. FAO Committee on Commodity Problems*, Sixty-second Session, CCP 99/13, Rome, 12-15 January 1999). A brief summary of the World Food Model, on which the projections are based, is provided in Annex 1.

by a gradual reduction in import duties despite the invocation, on various occasions, of safeguard provisions. The acceptance, under the SPS agreement, of disease-free areas within a territory has opened new export opportunities for several countries in Latin America.

- The implementation of institutional reforms in eastern and central Europe and in the former USSR led to price and trade liberalisation with meat production in the economies in transition falling till the second half of the nineties although in several central and eastern European countries the livestock sectors have recently shown signs of a recovery. These factors have contributed to the CIS becoming a major meat importing region.
- Regional agreements, such as Mercosur and NAFTA, have offered increased opportunities for an intensification of intra-regional livestock and meat flows.

## **MEAT PRODUCTION**

### **The Global View**

Global meat production is projected to rise from 196 million tons in 1993-1995 to nearly 266 million tons in 2005, at a rate of about 2.8 percent per annum, which is slightly below the historical rate. Approximately 83.7 percent of the projected 70 million ton increase is expected to be made up of increases in poultry and pork meat production, 52.7 and 31.0 percent respectively. Increases in the production of bovine meat and sheep and goat meat are expected constitute the remaining, 11.6 and 4.7 percent respectively.

As can be seen, the poultry sector has been the most dynamic among the various meat categories, expanding globally by 5.6 percent per annum since the mid-1980s. Intensification of production, vertical integration of the industry and relatively low feed prices all contributed to the momentum. These factors are expected to remain at play in the medium run. As a result, annual growth is projected to stay above 5 percent, with global output rising from 51.2 million to 87.9 million between 1993-95 and 2005. Similar conditions have prevailed in the pig meat sectors of several important countries, bolstering productivity and contributing to a projected rise in global pig meat production of 2.2 per cent per annum, to some 101 million tons in 2005 or 21 million tons more than in the base period.

Unlike for poultry and pig meat, the process of technical innovations and restructuring has proceeded slowly in the bovine meat sector, constrained by the small size of the farms where cattle and buffaloes are reared and the special roles these animals play in a large number of countries, e.g. as a capital asset, for dairy production, social status and draught power. In the next decade, the expansion in production is projected to rely both on intensified slaughtering and on rising average carcass weight stemming from genetic progress and improved management practices, leading to a projected to rise from 55.1 million tons in 1993-95 to 63.3 million tons in 2005, or by 1.3 percent per annum, slightly above the historical trend.

The sheep and goat sector is of much less significance to the world meat economy volume-wise than the other three major meat groups. However, because of the resistance of the sheep and goats to harsh rearing conditions and the role they play in religious celebrations, these animals are important for food security and social cohesion for certain populations, especially in Africa and the Near East. Except for a small number of countries in Asia, in particular China, which contributed to sustained growth at the global level, there has been a tendency for the sector to contract over the last decade, which can be partly attributed to low wool prices. Global sheep and goat meat production is projected to reach 13.5 million tons in 2005, with an underlying annual growth of 2.5 percent per year, slightly above that in 1984-1994.

### **The Regional View**

Nearly 84 percent of the increase projected in global meat production is expected to originate in developing countries. Most of that increase (about 46 million tons, or 80 percent) is likely to occur in Asian countries, which exhibit the highest projected annual growth rates for the production of all meat categories when compared to those in other regions. However, with the exception of ovine meat, the expansion in the production of beef, pig and poultry meat is expected to slow down somewhat. Improvements in productivity, changes in the policy environment and general economic growth are the principal reasons behind the expected increases in production in many Asian countries. Developments in China tend to be, by far, the most influential factor. It currently accounts, for example, for more than 40 percent of the world total of pig meat output and more than 15 percent of poultry and ovine meat, and the projected annual growth rates are 3.7 , 10.0 and 6.4 percent respectively for pig, poultry and ovine meat.

Latin America and the Caribbean is expected to account for a further 9 million tons of the 58 million ton increase foreseen for total meat production in developing countries. The stabilisation of the national economies has already fostered gains in productivity through improved management practices, which are likely to support the moderate expansion in output foreseen for most countries. Poultry and pig meat sectors are likely to be the most dynamic, experiencing annual growth rates of around 5.2 and 3.4 percent respectively. Among the countries in the region, a notable expansion is projected in Brazil which should benefit from the availability of abundant local feed supplies and large investments that are currently being made.

