

Background paper for the  
**Competitive Commercial Agriculture in Sub-Saharan Africa  
(CCAA) Study**

**CATTLE AND BEEF  
INTERNATIONAL COMMODITY PROFILE**

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# CATTLE AND BEEF: INTERNATIONAL COMMODITY PROFILE<sup>1</sup>

## 1 Introduction

Livestock and meat products have been among the fastest growing components of the global agriculture and food industry. This growth reflects not only increasing demand for meat as global incomes have risen, but also improved efficiencies in production, processing and transportation declining real feed prices. The so-called livestock revolution has been an important feature of both developed and developing countries. Furthermore, while in many developing countries meat consumption remains a relatively low, it is an important factor in the diet, health and livelihoods of the rural poor. It provides a source of income and food, in addition to a store of value and insurance. Stimulated by better market access provisions under various trade agreements, growing meat demand in developing countries and increasing specialisation of production/processing operation, meat trade grew by over 3.5 percent annually in volume terms in the last decade. In value terms meat trade totalled approximately US \$34 billion in 2004. However, meat trade remains substantially conditioned by animal disease issues, and markets remain heavily segmented according to both disease status and quality. As a result, growth in many developed and developing countries may be contained largely by domestic demand growth.

Trade growth for beef products, while about 1.5 percent annually, lags considerably that of total meats in volume terms in the last decade. In fact, beef's share of global meat trade has declined from 50 percent in the early 1990's to an estimated 35 percent the early 2000's as the beef industry has had to compete with growing demand for pork and poultry as the process of vertical integration between the feed and meat sectors has reduced the relative price of these products. In addition, animal disease outbreaks and food safety issues (particularly related to BSE) around the world have raised considerable health concerns among consumers and limited consumption growth.

Developing countries, while dominating beef output gains over the past decade, have not benefited from growing international beef demand. By 2005, developing countries accounted for 40 percent of global beef imports and exports, virtually unchanged from 1990. Although exports more than doubled over the period (from 1.8 to 4.4 million tonnes), developing country exports as a share of production grew only from 8.5 percent to 12.7 percent. Constraints to expanded beef exports by developing countries include disease problems, particularly FMD, which is endemic to many countries, and increasing number of SPS regulations which constrain meat trade.

## 2 Market Structure

### 2.1 Production

Cattle raising, beef production and marketing are highly diverse throughout the world. Breeds of cattle vary significantly from those indigenous to specific regions, to those bred for specific meat or

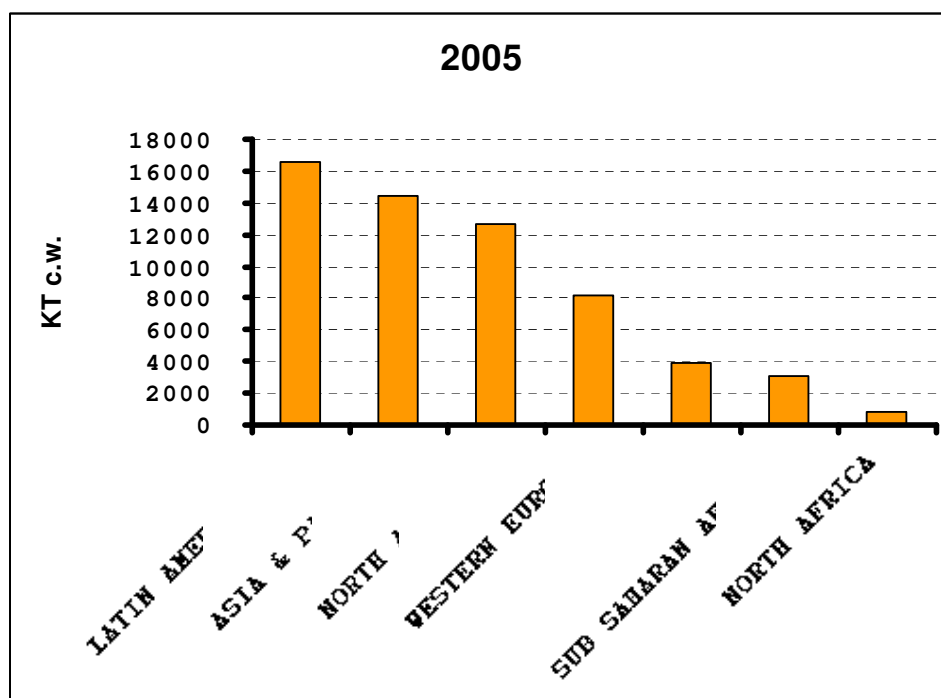
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<sup>1</sup> Nancy Morgan and Gregoire Tallard, Markets and Trade Division, Food and Agriculture Organization. Statistical help provided by Massimo Iafrate and Barbara Senfter. This profile draws heavily on the OECD-FAO Agriculture Outlook: 2006-2015 and the conditional assumptions discussed in that document.

milk yield characteristics. Feeding regimes also vary substantially depending on local feed availability/economics as well as pasture land and water availability. Virtually all developing countries graze cattle on extensive pastures, while in developed countries, intensive feeding regimes feature sophisticated least cost balanced nutrient rations that rapidly turn over investment in the livestock herd. Cattle raising varies from very small to very large units in all countries. Cattle productivity, in terms of meat yield per investment unit (cow) also varies substantially due to breed, feeding regime, and health status. Meat quality and taste can vary substantially according to all these aspects, meaning that marketed meat usually has no fixed standard, but whose value may vary from farm to farm, processor to processor, and country to country. Differing slaughter practices and storage facilities affect the sanitary status of meat and may limit its value in local and urban markets, and particularly in international trade. Increasingly, traceability of product by origin and production method are demanded by the retail sector.