In Africa, the increase in production is expected to be limited to 3 million tons, but this would represent an increase in the annual rate of growth from 2.6 to 3.5 percent, the only developing region to exhibit an acceleration. Beef and poultry sectors are the principal contributors to the increase. Beef production is projected to expand by 2 percent per annum, well above the past trend, favourably influenced by support policies in a number of countries. The annual increase foreseen for poultry production is 5.3 percent growth, and the largest increases are expected in Egypt and Morocco.

In developed countries, production growth is expected to slow down in almost all countries and in all meat categories except beef. Specifically, bovine meat output is projected to expand in both the United States and Canada, driven by good sales prospects abroad. Likewise, production in Australia and New Zealand, which is mainly geared towards foreign markets, should also expand but at a much slower rate than in the previous ten years, reflecting stiffer competition in traditional markets in Asia and North America. In the EC, bovine meat output is

projected to remain largely unchanged at around eight million tons, on the assumption of no major changes in the Common Agricultural Policy (CAP). In eastern and central Europe, bovine meat production is not expected to recover enough to reach the pre-reform levels of the late 1980s, when the sector was heavily subsidised. Production in most of the CIS is projected to remain well below the base period, as the contraction phase in many of them is still proceeding.

Output of poultry meat is projected to surge in the United States and in the EC, assisted by rising domestic and external demand. Production is projected to recover in most central and eastern European countries but to remain below the base year level in several countries in the CIS. Little change is anticipated in Japan.

Production of pig meat by the developed countries in 2005 is set at 28.8 million tons, only 1.2 million tonnes above the 1993-1995 level. Most of the gains should originate in the United States and in Canada where the sector is undergoing profound structural reforms. A general recovery is foreseen in eastern and central European countries after the set-back of the 1990s, while a further contraction from the 1993-95 level is foreseen in the CIS countries, even though production is anticipated to recover from the 1997-98 depressed levels. Pig meat output by the EC is not projected to change much, as a tightening of environmental regulations and stagnating demand could discourage investments. In Japan production is projected to drop, in line with the historical trend.

For sheep and goat meat, prospects in Australia and New Zealand, which export about 45 percent and 65 percent of output respectively, are for a small increase in production, in line with the expectations for a strengthening in world wool prices and a slowing down in the conversion of pasture land to other uses. Ovine meat production in the EC is projected to remain stable while it could fall in North America and in the CIS where the downward adjustment of the sector, initiated in the early 1990s, has not yet been concluded.

## **MEAT CONSUMPTION**

Despite a slowdown foreseen in the growth of total meat consumption from about 3.0 percent per annum during the period 1984-94 to slightly below 2.8 percent in between 1995 and 2005, the growth in per caput consumption is not expected to change because of a decline in population growth over the same period. The per caput consumption will nevertheless increase by nearly 15 percent to 41 kg in 2005, with poultry meat contributing to three-quarters of that increase and pig meat most of the remaining quarter.

Poultry has recently displaced beef as the second most consumed meat in the world. This success can be attributed mainly to its low price relative to the other meats, to widespread consumer perception of poultry as a safe meat and to its acceptability by most cultures and religions. Average per caput consumption is projected to rise from 9.1 kg in the base period to 13.5 kg in 2005, with increases expected universally. Consumption is projected to almost double in the developing countries, passing from 5.7 kg to 10.0 kg per caput between 1993-95 and 2005. The fastest growth is projected in the Asian countries and more moderate increases in Africa, Latin America and the Caribbean, and in the developed countries, often in substitution for beef.

Pork, on the other hand, is the principal meat in the diet in large parts of Europe, in the CIS and in several south-eastern Asian countries, including China, the Republic of Korea, the

Philippines, Singapore and Viet Nam. On average, per caput pork consumption world-wide is projected to rise from 14.2 kilos to 15.6 kg between 1993-1995 and the year 2005, somewhat less than one percent per year. The increase should be especially strong in the developing countries, especially in China, but a recovery is also anticipated for the economies in transition. By contrast, consumers in the developed countries are projected to eat less pork by 2005.

After undergoing a steady contraction in the 1990s, global per caput beef consumption in 2005 is projected to stabilize slightly below the opening level, at 9.6 kg per head. However, trends are likely to differ widely across regions. In the developing countries, bovine meat consumption is projected to rise by 1.2 percent per year from 5.4 kg in 1993-95 to 6.1 kg in 2005, which would still be around one quarter of the level projected for the developed countries<sup>2</sup>. The most dynamic rise should be recorded in South East Asia, reflecting income growth and a high propensity for expenditure on meat. As a result, beef consumption in the sub-region is projected to rise by 4.2 percent per annum, from 2.9 kg to 4.6 kg. Consumption increases are expected to be more contained in South Asia. In Africa, per caput consumption is projected to stagnate around 4.9 kg with some growth prospected in North Africa. By contrast, consumers in the traditional beef-eating countries of Latin America and the Caribbean are anticipated to diversify their consumption pattern and shift towards other meats.

Consumption in the developed countries could drop from 27.3 kg to 25.2 kg between 1993-95 and 2005, in line with the historical trend working in favour of poultry. This tendency should dominate in countries with relatively high beef consumption levels, including the United States, Canada and Australia, and would not spare those countries where beef is a secondary meat, for instance the EC. By contrast, per caput consumption in Japan is projected to rise from the relatively low level in 1993-95, but the pace of expansion should slow down substantially compared with the preceding decade. Governments of several countries in eastern and central Europe have been supporting the rebuilding of cattle herds, which should bring about a modest recovery in bovine meat consumption. However, none of them are anticipated to return to the subsidized levels of the late 1980s. In the CIS republics, the contraction is projected to proceed over the next decade, despite a modest recovery in total meat per caput consumption.

Finally, average per caput consumption of sheep and goat meat at the global level is projected to rise from 1.8 kilos to 2.1 kg but the increases should be concentrated in those countries in South and East Asia and North Africa that are expected to record production gains. Per caput consumption in the Near East and in most of the developed countries is projected to either stagnate or decline. A contraction in Australia and New Zealand from the high levels of the mid-1990s is also expected.

## **TRADE IN MEAT PRODUCTS**

International trade in total meat and animals<sup>3</sup> in 2005 is projected to be around 20.3 million tons at the global level, nearly a quarter more than it was in the mid-1990's. Nearly two-thirds

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<sup>2</sup> However, the disparities among developing countries themselves are currently even wider, with consumption ranging from some 60 kilos in Argentina and Uruguay to one to three kilos in Bangladesh, India, Indonesia and Vietnam.

<sup>3</sup> In carcass weight equivalent.

of the increase in imports are expected to be by the developing countries, while nearly one-half of the increase in exports are expected to be from the developed countries. Given the expected dominance of poultry in production and consumption of meat in general at the global level, trade in poultry would also dominate by contributing to nearly 60 percent of the increase in meat trade over the projection horizon. Trade in bovine meat flows next with nearly 30 percent of the increase, with pig meat occupying the third place with nearly 10 percent.

Since the early 1990s, international trade in poultry meat has been boosted by a surge in import demand by several economies in transition to offset the shortfall in domestic meat production and by large purchases by China. As a result, trade in poultry meat rose by over 11.5 percent per year since the mid 1980s to 4.3 million tons in 1993-95. Growth to 2005 is projected to be halved to 5.0 percent per year, bringing global trade in poultry to 7.3 million tons. An increasing number of countries is expected to raise simultaneously their poultry imports and exports, as they take advantage of price differentials and varying tastes for different cuts.

Most of the projected increases in import demand should originate in the developing countries and in the economies in transition. In recent years, China has emerged as a very large import market for cheap poultry parts, including chicken feet and wings. By 2005, such imports are projected at 1.2 million tons, which should enable the country to boost its exports of high value-added poultry products. Larger imports are also expected to be made by Hong Kong SAR, the Republic of Korea, which liberalized its market in July 1997, Singapore and, to a limited extent, the Chinese Province of Taiwan, following the opening of a small preferential quota this year. The volume of poultry meat shipments to the Russian Federation is projected to double to fulfill growing domestic requirements.

The increase in import demand is projected to be met principally by the United States, which alone could account for close to 50 percent of global poultry meat shipments by 2005. While Brazil, China, Thailand and Hungary could also raise exports, sales by the EC are projected to stagnate around the base level, with larger shipments on commercial terms offsetting the URA committed reduction in subsidised exports.

For bovine meat and animals in 2005 the trade is put at 8.3 million tons at the global level, some 1.5 million tons more than in the mid-1990s. The increase reflects larger imports by some African countries, where production is unlikely to keep up with demand, but also by countries in Latin America and the Caribbean, and in Asia. In the latter region, the projected growth in beef consumption in the Republic of Korea and Japan is anticipated to be met largely through external supplies. Imports are also projected to expand in other Asian countries, a significant part of which bought as live animals for fattening. The Russian Federation will probably remain the principal destination for subsidized beef from the EC. Overall, shipments there should remain close to the 1993-95 level. By contrast, imports by eastern and central Europe could decline as production recovers.