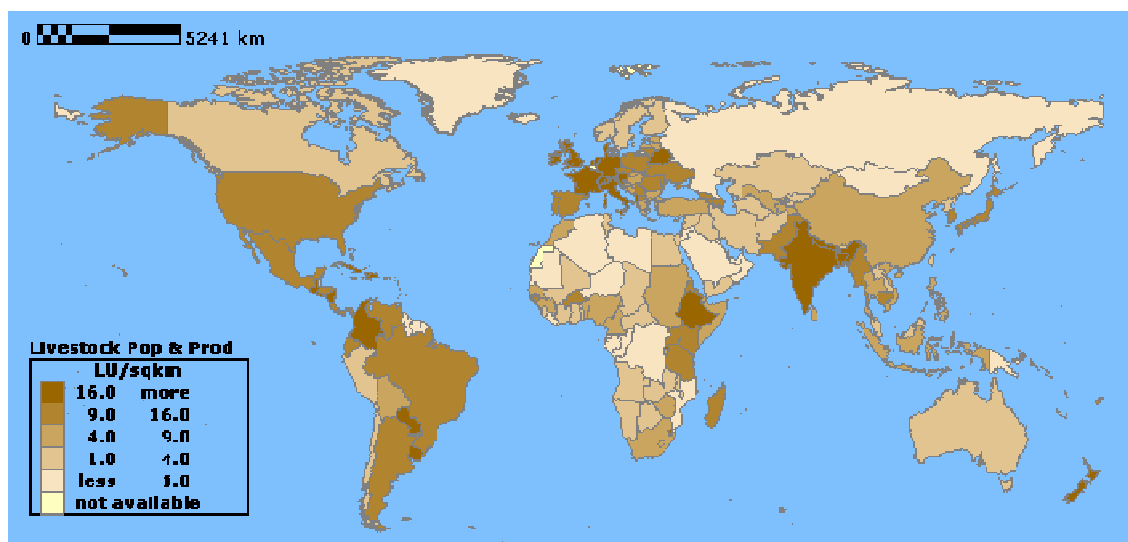
Global cattle inventories are estimated at 1.5 billion head, and beef production is estimated at 65.7 million tonnes in 2006<sup>2</sup>. As shown in Figure 1, Latin America is now the largest beef producing region, accounting for over 25 percent of global output. However, the Asia and Pacific region is the fastest growing region, with beef output having increased by 3.7 percent per year from 1996-2005. For Africa, an analysis of cattle herd sizes compared to regional production indicates lost opportunities. Figure 2 displays cattle densities around the world, and reveals that some countries in Africa hold large inventories which are not effectively exploited. Despite accounting for 232 million, or 15 percent of global cattle inventories, Africa produces only 6 percent of world beef and veal output.

**Figure 1 Beef and Veal Producing Regions**



<sup>2</sup> See Food Outlook, December 2006. FAO.

**Figure 2: Density of Global Cattle Inventories.**



An important factor affecting the both the productivity and the marketability of beef is the presence of animal diseases. Foot and mouth disease (FMD) is one of the most contagious diseases of mammals. It affects cloven-hoofed animals, and because of its highly contagious nature it spreads quickly through a region. It is very difficult to eliminate as both raw and processed meat can carry the disease. Travellers, tourists, wind and transport vehicles can carry the disease from one region or country to another. The disease has a marked impact on animal productivity; it causes pregnant animals to abort, lowers milk yield and reduces weight gain. As seen from the Table 1 below, only some 59 countries are currently officially free of the disease, as registered by the World Organization for Animal Health (OIE). The disease incurs large economic losses for producers, and substantially limits trade opportunities in disease free lucrative markets such as the Asian and North American markets. FMD is the first disease for which the OIE established an official list of free countries and zones free of the disease. As a broad generality, beef prices in FMD endemic zones may be less than half those in disease free zones. For many countries disease free status is gained but then lost in a vicious cycle, particularly if they are bordered by endemic countries. As noted in Section 2.3, disease status limits trade, and if status is lost, economic consequences for net exporters can be very large.

Another important disease recognized by the OIE is Rinderpest, which is a highly fatal viral disease affecting cattle, buffaloes and yaks. It is a communicable disease that may kill herds of animals, thus wiping out wealth and source of food and income.. This disease has been present in Europe and Asia, but never in the Americas or Oceania. Many countries of Africa are not officially declared free of the disease<sup>3</sup>. Bovine Somatotropin (BST), another disease recognized by OIE, has largely been confined to developed countries which have intensive feeding regimes, and while not contagious, is spread largely through feeding of bone-meal. The disease may be passed to humans with a similar effect as Creutzfeldt-Jacobs disease which attacks brain tissue. It is difficult to detect in cattle, and procedures for regaining trade status are onerous, involving systems of sampling and examining bone tissue from carcasses of slaughtered animals.

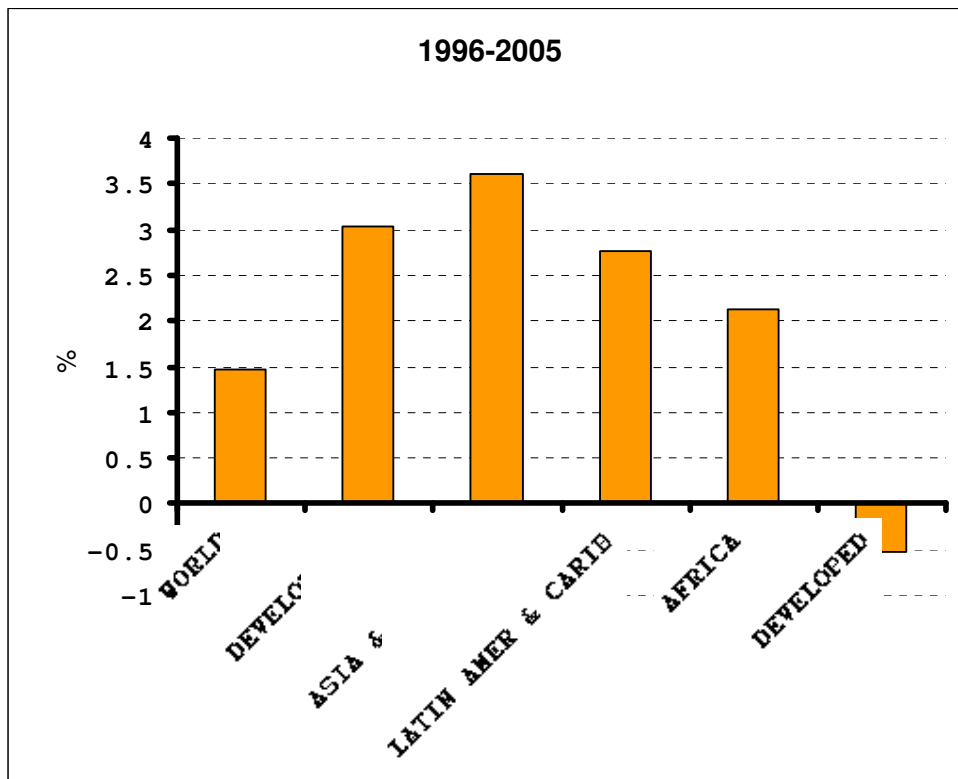
<sup>3</sup> See OIE website: [www.oie.int](http://www.oie.int) for a complete description.

Zoning, or regionalization is an OIE instrument of increasing use by beef (meat) exporters. Accordingly, countries set up control zones that use specific means for containing disease spread using meat and animal unit protocols that satisfy OIE in terms of sustaining an independent disease status from other zones within a country that may have a disease. For example, for a disease such as FMD, countries such as Brazil and Argentina may have a disease outbreak in one zone, yet if their trading partners accept meat from other OIE zones, trade may still continue. Such an approach has proven to be very effective in enabling a country, particularly a large one with many animals, to sustain trade and to minimize the impact of a further disease outbreak in one part of the country. In this context it also maybe a useful means of developing a meat sector, in which disease can be contained and eliminated, enabling producers to access premium markets.

On-going disease issues and its implications for market access, difficulties in vertically integrating within the beef production/processing chain, and stagnant beef demand in developed countries has constrained growth in global beef production to only 1.5 percent annual growth over the 1996-2005 period. For developing countries in general the process of technical innovations and restructuring has also proceeded slowly in the beef sector, constrained by the small size of farms and the special roles these animals play in a large numbers of countries, e.g. as a capital asset, for dairy production, social status and draught power. Nevertheless, the increase in production for the developing countries has been greater (+3% per annum) than global beef production, albeit starting for a low base (See Figure 2).

Finally, on the production side, trends in cattle slaughter and meat processing play an increasing role in beef production, marketing and trade. In developed countries, very large and integrated firms such as Cargill have attained significant economies of size both in physical operations but also in stock holding and product transportation. Increasingly meat is traded by cuts, not by carcass as it was previously done. Large plants require access to also large inventories of cattle and economic means of shipment of live animals to plant. Boxed beef trade is now the norm, and cuts are tailored to demand characteristics of retailers in other countries. In developing countries, while such operations may exist close to large cities, varying types of slaughter and processing operations remain, particularly rural and backyard type operations. Relative efficiency among countries are increasingly important in determining future trade.

**Figure 2: Per annum growth in Production ( selected area)**



Source: OECD-FAO Agricultural Outlook 2006-2015.

**Table: 1 FMD Disease status recognized by the OIE**

<b>Countries free from FMD without vaccination</b>		
Albania	Germany	New Caledonia
Australia	Greece	New Zealand
Austria	Guatemala	Nicaragua
Belarus	Guyana	Norway
Belgium	Honduras	Panama
Bosnia and Herzegovina	Hungary	Poland
Bulgaria	Iceland	Portugal
Canada	Indonesia	Romania
Chile	Ireland	Serbia-and-Montenegro*
Costa Rica	Italy	Singapore
Croatia	Japan	Slovakia
Cuba	Korea (Rep. of)	Slovenia
Cyprus	Latvia	Spain
Czech Rep.	Lithuania	Sweden
Denmark	Luxembourg	Switzerland
El Salvador	Madagascar	Ukraine
Estonia	Malta	United Kingdom
Finland	Mauritius	United States of America
Former Yug. Rep. of	Mexico	Vanuatu
Macedonia	Netherlands	
France		
<b>Countries free from FMD with vaccination</b>		
Chinese Taipei	Paraguay	Uruguay
<b>Zones within countries free from FMD without vaccination</b>		
Argentina	zone situated south of the 42° parallel;	
Colombia:	zone designated by Colombia in November 1995 (Area I - Northwest region of Choco Department) and in April 1996;	
Malaysia:	zones of Sabah and Sarawak designated by Malaysia in December 2003;	
Namibia:	zone designated by Namibia in February 1997;	
Peru:	zone designated by Peru in December 2004.	
Philippines	Islands of Mindanao, Visayas, Palawan and Masbate;	
South Africa	zone designated by South Africa in in May 2005;	
<b>Zones within countries free from FMD with vaccination</b>		
Bolivia	zone of Chiquitania designated by Bolivia in January 2003 and a zone situated in the western part of the Department of Oruro in September 2005;	
Brazil	States of Acre along with two adjacent municipalities of Amazon state, Rio Grande do Sul, Santa Catarina, and Rondonia	
Columbia	zone designated by Colombia in January 2003 and two zones designated in December 2004	

Source: OIE

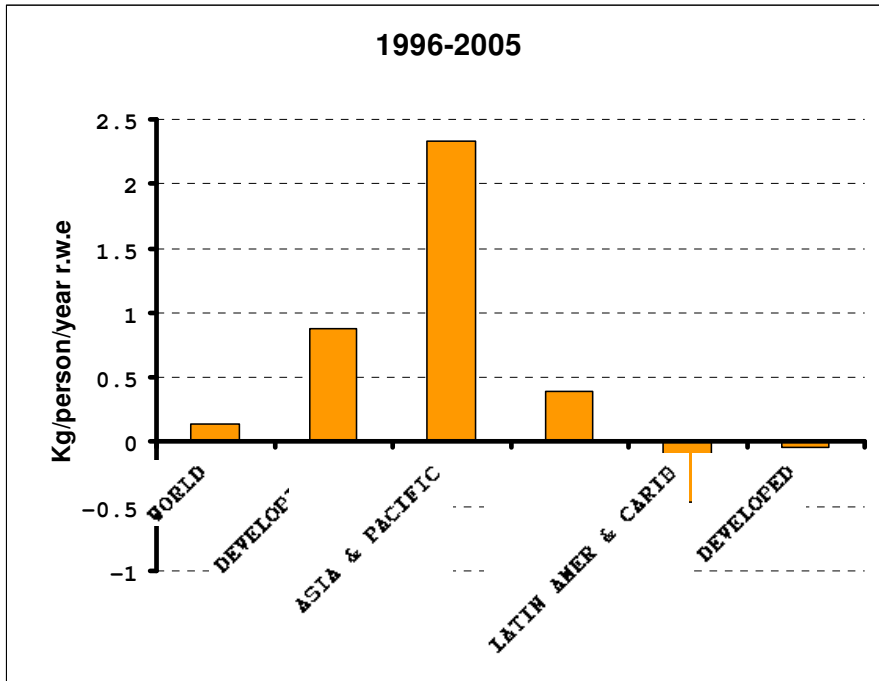
## 2.2 Consumption

Global meat markets are characterised as among the fastest growing consumption sectors of all major agricultural commodities. Quality-conscious urban consumers in developing countries have spurred global demand for meat products and much of this demand has been met by increased meat output in these countries themselves. This rapidly growing demand for meat products in developing countries has shifted the global base of animal production from developed to developing countries. By 2010, nearly 80 percent of ruminant animals will be reared in these regions, while the share of poultry and pigmeat will be slightly less, at 70 percent. This growth in demand has also stimulated a sustained growth in meat trade, with trade gains for poultry and pigmeat exceeding that of beef.

At a global level the market share of beef in meat consumption has been declining. Global beef consumption increased only 1.4 percent per year during the decade 1996 to 2005. This compares to growth in poultry meat of 3.5 percent and in pigmeat of 2.4 percent. This shift in consumption patterns has been most striking in developed countries, where per capita beef consumption actually declined in the previous decade, whereas in developing countries it grew by almost 1 percent per year (see Figure 3). The strongest areas of growth in beef consumption lie in Asia where per capita consumption growth, albeit from a small base, has exceeded 2.3 percent per year, mainly due to growth in China and various countries in the Middle East.

Africa has not benefited from the growing demand beef products and continues to be on the fringes of world markets, accounting for about 7 percent of global consumption, and less than 2 percent of global trade. South Africa and Egypt receive the majority of imports. Both imports and exports from the countries in the Horn of Africa are marginal, constituting less than half of one percent of global totals. The region has, however, gradually become a net meat exporter, supported by growing sheep/goat meat exports reported from the Sudan to other countries in the region. Meanwhile the beef and sheep/goat industries play an important role in the economies of this region, constituting respectively 45 percent and 26 percent of total meat output and serving as important sources of income for many families in the lowest income groups.