The United States, which faces shortages of beef for manufacturing into hamburgers, is expected to remain the world's leading bovine meat importer, even though its purchases are unlikely to change much compared with the base period. At the same time, the United States is projected to emerge as the top world exporter, specialized in high quality, grain-fed beef. Australia and New Zealand should also raise shipments, even though they are likely to face stiff competition from producing countries in Latin American which, like them, mainly supply grass-

fed beef. In that region, progress in eradicating foot-and-mouth disease should enable Argentina and Uruguay to gain a foot-hold in the “Pacific” beef markets. Exports from these countries should also continue to be stimulated by growing integration under “Mercosur”. By contrast, the EC’s beef shipments should fall in line with the reduction in subsidized exports scheduled under the URA, as domestic prices are expected to remain above the world level. This could lead to a considerable built-up of stocks.

Trade in pig meat (including live pigs) has traditionally accounted for a very small proportion of overall production. In 1993-95, some three million tons of pigmeat were sold on the international market, or less than 4 percent of global output. The world market for pig meat has also been characterized by a high concentration: in 1993-95, the three main importers, Japan, the Russian Federation and the United States, accounted for close to 60 percent of total purchases, while the three chief exporters, the EC, Canada and China, for 55 percent of total shipments.

The volume of trade is projected to reach 3.5 million tons in 2005, up from 3 million tons in the base period with an implicit growth of 1.5 percent per annum since 1993-1995, down from 4.3 percent in the previous ten years. Purchases by Japan, the leading importer, are projected to expand, at a much slower rate than in the past. Larger shipments to Hong Kong SAR, Singapore and the Republic of Korea are also projected. The Russian Federation is set to remain the second most important destination for pig meat by 2005, as larger foreign supplies would be required to bridge the gap between production and consumption. By contrast, imports by the United States are projected to drop. Continued integration of Mexico with the two latter countries, under NAFTA, may boost its imports.

The EC is expected to lose its role as chief exporter of pig meat in the longer run, as increased competition should constrain its ability to sustain unsubsidized exports. This should contrast with the performance of Canada and the United States which are expected to make further inroads especially into markets in Asia and the CIS. Brazil is also projected to become a major player. Both Mexico and the Republic of Korea are projected to raise their shipments, especially of higher quality cuts, while remaining net pig meat importers, mostly of low-value products. Larger exports from various central and eastern European countries are also expected as production recovers. By contrast, sales by China are projected to drop in the light of strong external competition and restricted access to the most remunerative markets in the absence of FMD-free status. Sales from the Chinese Province of Taiwan, which collapsed following the FMD outbreaks in 1997 and early 1998, are anticipated to recover to about half the level of the base period by 2005.

Finally, international trade in sheep and goat meat (including meat and live animals) which has fluctuated around 1 million tons since the early 1980s could rise to 1.2 millions. In a number of countries, the additional purchases would be made in the form of live animals, either for breeding or for domestic slaughter. Imports by the EC, which are limited mostly to supplies entering under preferential access arrangements, could rise somewhat to fill the tariff quotas. On the export markets, the dominance of Australia and New Zealand is unlikely to be jeopardized.

## **PRICE DEVELOPMENTS EXPECTED**

During the last two decades the international beef market has been segmented into the high-priced Pacific market, the access of which has been restricted to exporters free of the main cattle diseases, and the Atlantic market, which has been the main destination of the EC subsidized beef exports. However, the basis for the beef market segmentation has been eroded since the implementation of the URA, with the introduction of ceilings on subsidized exports stimulating a rise in the Atlantic market prices. At the same time, both Uruguay and Argentina have achieved FMD-free status which should eventually allow them to participate fully in the Pacific market. During the base period, the unit value of all bovine meat exports was estimated at US\$ 2,464 per tonne, in real terms, down from US\$ 2,899 per tonne in 1983-85. Real prices are foreseen in the medium run to increase by 1.9 percent compared to the 1993-95 level to close to US\$ 2,512 per tonne in 2005, positively influenced by the URA restrictions on subsidized exports.

International prices for sheep meat, represented by the average unit export value, were relatively weak in real terms during the base period at US\$ 2261 per tonne, down from US\$ 2,464 per tonne in 1983-85. Prices (in real terms) are projected to strengthen by 1 percent by the year 2005, to US\$ 2,283 per tonne. However, because the international market for sheep meat is very narrow, unexpected developments in Australia or New Zealand, such as a drought, or marked changes in international wool prices could have a disrupting influence on world sheep and goat supplies and hence on world prices.