**Figure 3: Per capita beef consumption**

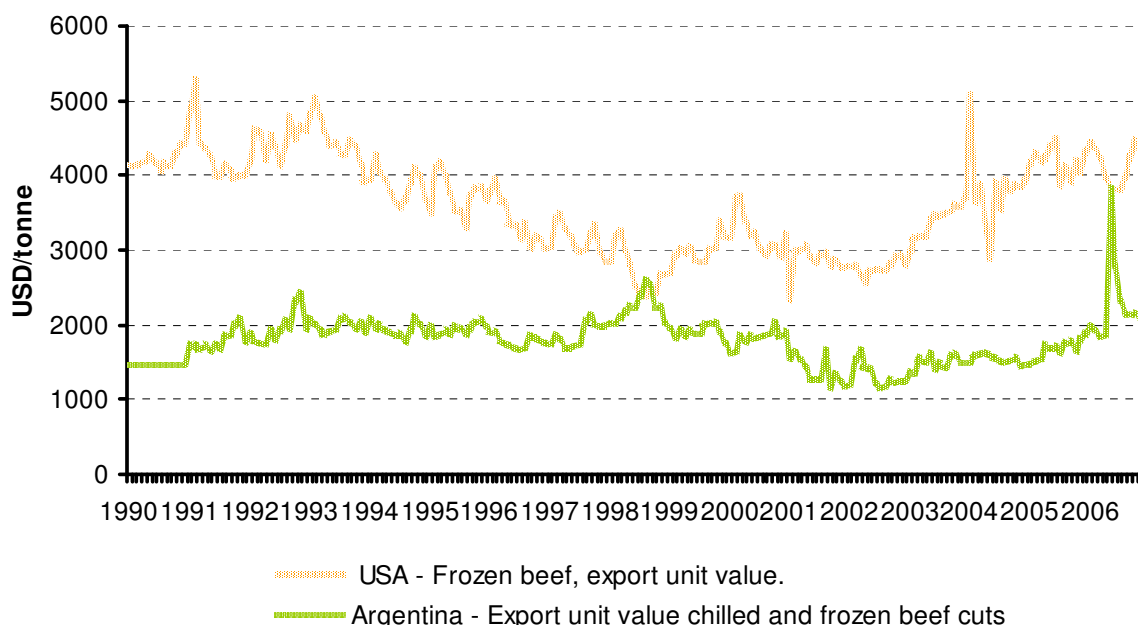


Source: OECD-FAO Agricultural Outlook 2006-2015

### 2.3 Trade

World beef markets have been historically segmented by disease, quality and in some cases by trade agreements. The Pacific Market is the premium market, and while recently its definition has been broadened to a wider number of Asian countries, it basically consists of countries in the Pacific basin. Meat trade in this market is largely free of Foot and Mouth Disease (FMD), and trade consists both of high value cuts and also manufacturing (cow-grade) beef. The key exporters of this market include the United States, Canada, Australia and New Zealand. In the late 1980's the EU signed an accord known as the Andriesen Agreement, by which EC agreed not to subsidize beef exports into this market. The Atlantic Market is defined generally by the Atlantic basin, and is supplied by the EU, Brazil, Argentina and Uruguay; trade is generally with Europe, Russia and parts of Northern Africa. In this market, exporters struggle for FMD-free status, and beef is largely pasture fed. The other market is the FMD-endemic market which is seen as a residual market where trade values are low. Trade within this market is also low volume, often local, and may consist of considerable quantities of adjacent border trade in live cattle. Figure 4 notes the beef prices differences and independence between the FMD affected market such as Argentina and FMD free market such as USA.

**Figure 4: FMD vs. FMD free beef prices**



Source: FAO

### *Policy Developments affecting international beef trade*

Global beef markets, over the 1990's, were characterised by a gradual dismantling of trade barriers, with countries reducing tariffs and replacing non-tariff barriers by tariff rate quotas (TRQs). However, increasing instances of animal diseases affecting beef, particularly BSE and FMD have led countries to impose import bans and stricter sanitary requirements as well as other technical barriers, such as requirements on labelling and animal traceability schemes.

Beef trade has been, in general, significantly influenced by WTO provisions, especially the URA limits on subsidized exports as witnessed by the declining share of the EU in world beef exports since 1995. Of the various meat products, the global market for beef was expected to feel the most direct effects from the policy development under the WTO's Agreement on Agriculture because both export subsidies and market access barriers were more prevalent for beef than for other meats.

While progress towards the restructuring and privatisation of the beef sectors in many developing countries continued in the late 1990s, this trend was disrupted as animal disease outbreaks in some developing countries resulted in increasing support to the livestock sector while heightened concerns regarding food safety and animal disease issues escalated the trend for countries to enact legislation to improve meat quality standards. However, the pressure on many countries to privatise livestock services has been viewed by many as deterring disease prevention and control<sup>4</sup>.

<sup>4</sup> See "Provision of Livestock Services", a paper presented to the 20<sup>th</sup> Session of the FAO Intergovernmental Group on Meat and Dairy Products, Winnipeg, Canada.

### ***Impact of SPS notifications on trade***

Measures aimed at protecting humans or territory from animal diseases resulted, over the course of the first six years from the signing of the Uruguay Round Agreement in 1995, in over 240 border closures and about 60 restrictive measures. World trade of cattle and meat products, most particularly beef meat, was greatly affected, especially in 2000 and 2001 when markets around the globe closed their borders to at least one-quarter of world beef trade and nearly 40 percent of global pork exports. These animal disease market shocks were again evidenced in the 2004 period after the discovery of BSE in North America, a region which accounts for one-quarter of world beef trade. Since the early 2000, the numerous import bans on livestock and meat products from the disease-afflicted regions of the EU, Argentina, Uruguay, the Republic of South Korea and parts of Brazil were accompanied by a tightening of sanitary border control measures which affected many meat exporters, even those officially free of animal diseases.

### ***Trade liberalisation: Impact on the Beef Sector***

It has been suggested in the literature that elimination of agricultural trade and domestic policy distortions in global meat markets is expected to have a significant impact on global meat prices, with prices likely to increase between 3 and 22 percent, depending on the specific scenarios and analysis<sup>5,6</sup>. Prices for beef and sheep meat, the meat products with the highest degree of protection and support are expected to be the most affected, rising 3 to 11 percent depending on the extent of liberalisation. For meat, high tariffs and tariff-rate quotas account for more market distortions than domestic support, with the 247 TRQs for meat products, which is second highest number for a sector after fruits and vegetables. In addition, export subsidies for beef distort markets with subsidized WTO volume limits in 2000 totalling 1.2 million tonnes, or 19 percent of world trade.

Meanwhile, while global average tariff rates are calculated at 62 percent, average tariffs (WTO bound rates) for the various meats range from to 77 percent for pigmeat and poultry to 85 percent for beef.

Elimination of domestic support for livestock industries, prevalent in OECD countries, is expected to lead to only a marginal impact on global meat production, with the beef and sheep meat sector most impacted. Under most liberalisation scenarios, world meat production would rise less than 1 percent with most of the excess supply generated in low-cost meat exporting countries, such as Oceania and North/ South America. Much of the impact would be in the beef and sheepmeat sectors in the OECD, particularly in Europe, where average product support estimates (PSE) range from 30 percent to 50 percent respectively. Pigmeat and poultry sectors are expected to be less affected as PSEs range from 10 to 20 percent.

Much of the price impact of liberalisation would stem from increased trade as a result of improved market access for meat products. However, given the high bound rates for meat and the fact that many countries apply lower tariffs than the WTO-bound levels, any reduction on bound tariff levels

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<sup>5</sup> USDA estimates the impact of full liberalisation of livestock product prices (including dairy) at 22 percent. These products face the highest level of import protection and export subsidies and a decomposition of price effects of liberalisation include a 6 percent price impact of eliminating domestic support, a 3.3 percent impact from eliminating export subsidies, and a 13 percent price rise due to the reduction of tariffs.

<sup>6</sup> Preliminary liberalisation results from a FAPRI analysis show a 12, 5, and 11 percent price increases for beef, pork, and poultry.

would likely have a minimal impact on trade. Trade gains would result mainly from increased quota levels, combined with cuts in applied tariffs, particularly out-of-quota tariffs. Reduction or elimination of these barriers, as well as a reduction in export subsidies, would result in:

- importing countries with high protection (Japan, the Rep. of Korea, the Philippines) increasing imports between 10-20 percent. The highest impact of meat market liberalisation is expected to occur in the EU, which maintains a large number of TRQs and high out-of-quota tariffs. Higher EU access, combined with a reduction or elimination of export subsidies, would put downward pressure on EU beef prices, potentially forcing a revision of the existing beef regime through the provision of compensatory payments not subject to reduction.
- Many high-cost exporting countries will decrease output and exports while shipments from low cost producers such as North America may expand between 1-5 percent. The largest beneficiaries are expected to be countries in South America which traditionally market product to the EU.
- Some importing countries with already low duties, such as Mexico and perhaps other developing countries, are expected to reduce their imports because of higher world prices.

### ***Benefits from trade is unbalanced among regions.***

An analysis of cattle herd sizes reveals that many countries in Africa hold large inventories which are not effectively exploited. Africa continues to be on the fringes of the world market for meat products, accounting for less than 2 percent of total global trade with South Africa, Egypt and Algeria receiving the majority of meat imports. Both meat imports and exports from the countries in the Horn of Africa are marginal, constituting less than half of one percent of global totals. The region has, however, gradually become a net meat exporter, supported by growing sheep/goat meat exports reported from the Sudan to other countries in the region. Meanwhile the beef and sheep/goat industries play an important role in the economies of this region, constituting respectively 45 percent and 26 percent of total meat output and serving as important sources of income for many families in the lowest income groups.

Particularly important to this region is the potential for live animal trade to regional and Middle Eastern markets. The total value of live animal exports peaked in 1983 at nearly \$300 million (\$240 million worth of live sheep/goat shipments with the remainder accounted for by beef exports). This aggregate value accounted for 8 percent of the world value of live animal trade in 1982, or \$3.7 billion. However, live animal shipments have dramatically declined with regional exports averaging \$140 million over the 1996-1998 period (less than 4 percent of the value of global live animal trade) and sliding to \$115 million in 2001. Most of the live animal exports, particularly sheepmeat, originate from the Sudan and Somalia where they play a critical role in the economies of those countries. It is reported in the Sudan that the livestock industry comprises up to 20 percent of the country's GDP, 40 percent of the agricultural sector output and more than 25 percent of the country's total exports.

### ***Meat/Live Animal Trade from the Horn of Africa: Constraints and Potential***

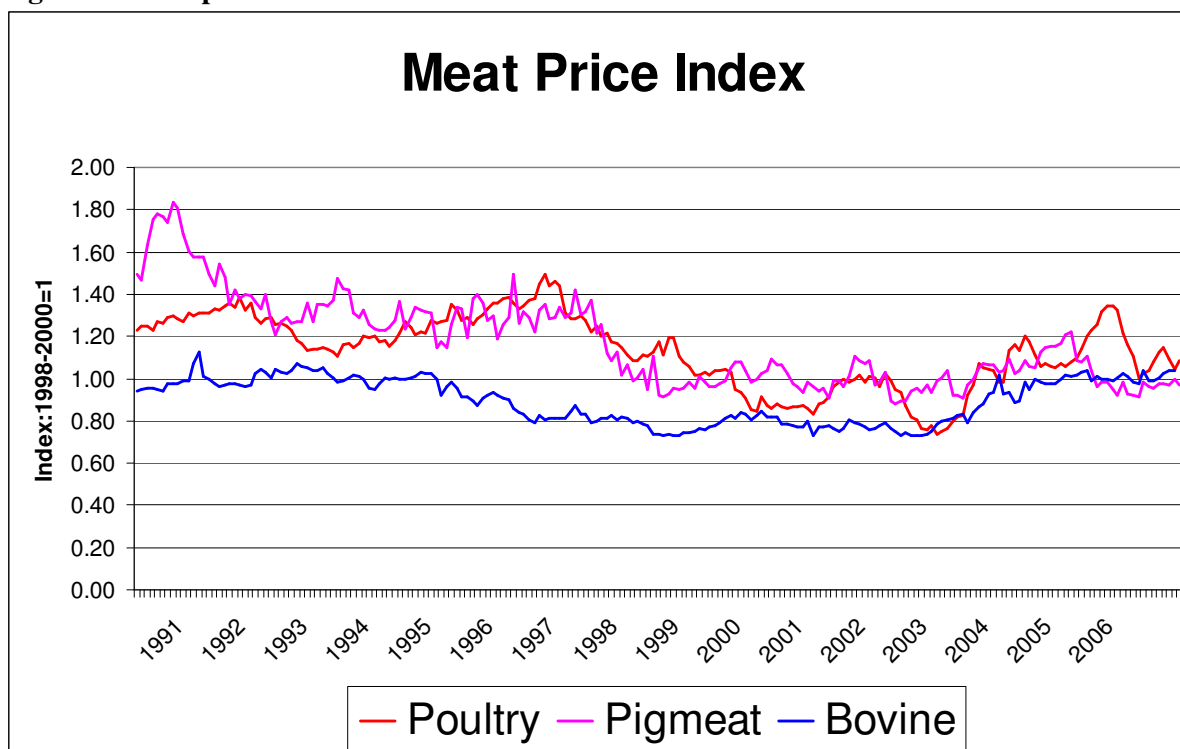
The Horn of Africa holds the potential to participate more fully in the global meat market place and market opportunities exist, in particular in a context of a more liberalised meat economy and the possible elimination of beef export subsidies by the EU. Most of the constraints to live animal trade from this region stem from animal health regulations with the recent Saudi ban on live animal

imports originating from concerns regarding Rift Valley Fever. Meanwhile, meat exports from the region will likely be constrained by lack of adequate infrastructure, as well as inability to adhere to the sanitary regulations of most importing countries. The accession of Saudi Arabia to the WTO will likely mean potentially higher SPS standards (but less arbitrary), making it more difficult for the region to have access to an important export market. Considerable investment in animal disease control and improved sanitary conditions in slaughter and processing plants would have to be undertaken to ensure the region's place in the global export market for both live animals and meat products.