International prices for pig meat vary widely between the very high prices of cuts to Japan and the prices prevailing in other markets like the Russian Federation or Mexico. On average, real export unit values have fallen from US\$ 2924 per tonne in 1983-85 to US\$ 2547 per tonne in 1993-95, reflecting to a some extent the increase of low-priced cuts in the composition of trade. This trend is expected to continue because of keen competition among exporters, despite the expected rise in world feed prices, with the world pig prices in real term declining slightly to US\$ 2545 per tonne.

The average export unit value of all poultry products, was estimated at US\$ 1573 per tonne in real terms in 1993-95, down from US\$ 1826 per tonne a decade earlier. Real prices are projected to increase by 5.3 percent from the base period to US\$ 1656 in 2005, basically in line with the expected rise in world feed prices.

## **CONCLUSIONS AND MAJOR POLICY ISSUES**

The results of this projection exercise are subject to a number of uncertainties. First, much of the projected growth in trade is expected to reflect growing imports by Asian and CIS countries. These prospects assume that the former recover from the current financial and economic crisis and that the latter maintain the relatively open trade policy in place since the early 1990s. Secondly, the project of CAP reform currently under discussion in the EC, if implemented, could also boost the competitiveness of the domestic livestock sector and result in increased EC meat exports, a possibility which has not been taken into consideration in the current projection scenario.

The outcome of the projections suggests a reasonably balanced expansion in global meat production and demand with most of the upward pressure on real prices of meat stemming from the expected rise in international feed costs. Much of the expansion of global meat output should come from poultry and pig meat, which might widen their competitive edge relative to bovine meat thanks to technological innovations and structural changes. The developing countries should benefit most from the expansion in global meat production which will probably extensively rely on the development of intensive livestock systems, located predominantly in peri-urban areas. In this connection, particular attention will need to be paid by governments to their development strategies and the protection of local breeds as a continued shift towards intensive poultry and pig meat production, at the expense of extensive or mixed farming systems, could result in a growing reliance on imported basic inputs, including feed, genetic material and veterinary products.

Concerns over the impact of production on the environment are likely to become of increasing importance as production intensifies and incomes grow. As a result, many developed and developing countries are expected to tighten environmental regulations, which may constrain the level of output or induce a shift of the sector away from the most populated areas. Intensification of production could also be conducive to disruptive disease outbreaks as exemplified by recent events. Consumer concerns over meat safety are also expected to rise in some countries which may result in different levels of stringency in Government regulations on production and marketing, which in turn could lead to conflicts in international trade. On the other hand, the progressive reduction of trade barriers, differences in tastes and comparative advantages could offer new market opportunities and encourage a greater reliance on trade. Several developing countries have already specialised in exporting value-added meat products while stepping up imports of cheaper cuts. However, for many developing countries, the main policy issue will remain that of meeting domestic demand for meat without jeopardising the survival of traditional livestock producers and traders, including pastoralists and farmers relying on mixed livestock/crop systems.

## **Annex 1**

### **World Food Model - A summary**

The projections covering the cereal-feed-livestock-fats and oil complex are generated using the FAO's World Food Model (WFM), which allows for the simultaneous determination of supply, demand, trade, stock levels and prices for all the commodities covered<sup>4</sup>. Assumptions regarding economic and population growth, technological change, normal weather and unchanged agricultural policies (as of mid-1998) are used to prepare a "central or baseline" scenario for individual commodity production, demand and trade projections. It should be stressed that projection results are indicative of what would happen under specified macro-economic, demographic and commodity-specific assumptions, all of which are subject to uncertainty.

Global demand for many commodities is crucially linked to economic and population growth and, especially in developing countries, to population shifts from rural to urban areas.

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<sup>4</sup> For details of the methodology see *FAO Medium-term prospects for agricultural commodities. Projections to the year 2000*, Economic and Social Development Paper No. 120, Rome, 1994

Commodity projections to 2005 are based on the United Nations' medium variant, which estimates that world population will expand by 1.3 percent annually between 1993-95 and 2005, down from the 1.6 percent per year recorded in the previous decade. In developing countries population is projected to expand by 1.6 percent annually; in the developed countries population is projected to grow by 0.5 percent while no growth is expected for the economies in transition.

World gross domestic product (GDP) in 1987 prices was projected by the World Bank in September 1998 to increase by 2.9 percent yearly to 2005, and per caput income by 1.6, reflecting downward revisions compared to earlier projections. The lower growth is foreseen to be shared by almost all regions to some extent and would be greatest in the CIS and in Asia. However, the slowdown would be greatest in the early years and the effect would be much smaller by 2005.