## 2.4 International Market Prices

Over the past decade, international meat prices, as monitored by FAO's meat price index, have followed a declining trend, particularly since 1996. Meanwhile, increased fluctuations, have been witnessed for most of the meats since 1995 with all meats, except bovine meat, which shows more volatility over the past five years (see Figure 5). A closer evaluation of price developments for the individual meats reveal that these price movements, rather than indicating structural shifts in the various industries, are a result of animal production cycles and specific one-time market developments that have affected meat demand and prices. Any analysis of meat prices, however, is complicated by the heterogeneous nature of meat products and the difficulty of finding representative international prices for individual meat cuts. Typically meat export prices are per unit values which reflect the average value of a number of different cuts.

**Figure 5: Meat price movement since 1990**



Source: FAO<sup>7</sup>

<sup>7</sup> FAO's meat price index is a trade-weighted index for the major meats: bovine meat, pigmeat, poultry meat, and sheepmeat. The international beef price consists of 4 beef prices considered as representative in the international marketplace: the per unit export value of US and Argentina frozen beef, the Japanese import price for fresh/chilled beef

International beef prices are heavily influenced by the US market, the world's largest importer of beef and the second largest exporter. While there appears to be a fundamental structural change in the world beef market as reflected in considerable downward pressure on prices since the mid-1990's, it is clear that this is influenced heavily by the cattle cycle in North America, with herd liquidation beginning in 1996 pressuring down beef prices. Increasing cow slaughter in the largest import market for beef, mainly manufacturing grade product, resulted in the impact of the changing cattle cycle being immediately translated through international market through the decline in the cow price. Meanwhile, a stagnant economy in Japan, the second largest import market, led to consumer's preferences shifting to lower-value imported beef cuts, such as short plate, brisket, and chuck used for sliced barbecue packs. This shift has lowered the Japanese price for imported cuts, adding to downward pressure on beef prices. This trend of declining beef prices tentatively reversed itself in 1999 in response to economic recovery in Asian export markets and indications of herd rebuilding in the U.S; however, unusually high cattle slaughter in mid-to-late 2000 combined with declining international demand for meat pressured prices down.

### **3 Market Situation and Outlook**

#### *Key market drivers*

Partly driven by changing patterns of meat demand due to rising incomes, global meat markets have witnessed a profound transformation over the past 15 years. Consumers and retailers are requiring a broader diversity and higher quality of meat cuts, more ease in preparation and enhanced assurances about product safety. Meanwhile a growing preoccupation about the ways in which meat is produced and sold is driving increased certification requirements, product safety guarantees and rising demand for animal welfare and environmental standards. Concurrently, the resilience of the meat sector to trade and price shocks triggered by recurring and pervasive outbreaks of animal diseases are frequently and increasingly tested.

Market disruptions due to animal disease outbreaks affect consumption and meat trading patterns, alter relative meat prices, and impose ripple effects which go beyond the livestock sector. In particular, these effects mean higher costs for input industries. Critical to the medium term outlook of the sector are the policy responses by governments, the nature and the duration of the animal disease outbreaks, the changes in the structure of the industry in response to policies enacted to mitigate the disease impacts, and the long term impact on investment in the sector. In addition to the more traditional forces of income and population growth, these factors, along with other demographic changes, including urbanisation, will be increasingly important drivers of meat consumption. While this is particularly visible in developed countries, it also more and more the case in developing countries where, over the past decade three-quarters of the growth in global meat production and consumption has taken place.

The medium term global outlook for meats, projected to be characterised by relatively strong growth with demand requirements surpassing those of other commodities, is expected to become

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cuts and the US cif price for Australian manufacturing grade beef. Pigmeat prices consist of the US per unit export value for frozen cuts and Japanese import price for fresh/chilled cuts. Poultry prices are represented by the US per unit export value of broiler cuts and the Japanese import prices for frozen other cuts while the lamb price is the frozen wholesale carcass price in the Smithfield market, London.

more complex. The competitiveness of meat exporters will increasingly hinge on their ability to respond to rapidly changing consumer preference, and to the myriad of international regulations related to food safety and animal health standards. The outlook for global beef production and trade is expected to lag that of other meats. The growing concentration/integration of poultry/pigmeat sectors, combining with innovation developments in specialisation in production and processing, will continue to favour lower prices for these two meats compared with beef.

Over the 2002-2005 period, BSE and FMD disease outbreaks have led to major meat price rises reflecting reduced global exportable supplies of beef and the adoption in many countries of policies, including import bans, tighter sanitary border control measures, and stronger domestic regulations to protect their livestock sectors. Countries that were spared from these outbreaks moved to fill the gap in supplies and international beef prices increased by over 40% between 2002 and 2005. For the Outlook, the assumption of a resumption of normal market conditions after the animal disease induced shocks during the 2003 and 2005 period imply that real beef prices<sup>8</sup> may decline until 2015 by 23% from currently high levels..

*Beef production and consumption is expected to grow in developing countries between 2005-2015*

Despite a little growth in beef consumption in developed countries, world beef consumption is projected to expand by almost 2% annually to 77 million tonnes in 2015. This is similar to trends over the past decade and represents a 21% increase over the 10 year projection period. As consumers in developing countries diversify their diets away from grains and adopt more western diets and consumption practices, nearly 87% of the growth in beef consumption will occur in these regions. Meanwhile, developed countries are set to account for less and less of a share of global beef consumption, falling from 53% in 1996 to 47% in 2005 and a projected 41% in 2015. A similar trend is expected in beef production from developed countries falling from 54% in 1996 to 46% in 2005 and a projected 40% in 2015. These changing shares also imply that developing countries will also play an increasing role in market influence, including price and policy setting.

While the outlook for growth in beef production and consumption is positive, there are stark regional variations in developing countries. Asia has expectations of stronger economic growth and rising supplies due to investment in more integrated, vertically coordinated livestock operations, and is expected to account for half of the global growth in both beef production and consumption. A large share of this increase will be fuelled by strong economic growth and the emerging middle-class of China which represents a huge potential market. Meanwhile, African countries will account for 11% of the increase in global beef consumption, even though their share of beef consumption is expected to decline marginally among developing countries (-13%), The same evolution is expected for beef production (~11%) from African countries, resulting in a slight 1% increase in consumption dependency on imports.

On the export-supply side, North America is anticipated to gradually increase its market share in the Pacific market, assuming problems of BSE are handled well. This will place downward pressure on that market. In the Atlantic market, South American countries will increase their dominant market share and Brazil will consolidate its position as the world's largest exporter. Argentina will also increase its exports. Potential further outbreak of FMD in these countries will continue to threaten their ability to move into the more lucrative Pacific market, and hence keep their focus on growing markets in North Africa, the Middle East and Russia. Exports from the EU

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<sup>8</sup> US steer prices, deflated by the US consumer price index, which is assumed to grow in the 2-3% range over the next 10 years.

are projected to continue their longer term decline; the EU will be a significant source of net import demand in the next ten years.

The major source of import growth is projected to be the Asia-Pacific region, including a rebound of imports into Japan following the disturbance in the Pacific market by BSE issues. Imports are expected to grow strongly in Russia and other CIS states. To lesser extent, imports will increase into the Middle East, into the North African region and into South Africa.

Table 2: World Beef and Veal Production and Consumption - 1996 to 2015

	PRODUCTION		Growth (%) <sup>a</sup>		CONSUMPTION		Growth (%) <sup>b</sup>	
	2003-05 Average	2015	1996-05*	2006-15	2003-05 Average	2015	1996-05*	2006-15
WORLD	62,961	77,835	1.5	1.9	62,230	76,809	1.4	1.9
DEVELOPED	29,460	31,104	-0.5	0.3	29,864	31,737	0.3	0.5
NORTH AMERICA	12,689	14,854	-0.1	1.1	13,578	14,539	0.7	0.3
Canada	1,521	1,967	0.8	0.7	1,025	1,096	0.4	0.7
United States	11,168	12,888	-0.2	1.1	12,553	13,443	0.8	0.3
WESTERN EUROPE	8,237	7,826	-1.0	-0.7	8,408	8,374	0.3	-0.1
EU(25)	8,015	7,623	-1.0	-0.7	8,172	8,152	0.3	-0.1
Norway	83	73	-1.0	-1.3	87	81	-0.3	-1.0
Switzerland	135	125	-1.8	-0.9	145	137	-1.6	-0.9
Other Western Europe	4	5	2.4	3.6	4	4	1.7	1.6
EASTERN EUROPE	500	532	-1.1	0.8	604	732	0.3	1.2
Other Eastern Europe	500	532	-2.2	0.8	604	732	0.3	1.2
COM. of IND. STATES	3,925	4,017	-2.6	1.0	4,529	4,790	-2.3	1.4
Russian Federation	1,898	2,018	-3.3	2.1	2,591	2,770	-2.4	2.3
Ukraine	651	513	-5.3	-1.1	562	520	-4.2	-0.2
Other CIS	1,375	1,485	-0.2	0.5	1,376	1,500	-1.4	0.3
OCEANIA DEVELOPED	2,997	2,771	1.7	-1.4	848	892	-0.4	0.1
Australia	2,322	2,105	2.0	-1.7	744	780	0.2	0.0
New Zealand	675	666	0.7	-0.6	104	112	-3.7	1.5
OTHER DEVELOPED	1,111	1,104	1.4	0.1	1,897	2,410	-1.0	2.1
Japan	504	517	-1.0	0.1	1,213	1,673	-2.8	2.8
South Africa	607	587	3.7	0.1	684	737	3.0	0.6
DEVELOPING	33,502	46,731	3.0	3.0	32,366	45,072	2.4	3.0
AFRICA	3,835	4,996	2.1	2.4	4,216	5,654	2.7	2.5
NORTH AFRICA	861	1,120	1.9	2.3	1,132	1,489	2.3	2.2
Algeria	124	192	2.8	3.7	217	307	7.5	2.9
Egypt	520	688	0.9	2.4	676	909	0.9	2.5
Other North Africa	217	240	4.2	0.9	239	273	2.6	0.7
SUB-SAHARAN AFRICA	2,974	3,875	2.2	2.5	3,083	4,164	2.9	2.6
Ghana	15	14	-0.6	-0.1	28	39	1.5	3.0
Mozambique	38	40	0.6	0.1	40	42	0.5	-0.1
Nigeria	235	286	-0.6	1.9	285	349	-0.3	1.9
Tanzania	248	315	3.4	2.1	248	331	3.4	2.5
Zambia	41	48	0.0	1.1	41	49	0.0	1.3
Other Sub-Saharan Africa	2,397	3,173	2.5	2.6	2,442	3,353	3.4	2.7

Table 2 (cont'd): World Beef and Veal Production and Consumption - 1996 to 2015

	PRODUCTION		Growth (%) <sup>a</sup>		CONSUMPTION		Growth (%) <sup>b</sup>	
	2005-05 Average	2015	1996-05 <sup>c</sup>	2006-15	2003-05 Average	2015	1996-05 <sup>c</sup>	2006-15
LATIN AM. and CARIBBEAN	15,841	21,193	2.8	2.6	13,284	17,373	1.0	2.5
Argentina	2,906	3,232	1.1	0.5	2,321	2,276	0.3	-0.4
Brazil	8,268	12,380	4.7	3.7	6,571	9,677	1.7	3.9
Chile	204	235	-3.2	1.2	358	447	0.3	2.0
Colombia	686	737	-1.3	0.7	684	741	-1.3	0.8
Mexico	1,528	1,723	2.2	1.3	1,491	1,919	1.6	2.1
Paraguay	217	253	-0.4	1.2	125	107	-6.7	-2.5
Uruguay	496	675	1.0	2.2	176	201	-3.9	0.8
Other Latin America	1,536	1,959	2.5	2.3	1,559	2,004	1.7	2.2
ASIA and PACIFIC	13,825	20,541	3.6	3.7	14,866	22,046	3.7	3.5
Bangladesh	184	237	1.7	2.6	184	243	1.7	2.6
China <sup>c</sup>	6,766	11,712	7.0	5.0	6,714	11,653	7.3	5.1
India	3,006	3,718	1.2	2.0	2,636	3,090	0.2	1.1
Indonesia	373	444	2.1	1.3	444	546	0.9	1.7
Iran, Islamic Republic of	333	427	0.3	2.1	404	552	0.6	2.6
Korea, Republic of	189	262	-6.8	2.7	467	654	-0.3	4.3
Malaysia	15	22	4.5	3.8	168	220	6.0	1.7
Pakistan	986	1,305	2.5	2.6	980	1,332	2.4	2.8
Philippines	243	311	7.3	2.5	384	499	5.1	2.5
Saudi Arabia	19	19	0.4	0.2	125	210	8.7	3.5
Thailand	183	193	-6.0	1.5	239	268	-2.4	1.1
Turkey	289	322	-1.8	1.3	298	322	-2.4	1.1
Viet Nam	219	257	3.8	1.1	219	259	3.8	1.2
Other Asia Pacific	1,021	1,311	2.0	2.5	1,604	2,198	3.3	2.2
LEAST DEVELOPED COUNTRIES (LDC)	2,938	3,903	2.4	2.7	2,966	4,053	2.7	2.8
DEVELOPING excluding LDC	30,564	42,828	3.1	3.1	29,400	41,019	2.4	3.0
OECD	26,434	28,275	-0.6	0.3	26,304	28,374	-0.1	0.5
NON-OECD	36,527	49,560	2.4	2.9	35,926	48,435	1.8	2.8

Source: OECD-FAO Agriculture Outlook 2006-2015

NA: Not available.

a) For EU(25), World, Developed, OECD and Western Europe growth rate refers to 1999-05.

b) Least-squares growth rate.

c) Refers to mainland only. Taiwan, Province of China and the Chinese Special Administrative Regions of Hong Kong and Macao.

Table 3: World Beef and Veal Trade - 1996 to 2015

	IMPORTS		Growth (%) <sup>a</sup>		EXPORTS		Growth (%) <sup>a</sup>	
	2003-05 Average	2015	1996-05a	2006-15	2003-05 Average	2015	1996-05 <sup>a</sup>	2006-15
WORLD	6,981	9,240	1.6	2.0	7,843	10,257	2.4	1.8
DEVELOPED	4,342	5,209	-0.1	1.4	4,049	4,548	-5.5	0.1
NORTH AMERICA	2,130	2,027	2.0	-1.0	1,232	2,342	-5.5	4.2
Canada	173	91	-7.2	-2.0	666	562	-0.8	0.3
United States	1,957	1,936	3.0	-1.0	566	1,780	-11.7	8.6
WESTERN EUROPE	515	754	7.0	4.0	432	208	-15.9	-7.6
EU(25)	497	731	7.0	4.1	429	202	-14.1	-7.7
Norway	5	7	NA	0.0	1	2	NA	0.0
Switzerland	13	15	3.9	0.0	2	3	40.6	0.0
Other Western Europe	0	0	33.8	NA	0	1	NA	NA
EASTERN EUROPE	147	246	6.5	2.2	44	46	1.5	0.8
Other Eastern Europe	147	246	6.5	2.2	44	46	1.5	0.8
COM. of IND. STATES	776	864	-1.6	2.1	176	91	-6.0	-4.0
Russian Federation	702	761	0.5	2.6	9	9	-4.5	0.0
Ukraine	4	12	2.2	5.4	98	5	-11.2	-22.0
Other CIS	70	91	-12.9	-1.2	69	77	2.0	0.5
OCEANIA DEVELOPED	12	9	1.2	-1.1	2,157	1,858	2.6	-2.3
Australia	5	6	-4.5	0.0	1,583	1,331	2.9	-2.5
New Zealand	8	3	3.9	-2.7	574	527	1.9	-1.7
OTHER DEVELOPED	763	1,309	-4.2	4.2	8	3	-9.4	0.0
Japan	698	1,156	-4.4	4.4	0	0	-13.7	0.0
South Africa	85	152	-2.8	3.0	8	3	-9.2	0.0
DEVELOPING	2,638	4,031	4.0	2.8	3,794	5,709	11.4	3.3
AFRICA	511	796	4.0	2.7	131	138	-6.0	0.7
NORTH AFRICA	272	370	2.8	2.1	1	1	4.6	2.1
Algeria	93	115	19.7	1.7	0	0	NA	3.7
Egypt	157	222	1.0	2.8	1	1	6.9	2.4
Other North Africa	22	33	-14.8	-0.5	0	0	0.2	0.9
SUB-SAHARAN AFRICA	239	426	5.5	3.2	130	137	-6.0	0.7
Ghana	13	25	5.3	5.2	0	0	NA	0.0
Mozambique	2	3	-0.8	-2.4	0	0	NA	NA
Nigeria	50	64	1.2	2.3	0	0	NA	NA
Tanzania	0	17	8.1	35.5	0	0	NA	-3.8
Zambia	0	2	-5.9	10.8	0	0	NA	NA
Other Sub-Saharan Africa	175	316	7.2	2.8	129	137	-6.0	0.7

Table 3 (cont'd): World Beef and Veal Trade - 1996 to 2015

	IMPORTS		Growth (%) <sup>b</sup>		EXPORTS		Growth (%) <sup>b</sup>	
	2003-05 Average	2015	1996-05a	2006-15	2003-05 Average	2015	1996-05 <sup>a</sup>	2006-15
<b>LATIN AMERICA and CARIB</b>	601	617	1.4	3.0	3,137	4,777	13.9	3.0
Argentina	7	7	-6.9	0.0	592	563	-4.0	3.2
Brazil	60	60	-13.3	-0.1	1,758	2,763	27.2	3.3
Chile	166	225	8.3	2.9	11	15	13.4	1.2
Colombia	2	10	-17.8	9.1	4	5	-3.4	0.9
Mexico	250	499	3.9	4.4	288	303	10.5	0.6
Paraguay	0	0	-48.1	-2.5	92	146	11.9	5.1
Uruguay	1	1	15.4	0.8	321	475	8.2	2.8
Other Latin America	115	155	7.9	0.6	91	109	-4.7	1.6
<b>ASIA and PACIFIC</b>	1,526	2,277	5.1	2.7	506	794	6.9	6.0
Bangladesh	0	5	24.6	6.0	0	0	NA	NA
China <sup>c</sup>	8	16	5.3	9.3	60	75	-6.3	0.0
India	0	0	NA	NA	370	628	12.2	7.8
Indonesia	71	102	-2.8	3.2	0	0	-3.9	-1.6
Iran, Islamic Republic of	71	123	0.8	4.4	0	0	NA	0.0
Korea, Republic of	265	393	3.8	3.1	0	0	NA	NA
Malaysia	156	201	6.2	1.5	2	3	0.8	3.8
Pakistan	0	16	-9.7	47.8	6	9	63.3	11.2
Philippines	141	188	2.1	2.6	0	0	32.2	2.5
Saudi Arabia	107	192	10.2	3.9	1	1	-10.7	0.2
Thailand	41	77	34.8	0.0	5	2	-2.5	-6.0
Turkey	0	3	-19.1	0.0	0	4	-0.7	27.5
Viet Nam	0	0	6.0	NA	0	0	NA	NA
Other Asia Pacific	645	958	5.9	1.7	61	72	5.4	1.0
<b>LEAST DEVELOPED COUN]</b>	127	262	12.1	3.7	99	111	0.3	1.3
<b>DEVELOPING excluding LDC</b>	2,511	3,769	3.7	2.7	3,694	5,398	11.8	3.4
<b>OECD</b>	3,851	4,941	-2.0	1.8	4,109	4,715	-5.0	0.3
<b>NON-OECD</b>	3,136	4,398	2.0	2.3	3,734	5,542	9.7	3.3

Sources: OECD-FAO Agriculture Outlook 2006-2015

NA: Not available.

a) For EU(25), World, Developed, OECD and Western Europe growth rate refers to 1979-05.

b) Least-squares growth rate.

c) Refers to mainland only. Taiwan, Province of China and the Chinese Special Administrative Regions of Hong K